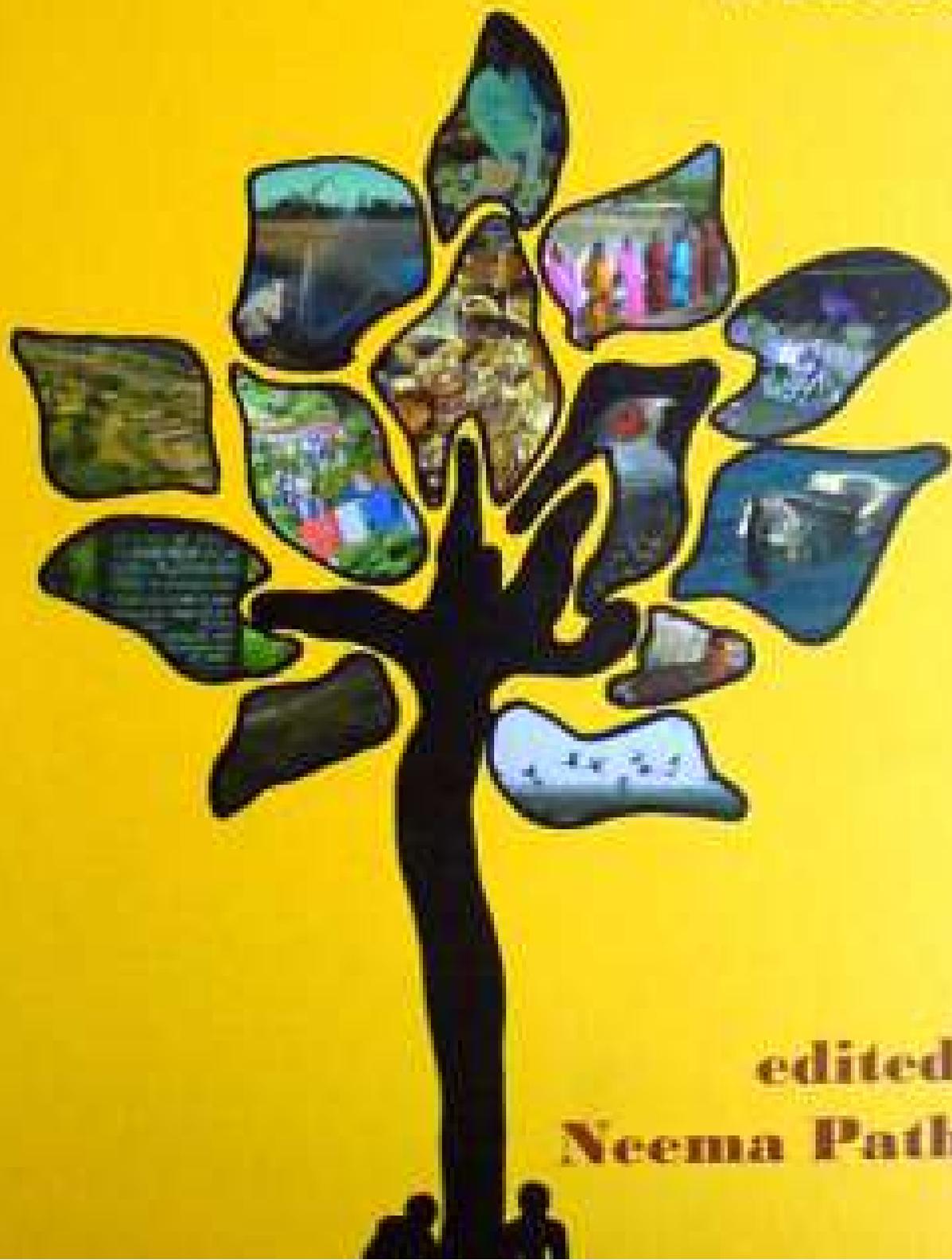


Community Conserved Areas in India

A Directory



edited by
Neema Pathak

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Kalpavriksh

2009

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Preface and acknowledgements

Compiling this Directory on local community's efforts at conservation or what we would be referring to as Community Conserved Areas (CCAs) has been an extremely energising and enriching experience for us at Kalpavriksh. The areas that my colleagues and I had an opportunity to visit and the communities that we interacted with either directly or through the authors of various chapters and case studies, opened up completely new frontiers of conservation to us. My understanding of community's role in conservation and that of many other Kalpavriksh members has grown tremendously since we started research and compilation for this Directory. This understanding and the consequent strengthening of our conviction helped some of us push for a greater recognition for these efforts at national and international forums.

This Directory is a humble tribute to the heroic efforts of these communities and their courage to initiate and continue conservation against all odds. A tribute to all those who dare to risk their lives to save those of other species, all those who live a simpler life to be able to accommodate the lives of other species, and all those who are only asking for a right to live and let live- a right to conserve.

For us the publication of this Directory is not an end in itself. Our association established before and during this process, with community members, conservation groups, researchers, activists, government officials and others will continue in times to come. More examples of CCAs continue to trickle in. For practical reasons we have had to stop including them in the Directory to facilitate its publication. However, Kalpavriksh has established a database on CCAs, which will continuously be updated and hopefully will soon become an interactive web based process. In the meanwhile our association with those sites that we have already come to know will carry on.

For us it is heartening to know that many of the individuals and groups who were involved with this research and documentation are now taking the processes forward, either by carrying out more in-depth research on CCAs in their areas or by supporting these initiatives in ways that they can.

We would like to express our gratitude to all those who have made it possible for us to bring out this Directory. The initial financial help and support from the Ministry of Environment and Forests (MoEF), and Foundation of Ecological Security (FES) was crucial in establishing a large network of individuals and organisations, whose inputs were critical to the directory. A subsequent grant from Society for Promotion of Wasteland Development (SPWD) made it possible to update, edit and design the Directory. This directory could not have been printed without the timely financial help from MISERIOR and the National Biodiversity Authority, Government of India.

Most analytical chapters for this report were contributed by state co-ordinators identified by Kalpavriksh at the beginning of the project. All the contributors have not only answered queries over the years but have also waited patiently for their papers to be published. We are extremely grateful to all state coordinators for working over and over again on their chapters, and for their patience and continued support. Coordinating contributions from tens of organisations and individuals spread across the country and continuous following up with them was indeed one of the biggest challenges in this project. But for the cooperation from all concerned, this task would have been impossible.

Coordination, compilation, networking, meetings, travel for field verifications, information updating, editing and much else related to this project was achieved with a very small grant spread over seven years. This was made possible because of the contribution of case studies largely gratis by most authors or those who gave time and effort to comment upon the case studies that we had compiled. Voluntary help came from many to take on the tasks when needed. Personal donations came at various points in time to support the project.

Many organisations and individuals helped us travel to some of these sites and supported us locally, while others helped in bringing out awareness material for distribution. We are thankful to Bombay Natural History Society (BNHS), Nagaland Empowerment of People through Economic Development (NEPED), Samatha, Vrikshamitra, Aranyak, Vasundhara, IUCN, and many more.

None of this would have been possible without the warmth, hospitality and sharing of information, knowledge and their lives by dozens of communities with us. We will always be grateful to these great teachers many of whom are mentioned in subsequent chapters, while many may not get a mention for which I apologise.

Without continuous questioning, discussions and debates within Kalpavriksh, it would have been impossible for us to clear our own understanding of what we meant by community conservation

and what kind of examples could be documented for this volume. Kalpavriksh members voluntarily undertook responsibilities and made available infrastructural and other support for this project, which never had enough resources. Many thanks to colleagues, Ashish Kothari, Shantha Bhushan and Roshni Kutty for their critical inputs, editorial help, help in sourcing information and an unconditional support during this long process. Shantha Bhushan and Erica Taraporewala also helped financially during the crucial stages. Thanks to Roopa Bandekar, Neeraj Vagholikar, Manju Menon, Pankaj Sekhasaria, Sujatha Padmanabhan, Sunita Rao, Erica Taraporewala, Tasneem Balasinorwala, Kanchi Kohli, Seema Bhatt, Tejaswini Apte, Anuprita Patel, (late) Madhulika Goyal, Anuradha (Swati) Arjunwadkar, Anisha Shankar, Sharmila Deo, Kaustubh Moghe, Vivek Gour-Broome, Ajay Mahajan and all other Kalpavriksh members, and Madhuvanti Anantharajan. Many thanks to ever enthusiastic Saili Palande, Persis Taraporewala, and Arshiya Bose who came as a godsend at the final leg of this process to help tie up numerous loose ends. Thanks are also due to Madhu Sarin, Asad Rahmani, Bittu Sahgal, Nitin Rai, Mohan Hirabai Hiralal, Kanhaiya Gujjar, Vijay Jardhari, Devaji Tofa and Grazia Borrini-Feyerabend and other members of IUCN Theme on Indigenous and Local Communities, Equity and Protected Areas (TILCEPA) for their critical inputs in the debate related to Community Conserved Areas, which has helped shape this report.

Many thanks are also due to all those who have contributed photos.

Neema Pathak

March 2009

Introduction and how to use the Directory

Introduction

This Directory is an attempt to bring to the forefront the numerous lesser known efforts (with their strengths and limitations) of ordinary people for conservation of biodiversity. The Directory also presents the views and analyses of a number of individuals and organisations on community efforts for conservation. Henceforth we refer to these efforts as Community Conserved Areas (CCAs). This term, introduced as part of initiating this work on the Directory about a decade back is now part of international conservation discourse, policy and practice. A working definition of CCAs has been discussed in chapter 1.

This compilation gains particular significance today when there are more processes leading towards destruction of habitats than those leading to their conservation. They have much to contribute, by indicating paths towards more sustainable development, changing the current economic and development paradigm aimed at maximum profit with little regard for nature or natural resources.

The Directory is an outcome of a realisation that:

- Resource consumption across various sections of human society have reached levels that are causing shrinkage of habitat and disappearance of many species.
- The hope for the survival of other species is deeply linked to increasing the constituency for their cause.
- Conservation needs to become a mass movement rather than the passion of a few.
- Human societies, livelihoods and development issues are as much linked to the conservation of biological diversity as to its destruction.

Through the process of compiling this Directory as also the works of other distinguished researchers, NGOs, government officials, and academics it is now clear to us that there are numerous examples across the country where local communities have either revived or continued their traditional systems of natural resource and wildlife management. This has often been in the face of strong commercial or other pressures and government apathy or opposition. Also it is clear that there is a vast diversity in how these initiatives operate, what they achieve and the limitations they have. We have also realised sadly that most of these initiatives remain unnoticed, unrecognised and unappreciated. The role and potential of these initiatives in achieving conservation has remained grossly underplayed and underutilised.

Methodology followed for compiling the Directory

Considering that the examples of CCAs are numerous, scattered across the country and have not been much written about, it would have been impossible for any one individual or organisation to collect all the information alone. This work, therefore, is an outcome of collaborations with a wide range of individuals and organisations.

This Directory was put together in three phases:

Phase 1 (funded by Ministry of Environment and Forests and Foundation for Ecological Security): Networking and documentation

- Individuals and institutions/organisations (at village or town, region, state or national level) working on the issues of community conservation were identified.
- A questionnaire was prepared, which was widely discussed with researchers, government officials, NGOs and others before being finalised.
- The questionnaire was sent to more than 300 individuals and organisations for generating case studies. This involved long periods of following up to get responses.
- Additionally, 25 individuals and organisations were identified to coordinate preparation of the state/regional analyses chapters. Each of these was supported with nominal funds. Finally we received analysis chapters from 17 of the coordinators, of which 14 could be finalised. For the other states our team put together some basic information based on secondary literature review or our own field experiences.
- State coordinators were requested to carry out the documentation at three levels: State or region wise detailed analysis of historical and current context to CCAs; a minimum of three detailed and well researched case studies; and collection of as many other case studies as possible from any other source, which were then verified, wherever possible.

- Some of the states and selected sites for detailed case studies were visited by the project team members.
- Information on case studies was also generated through secondary literature survey and through personal contacts with community representatives or people working with communities, during workshops, meetings, and other such forums. Such case studies were sent to experts in the respective states to comment and verify.
- Each state chapter was reviewed by the editing team many times over to identify gaps in information and verification of facts. By the end of 2002 we had collected all state chapters and finalised them with the authors.

Phase 2 (not funded): Content editing, analysis and discussions

- Considering the disparity in quantity and quality of information in each chapter, the information was reorganised by the editing team. Secondary literature review was done by the team to fill in the gaps which could not be filled in by the authors. In some cases, the state chapters were reorganised by the editing team using available documents (with permission from respective authors).
- Through personal and e-mail discussions the project team facilitated a discussion on a working definition of CCAs. This working definition was then used to select case studies for this publication.
- Some discussions were also generated on criteria to be used for the selection of CCAs.
- During this period more case studies were generated by the team through secondary literature review, these case studies were sent for further verification to known groups in respective states and regions wherever possible.
- Many of the case studies that could not be verified or for which we were not able to fill crucial gaps in information were not included in this report. However, such examples have been included in a database, which is continuously being updated.
- A map was subsequently prepared using GIS to show the location of these sites.

Phase 3 (funded by Society for Promotion of Wasteland Development and MISEREOR)

Updating, final content and language editing, illustrations, verification of scientific names, compiling lists of contact details, preparation of maps, collecting photos, external editing, design and printing.

Who is the Directory meant for?

The Directory is aimed at anyone interested in knowing about these efforts of local communities. In particular we hope that the Directory will be of use to:

1. The local communities themselves (once we are able to translate this information in few local languages). We hope this will be seen by them as an appreciation of their effort and also be used by them to compare notes with other similar efforts, and identify their own strengths and weaknesses. We hope some of these communities will be able to establish contacts with each other and visit each other to share their experiences. We also hope that the Directory will provide recognition and respect to their efforts thereby strengthening them.
2. Local/grassroots level civil society organisations working on any issues related to the local communities. Hopefully such groups will find this useful to understand why communities decide to conserve and how they do it. Also to understand that conservation is linked with all aspects of community life and hence important for all community based organisations to understand and imbibe.
3. Policy makers, who we hope will be able to make use of some of the lessons that these initiatives are highlighting. We also hope that this compilation will help them understand better the constraints these initiatives face and kind of support they require.
4. Academics and researchers who will hopefully find many gaps and lessons, and much to be researched in these initiatives, and thereby encourage them to carry out some more in-depth research. Who we also hope will engage with the conserving communities as experts in their own right, to help communities overcome the limitation of their initiatives.
5. National level civil society organisations, who will hopefully encourage the government to create a more conducive environment for these initiatives.
6. International community, who we hope will keep supporting CCAs across the world.
7. Donor agencies, in helping them understand the intricacies of community conservation action, particularly when it concerns external financial and other interventions. We also hope CCAs will find themselves in their agenda albeit taking into account all the factors mentioned in this Directory.

How is the Directory structured ?

1. **Community Conserved Areas in India - an overview**, shares our understanding of CCAs and presents an analysis of these initiatives based on the information contained in the subsequent sections.
2. **State chapters and case studies** present analyses and examples from 23 states in India.
3. The state chapters include the historical context and present status of CCAs. These also include a map which shows the location of known CCA sites.
4. For some states where detailed description and analysis of CCAs could not be done an introductory information sheet has been provided. The latter should just be used as a reference to the state while reading the case studies rather than an analysis of CCAs in these states.

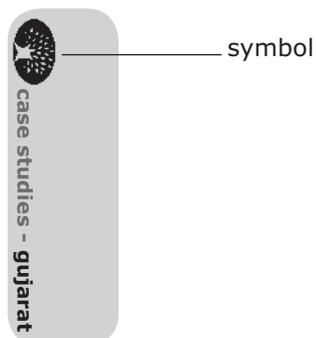
State chapters with detailed descriptions and analyses are available for Ladakh region in Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Uttar Pradesh, Arunachal Pradesh, Nagaland, Chhattisgarh, Orissa, Sikkim, Gujarat, Rajasthan, Maharashtra, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu.

States for which an introductory information sheet has been provided are Assam, Jammu and Kashmir, Meghalaya, Manipur, Tripura, West Bengal, and Maharashtra.

Each state chapter is followed by case studies from those regions. We have used a common reference code for all case studies:

CCA/name of the state/case study number/name of the district/name of the site/kind of initiative.

For easy reference there is, on the first page of each case study, a symbol representing the main ecosystem that it refers to:



Below are the various ecosystems represented and their corresponding symbols:

Forest conservation



Wetland conservation



Marine conservation



Grassland conservation



Conservation of a particular species



For easy reading we have tried to arrange the available information in more or less similar format and under common heads, as shown in the box below:

<p>Structure of a case study:</p> <p>Full name of CCA Site, District</p> <p>Background (basic details of the site such as location, size, legal status, demographic information, socio-cultural and economic information, any other special features and so on)</p> <p>Towards community conservation (history of the initiative including who initiated, when and how; current status including institutions in place, rules and regulations, conflict resolution mechanisms, and so on)</p> <p>Impacts of community effort (positive and negative ecological, social, and economic impacts that have resulted from the initiative)</p> <p>Opportunities and constraints (what are the main hurdles and threats faced by the initiative? What are the main opportunities available for overcoming these hurdles/threats? Any support received, how, from whom and so on)</p> <p>Conclusion (any last words, especially about the way ahead)</p> <p>References (if any) (full citations, and if referring to individuals, information on who they are, and approximately when they were spoken to for obtaining the information)</p> <p>For more information contact (address and phone/email (if any) details of the local contact person(s))</p>

In some states we have tried to include some case studies which did not have sufficient information under one head, "Other villages".

5. An attempt has been made to plot all the documented CCA sites on a national map as also on state maps.
6. The last section consists of annexures including: a tabular database on resource people and institutions, a tabular database on CCAs, and a tabular information on laws and policies related to CCAs in India, their strengths and weaknesses in being able to support CCAs. It also contains an analysis of the two new categories of the Wild Life Protection Act and their role in supporting CCAs (an guidelines for one of them), and minutes of a national workshop on CCAs, organised in 2001.

What kind of examples does the Directory not contain?

We came across and heard of many more examples than we finally present in the Directory. The following kinds of examples have not been included in the Directory:

1. Where we could not get enough information or could not make a field trip to confirm when the information was scant.
2. Where we could not get a local contact to fill major gaps in information.
3. Many traditional examples such as sacred groves, which still exist near a village but villagers have little interaction or association with the grove (accept a continued faith in the temple inside).
4. Many initiatives under the government sponsored Joint Forest Management (JFM), where much has been written about them. However, we have included examples of JFM in areas where JFM came subsequent to the community initiative or where community initiative continues even in the post-JFM scenario.

Constraints and limitations of the Directory

Documentation of these case studies has not been an easy task. Barring a few, getting information on such initiatives has been quite challenging. Case studies have diverse sources: some were commissioned to the state coordinators, some were taken from researchers, some were written by community representatives, some by members of Kalpavriksh or those associated with Kalpavriksh based on short visits to an area, while many were collected from secondary sources. This diversity of sources has also made the case studies very diverse in their content and quality. While some are detailed and well researched others may be just a compilation of some basic information on the initiative, while still others are somewhere in between.

Mainly because of lack of existing information, this Directory does not claim to be an exhaustive compilation of such efforts in the country. Indeed throughout the entire process of compiling it, we heard of many more CCAs from state to state but could not get details on all of them.

The Directory compilation process continuously faced financial constraints. Considering that available information on CCAs was scant, resources would have been required to undertake travel, commission primary collection of data, carry out some scientific research to ascertain the impacts of conservation efforts, and organise site specific and state level workshops. Though some of the above was carried out with help from many partners, but much remains to be done.

Very often it was difficult to decide, based on available information, whether a certain example is indeed a CCA (and not just a community natural resource management initiative with little or no focus on conservation). We have included such examples in the database, realising that some of these may not be CCAs after a closer examination. We also realise that we may have eliminated certain examples as not being CCAs, but closer examination may show that they are indeed good examples of community conservation.

We have tried to ascertain and cross-check the scientific names of plants and animals to the extent possible. However, at times names are mentioned in local languages and we have not been able to get the English and scientific names for the same.

We have tried to confirm the sources of information and have tried to verify contents and information that is contained in the case studies to the extent that we could, however it was logistically impossible for us to cross-check each and every case study. We do take the responsibility for the mistakes and would be grateful for those who can help us further clarify and correct the information. The same is true for scientific names, glossary and others.

Finally community efforts are dynamic and in many of the examples presented here it was not easy to keep updating the information regularly. The process of compilation of the state chapters and the case studies began in 2000. Many case studies and most state chapters were written then. While we have been able to update the information for some case studies and most state chapters, there are some that we failed to get an update on or could only partially update.

We hope that this documentation, even with all its limitations, will serve as a baseline information on CCAs to further build on. We also hope it will create enough interest in readers to explore new or undocumented CCAs, to get more in-depth information on the ones profiled here and also to support them in the ways they need support, and to support and help initiate such initiatives elsewhere. We would also be grateful for any additions and/or corrections from the readers.

Commonly used references

We have tried to ascertain scientific names of plants and animals as much as possible. However, we may have missed out on some. We have referred to the following documents for ascertaining scientific names:

Plants: International Plant Names Index (IPNI), www.ipni.org.

Mammals: Menon, V. (2003). *Field Guide to Indian Mammals*. Dorling Kindersley (India) Pvt. Limited, in association with Penguin Book India (P) Ltd. and Wildlife Trust of India. Delhi.

Birds: Grimmett, R., Inskipp, C. and Inskipp, T. (1998) *Birds of the Indian Subcontinent*, Oxford University Press, New Delhi.

Outputs, spin-offs, and related activities

In addition to the State and Site Profiles, the process of compiling this Directory has helped in initiating a number of processes and activities that were originally not planned or anticipated. Some of these are mentioned below:

1. A map showing the location of CCAs. This GIS map has been prepared by Foundation for Ecological Security, Anand, Gujarat.
2. A tabular database on CCAs in India (partly reproduced here and fully available in electronic form with Kalpavriksh).
3. A set of posters on CCAs in India.
4. A photo-documentation of CCAs in India.
5. Many articles and papers on the subject in various national and international newspapers and journals.
6. Presentations on the subject at various workshops and meetings to create an awareness about these efforts.
7. A Workshop on Community Conserved Areas in India organised in 2001. This was the first workshop on issues related to CCAs in India and was instrumental in bringing together a large number of people connected to CCAs in some way. The report (with recommendations) of the workshop was widely circulated, and is also included in this Directory as one of the annexures.
8. Deliberation on the definition of CCAs which in turn generated a national and international debate on the same.
9. Inspiring the initiation of similar documentation in other parts of the world. A number of publications on CCAs in different regions have since been published. Among the prominent ones being the *Policy Matters*, No.12, September 2003 produced by IUCN Commission on Economic, Environment and Social Policy (CEESP) and *PARKS* Vol. 16 No.1. Community Conserved Areas 2006 by the IUCN's World Commission on Protected Areas (WCPA) (see Annexure 7 for details and www.tilcepa.org for regional assessments and case studies from around the world)
10. The results and findings of this project also formed an important base for arguing for international recognition of such efforts at various forums including the World Parks Congress (WPC) and the Convention on Biological Diversity (CBD) (see Overview, section on International Context, for details).
11. The understanding gained through this project also formed an important base for organising a meeting on the new categories of Protected Areas, namely Community Reserves and Conservation Reserves under the Wild Life (Protection) Amendment Act 2002. The meeting was co-organised by BNHS, Wildlife Trust of India (WTI) and Kalpavriksh in Mumbai in February 2004. The statement of the workshop is attached as an annexure in this Directory.
12. Based on the experience from this process Kalpavriksh developed a draft set of guidelines for effective implementation of 'Community Reserves', a new category of PA under the Wild Life Protection (Amendment) Act 2002 (also attached as an annexure).
13. Some films have been made on the CCAs by Earth Care Films (For details contact Krishnendu Bose at earthcare1@vsnl.com).
14. A film has been made on Mendha-Lekha village, called Medha ta Pitto (The Story of Mendha) by Sudhir Agarwal, for Public Service Broadcasting Trust.
15. Detailed documentation and support work for CCAs in some states such as Nagaland and Orissa have been initiated with organisations such as SACON and Vasundhara.
16. Much advocacy has been done by Kalpavriksh and other organisations on trying to get legal and policy backing for CCAs, including:
 - Inputs to the National Wildlife Action Plan and National Biodiversity Strategy and Action Plan.
 - Inclusion of a scheme to support and fund CCAs, in the 11th five year plan.
 - Help in the implementation of the "Community Forestry" provision of the Scheduled Tribes and Other Forest-Dwellers (Recognition of Forest Rights) Act 2006.

We look forward to any comments, additions, and corrections on this compilation. This will be useful to us as also to the concerned communities.

(For more details on the above or for comments please contact Neema Pathak at Kalpavriksh or at neema.pb@gmail.com)

Acronyms

ACF	Assistant Forest Conservator of Forests	CPI	Communist Party of India
ACF	Assistant Conservator Forests	CPLR	Common Property Land Resources
ADO	Assistant Development Officer	CPO	Chakhesang Public Organisation
AFPRO (UN)	Action for Food Production	CPR	Common Property Resources
AFR	Anchal Forest Reserve	CPR-EEC	CPR Foundation Environment Education Centre
AGS	Alalli Gramabhivruddhi Samiti	CRZ	Coastal Regulation Zones
AGY	Adarsh Gaon Yojana	CS	Case study
AIADMK	All India Anna Dravida Munnetra Kazhagam	CWLW	Chief Wildlife Warden
AJCBMS	Acharaya Jagdish Chandra Bose Briksha Mitra Sangha	DCF	Deputy Conservator of Forests
APFDC	Andhra Pradesh Forest Development Corporation	DDP	Desert Development Programme
APNGO	Andhra Pradesh Non Government Organisations network	DFO	Divisional Forest Officer
ATREE	Ashoka Trust for Research in Ecology and the Environment	DHAN	Development for Humane Action
BAIF	Bharatiya Agro Industries Foundation	DLVS	Dudhatoli Lok Vikas Sansthan
BALCO	Bharat Aluminium Company Limited	DM	District Magistrate
BCCC	Black Necked Crane Conservation Committee	DMK	Dravida Munnetra Kazhagam
BCPP	Biodiversity Conservation Prioritization Project	DPAP	Drought Prone Area Development Programme
BDO	Block Development Office	DRS	Dekh Rekh Samiti
BGVS	Bharat Gyan Vigyan Samiti	DSC	Development Support Centre
BHS	Biodiversity Heritage Sites	EDC	Ecodevelopment Committees
BMC	Biodiversity Monitoring Committees	EIA	Environmental Impact Assessment
BNHS	Bombay Natural History Society	ESRSPF	Environmental Social Reformation and Sangai Protection Forum
BPL	Below Poverty Line	FA	Forest Act 1927
CAMEL	Name of an NGO in Andhra Pradesh	FCA	Forest Conservation Act 1980
CAN	Coastal Action Network	FD	Forest Department
CARPAD	Name of an NGO in Andhra Pradesh	FDA	Forest Development Authority
CBD	Convention on Biological Diversity	FDC	Forest Development Corporation
CBO	Community Based Organisation	FDCM	Forest Development Corporation of Maharashtra
CCA	Community Conserved Area	FES	Foundation for Ecological Security
CCT	Continuous Contour Trench	FPC	Forest Protection Committee
CDF	Central Dairy Farm	FPI	Forest Panchayat Inspector
CEC	Centrally Empowered Committee	FPI	Forest Panchayat Inspector
CEE	Centre for Environment Education	GB	General Body
CEESP	Commission on Economic, Environment and Social Policy	GCC	Girijan Cooperative Corporation
CFM	Community Forest Management	GEC	Gujarat Ecology Commission
CFS	Cooperative Forest Societies	GEF	Global Environment Facility
CHIRAG	Central Himalayan Rural Action Group	GIB	Great Indian Bustard
CHS	Conservation Hotspots	GMVN	Garhwal Mandal Vikas Nigam
CIDA	Canadian International Development Agency	GO	Government Order
CITES	Convention on the International Trade of Endangered Species	GS	Gram Sabha
CMFRI	Central Marine Fisheries Institute	GSC	Global Science Centre
CMM	Chhattisgarh Mukti Morcha	GUIDE	Gujarat Institute of Desert Ecology
		ha.	Hectres
		HBS	Himachal Bachao Samiti
		HGT	Hunsur Gramabhivruddhi Trust
		HMI	Himalayan Mountaineering Institute
		HR&CE	Hindu Religious and Charitable Endowment Trust

IBA	Important Bird Area	MLA	Member of Legislative Assembly
IBCN	Indian Birds Conservation Network	MM	Mahila Mandal
IDA	International Development Agency	MMD	Mahila Mangal Dal
IFA	Indian Forest Act 1927	MNC	Mandar Nature Club
IIPA	Indian Institute of Public Administration	MOEF/MoEF	Ministry of Environment and Forests
IPNI	International Plant Name Index	MoU	Memorandum of Understanding
ITBP	Indo Tibetan Border Police	MPPFA	Madras Preservation of Private Forests Act 1949
IUCN	International Union for the Conservation of Nature or International Conservation Union	MPSP	Madhya Pradesh Sericulture Project
IWDP	Integrated Watershed Development Programme	MSL	Mean Sea Level
J & K	Jammu and Kashmir	MSSRF	M.S. Swaminathan Research Foundation
JAC	Joint Action Committee	MTE	Makaibari Tea Estate
JBC	Joint Body Committee	MTR	Mid Term Review
JFM	Joint Forest Management	NaRMG	Natural Resource Management Group
JFMC	Joint Forest Management Committees	NBSAP	National Biodiversity Strategy and Action Plan
JFPM	Joint Forest Planning and Management	NCTPS	North Chennai Thermal Power Station
JMM	Joint Mangrove Management	NEAC	National Environmental Awareness Campaign
JVUSM	Jhanjharmata Vruksh Utpadan Sahkari Mandli	NEPED	Nagaland Empowerment of People through Economic Development
KBP	Kulhadi Bandh Panchayat	NERCORMP-IFAD	North Eastern Region Community Resource Management Project for Upland Areas-International Fund for Agriculture Development
KCC	Kanchendzonga Conservation Committee	NGO	Non-government Organisation
KFRI	Kerala Forest Research Institute	NH	National Highway
KFD	Karnataka Forest Department	NOC	No Objection Certificate
KI	Knowledgeble Individual	NREGS	National Rural Employment Guarantee Scheme
KLNP	Keibul Lamjao National Park	NRM	Natural Resource Management
KNCTS	Khonoma Nature Conservation and Tragopan Sanctuary	NTCA	National Tiger Conservation Authority
KNP	Kanchendzonga National Park	NTFP	Non Forest Timber Produce
KPFA	Kerala Private Forests (Vesting & Assignment) Act 1971	NWFP	North West Frontier Province
KSTA	Kerala Scheduled Tribes (Restriction of Transfer of Lands and Restoration of Alienated lands) Act 1975	OBC	Other Backward Classes
KWS	Kailadevi Wildlife Sanctuary	OFDC	Orissa Forest Development Corporation
LAMP	Local Area Minor Forest Product Co-operative Society	OXFAM	Name of an NGO
LC	Local Communities	PA	Protected Area
LDA	Loktak Development Authority	PESA	Panchayat (Extension to Scheduled Areas) Act 1995
LHEP	Loktak Hydroelectric project	PF	Protected Forest
LPG	Liquid Petroleum Gas	PFA	People For Animals
LSU	Local Student's Union	PHC	Primary Health Centres
LSWC	Longwood Shola Watchdg Committee	PI	People's Institution
MAMSL	Metres Above Mean Sea Level	PIL	Public Interest Litigation
MAN	Mysore Amateur Naturalist	POW	Programme of Work
MASS	Manipur Association for Science and Society	PPA	People's Protected Area
MB	Managing Body	PRA	Participatory Rural Appraisal
MF	Minor Forest	PRAKRITI	Society for Promotion of Sustainable Livelihoods from Nature
MFP	Minor Forest Produce		

PWD	Public Works Department	VFR	Village Forest Reserve
RAP	Resettlement Action Plan	VJFM	Village Joint Forest Management
RCDC	Regional Centre for Development Cooperation	VIKSAT	Vikram Sarabhai Centre for Development Interaction
RD	Revenue Department	VLO	Village Level Organisation
RF	Reserved Forest	VOYCE	Vattakanal Organisation Youth Community and Environment
RFO	Range Forest Officer	VP	Village Panchayat
RNP	Ranthambor National Park	VRTI	Vivekanand Rural Technology Institution
RTR	Ranthambor Tiger Reserve	VSS	Van Suraksha Samiti
SACON	Salim Ali Centre for Ornithology and Natural History	WANC	Wildlife Aware Nature Club
SC	Scheduled Caste	WCPA	World Commission on Protected Areas
SD	Sri Darshanam	WLPA	Wild Life (Protection) Act
SDM	Sub District Magistrate	WLS	Wildlife Sanctuary
SG	Sacred Grove	WP	Writ Petition
SHG	Self Help Group	WPC	World Parks Congress
SMC	Soil and Moisture Conservation	WTI	Wildlife Trust of India
SPWD	Society for Promotion of Wasteland Development	WWF	World Wide Fund for Nature
SRISTI	Society for Research and Initiatives for Sustainable Technologies and Institutions	YKGPVS	Yashwant Krishi Gram and Panlot Vikas Sanstha
SSD	Society for Sustainable Development	YMD	Yuvak Mangal Dal
ST	Scheduled Tribe	ZSI	Zoological Survey of India
TAP	Tamil Nadu Afforestation Programme		
TBS	Tarun Bharat Sangh		
TDCC	Tribal Development Corporation Ltd.		
TFA	Tank Farmers Association		
TGCS	Tree Growers Co-operative Society		
TIDCO	Tamil Nadu Industrial Development Corporation		
TILCEPA	IUCN Strategic Direction on Governance, Communities, Equity and Livelihoods (TILCEPA) formerly known as the Theme on Indigenous and Local Communities, Equity, and Protected Areas		
TNADP	Tamil Nadu Agricultural Development Programme		
TNEB	Tamil Nadu Electricity Board		
TSP	Tribal Sub-Plan		
TVC	Toufema Village Council		
UF	Unclassed Forests or Unclassified Government Forests		
UNESCO	United Nation's Educational, Social and Cultural Organisation		
USF	Unclassed State Forests		
VC	Village Council		
VDB	Village Development Board		
VDC	Village Development Council		
VF	Village Forest		
VFC	Village Forest Committee		
VFP	Village Forest Panchayat		
VFPMC	Village Forest Protection Management Committee		

List of vernacular words

Andhra Pradesh

1. *Borke* – degraded
2. *Chullah* – local wood stove
3. *Gram sabhas* – village councils
4. *Ijaras* – traditional land title
5. *Jagir* – land belonging to the Jagirdar
6. *Jagirdar* – representative of the Nizam who controlled large tracts of land
7. *Katha* – extract from Acacia catechu plant
8. *Mandal* – sub-division of a district
9. *Muttadar* - hereditary local chief
10. *Panchayat* - primary unit of administration under the Panchayati Raj System of governance
11. *Patta* – legal land title
12. *Podu* – slash and burn cultivation

Assam

1. *Gaon Bura* – village elders
2. *Hajira* – daily wage labour
3. *Jhum* – shifting cultivation

Chhattisgarh

1. *Bahra* - lowlands
2. *Biyasi* – method of growing varieties of paddy by broadcasting. Here farmers keep the seeds ready for sowing just before the onset of the June rains
3. *Chawar* - midlands
4. *Chornia mandai* - a festival among some tribal communities in Bastar
5. *Corvee* - crop tax system in Bastar
6. *Darh* – highlands
7. *Devsari, dand, man, saribodi* – traditional system of payment against use of forests by another village within the boundaries of one
8. *Gram swaraj* – village republic
9. *Kalajatha* - cultural troupe
10. *Mukhiya* – head of the village
11. *Penda* – making forest land into agricultural and by burning off strips just before June
12. *Saribodi* - offering

Himachal Pradesh

1. *Annas* – 1/8th of a rupee
2. *Bartan* – right of use
3. *Bhabbar* – kind of grass which grows mainly in the foothills and is used for making ropes
4. *Chaur* – a fan over Guru Granth Sahib
5. *Chela* – shaman/ interpreter
6. *Devis*- goddess
7. *Devta* - god
8. *Dhup deep* - incense
9. *Dohru* – woolen shawl
10. *Fuwals*- seasonal graziers

11. *Gaddis* – migratory pastorals
 12. *Ghee* - fat produced from butter
 13. *Gram devta* – village deity
 14. *Guru Granth Sahib* – religious book of the Sikh community
 15. *Julahas* - weaver
 16. *Kagjati* - legal
 17. *Kardar* - manager
 18. *Khel* – possessed spirit
 19. *Khewatdars* – agricultural landowners
 20. *Lambardar* – local police officer
 21. *Mali/devaan* – a person possessed by spirits and considered a divine messenger
 22. *Mauza* - habitation
 23. *Mohara* – mental mask
 24. *Pahari* – belonging to the hills
 25. *Pattu* – woolen shawl
 26. *Patwari* – local land records officer
 27. *Patwari* – local revenue officer
 28. *Pindi* – image
 29. *Pujari* - priests
 30. *Raja* - king
 31. *Rakhas* - watchmen
 32. *Shamlat* – village commons
 33. *Sippy* – scheduled caste
 34. *Thatch* - pastures
- ## Jammu and Kashmir
1. *Chitpa* - fine
 2. *Gowa* - an elected political head who acts as a custodian of all the rules and regulations
 3. *Gyatpo* - assists gowa by solving disputes but the final decision in complex matters is reserved for the gowa
 4. *Kootwal* - assists gowa by deciding fines on any deviation or breach
 5. *Lorapa* - assists gowa by reporting defaulters
 6. *Pashmina* - a kind of wool (cashmere)
- ## Karnataka
1. *Bannada Kokkre Rakshana Samithi* – a committee to save painted storks
 2. *Bena* - pasturelands
 3. *Devarbana/ Nagabana* – serpent groves
 4. *Devarkan/ Devarkadu* – sacred forest
 5. *Dev-Thakka* – head of religious activities
 6. *Gadde* – rice fields
 7. *Gajnis* – estuarine rice fields used for growing a salt tolerant rice variety locally called kagga
 8. *Gorubale* – scooping net
 9. *Gunagas/Kumbhars* - potters
 10. *Guntha* – 1/40th of an acre
 11. *Hakkal* lands – shifting cultivation sites and fallows
 12. *Harijans* – ‘untouchable’ caste

13. *Kadu/Adavi* – utility forests
14. *Kans* – forest
15. *Kharland - gajni* land
16. *Kodi* – natural drainage channels
17. *Kumri/Hakkalu* – sites of shifting cultivation
18. *Kuyilugatti* – sword
19. *Kuyilugatti* system – rotating system of patrolling
20. *Maratha* – warrior caste
21. *Panchayat* – primary unit of administration under the Panchayati Raj System of governance
22. *Soppinabetta/Betta* – forests used to collect leaf manure
23. *Warg* - taxes
24. *Wargdar* – a privilege holder

Kerala

1. *Adivasi* – tribal communities
2. *Brahmaswoms* - temple trusts
3. *Desam/ tara* – the village or area inhabited by a particular community
4. *Desavazhi* - village head
5. *Devaswoms* – temple trusts
6. *Illam (Brahmin)* – joint families of the highest caste of Brahmins
7. *Jemis* – landlords
8. *Kadai Kodathys* – marine courts
9. *Karanavars* - priests
10. *Kavus* – sacred grove
11. *Kudiyans* - tenants
12. *Naduvazh* – ruler
13. *Pooja* – religious ritual or prayer
14. *Sarpam kavus* – groves dedicated to snake gods
15. *Tharavadu* – clans who have descended from a common ancestral mother

Maharashtra

1. *Abhyas gats* – informal study circle
2. *Adarsh gram nirman samiti* – model village development committee
3. *Beedi* – locally made cigarettes
4. *Bhagat* – a person using supernatural and magical practices to cure
5. *Bhajan gat* – community religious singing group
6. *Bhukhanda* – class 'E' forest or sparse scrub
7. *Charai bandi* – ban on grazing in forests
8. *Devrai* – sacred groves
9. *Gaon gramrajya samiti* – village self rule committee
10. *Jhadimandal* – area of trees
11. *Kabaddi* – a kind of game
12. *Khadi* – hand spun and woven with handloom cloth
13. *Kulhad bandi* – ban on tree felling
14. *Mahila bachat gats* – women's self help group
15. *Mahila gat* – women's group

16. *Malgujari* – A system established by the British under which the state assigned land to a malgujar to collect taxes from. The malgujar would give major part of these taxes to the state and keep the rest for himself.
17. *Nas bandi* – adopting family planning/ saying no to large families
18. *Nasha bandi* – ban on alcohol and other addictives
19. *nistar* rights – customary rights
20. *Panchsutri* – set of five principles
21. *Patwari* – local revenue officer
22. *Ryotwari* – malguzari system
23. *Saranjamdari* – malguzari system
24. *Talathi* – local land records officer
25. *Tekdi* - hill
26. *Zilla Parishad*- district courts

Manipur

1. *Kangla Sha* – embodiment of Sangai (brow-antlered deer), which is the official emblem of the Manipur government
2. *Phumdi* – thick floating biomass
3. *Phum-namba*- traditional fishery
4. *Upa pradhan* - assistant to village head

Meghalaya

1. *Dalamariang* – protect the earth
2. *Dolloi* – a traditional administrative system in the Khasi or Jaintia Hills
3. *Durbar* – village council
4. *Jhum* – shifting cultivation
5. *Ka Khadduh* – the youngest daughter
6. *Knia Ryngkew* – the ritual of the tiger spirit
7. *Law iyngdog* – sacred forest
8. *Law kyngtang* – sacred forest
9. *Law niam* – sacred forest
10. *Lyngdoh* – a traditional administrative system in the Khasi or Jaintia Hills
11. *Lyngdoh* – priest
12. *Niam Tynrai* – traditional customs
13. *Ri Kynti* – belonging to the clan or the individual
14. *Ri Raid* – belonging to the community
15. *Shad Suk Mynsiem* – dance of the happy hearts
16. *Sirdar* – a traditional administrative system in the Khasi or Jaintia Hills
17. *Syiem* – a traditional administrative system in the Khasi or Jaintia Hills
18. *Syiem* – traditional head of the Khasi state
19. *U blei nongthaw* – God the creator
20. *Wahadadar* – a traditional administrative system in the Khasi or Jaintia Hills

Nagaland

1. *Ching Woipa* – village council
2. *Gaon Burra* - village elder
3. *Jhum* – shifting cultivation

4. *Khel* - hamlet
5. *Morung* – traditional dormitory where young men are taught about culture, values, war techniques and other traditions

Orissa

1. *Bandevta* - jungle god
2. *Chatai* - mat
3. *Chullas* – local wood stoves
4. *Kardi* - Bamboo shoots
5. *Kendu* – tree whose leaves are used for making *bidis* (locally made cigarettes)
6. *Khapara* – roof tiles
7. *Kharif* – winter crop
8. *Khesara forests* – forests under the revenue department
9. *Mantras* - chants
10. *Padas* – hamlets
11. *Palli* - rotating system of patrolling
12. *Sahi* – hamlet
13. *Sangha* - group
14. *Taila* - cultivation
15. *Tambi* - approx 900 g of rice
16. *Thenga* - stick
17. *Thengapalli* – a system of forest protection by rotation where turn of the family is decided by placing a stick outside their house
18. *Vaidas* - traditional healers
19. *Yuvak sangha* – youth organisation

Punjab

1. *Banjar jadisd* – short fallows
2. *Banjar kadim* – long fallows
3. *Bar* - upland ridges
4. *Bela* – lowland tracts
5. *Chhambis* – flood plains
6. *Choes* – seasonal rivulets
7. *Gols* – large herds
8. *Kar seva* - voluntary labour
9. *Phirmis* - village
10. *Rabi* – summer crop
11. *Shamlat deh* - common land

Rajasthan

1. *Abadi* – population
2. *Amavasya* – new moon
3. *Arvari sansad* – people’s parliament of the villages in the Arvari river basin
4. *Baad* - fencing
5. *Bada* - enclosure for animals
6. *Balita* - firewood
7. *Bani* - areas where trees were reserved for state use
8. *Barani* - land that is not irrigated
9. *Bazaar mukt fasal* - crops grown for local use and

not commercial use

10. *Beeds* – private lands protected by individuals for grass and fuelwood
11. *Bhairav dev lok van abhayaranya* - Bhairav dev people’s sanctuary
12. *Bhajan* – religious songs
13. *Bighas* – unit of measurement of land. In Rajasthan 1 bigha means 1.75 ha
14. *Bisweddar* - princely land tenure system where the holder had a 20 year right over land
15. *Chabutara* - platform
16. *Charagah* - pasturelands
17. *Daav* – grass used for making ropes
18. *Dang* – hill
19. *Deepavali* – festival of lamps, a religious festival of the Hindus
20. *Devasthans* – sacred places
21. *Dhokoli* – baskets
22. *Ganga utthana*- taking an oath of honesty in the name of Goddess Ganga
23. *Gochar* – common grazing land
24. *Gram kosh* – village fund
25. *Havaldar* - army sergeant
26. *Jagirdar* – landlord
27. *Johad* - water harvesting structures
28. *Kathwada* - local wood godown
29. *Kesar* - saffron
30. *Kesar chhidakav* - sprinkling of saffron
31. *Khos* - terrain characterized by valleys and river gorges
32. *Kulharis* - axes
33. *Lakheta* – an island formed because of reservoir construction
34. *Oran* – sacred patch of pastureland devoted to a deity or a temple
35. *Paitham* – catchment area
36. *Pran pratishsta* – a religious group
37. *Rabaries* – migratory graziers
38. *Roondhs* – fodder reserves, grasslands in the valleys/ plains
39. *Shikargahs* – royal hunting grounds
40. *Talab/talai* - ponds

Sikkim

1. *Chhang* – local liquor (rice beer)
2. *Chogyal* – religious king
3. *Chyu-slo-nylso* – an event to celebrate the blood-brotherhood treaty of 1268 between the Lepcha and the Bhutia tribes of Sikkim
4. *Dumza* – a village organization including the heads of all households
5. *Gen-me* - council
6. *Goucharan* – grazing lands
7. *Gumpa* – monastery forests
8. *Gurudwara* – Sikh temple

9. *Gyapen* - assistants
10. *Kazi* – group of Sikkimese people considered to be wealthy landlords
11. *Khasmal* – forests from where timber, fodder and fuelwood needs could be gathered
12. *Lhakhang* – altar for offerings
13. *Mong Khyim* – public hall where Dumzas hold meetings
14. *Pipen* – normally a respected village elder (male)

Tamil Nadu

1. *Adappu* – impoundment
2. *Alwars* – saints
3. *Ayacut* - a measure of land irrigated
4. *Ayacutdars* - farmers owning irrigated land
5. *Ayyanar* - a terracotta figurine of a man astride a horse deified as the village watchman
6. *Cheruvu* - tanks spread over the entire Deccan plateau and dating back at least 2000 years, in Andhra Pradesh
7. *Cowle* - document of rights
8. *Deepavali* – festival of lamps, a traditional Hindu festival
9. *Eris* - tanks spread over the entire Deccan plateau and dating back at least 2000 years
10. *Garba-girha* – sanctum sanctorum
11. *Gram sabha* – village assembly
12. *Kanmoi* – tanks spread over the entire Deccan plateau and dating back at least 2000 years
13. *Karnam* – village accountant
14. *Keres* – tanks spread over the entire Deccan plateau and dating back at least 2000 years, in Karnataka
15. *Kovikaadagul* – sacred grove
16. *Kulam* – lake
17. *Kuppams* - settlements
18. *Kurinji* – hill regions
19. *Kurinjpatta* – mountain song
20. *Malaipadupakam* – sound of the mountain
21. *Mara kaavagula* – sacred grove
22. *Marudham* – fields in riverine plains
23. *Moonthuri paadu* - smallest and least productive paadu and has almost been abandoned
24. *Nandavanam* – temple with a garden
25. *Nattupadagu* – country boats
26. *Nattupadagu* – country boats
27. *Nedunalavadai* – good, long north-wind
28. *Neerkatti* - one who irrigates water to the fields
29. *Neidhal* – coastal regions
30. *Odai paadu* - smallest and least productive paadu and has almost been abandoned
31. *Paadu* - a traditional system of fishing, where a part of the lagoon is controlled and earmarked for the exclusive fishing use of designated villages
32. *Paalai* - wasteland
33. *Paddu* – traditional system of farming
34. *Padi valai* - a type of fishing net
35. *Panchayat* - primary unit of administration under the Panchayati Raj System of governance
36. *Pattanavars/Pattanathirs*- tribal fishing community, literally means 'belonging to town'
37. *Peramboke* - wasteland
38. *Sabhas* – assemblies
39. *Samudhayam* - community ownership of land and equitable sharing of its yield
40. *Sholas* - patches of evergreen tropical rainforests in the valleys of southern end of the Western Ghats, surrounded by natural grasslands
41. *Silapadikaram* – an epic poem
42. *Sthala* – holy place
43. *Sthala purana* – scriptures related specific religious sites
44. *Sthalavriksha* – holy tree
45. *Sutru valai* – a type of fishing net
46. *Tadukku* - a barricade in the path of the mobile prawns
47. *Talekattu* - village level organization of fisherfolk
48. *Teertha* – water source
49. *Thirunandavan-kaingkarya* –special grants from the king
50. *Thirunandavanu-puram* – temple gardens and orchards
51. *Thotam variayam* – a committee that looks after the village gardens
52. *Tillai* - mangroves
53. *Tinnai* – administrative zones in Tamil Nadu
54. *Tiruvallangadu plates* – a set of copper plates from the Chola period with inscriptions
55. *Vadakku paadu* - a canal-shaped area of about 1.25 sq km on the northern side. This is the most productive area and therefore the most intense fishing is done here
56. *Valai* - fishing nets
57. *Vallikodi* – lure fishing
58. *Veriyam* – committees
59. *Yeri variyam* – a community responsible for the village lake or tank

Tripura

1. *Jhum* – shifting cultivation
2. *Mouja* – a cluster of villages brought together for administrative purposes
3. *Tehsils* – administrative sub-divisions of a district

Uttar Pradesh

1. *Ghat* – riverside platforms
2. *Karmis* – artisans involved in woodcraft
3. *Lakadhara* – woodcutter community
4. *Parganas* – present day *talukas* (administrative units within a district)
5. *Tari* – sap obtained from sapping
6. *Usar* – slippery soil that exists in Gusikaran forests

Uttarakhand

1. *Adhiveshan* - gathering

2. *Assi Saal* – 80 years
3. *Assi Saal Bandobast* – first land settlement carried out in Uttarakhand in 1823 (year 80 according to the Hindu calendar)
4. *Azad panchayat* – independent village council
5. *Banali/banai* – habitat of oak trees
6. *Baranaja* – growing 12 or more crops together in one field to increase productivity
7. *Bari/patta* system – a system where families take turns at protecting the forest
8. *Bazaar*- market place
9. *Beeja Bachao Andolan* – Save the Seeds Movement
10. *Benaap*- unmeasured/undemarcated
11. *Bhabbar* – kind of local grass largely grows in the Himalayan foothills
12. *Bugyaals* – high altitude pasture lands
13. *Chaukidari* system – hiring guards to protect the forests
14. *Chaumasa*- monsoon months
15. *Chhaans* – cattle sheds
16. *Chipko* – to cling
17. *Chooran* – digestives
18. *Chowkidaar*- guards
19. *Daliyon ka dagda* – friends of the trees
20. *Danda ki jatir* - procession to the hilltop temple where a puja is performed
21. *Dari* - rug
22. *Dev bhoomi* – abode of the gods
23. *Dev van* – sacred groves
24. *Devta* - deity
25. *Dhandaak* – traditional protest
26. *Dharna* - demonstration
27. *Dhol* - drum
28. *Doli* – palanquin
29. *Durbar* – king’s court
30. *Ghaas ki maang* – community grassland plots allocated for harvesting to families in a village as per village consensus
31. *Gobar gas* - biogas
32. *Gram sabha* – village assembly
33. *Gule* – small canal
34. *Haq haquque* – rights (here with reference to timber rights)
35. *Isht devta* – family deity
36. *Jangli* - wild
37. *Jhapti cheeno andolan* – snatch and grab movement
38. *Joharhs/ Pokhars* – ponds or pools
39. *Karyakarani samiti* – executive committee
40. *Khala*- stream
41. *Kharak/Marore* - pastures
42. *Kokat* – low quality timber
43. *Lath* - stick
44. *Lath panchayat*- traditional system of forest protection, where members take turn to patrol the forest.
45. *Maharaja* - emperor
46. *Mahila ban* – patches of forests being managed by women
47. *Mahila mangal dal*- village women’s association
48. *Maiti andolan* – association of unmarried girls
49. *Mela* – festival
50. *Naap* – measured/ demarcated
51. *Nali* – 1/20th of an acre
52. *Nali* system – system of paying guards in kind
53. *Nyay panchayat* – village legal council
54. *Pahari* – belonging to the hills
55. *Panchayat* – primary unit of administration under the Panchayati Raj System of governance
56. *Panchayat bhawan* – community hall
57. *Panchayat ghar* –hall where the panchayat conducts its meetings
58. *Panches* - village elders who act as a traditional judiciary body
59. *Paryavaran* – environment
60. *Pataal* – flat roofing slates
61. *Patti* – cluster of villages
62. *Ped kaato andolan* – cut the trees movement
63. *Pradhan* – village head
64. *Pramukh* – village head
65. *Puja* – religious ritual/ prayer
66. *Raja* - king
67. *Rauli* - ravine
68. *Riyasat* – princely states
69. *Sanjaiti* – village protection practices of communal land conservation
70. *Sarpanch* – panchayat head
71. *Shloka/Mantra* - chants
72. *Shramdan* – voluntary labour
73. *Soyam* forest – forest lands under civil administration (revenue department)
74. *Tankha* – cash wage system
75. *Thaplas* – terrace land
76. *Thekedar* - supervisor
77. *Toks* - hamlets
78. *Vajra* - thunderbolt
79. *Van panchayat* – forest council
80. *Van samitis* – forest councils
81. *Yatra* - journey
82. *Yuvak*- youth

West Bengal

1. *Baisakh* – spring (season)
2. *Bandevta* – deity of the forest

3. *Banjhakri* – an evil spirit
 4. *Beel* - wetland
 5. *Charlands* – waterlogged land formed after floods
 6. *Jheel* – pond
 7. *Mithai* - sweet
 8. *Sindhur* – vermilion
- Miscellaneous**
1. *Adarsh Gaon Yojana* – model village scheme
 2. *Adhyaksha* - president
 3. *Akharas* – wrestling grounds
 4. *Bagad* - a ritual representing human sacrifice
 5. *Bagicha* - garden
 6. *Bak* - *bakkookki lakri* - free grant timber
 7. *Bandh van* - closed forest
 8. *Barah gaon ki panchayat* – executive committee of 12 villages
 9. *Begar* - free labour
 10. *Chahi* - irrigated land
 11. *Chaitra purnima* - fullmoon day on the first month of the Hindu calendar, approximately April
 12. *Chappati* - type of bread
 13. *Chara* - fodder
 14. *Charagah* - pasture land
 15. *Chaulai* - basket
 16. *Chhatra Yuva Sangharsh Vahini* – youth social movement
 17. *Dalit* – the repressed castes (usually all scheduled castes are referred by this term)
 18. *Datli* - sickle
 19. *Dauna* - leaf bowls
 20. *Deorai* – sacred grove
 21. *Dhandha* - cattle
 22. *Dhani* - hamlet
 23. *Firwal* - forest guard
 24. *Galeecha* - carpet
 25. *Galkari* - a person who is supposed to have supernatural powers
 26. *Gaon Ganraajya* - village self-rule
 27. *Garud* - eagle, a bird that helped lord Rama in the Hindu epic Ramayan
 28. *Gauna* - ceremony marking the coming of the bride to the husband's houses
 29. *Gochar* – grazing land
 30. *Gotra* - distinct clans within Hindu religion
 31. *Hanka* - hunting preserve during the princely state
 32. *Holi* - festival of colours normally in the month of March
 33. *Jal* - water
 34. *Jau* - kind of millet
 35. *Kaathi* - head load of firewood
 36. *Karb*- fodder derived from the jowar crop
 37. *Kastgaar* - cultivator
 38. *Kawdi* - jowar (sorgham) stalk, valued as cattle food
 39. *Kebangs* - traditional village councils among the Adi Gallong tribe in Arunachal
 40. *Khaat* - wooden cot
 41. *Khalsa* - state land during princely times
 42. *Khatedari* – private agricultural land
 43. *Kosh* - fund
 44. *Koshadhyaksh*- – treasurer
 45. *Koul* – order
 46. *Lok abhyaranya* – people's wildlife sanctuary
 47. *Maadi* - a fermented local drink made from the sap of Caryota palm
 48. *Maalkari* - cult of devotees who refrain from a non-vegetarian diet
 49. *Mahwat* - winter showers
 50. *Maidan* - open field
 51. *Makarsankranti* - a Hindu festival
 52. *Matsya* union – union of fisherfolk
 53. *Mithun* - semi-domesticated cattle
 54. *Nabhovani shetkari mandal* - a farmers' collective
 55. *Nadi* - stream
 56. *Padyatra* - a march on foot
 57. *Pani panchayat* - water council
 58. *Patel* - village headman
 59. *Patta* – leaves
 60. *Pattal* - leaf plates
 61. *Peeda, hal and huri* - stool
 62. *Peewat* - irrigated land
 63. *Pula* - bundle of grass
 64. *Purdah* - veil/custom where women cover their faces around men/elders
 65. *Raab* – a system of agriculture in which before planting paddy, branches of trees, along with cow-dung are burnt in the field.
 66. *Rakhi* – tying a thread on someone as a promise to protect them
 67. *Roondh* - state owned grasslands during princely times
 68. *Saag* - vegetable
 69. *Satyagraha* - non-violent movement
 70. *Sawai chak* – unused land under the forest department
 71. *Shikar* - hunting
 72. *Shikari* - hunter
 73. *Shikarkhana* – royal hunting reserves
 74. *Sonchirri* - mythical golden bird
 75. *Tendu leaves* – leaves used for making bidis
 76. *Tilak* - application of vermilion on the forehead
 77. *Urus* – annual village festival in Maharashtra
 78. *Waghjai* – the tiger goddess

List of species mentioned in the directory

Andhra Pradesh

Birds

Adjutant storks (*Leptoptilos* sp.)
Asian open-billed storks (*Anastomus oscitans*)
Black ibis (*Pseudibis papillosa*)
Black-headed ibis (*Threskiornis melanocephalus*)
Cormorant (*Phalacrocorax* sp.)
Garganeys (*Anas querquedula*)
Glossy ibis (*Plegadis falcinellus*)
Great cormorant (*Phalacrocorax carbo*)
Grey heron (*Ardea cinerea*)
Grey junglefowl (*Gallus sonneratii*)
Indian cormorant (*Phalacrocorax fuscicollis*)
Indian peafowl (*Pavo cristatus*)
Jerdon's courser (*Rhinoptilus bitorquatus*)
Northern pintails (*Anas acuta*)
Northern shovellers (*Anas clypeata*)
Open-billed stork (*Anastomus oscitans*)
Painted storks (*Mycteria leucocephala*)
Partridges (*Galloperdix* sp.)
Pelicans (*Pelicanus* sp.)
Quails (*Coturnix* sp.)
Snipes (*Gallinago* sp.)
Spotbill duck (*Anas poecilorhyncha*)
Teals (*Anas* sp.)

Animals

Blackbuck (*Antilope cervicapra*)
Chinkara (*Gazella bennettii*)
Four-horned antelope (*Tetracerus quadricornis*)
Indian wolf (*Canis lupus*)
Jackal (*Canis aureus*)
Jungle cat (*Felis chaus*)
Hanuman langur (*Semnopithecus entellus*)
Leopard (*Panthera pardus*)
Macaque (*Macaca radiata*)
Mycteria leucocephala (common name could not be ascertained)
Sambar (*Cervus unicolor*)
Sloth bear (*Melursus ursinus*)
Spotted deer (*Axis axis*)
Tiger (*Panthera tigris*)
Wild boar (*Sus scrofa*)

Plants

Raktachandan (*Pterocarpus santalinus*)
Anjana (*Hardwickia binata*)
Ashwagandha (*Withania somnifera*)
Axlewood (*Anogeissus latifolia*)
Bamboo (*Dendrocalamus strictus*)
Banyan (*Ficus benghalensis*)
Bel fruit (*Aegle marmelos*)
Billagodisa (could not be ascertained)
Bitluga (could not be ascertained)
Chilla ginjalu (*Strychnos potatorum*)
Chironji (*Buchnanian lanzan*)

Danim (*Punica granatum*)
Date-palm tree (*Phoenix dactylifera*)
Delonix elata
East Indian satinwood (*Chloroxylon swietenia*)
Ganuga (*Pongamia pinnata*)
Gotti (*Ziziphus xylocarpus*)
Gum karaya (*Sterculia urens*)
Harda , Myrobalan (*Terminalia chebula*)
Jaam (*Psidium guajava*)
Jamun (*Syzygium cumini*)
Jeedi or bilawa (*Semecarpus anacardium*)
Karanj (*Pongamia pinnata*)
Katha (*Acacia catechu*)
Kaweet (*Feronia limonia*)
Korintha (*Pterolobium indicum*) (scientific name could not be verified)
Lantana (*Lantana camara*)
Mahua (*Madhuca longifolia*)
Nalla tumma (*Acacia leucophloea*)
Nallamanu (scientific name could not be ascertained)
Narlingi (*Albizia amara*)
Neem (*Azadirachta indica*)
Palaguidisa (scientific name could not be ascertained)
Pedda manu (*Ailanthus excelsa*)
Pipal (*Ficus religiosa*)
Rai (*Ficus religiosa*)
Rela (*Cassia fistula*)
Rohi (*Ficus benghalensis*)
Sandra (scientific name could not be ascertained)
Sarkaritumma (*Prosopis juliflora*)
Shirish (*Albizia lebeck*)
Shisum (*Dalbergia latifolia*)
Sitaphal (*Annona squamosa*)
Sopera (*Dalbergia paniculata*)
Sundra (*Acacia sundra*)
Tamarind/chinta (*Tamarindus indicus*)
Teak (*Tectona grandis*)
Tella tumma (*Acacia modesta*)
Tellamaddi (*Terminalia arjuna*)
Tendu (*Diospyros melanoxylon*)
Thangedu (scientific name could not be ascertained)
Thunki (scientific name could not be ascertained)
Usirr or amla (*Embelica officinalis*)
Visha mushti (*Strychnos nux-vomica*)
White gulmohar (*Delonix elata*)
Yapa (*Azadirachta indica*)
Yon (*Anogeissus latifolia*)

Arunachal Pradesh

Birds

Hyptianthera stricta (common name could not be ascertained)
Bengal florican (*Houbaropsis bengalensis*)
Black-necked crane (*Grus nigricollis*)

White-winged wood duck (*Cairina scutulata*)
 Mishmi wren/ rusty-throated wren warbler (*Spelaeorinis badeigularis*)

Sclater's monal (*Lopophorus sclateri*)
 Temminck's tragopan (*Tragopan temminckii*)

Animals

Asian elephant (*Elephas maximus*)
 Assamese macaque (*Macaca assamensis*)
 Barking deer (*Muntiacus muntjak*)
 Capped langur (*Trachypithecus pileatus*)
 Clouded leopard (*Neofelis nebulosa*)
 Common civet (unclear which species)
 Common palm civet (*Paradoxurus hermaphroditus*)
 Gaur (*Bos gaurus*)
 Golden cat (*Catopuma temmincki*)
 Goral (*Naemorhedus goral*)
 Himalayan palm civet (*Paguma larvata*)
 Hispid hare (*Caprolagus hispidus*)
 Hog deer (*Axis porcinus*)
 Hoolock gibbon (*Bunopithecus hoolock*)
 Indian elephant (*Elephas maximus*)
 Indian wild boar / wild pig (*Sus scrofa*)
 Jackal (*Canis aureus*)
 Large Indian civet (*Viverra zibetha*)
 Leopard (*Panthera pardus*)
 Leopard cat (*Prionailurus bengalensis*)
 Spotted linsang (*Prionodon pardicolor*)
 Mainland serow (*Naemorhedus sumatrensis*)
 Marbled cat (*Pardofelis marmorata*)
 Mithun (*Bos frontalis*)
 Mongooses (*Herpestes* sp.)
 Musk deer (*Moschus chrysogaster*)
 Pig-tailed macaque (*Macaca leonina*)
 Rhesus macaque (*Macaca mulatta*)
 Sambar (*Cervus unicolor*)
 Shrews (unclear which species)
 Slow loris (*Nycticebus bengalensis*)
 Snow leopard (*Uncia uncia*)
 Spotted linsang (*Prionodon pardicolor*)
 Stumped-tailed macaque (*Macaca arctoides*)
 Tak (*Budorcas taxicolor*)
 Taro (*Colocasia esculenta*)
 Tiger (*Panthera tigris*)
 Wild buffalo (*Bubalus arnee*)
 Wild dog (*Cuon alpinus*)

Plants

Amari (*Amoora wallichii*)
Amentotaxus assamica (common name could not be ascertained)
 Bamboo (*Phyllostachys assamica*)
 Blue pine (*Pinus longifolia*)
 Chaplash (*Artocarpus chaplasha*)
Cleisostoma williamsonii (common name could not be ascertained)
 Screw-pine (*Pandanus furcatus*)
 Dhale Katus (*Castanopsis indica*)
 East Indian almond (*Terminalia myriocarpa*)

Ferns (Pteridophytes)
 Himalayan white pine (*Pinus wallichiana*)
 Hirda (*Terminalia chebula*)
 Japanese bamboo (*Phyllostachys bambusoides*)
 Kanak Champa (*Pterospermum acerifolium*)
Magnolia pterocarpa (common name could not be ascertained)
 Rawami (*Dendrocalamus sikkimensis*)
 Red silk cotton (*Bombax ceiba*)
Rhododendron arunachalense (common name could not be ascertained)
Rhododendron dalhousieae (common name could not be ascertained)
 Sal (*Shorea robusta*)
 Siriasing (*Altingia excelsa*)
Tetracentron sinense (common name could not be ascertained)

Assam

Birds

Black baza (*Aviceda leuphotes*)
 Black eagle (*Ictinaetus malayensis*)
 Eurasian eagle owl (*Bubo bubo*)
 Great pied hornbill/ Great hornbill (*Buceros bicornis*)
 Oriental pied hornbill (*Anthracoseros albirostris*)
 Osprey (*Pandion haliaetus*)

Animals

Asian leaf turtle (*Cyclemys dentata*)
 Barking deer (*Muntiacus muntjak*)
 Bear (unclear which species)
 Chinese pangolin (*Manis pentadactyla*)
 Civet (unclear which species)
 Clouded leopard (*Neofelis nebulosa*)
 Common Indian monitor/Monitor lizard (*Varanus bengalensis*)
 Crab-eating mongoose (*Herpestes urva*)
 Deer (unclear which species)
 Red giant flying squirrel (*Petaurista petaurista*)
 Fox (*Vulpes bengalensis*)
 Gaur (*Bos gaurus*)
 Golden langur (*Trachypithecus geei*)
 Indian Pangolin (*Manis crassicaudata*)
 Indian porcupine (*Hystrix indica*)
 King cobra (*Ophiophagus hannah*)
 Leopard (*Panthera pardus*)
 Leopard cat (*Prionailurus bengalensis*)
 Squirrels (unclear which species)
 Tiger (*Panthera tigris*)
 Water monitor (*Varanus salvator*)
 Wild boar/Wild pig (*Sus scrofa*)

Plants

Bhelu (*Tetrameles nudiflora*)
 Jam (*Eugenia jambolana*)
 Jarmony bon (*Chromolaena odorata*)
 Koroi (*Albizia lebeck*)
 Kum (*Strobilanthes flaccidifolius*)
 Lajukilata (*Mimosa pudica*)
 Phulgamari (could not be ascertained)

Poma (*Cedrela toona*)
 Sal (*Shorea robusta*)
 Sida sp. (common name could not be ascertained)
 Simul (*Bombax ceiba*)
 Sonaru (*Cassia fistula*)

Bihar

Birds

Asian openbill/ open-billed stork (*Anatomas oscitans*)
 Black stork (*Ciconia nigra*)
 Black-necked stork (*Ephippiorhynchus asiaticus*)
 Greater adjutant stork (*Leptoptilos dubius*)
 Lesser adjutant (*Leptoptilos javanicus*)
 Oriental stork (*Ciconia boyciana*)
 Painted stork (*Mycteria leucocephala*)
 White stork (*Ciconia ciconia*)
 Woolly-necked stork or white-necked stork (*Ciconia episcopus*)

Animals

Four-horned antelope (*Tetracerus quadricornis*)
 Gangetic dolphin (*Platanista gangetica*)
 Hog deer (*Axis porcinus*)
 Gaur (*Bos gaurus*)
 Indian elephant (*Elephas maximus*)
 Leopard (*Panthera pardus*)
 Swamp deer (*Cervus duvaucelii*)
 Tiger (*Panthera tigris*)
 Wild buffalo (*Bubalus arnee*)

Plants

Banyan (*Ficus benghalensis*)
 Khair (*Acacia catechu*)
 Mango (*Mangifera indica*)
 Peepal (*Ficus religiosa*)
 Sal (*Shorea robusta*)
 Semal (*Bombax ceiba*)
 Shisam (*Dalbergia latifolia*)
 Toona (*Cedrela toona*)

Chhattisgarh

Plants

Amla (*Emblica officinalis*)
 Banyan (*Ficus benghalensis*)
 Behara (*Terminalia bellerica*)
 Bel (*Aegle marmelos*)
 Harra (*Terminalia chebula*)
 Khadsingi (could not be ascertained)
 Kodon (*Paspalum scrobiculatum*)
 Kutki (a kind of millet)
 Mahua (*Madhuca longifolia*)
 Acacia (species not clear)
 Tamarind (*Tamarindus indica*)
 Cashew (*Anacardium occidentale*)
 Mango (*Mangifera indica*)
 Mulberry (*Morus serrata*)
 Palas (*Butea monosperma*)
 Peepal (*Ficus religiosa*)

Sag (*Tectona grandis*)
 Sal (*Shorea robusta*)
 Sanjha (*Terminalia alata* = *Terminalia tomentosa*)
 Semur (*Bombax ceiba*)
 Tendu (*Diospyros melanoxylon*)
 Umbar (*Ficus racemosa*)

Gujarat

Birds

Bulbul (Unclear which species)
 Common crane (*Grus grus*)
 Great Indian Bustard (*Ardeotis nigriceps*)
 Grey hypocolius (*Hypocolius ampelinus*)
 Lesser florican (*Sypheotides indica*)
 Indian peafowl (*Pavo cristatus*)
 Red spurfowl (*Galloperdix spadicea*)

Animals

Black buck (*Antelope cervicapra*)
 Blue bull (*Boselaphus tragocamelus*)
 Chinkara (*Gazella bennettii*)
 Four-horned antelope (*Tetracerus quadricornis*)
 Leopard (*Panthera pardus*)
 Lion (*Panthera leo*)
 Wild ass (*Equus onager*)

Plants

Acacia senegal (common name could not be ascertained)
 Aduso, adathoda (*Adhatoda vasica*)
 Amla (*Tamarindus indica*)
Apluda mutica (common name could not be ascertained)
 Arjun (*Terminalia arjuna*)
 Asopalav (*Polyalthia longifolia*)
Avicennia alba (common name could not be ascertained)
Avicennia officinalis (common name could not be ascertained)
Barleria cristata (common name could not be ascertained)
Bauhinia racemosa (common name could not be ascertained)
 Ber (*Ziziphus mauritiana*)
 Bhangra (*Eclipta prostrata*)
 Bilva (*Aegle marmelos*)
 Brahmi (*Centella asiatica*)
Calotropis procera (common name could not be ascertained)
Capparis deciduas (common name could not be ascertained)
Cassia tora (common name could not be ascertained)
Cenchrus ciliaris (common name could not be ascertained)
 Chitrak or chitaro (*Plumbago zeylanica*)
Chloris sp. (common name could not be ascertained)
Chrysopogon sp. (common name could not be ascertained)
Chrysopogon fulvus (common name could not be ascertained)
Corchorus sp. (common name could not be ascertained)

Cressa sp. (common name could not be ascertained)
Crotolaria sp. (common name could not be ascertained)
Cymbopogon jwarancusa (common name could not be ascertained)
Cymbopogon martini (common name could not be ascertained)
Cynodon dactylon (Doob grass)
Cyperus rotundus (common name could not be ascertained)
Dactyloctenium (species could not be ascertained)
 Dav (*Anogeissus latifolia*)
 Deshi baval (*Acacia nilotica*)
 Desi acasia (*Acacia nilotica*)
Desmodium diffusum (common name could not be ascertained)
Desmostachya sp. (common name could not be ascertained)
Dichanthium annulatum (common name could not be ascertained)
Digera muricata (common name could not be ascertained)
 Dudhi (*Wrightia tinctoria*)
Echinocloa sp. (common name could not be ascertained)
Feronia limonia (Elephant Apple)
 Gandabaval (*Prosopis juliflora*)
Hardwickia binata (common name could not be ascertained)
Helicteres isora (common name could not be ascertained)
Heteropogon contortus (common name could not be ascertained)
Indigofera sp. (common name could not be ascertained)
 Jamun (*Syzygium cumini*)
 Kadasa (*Sterculia urens*)
 Kanaji (*Holoptelea integrifolia*)
 Kanther (*Carissa conjesta*)
 Kanthera (*Capparis sepiaria*)
 Karanj (*Pongamia pinnata*)
 Kevda (*Pandanus* sp.)
 Khajoor (*Phoenix dactylifera*)
 Khakra (*Butea monosperma*)
 Khijado (*Prosopis cineraria*)
Leucas aspera (common name could not be ascertained)
 Mango (*Mangifera indica*)
 Musli (*Curculigo orchioides*)
 Naleri (*Cocos nucifera*)
 Neem (*Azadirachta indica*)
 Negod (*Vitex negundo*)
 Onkhlo (*Alangium salvifolium*)
Opuntia sp. (common name could not be ascertained)
 Piludi (*Salvadora oleoides*)
 Pipal/papal (*Ficus religiosa*)
 Rhizophora (*Avicennia marina*)
Salvadora sp. (common name could not be ascertained)
 Sandal (*Santalum album*)
Sehima nervosum (common name could not be ascertained)

Sesbania sp. (common name could not be ascertained)
Sporobolus marginatus (common name could not be ascertained)
Striga asiatica (common name could not be ascertained)
Sueda nudiflora (common name could not be ascertained)
Tridax procumbens (common name could not be ascertained)
 Umbaro (*Ficus racemosa*)
 Vad (*Ficus benghalensis*)
 Wild jasmine (*Jasminum* sp.)
Xanthium strumarium (common name could not be ascertained)

Himachal Pradesh

Animals

Barking Deer (*Muntiacus muntjak*)
 Wild boar/ Wild pig (*Sus scrofa*)
 Jackal (*Canis aureus*)
 Leopard (*Panthera pardus*)
 Nilgai (*Boselaphus tragocamelus*)

Plants

Bhabbar (*Eulaliopsis binata*)
 Khair (*Acacia catechu*)
 Pansara (*Wendlandia heynei* syn. *W. exsertap*)
 Sisoo (*Dalbergia sissoo*)

Jammu and Kashmir

Birds

Bar-headed goose (*Anser indicus*)
 Black-necked crane (*Grus nigricollis*)

Animals

Blue sheep (*Pseudois nayaur*)
 Eurasian lynx (*Lynx lynx*)
 Himalayan brown bear (*Ursus arctos*)
 Himalayan mouse hare (could not be ascertained)
 Himalayan palm civet (*Paguma larvata*)
 Himalayan tahr (*Hemitragus jemlahicus*)
 Himalayan/ Asiatic black bear/ bhaloo (*Ursus thibetanus* = *Selenarctos thibetanus*)
 Ibex (*Capra ibex*)
 Kashmir red deer/ hangul (*Cervus elaphus*)
 Kiang/ Tibetan wild ass (*Equus kiang*)
 Leopard (*Panthera pardus*)
 Markhor (*Capra falconeri*)
 Marmot (unclear which species)
 Musk deer (*Moschus chrysogaster*)
 Red fox (*Vulpes vulpes*)
 Snow leopard (*Uncia uncia*)
 Tibetan antelope (*Pantholops hodgsonii*)
 Tibetan argali (*Ovis ammon*)
 Tibetan gazelle (*Procapra picticaudata*)
 Yak (*Bos grunniens*)
 Jackal (*Canis aureus*)

Plants

Bol (*Commiphora myrrha*)
 Burtze (fodder sp.; scientific name could not be

ascertained)

Caragana (fodder sp.; scientific name could not be ascertained)

Gyapshen (fodder sp.; scientific name could not be ascertained)

Longma (fodder sp.; scientific name could not be ascertained)

Nyalo (fodder sp.; scientific name could not be ascertained)

Shyot (fodder sp.; scientific name could not be ascertained)

Karnataka

Birds

Bee eaters (*Merops* spp.)

Common teal (*Anas crecca*)

Coppersmith barbet (*Megalaima haemacephala*)

Cuckoo (*Cuculus* sp.)

Drongos (*Dicrurus* sp.)

Eastern redshank (scientific name could not be ascertained)

Greater spotted eagle (*Aquila clanga*)

Grey heron (*Ardea cinerea*)

Grey plover (*Pluvialis squatarola*)

Hérons (*Ardea* sp.)

Indian peafowl (*Pavo cristatus*)

Jungle fowl (*Gallus* sp.)

Kentish plover (*Charadrius alexandrinus*)

Kingfishers (Unclear which species)

Kites (*Milvus* sp.)

Lesser sand plover (*Charadrius mongolus*)

Little grebe (*Tachybaptus ruficollis*)

Marsh sandpiper (*Tringa stagnatilis*)

Night heron (*Nycticorax nycticorax*)

Oriole (*Oriolus* sp.)

Painted stork (*Mycteria leucocephala*)

Pied avocet (*Recurvirostra avosetta*)

Purple moorhen /purple swampphen (*Porphyrio porphyrio*)

Red-wattled lapwing (*Vanellus indicus*)

Rose-ringed parakeet (*Psittacula krameri*)

Rosy starling (*Sturnus roseus*)

Ruddy shelduck (*Tadorna ferruginea*)

Spot-billed pelican (*Pelecanus philippensis*)

Spotted dove (*Streptopelia chinensis*)

Tree-pie (*Dendrocitta* sp.)

Whimbrel (*Numenius phaeopus*)

Whiskered tern (*Chlidonias hybridus*)

White Ibis (*Threskiornis aethiopica*)

White-throated fantail (*Rhipidura albicollis*)

Animals

Barking deer (*Muntiacus muntjak*)

Black-naped hare (*Lepus nigricollis*)

Asian Elephant (*Elephas maximus*)

European golden plover (*Pluvialis apricaria*)

Hanuman langur (*Semnopithecus entellus*)

Hyena (*Hyena hyena*)

Jackal (*Canis aureus*)

Mahaseer (*Tor putitora*)

Slender loris (*Loris lydekerianus*)

Wild boar / wild pig (*Sus scrofa*)

Plants

Agnishikha (*Gloriosa superba*)

Andamurugila (*Carallia brachiata*)

Angeli (*Artocarpus hirsuta*)

Aradala or Murinahuli (*Garcinia morella*)

Areca nut (*Areca catechu*)

Australian acacia (*Acacia auriculiformis*)

Babul (*Acacia nilotica*)

Bamboo (*Bambusa* sp.)

Banyan (*Ficus benghalensis*)

Bokalu (*Mimusops elengi*)

Canes (*Calamus* spp.)

Cardamom (*Elettaria cardamomum*)

Cashew trees (*Anacardium occidentale*)

Casuarina (*Casuarina equisetifolia*)

Coconut palms (*Cocos nucifera*)

Dalchini (*Cinnamomum zeylanicum*)

Dhupa (*Vateria indica*)

Dipterocarpus indicus (common name could not be ascertained)

Fishtail palm (*Caryota urens*)

Garcinia (*Garcinia gummi-gutta*)

Gojjalu (*Lannea coromandelica*)

Gular or Atthi (*Ficus racemosa*)

Halchary (*Memecylon umbellatum*)

Heddi (*Adina cordifolia*)

Honagalu (*Terminalia paniculata*)

Honne (*Pterocarpus marsupium*)

Hunal (*Terminalia paniculata*)

Ipati (*Avicennia officinalis*)

Jackfruit (*Artocarpus heterophyllus*)

Jambe (*Xylocarpus xylocarpa*)

Jamun (*Syzygium cumini*)

Kandale (*Kandelia candel*)

Kavala (*Careya arborea*)

Kokum (*Garcinia indica*)

Mango (*Mangifera indica*)

Matti (*Terminalia tomentosa*)

Mother-in-law's tongue (*Albizia lebeck*)

Myristica fatua (common name could not be ascertained)

Myrobalan (*Terminalia chebula*)

Nandi (*Lagerstroemia lanceolata*/ *Lagerstroemia microcarpa*)

Neeilu (*Syzygium cumini*)

Neem (*Azadirachta indica*)

Phoenix (*Phoenix sylvestris*)

Pinanga dicksonii (common name could not be ascertained)

Pipal (*Ficus religiosa*)

Poon (*Calophyllum tomentosum*)

Portia (*Thespesia populnea*)

Raagi (*Eleusine coracana*)

Rain tree (*Samanea saman*)

Rattan canes (*Calamus* sp.)

Reeds (*Ochlandra* sp.)

Roja Gida (*Lantana camara*)
 Rosewood (*Dalbergia latifolia*)
 Sandalwood (*Santalum album*)
 Satavari (*Asparagus racemosus*)
 Soapnut (*Sapindus laurifolius*)
 Surugi (*Mammea suriga*)
 Tamarind (*Tamarindus indica*)
 Teak (*Tectona grandis*)
 Uppage (*Garcinia gummi-gutta*)
 Wild date palm (*Phoenix sylvestris*)

Kerala

Animals

Bonnet macaques (*Macaca radiata*)
 Jackal (*Canis aureus*)
 Olive Ridley turtles (*Lepidochelys olivacea*)

Plants

Alexandrian laurel (*Calophyllum inophyllum*)
 Eeyachembu (*Plumeria* sp.)
Dioclea sp. (common name could not be ascertained)
Diospyros buxifolia (common name could not be ascertained)
 Nandi (*Lagerstroemia parviflora*)
 Shisam (*Dalbergia latifolia*)
 White silk-cotton (*Ceiba pentandra*)
Wrightia sp. (common name could not be ascertained)

Maharashtra

Birds

Crane (*Grus* sp.)
 Indian peafowl (*Pavo cristatus*)
 Quails (unclear which species)

Animals

Barking deer (*Muntiacus muntjak*)
 Blackbuck (*Antelope cervicapra*)
 Black-naped hare (*Lepus nigricollis*)
 Chinkara/Indian gazelle (*Gazella bennettii*)
 Cheetal or spotted deer (*Axis axis*)
 Chousinga / Four-horned antelope (*Tetracerus quadricornis*)
 Common Indian grey mongoose (*Herpestes edwardsi*)
 Fox (*Vulpes bengalensis*)
 Gaur (*Bos gaurus*)
 Giant squirrel (*Ratufa indica centralis*)
 Hanuman langur (*Semnopithecus entellus*)
 Indian porcupine (*Hystrix indica*)
 Indian rock Python (*Python molurus molurus*)
 Indian wolf (*Canis lupus*)
 Jackal (*Canis aureus*)
 Jungle cat (*Felis chaus*)
 Leopard cat (*Prionailurus bengalensis*)
 Leopard/ panther (*Panthera pardus*)
 Malabar giant squirrel/Indian giant squirrel (*Ratufa indica elphinstonii*)
 Monitor lizard /Common Indian monitor (*Varanus bengalensis*)
 Monkeys (*Macaca* sp.)
 Nilgai (*Boselaphus tragocamelus*)

Rhesus macaque (*Macaca mulatta*)
 Sambar (*Cervus unicolor*)
 Slender loris (*Loris lydekerianus*)
 Sloth bear (*Melursus ursinus*)
 Spotted deer (*Axis axis*)
 Striped hyena (*Hyaena hyaena*)
 Tiger (*Panthera tigris*)
 Wild boar/ Wild pig (*Sus scrofa*)
 Wild cat (*Felis chaus*)
 Wild dogs or dhole (*Cuon alpinus*)

Plants

Ain (*Terminalia tomentosa*)
 Alu (*Meyna laxiflora*)
 Amla (*Emblia officinalis*)
 Anjan (*Hardwickia binata*)
 Asana/ Agan (*Bridelia retusa*)
 Babul (*Acacia nilotica*)
 Bahawa (*Cassia fistula*)
 Bamboo (*Dendrocalamus strictus*)
 Beheda (*Terminalia bellerica*)
 Bel (*Aegle marmelos*)
 Bheni (*Thespesia populnea*)
 Bhutya/ Bhutyakes (*Elaeodendron glaucum*)
 Biba (*Semecarpus anacardium*)
 Bija (*Pterocarpus marsupium*)
 Charoli (*Buchanania cochinchinensis*)
 Chinchawa (*Albizia odoratissima*)
 Devakhumba (*Leucas cephalotes*)
 Dhaoda/ dhawada (*Anogeissus latifolia*)
 Dikemali (*Gardenia resinifera*)
 Fish-tail palm/ Birli Maad (*Caryota urens*)
 Garbi (*Entada pusaetha*)
 Ghaypaat (*Agave americana*)
 Hirda (*Terminalia chebula*)
 Jambhul (*Syzygium cumini*)
 Kadu karanda (*Dioscorea bulbifera*)
 Kalam (*Mitragyna parvifolia*)
 Karanj (*Pongamia pinnata*)
 Karvi (*Carvia callosa*)
 Karwand (*Carissa congesta*)
 Kate sawar (*Bombax ceiba*)
 Katranji (*Bambusa arundinacea*)
 Khair (*Acacia catechu*)
 Kombal (*Gnetum ula*)
 Korfad (*Aloe vera* or *Aloe barbadensis*)
 Kuda (*Holarrhena pubescens*)
 Kumbha (*Careya arborea*)
 Mahua (*Madhuca longifolia*)
 Mango (*Mangifera indica*)
 Moha or Mahua (*Madhuca longifolia*)
 Moin/Shemat (*Lannea coromandelica*/Odina woodier)
 Nana (*Lagerstroemia microcarpa*)
 Narkya/Amruta (*Nothapodytes nimmoniana*= *Mappia foetida*)
 Neem or kadulimb (*Azadirachta indica*)
 Nilgiri (*Eucalyptus* sp.)

Palas (*Butea monosperma*)
 Pangara (*Erythrina indica*)
 Pangara (*Erythrina suberosa*)
 Pisa (*Actinodaphne hookeri*)
 Ragi (*Eleusine coracana*)
 Rohan/ shendri (*Mallotus philippensis*)
 Saag (*Tectona grandis*)
 Sahu (*Salix tetrasperma*)
 Saja (*Terminalia tomentosa*)
 Sehma (scientific name could not be ascertained)
 Sesam/Shisam (*Dalbergia latifolia*)
 Shendvel (*Dioscorea pentaphylla*)
 Shikekai (*Acacia concinna*)
 Shiwan or gambhari (*Gmelina arborea*)
 Suru (*Casuarina equisetifolia*)
 Tamarind (*Tamarindus indica*)
 Tambat (*Flacourtia indica*)
 Teak or saag (*Tectona grandis*)
 Tendia (*Lagerstroemia parviflora*)
 Tendu (*Diospyros melanoxylon*)
 Tiwas (*Ougeinia oojeinensis*)
 Watoli/ Watvel/Ramrukhi vel (*Diploclisia glaucescens*)
 Wawla (*Holoptelea integrifolia*)

Manipur

Birds

Blyth's tragopan (*Tragopan blythi*)
 Iruppi /ferruginous pochard (*Aythya nyroca*)
 Meitunga/northern pintail (*Anas acuta*)
 Mrs Hume's bar-backed pheasant (*Syrnaticus humiae*)
 Nganu khara /northern shoveller (*Anas clypeata*)
 Nganu pirel / spotbilled duck (*Anas poecilorhyncha*)
 Nganu thanggong /ruddy shelduck (*Tadorna ferruginea*)
 Thanggong mal /Eurasian wigeon (*Anas penelope*)
 Tharoichabi/open-billed stork/Asian openbill (*Anastomus oscitans*)
 Thoidingam /gadwall (*Anas strepera*)
 Tingi/lesser whistling teal/lesser whistling-duck (*Dendrocygna javaica*)
 Uren porom /common coot (*Fulica atra*)
 Utsai saingou /grey heron (*Ardea cinerea*)

Animals

Asiatic black bear/bhaloo (*Ursus thibetanus*)
 Chinese pangolin (*Manis pentadactyla*)
 Clouded leopard (*Neofelis nebulosa*)
 Golden cat (*Catopuma temmincki*)
 Hoolock gibbon (*Bunopithecus hoolock*)
 Indian elephant (*Elephas maximus*)
 Kak-thenggu /Malayan box turtle (*Cuora amboinensis*)
 Kharsa /Hog deer (*Axis porcinus*)
 Lamok/Wild boar/ Wild pig (*Sus scrofa*)
 Leihao (scientific name could not be ascertained)
 Leopard (*Panthera pardus*)
 Malayan sun bear (*Helarctos malayanus*)
 Marbled cat (*Pardofelis marmorata*)
 Moirang sathibi achouba/ Large Indian civet (*Viverra zibetha*)

Moirang sathibi macha /Small Indian civet (*Viverricula indica*)

Porcupines (*Hystrix* sp.)

Sanamba (common otter) could not ascertain whether the smooth coated otter (*Lutrogale perspicillata*) or Eurasian otter (*Lutra lutra*)

Sangai /brow-antlered deer (*Cervus eldii*)

Slow loris (*Nycticebus bengalensis*)

Spotted linsang (*Prionodon pardicolor*)

Tiger (*Panthera tigris*)

Plants

Alder (*Alnus nepalensis*)

Bonsum (*Phoebe henesiana*) (scientific name could not be verified)

Cane (*Calamus* sp.)

Cardamom (*Elattaria cardamomum*)

Champaca (*Michelia champaca*)

Choura (*Leersia hexandra*)

Coffee (*Coffea* sp.)

Ishing charang (*Hydrilla verticillata*)

Kabo-kang/water-hyacinth (*Eichhornia crassipes*)

Kabo-napi (*Alternanthera philoxeroides*)

Oak (*Quercus* sp.)

Pine (*Pinus* sp.)

Rubber (*Hevea brasiliensis*)

Siroy lily (*Lilium chitrangadae*)

Singmut (*Erianthus arundinaceus*)

Singnang (*Erianthus procerus*)

Taxus baccata (common name could not be ascertained)

Tea (*Camellia sinensis*)

Teak (*Tectona grandis*)

Tou (*Phragmites karka*)

Uningthou (common name could not be ascertained)

Nagaland

Birds

Ashy bulbul (*Hemixos flavala*)
 Austen's barwing (*Actinodura waldeni*)
 Beautiful sibia (*Heterophasia pulchella*)
 Blue-throated barbet (*Megalaima asiatica*)
 Blyth's tragopan (*Tragopan blythii*)
 Chestnut thrush (*Turdus rubrocanus*)
 Dark-rumped swift (*Apus acuticauda*)
 Great pied hornbill/ Great hornbill (*Buceros bicornis*)
 Green-backed tit (*Parus monticolus*)
 Grey peacock pheasant (*Polyplectron bicalcaratum*)
 Grey sibia (*Heterophasia gracilis*)
 Grey-hooded warbler (*Seicercus xanthoschistos*)
 Kalij pheasant (*Lophura leucomelanos*)
 Mrs Hume's pheasant (*Syrnaticus humiae*)
 Orange-bellied chloropsis/ Orange-bellied leafbird (*Chloropsis harwickii*)
 Rufous-necked hornbill (*Aceros nipalensis*)
 Silver-eared mesia (*Leiothrix argentauris*)
 Whiskered yuhina (*Yuhina flavicollis*)
 White-naped yuhina (*Yuhina bakeri*)
 Red jungle fowl (*Gallus gallus*)

Animals

Asiatic black bear/ bhaloo (*Ursus thibetanus*)
 Barking deer (*Muntiacus muntjak*)
 Clouded leopard (*Neofelis nebulosa*)
 Common otter (species could not be ascertained)
 Gaur (*Bos gaurus*)
 Himalayan/ Asiatic black bear/ bhaloo (*Ursus thibetanus*)
 Himalyan crestless porcupine (*Hystrix brachyura*)
 Hoolock gibbon (*Bunopithecus hoolock*)
 Jungle cat (*Felis chaus*)
 Leopard (*Panthera pardus*)
 Mithun (*Bos frontalis*)
 Sambar (*Cervus unicolor*)
 Serow (*Naemorhedus sumatraensis*)
 Sloth bear (*Melursus ursinus*)
 Slow loris (*Nycticebus coucang*)
 Spotted linsang (*Prionodon pardicolor*)
 Stump-tailed macaque (*Macaca arctoides*)
 Tiger (*Panthera tigris*)
 Wild boar / wild pig (*Sus scrofa*)
 Wild dog (*Cuon alpinus*)

Plants

Dzuku lily / Siroy lily (*Lilium chitrangadae*)
 Khwunoria (*Goultheria fragrantissima*)

Orissa**Birds**

Black bittern (*Dupetor flavicollis*)
 Bronze-winged jacana (*Metopidius indicus*)
 Brown crane (*Amaurornis akool*)
 Cattle egret (*Bubulcus ibis*)
 Cinnamon bittern (*Ixobrychus cinnamomeus*)
 Common coot (*Fulica atra*)
 Cotton pygmy-goose (*Nettapus coromandelianus*)
 Fulvous whistling teal (*Dendrocygna bicolor*)
 Great egret (*Casmerodius albus*)
 Grey heron (*Ardea cinerea*)
 Indian cormorant (*Phalacrocorax fuscicollis*)
 Indian /common moorhen (*Gallinula chloropus*)
 Indian pond heron (*Ardeola grayii*)
 Intermediate egret (*Mesophoyx intermedia*)
 Lesser whistling teal/lesser whistling duck (*Dendrocygna javanica*)
 Little cormorant (*Phalacrocorax niger*)
 Little egret (*Egretta garzetta*)
 Little heron (*Butorides striatus*)
 Night heron (*Nycticorax nycticorax*)
 Open-billed stork/Asian openbill (*Anastomus oscitans*)
 Oriental pratincole (*Glareola maldivarum*)
 Painted stork (*Mycteria leucocephala*)
 Pheasant-tailed jacana (*Hydrophasianus chirurgus*)
 Purple heron (*Ardea purpurea*)
 Purple moorhen /purple swamp-hen (*Porphyrio porphyrio*)
 Red-wattled lapwing (*Vanellus indicus*)
 Spotbilled duck (*Anas poecilorhyncha*)

Watercock (*Gallixrex cinerea*)
 White-breasted waterhen (*Amaurornis phoenicurus*)
 Yellow bittern (*Ixobrychus sinensis*)
 Yellow-wattled lapwing (*Vanellus malabaricus*)

Animals

Asian wild buffalo(*Bubalus arnee*)
 Barking deer (*Muntiacus muntjak*)
 Blackbuck (*Antilope cervicapra*)
 Black-naped hare (*Lepus nigricollis nigricollis*)
 Cheetal/harina/spotted deer (*Axis axis*)
 Four-horned antelope (*Tetracerus quadricornis*)
 Gaur (*Bos gaurus*)
 Hyena (*Hyena hyena*)
 Indian elephant (*Elephas maximus*)
 Indian rock python (*Python molurus molurus*)
 Indian soft-shelled turtle (*Asperadetus gangeticus*)
 Irrawaddy dolphin (*Orcaella brevirostris*)
 Jackal (*Canis aureus*)
 Kado or mahaseer fish (*Tor mahanadicus*)
 Leopard (*Panthera pardus*)
 Macaques (*Macaca sp.*)
 Mouse deer (*Moschiola meminna*)
 Nilgai (*Boselaphus tragocamelus*)
 Olive Ridley turtle (*Lepidochelys olivacea*)
 Saltwater crocodile (*Crocodylus porosus*)
 Sambar (*Cervus unicolor*)
 Sloth bear (*Melursus ursinus*)
 Tiger (*Panthera tigris*)
 Wild boar/ Wild pig (*Sus scrofa*)
 Wild buffalo (*Bubalus arnee*)
 Wild dog or dhole (*Cuon alpinus*)

Plants

Acacia sp. (species could not be ascertained)
 Amaltash (*Cassia fistula*)
 Amla/ aonla (*Emblica officinalis*)
 Babul (*Acacia nilotica*)
 Bael/Bel (*Aegle marmelos*)
 Beheda/bahada/baheda (*Terminalia bellerica*)
 Bija (*Pterocarpus marsupium*)
 Black gram (*Vigna mungo*)
Bridelia retusa (common name could not be ascertained)
 Cashew (*Anacardium occidentale*)
 Casuarina (*Casuarina equisetifolia*)
 Chakunda (*Cassia siamea*)
 Char/charoli (*Buchanania lanzan*)
 Dhaoda (*Anogeissus latifolia*)
 Dhobein or passi (*Dalbergia paniculata*)
Eucalyptus sp.
Ficus sp.
 Gamhar (*Gmelia arobrea*)
 Haldu (*Adina cordifolia*)
 Harida (*Terminalia chebula*)
 Jackfruit (*Artocarpus heterophyllus*)
 Jamun (*Syzygium cumini*)
 Kamlagundi (*Mallotus philippinensis*)
 Karala (*Guizotia abyssinica*)

Karanj (*Pongamia pinnata*)
 Kendu (*Diospyros melanoxylon*)
 Khajur (*Phoenix sylvestris*)
 Kochila (*Strychnos nuxvomica*)
 Kurum (*Adina cordifolia*)
 Mahua/mahul/ mohul (*Madhuca longifolia*)
 Mango (*Mangifera indica*)
 Neem (*Azadirachta indica*)
 Palash (*Butea monosperma*)
 Polang (could not be ascertained)
 Purple orchid tree (*Bauhinia purpurea*)
 Ragi (*Eleusine coracana*)
 Sabai grass (*Eulaliopsis binata*) (scientific name could not be verified)
 Sal (*Shorea robusta*)
 Saru or taro (*Colocasia esculenta*)
 Shalmali/red silk-cotton tree (*Bombax ceiba*)
 Shishu (*Dalbergia sissoo*)
 Siali (*Bauhinia vahlii*)
 Sidha (*Lagerstroemia parviflora*)
 Spinous kino tree (*Bridella retusa*)
 Tamarind (*Tamarindus indica*)
 Teak (*Tectona grandis*)
 Tendu (*Diospyros melanoxylon*)

Overview

Birds

Beautiful sibia (*Heterophasia pulchella*)
 Black-headed ibis (*Threskiornis melanocephalus*)
 Blyth's tragopan (*Tragopan blythii*)
 Demoiselle crane (*Anthropoides virgo*)
 Great Indian bustard (*Ardeotis nigriceps*)
 Grey peacock pheasant (*Polyplectron bicalcaratum*)
 Grey sibia (*Heterophasia grasilis*)
 Indian peafowl (*Pavo cristatus*)
 Open-billed stork/Asian openbill (*Anastomus oscitans*)
 Painted stork (*Mycteria leucocephala*)
 Rufous-necked hornbill (*Aceros nipalensis*)
 Spot-billed pelican (*Pelecanus philippensis*)
 White-naped yuhina (*Yuhina bakeri*)

Animals

Asiatic black bear/ bhaloo (*Ursus thibetanus*)
 Blackbuck (*Antelope cervicapra*)
 Chinkara/Indian gazelle (*Gazella bennettii*)
 Elephant (*Elephas maximus*)
 Golden langur (*Trachypithecus geei*)
 Hanuman langur (*Semnopithecus entellus*)
 Hoolock gibbon (*Bunopithecus hoolock*)
 Leopard (*Panthera pardus*)
 Lion (*Panthera leo*)
 Olive Ridley turtle (*Lepidochelys olivacea*)
 Sambar (*Cervus unicolor*)
 Sloth bear (*Melursus ursinus*)
 Snow leopard (*Uncia uncia*)
 Spotted linsang (*Prionodon pardicolor*)
 Stump-tailed macaque (*Macaca arctoides*)

Tiger (*Panthera tigris*)
 Wild boar/ wild pig (*Sus scrofa*)
 Wild dog (*Cuon alpinus*)

Plants

Chir pine (*Pinus roxburghii*)
 Khejari (*Prosopis cineraria*)
 Peepal (*Ficus religiosa*)
 Sal (*Shorea robusta*)
 Tendu (*Diospyros melanoxylon*)

Punjab

Birds

Partridge (*Galloperdix* sp)
 Indian peafowl (*Pavo cristatus*)

Animals

Blackbuck (*Antelope cervicapra*)
 Black-naped hare (*Lepus nigricollis*)
 Chinkara/Indian gazelle (*Gazella bennettii*)
 Jungle cat (*Felis chaus*)
 Nilgai (*Boselaphus tragocamelus*)

Plants

Jungli ber (*Ziziphus nummularia*)
 Khejari (*Prosopis cineraria*)
 Mango (*Mangifera indica*)

Rajasthan

Birds

Black ibis (*Pseudibis papillosa*)
 Black-necked stork (*Ephippiorhynchus asiaticus*)
 Black-winged stilt (*Himantopus himantopus*)
 Common moorhen (*Gallinula chloropus*)
 Cotton teal (*Nettapus coromandelianus*)
 Curlew (*Burhinus oedicnemus*)
 Demoiselle crane /kurja (*Anthropoides virgo*)
 Eurasian wigeon (*Anas penelope*)
 Great Indian bustard (*Ardeotis nigriceps*)
 Indian peafowl (*Pavo cristatus*)
 Lesser whistling teal / lesser whistling-duck (*Dendrocygna javanica*)
 Northern pintail (*Anas acuta*)
 Northern shoveller (*Anas clypeata*)
 Painted stork (*Mycteria leucocephala*)
 Purple moorhen /purple swampphen (*Porphyrio porphyrio*)
 Red-wattled lapwing (*Vanellus indicus*)
 Sarus cranes (*Grus antigone*)
 Spotbilled duck (*Anas poecilorhyncha*)
 White-breasted kingfisher (*Halycon smyrnensis*)
 White-breasted waterhen (*Amaurornis phoenicurus*)

Animals

Blackbuck (*Antelope cervicapra*)
 Black-naped hare (*Lepus nigricollis*)
 Cheeta/ spotted deer (*Axis axis*)
 Chinkara/Indian gazelle (*Gazella bennettii*)
 Common coot (*Fulica atra*)
 Hanuman langur (*Semnopithecus entellus*)
 Common Indian grey mongoose (*Herpestes edwardsi*)

Indian porcupine (*Hystrix indica*)
 Indian wolf (*Canis lupus*)
 Jackal (*Canis aureus*)
 Nilgai (*Boselaphus tragocamelus*)
 Panther/leopard (*Panthera pardus*)
 Sambar (*Cervus unicolor*)
 Sloth bear (*Melursus ursinus*)
 Striped hyena (*Hyaena hyaena*)
 Tiger (*Panthera tigris*)
 Wild boar / wild pig (*Sus scrofa*)

Plants

Babul (*Acacia nilotica*)
 Bajra /pearl millet (*Pennisetum typhoideum*)
 Bansora (*Dendrocalamus strictus*)
 Banyan (*Ficus benghalensis*)
 Ber (*Ziziphus* spp.)
 Berberi chaukar (could not be ascertained)
 Daru halad (*Berberis aristata*)
 Dhawada (*Anogeissus latifolia*)
 Dhok (*Anogeissus pendula*)
 Guggal (*Commiphora mukul*)
 Gular (*Ficus racemosa*)
 Gurja/gurjan (*Lannea coromandelica*)
 Jingha (*Bauhinia racemosa*)
 Jowar/sorghum (*Sorghum vulgare*)
 Kakoon (*Flacourtia indica*)
 Kesar/saffron (*Crocus sativus*)
 Khair (*Acacia catechu*)
 Khejari (*Prosopis cineraria*)
 Neem (*Azadirachta indica*)
 Palash (*Butea monosperma*)
 Peepal (*Ficus religiosa*)
 Rohida (*Tecomella undulata*)
 Safed khair (*Acaia chundra*)
 Salar (*Boswellia serrata*)
 Sarson /mustard (*Brassica* sp.)
 Sheesam /shisham (*Dalbergia latifolia*)
 Tamarind (*Tamarindus indica*)
 Teak (*Tectona grandis*)
 Tendu (*Diospyros melanoxylon*)
 Water hyacinth (*Eichhornia crassipes*)
 Kala jeeree (*Bunium persicum*)

Sikkim

Animals

Musk deer (*Moschus chrysogaster*)

Plants

Castanopsis hystrix (common name could not be ascertained)
 Cherry (*Prunus nepalensis*)
 Cinnamon (*Cinnamomum impressinervium*)
Daphniphyllum himalayense (common name could not be ascertained)
Eurya acuminata (common name could not be ascertained)
Machilus edulis (common name could not be ascertained)

Magnolia (*Michelia cathcartii*)
Nyssa javanica (common name could not be ascertained)
 Oak (*Quercus* sp.)
Spondias axillaris (common name could not be ascertained)

Tamil Nadu

Birds

Bar-headed goose (*Anser indicus*)
 Black and orange flycatcher (*Ficedula nigrorufa*)
 Black ibis (*Pseudibis papillosa*)
 Black-crowned night heron (*Nycticorax nycticorax*)
 Black-winged stilt (*Himantopus himantopus*)
 Common teal (*Anas crecca*)
 Bramhiny kite (*Haliastur indus*)
 Cattle egret (*Bubulcus ibis*)
 Comb ducks (*Sarkidiornis melanotos*)
 Cormorants (*Phalacrocorax* sp.)
 Darter (*Anhinga melanogaster*)
 Egrets (Unclear which species)
 Eurasian spoonbill (*Platalea leucorodia*)
 Flamingoes (*Phoenicopterus* sp.)
 Godwits (*Limosa* sp.)
 Grey heron (*Ardea cinerea*)
 Spotbilled pelican (*Pelecanus philippensis*)
 Gulls (*Larus* spp.)
 Herons (*Ardeola* sp., *Ardea* sp. and others)
 Ibises (Unclear which species)
 Indian roller (*Coracias bengalensis*)
 Mallard (*Anas platyrhynchos*)
 Montagu's harrier (*Circus pygargusi*)
 Nilgiri flycatcher (*Eumyias albicaudata*)
 Nilgiri wood pigeon (*Columba elphistonii*)
 Northern pintails (*Anas acuta*)
 Painted stork (*Mycteria leucocephala*)
 Pelican (*Pelecanus* spp.)
 Sandpipers (species could not be ascertained)
 Spoonbills (*Platalea* sp.)
 Spot-billed pelican (*Pelecanus philippensis*)
 Stork (Unclear which species)
 Tern (*Sterna* spp. *Chlidonias* spp.)
 Verditer flycatcher (*Eumyias thalassina*)
 White-bellied shortwing (*Brachypteryx major*)

Animals

Gaur (*Bos gaurus*)

Plants

Alchemilla indica (common name could not be ascertained)
 Arjun (*Terminalia arjuna*)
Capparis sp. (common name could not be ascertained)
 Crotalaria beddomeana
 East Indian satinwood (*Chloroxylon swietenia*)
Elaeocarpus blascoi (common name could not be ascertained)
 Hardwood (scientific name could not be ascertained)
 Hova Sonerita (name could not be verified)

Indian wild lime (*Atalantia monophylla*)
 Ironwood (*Memecylon umbellatum*)
 Jasmine (*Jasminum auriculatum*)
 Karavel (*Acacia nilotica*)
 Kurinji (*Strobilanthes kunthianus*)
 Neem (*Azadirachta indica*)
 Nilgiri (*Eucalyptus* sp.)
 Orange cestrum (*Cestrum aurantiacum*)
 Paalai (*Wrightia tinctoria*)
Phyllanthus sp. (common name could not be ascertained)
 Pine (*Pinus roxburghii*)
Plectranthus sp. (common name could not be ascertained)
Psydrax ficiformis (common name could not be ascertained)
 Sandalwood (*Santalum album*)
 Sirish (*Albizia lebbbeck*)
 Surai (*Cupressus torulosa*)
 Tamarind (*Tamarindus indica*)
Terminalia tomentosa (common name could not be ascertained)
 Wattle (*Acacia* sp) (species could not be ascertained)

Tripura

Animals

Binturang (*Arctictis binturong*)
 Bonrui (could not be ascertained)
 Chinese pangolin (*Manis pentadactyla*)
 Elephant (*Elephas maximus*)
 Goral (*Naemorhedus goral*)
 Hog badger (*Arctonyx collaris*)
 Hoolock gibbon (*Bunopithecus hoolock*)
 Indian wolf (*Canis lupus*)
 Leopard (*Panthera pardus*)
 Leopard cat (*Prionailurus bengalensis*)
 Malayan giant squirrel (*Ratufa bicolor*)
 Marbled cat (*Pardofelis marmorata*)
 Orange bellied squirrel (*Dremomys lokriah*)
 Serow (*Naemorhedus sumatraensis*)
 Sloth bear (*Melursus ursinus*)
 Slow loris (*Nycticebus coucang*)
 Tiger (*Panthera tigris*)

Plants

Sal (*Shorea robusta*)
Dipterocarpus turbinatus
Lagerstroemia parviflora
Vitex peduncularis
Terminalia bellerica

Uttar Pradesh

Birds

Bar-headed goose (*Anser indicus*)
 Black francolin (*Francolinus francolinus*)
 Brey francolin (*Francolinus pondicerianus*)
 Himalayan monal (*Lophophorus impejanus*)
 House swift (*Apus affinis*)
 Indian skimmer (*Rynchops albicollis*)

Lesser florican (*Sypheotides indica*)
 Sarus crane (*Grus antigone*)

Animals

Gangetic river dolphin (*Platanista gangetica*)
 Nilgai / blue bull (*Boselaphus tragocamelus*)

Plants

Ashoka (*Polyalthia longifolia*)
 Babul (*Acacia nilotica*)
 Banyan (*Ficus benghalensis*)
 Ber (*Ziziphus* sp.)
 Cogon grass (*Imperata cylindrica*)
 Dhatura (*Datura innoxia*)
 Doob (*Cynodon dactylon*)
 Garara (*Chrysopogon zizanioides*)
 Ironwood or mesquite (*Prosopis juliflora*)
 Jhau (*Tamarix* sp.)
 Karel (*Capparis decidua*)
 Khair (*Acacia catechu*)
 Pudding-pipe or shami or Khejri (*Prosopis cineraria* = *P. spicigera*)
 Kush (*Cynodon dactylon*)
 Lotus (*Nelumbo nucifera*)
 Mahua (*Madhuca longifolia*)
 Neem (*Azadirachta indica*)
 Peepal (*Ficus religiosa*)
 Pomegranate (*Punica granatum*)
 Poplar (*Populus* sp.)
 Safeda (*Eucalyptus* sp.)
 Sarkanda (*Saccharum munja*)
 Sweet basil (*Ocimum basilicum*)
 Teak (*Tectona grandis*)
 White acacia (*Acacia leucocephala*)
 Wood apple/Bel (*Aegle marmelos*)

Uttarakhand

Birds

Asian koel (*Eudynamis scolopacea*)
 Bar-headed goose (*Anser indicus*)
 Gull-billed tern (*Gelochelidon nilotica*)
 Himalayan monal (*Lophophorus impejanus*)
 Jungle fowl (*Gallus* sp.)
 Kalij pheasant (*Lophura leucomelanos*)
 Koklass pheasant (*Pucrasia macrolopha*)
 Lapwings (*Vanellus* sp.)
 Little tern (*Sterna albifrons*)
 Long-tailed thrush (*Zoothera dixonii*)
 Munia (*Lonchura* sp.)
 Painted stork (*Mycteria leucocephala*)
 Indian peafowl (*Pavo cristatus*)
 Pine bunting (*Emberiza leucocephalos*)
 Plovers (species could not be ascertained)
 Red-billed blue magpie (*Urocissa erythrorhyncha*)
 Red-headed vulture (*Sarcogyps calvus*)
 Red-necked falcon (*Falco chicquera*)
 Rufous woodpecker (*Celeus brachyurus*)
 Sarus crane (*Grus antigone*)
 Streak-throated woodpecker (*Picus xanthopygaeus*)

White-rumped vulture (*Gyps bengalensis*)
 White-tailed Eagle (*Haliaeetus albicilla*)
 Woolly-necked stork (*Ciconia episcopus*)
 Yellow-billed blue magpie (*Urocissa flavirostris*)
 Grey-chinned minivet (*Pericrocotus solaris*)
 Black-bellied tern (*Sterna acuticauda*)
 Indian blue robin (*Luscinia brunnea*)
 Western Tragopan (*Tragopan melanocephalus*)

Animals

Barking deer /kakar (*Muntiacus muntjak*)
 Brown bullfinch (*Pyrrhula nipelensis*)
 Chestnut bunting (*Emberiza rutila*)
 Ghurarh/ Goral (*Naemorhedus goral*)
 Hanuman langur (*Semnopithecus entellus*)
 Himalayan /Asiatic black bear/ bhaloo (*Ursus thibetanus*)
 Himalayan brown bear (*Ursus arctos*)
 Himalayan musk deer (*Moschus chrysogaster*)
 Himalayan yellow throated marten/ Chitrol (*Martes flavigula*)
 Indian porcupine/ saulla (*Hystrix indica*)
 Indian wild boar/ Wild pig /suar (*Sus scrofa*)
 Jackal (*Canis aureus*)
 Jungle cat/ Van billi (*Felis chaus*)
 Leopard cat/ ban bijju (*Prionailurus bengalensis*)
 Leopard/baghera (*Panthera pardus*)
 Mainland serow (*Naemorhedus sumatrensis*)
 Musk deer (*Moschus chrysogaster*)
 Rhesus macaque /bandar (*Macaca mulatta*)
 Rufous-tailed hare/khargosh (*Lepus nigricollis ruficaudatus*)
 Sambar /jarhaoo (*Cervus unicolor*)
 Snow leopard (*Uncia uncia*)
 Tiger/ bagh (*Panthera tigris*)

Plants

Aadu (*Prunus persia*)
 Aam (*Mangifera indica*)
 Ainyaar (*Lyonia ovalifolia*)
 Akhrot (*Juglans regia*)
 Amla (*Emblica officinalis*)
 Amrud (*Psidium guajava*)
 Apricot (*Prunus armeniaca*)
 Baan oak (*Quercus incana*)
 Baherha (*Terminalia bellerica*)
 Bamboo /ringal (*Arundinaria* sp.)
 Banaksha (*Viola odorata*)
 Banj oak (*Quercus leucotrichophora*)
 Barking deer (*Muntiacus muntjak*)
 Bashroi/bhainshra (*Salix daphnoides*)
 Bathu (*Chenopodium album*)
 Beel (*Aegle marmelos*)
 Beul (*Grewia oppositifolia*)
 Bhambela (*Euonymus pendulus*)
 Bheemal/ bhiyul (*Grewia optiva*)
 Bhojpatra/ birch (*Betula utilis*)
 Bugi or Pichi grass (*Trachaedium royalii* - scientific name could not be verified)
 Buraans (*Rhododendron arboreum*)

Champa (*Pterospermum acerifolium*)
 Chir (*Pinus roxburghii*)
 Costus root (*Costus speciosus*)
 Daru halad/daru haridra (*Berberis aristata*)
 Deodar (*Cedrus deodara*)
 Dudhoi (*Ficus nerifolii*)
 Fir (*Abies* sp.)
 Gucchhi (*Morchella esculenta*)
 Horse chestnut (*Aesculus indica*)
 Jhula (could not be ascertained)
 Kachnar (*Bauhinia variegata*)
 Kail (*Pinus wallichiana*)
 Kaint/mohal (*Pyrus pashia*)
 Kambal (*Rhus wallichii*)
 Kangni or foxtail millet (*Setaria italica*)
 Kaula/kawala (*Machilus odoratissima*)
 Khair (*Acacia catechu*)
 Khanor (*Aesculus indica*)
 Kharki (*Celtis tetrandra*)
 Khejadi/ khejari (*Prosopis cineraria*)
 Khirik or toon (*Cedrela toona*)
 Kimu (*Morus serrata*)
 Kingorha (*Berberis asiatica*)
 Koda (*Paspalum scrobiculatum*)
 Kulatih or horse gram (*Macrotyloma uniflorum*)
 Kutki/Karvi (*Picrorhiza kurooa*)
 Lantana (*Lantana camara*)
 Lodhra (*Symplocos crataegoides*)
 Lycium (could not be ascertained)
 Mahal bamboo (*Bambusa longispiculata*)
 Maize (*Zea mays*)
 Masar or masoor (*Lens esculenta*)
 Moong or mash (*Phaseolus aureus*)
 Mulberry or shahtoot (*Morus serrata*)
 Oak (*Quercus leucotrichophora*)
 Oak of Western Himalayas (*Quercus incana*)
 Paiyya (*Prunus cerasoides*)
 Phaja (*Prunus cerasoides*)
 Pangoi/paranga (*Acer oblongum*)
 Peepal (*Ficus religiosa*)
 Phapra (*Fagopyrum tataricum*)
 Pine (*Pinus kasya* or *P. insularis*)
 Poplar or safeda (*Populus alba*)
 Rai or spruce (*Abies smithiana*)
 Raini\ rohini (*Mallotus philippensis*)
 Rajma beans (*Phaseolus vulgaris*)
 Rakhhal/ yew (*Taxus baccata*)
 Rhododendrons (*Rhododendron* sp.)
 Sandan (*Ougeinia oojeinensis*)
 Sal (*Shorea robusta*)
 Semla (*Bauhinia retusa*)
 Shurur (*Litsea umbrosa*)
 Silver oak (*Grevillea robusta*)
 Simbal (*Bombax ceiba*)
 Sissoo (*Dalbergia sissoo*)
 Spikenard (*Nardostachys jatamansi*)
 Surai (*Cupresses torulosa*)

Timla (*Ficus roxburghii*)

Tosh (*Abies pindrow*)

Tun (*Cedraia toona*)

Tuni (*Toona ciliata*)

Ut (*Alnus nepalensis*)

West Bengal

Birds

Adjutant stork (unclear lesser or greater)

Hornbill (*Buceros* sp) (unclear which species)

Merganser (*Mergus merganser*)

Osprey (*Pandion haliaetus*)

Peacock/Indian peafowl (*Pavo cristatus*)

Open-billed stork/ Asian openbill (*Anastomus oscitans*)

Animals

Barking deer (*Muntiacus muntjak*)

Fishing cat (*Prionailurus viverrinus*)

Gangetic dolphin (*Platanista gangetica*)

Goral (*Naemorhedus goral*)

Leopard (*Panthera pardus*)

Little porpoise (*Neophocaena phocaenoides*)

Monkeys (*Macaca* sp.)

Olive Ridley turtle (*Lepidochelys olivacea*)

Saltwater crocodile (*Crocodylus porosus*)

Tiger (*Panthera tigris*)

Plants

Bamboo (*Dendrocalamus strictus*)

Ber (*Ziziphus mauritiana*)

Nettle (*Urtica atrichocaulis*)

Peepal (*Ficus religiosa*)

Tulsi (*Ocimum tenuiflorum*)

Water hyacinth (*Eichhornia crassipes*)

Yarrow (*Achillea millefolium*)

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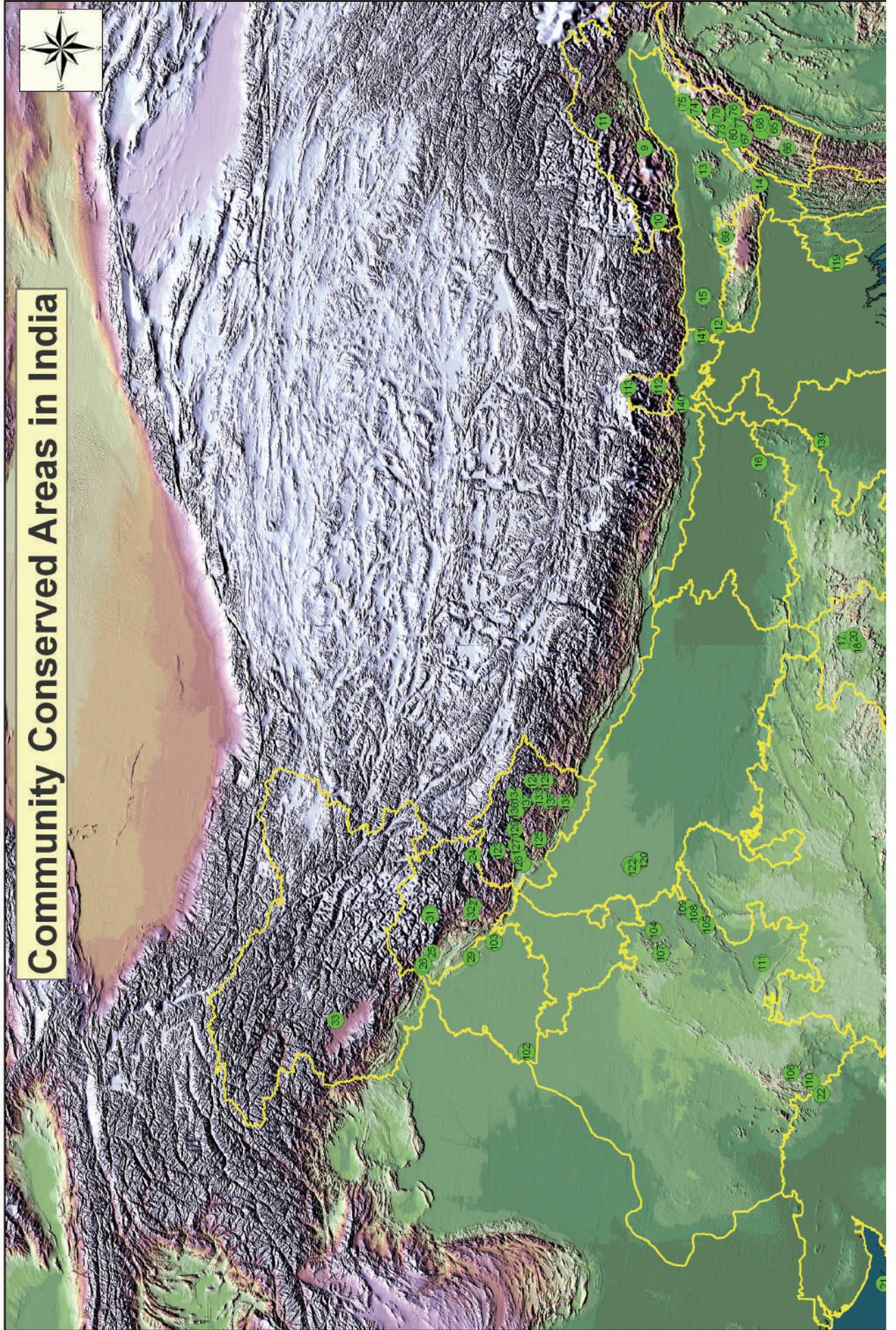
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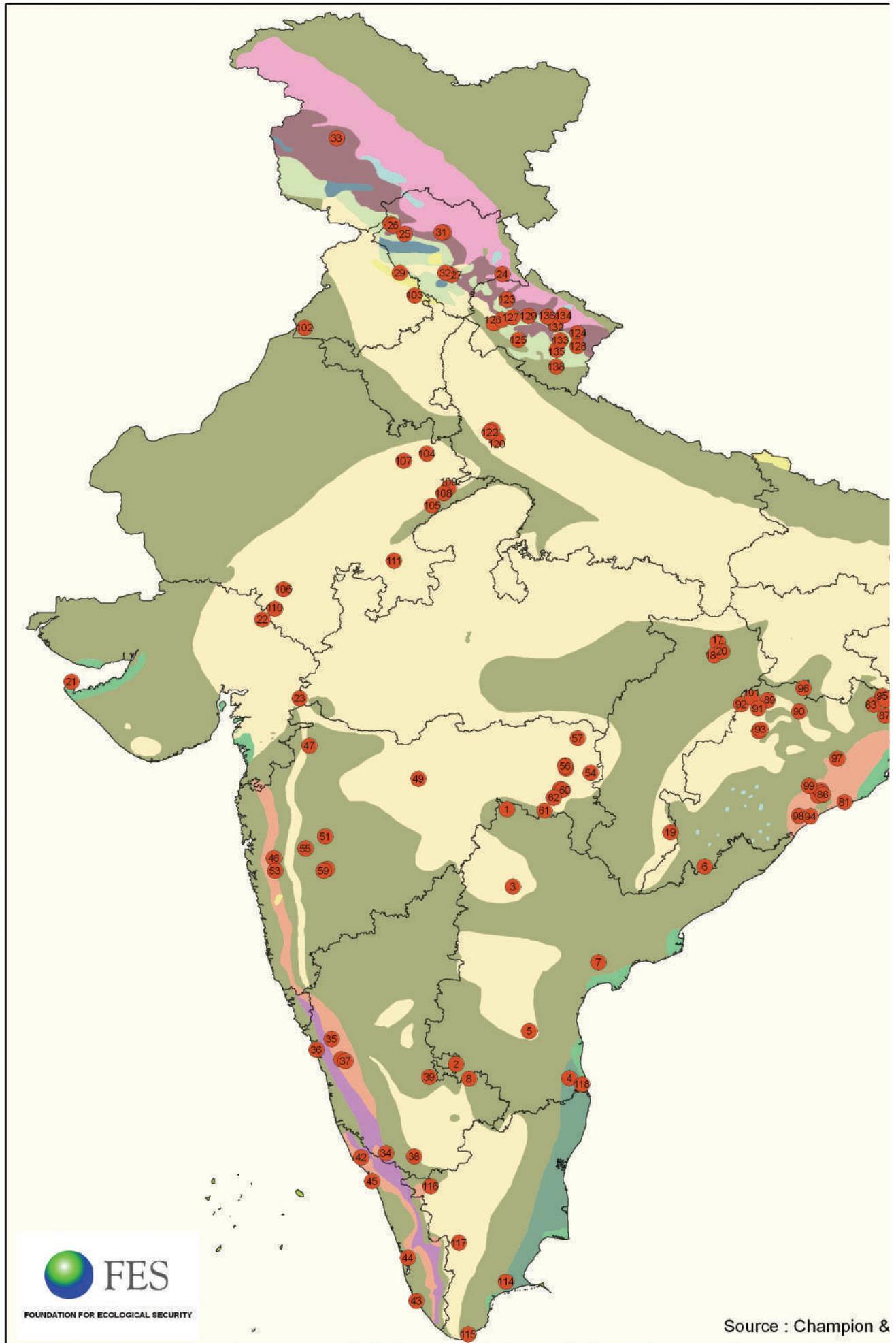




24 Community Conserved Areas
(Listed on pages 38-40)

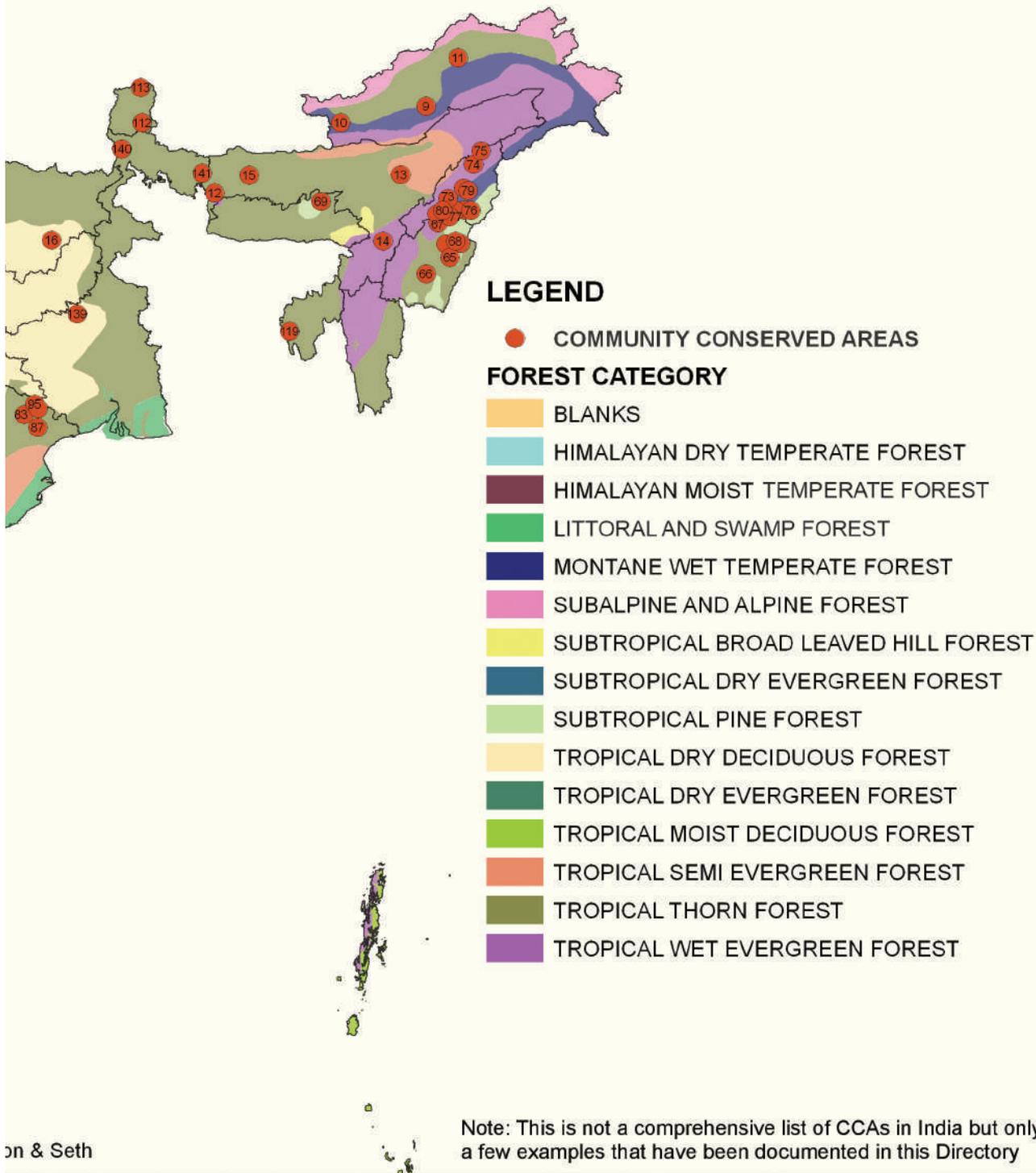


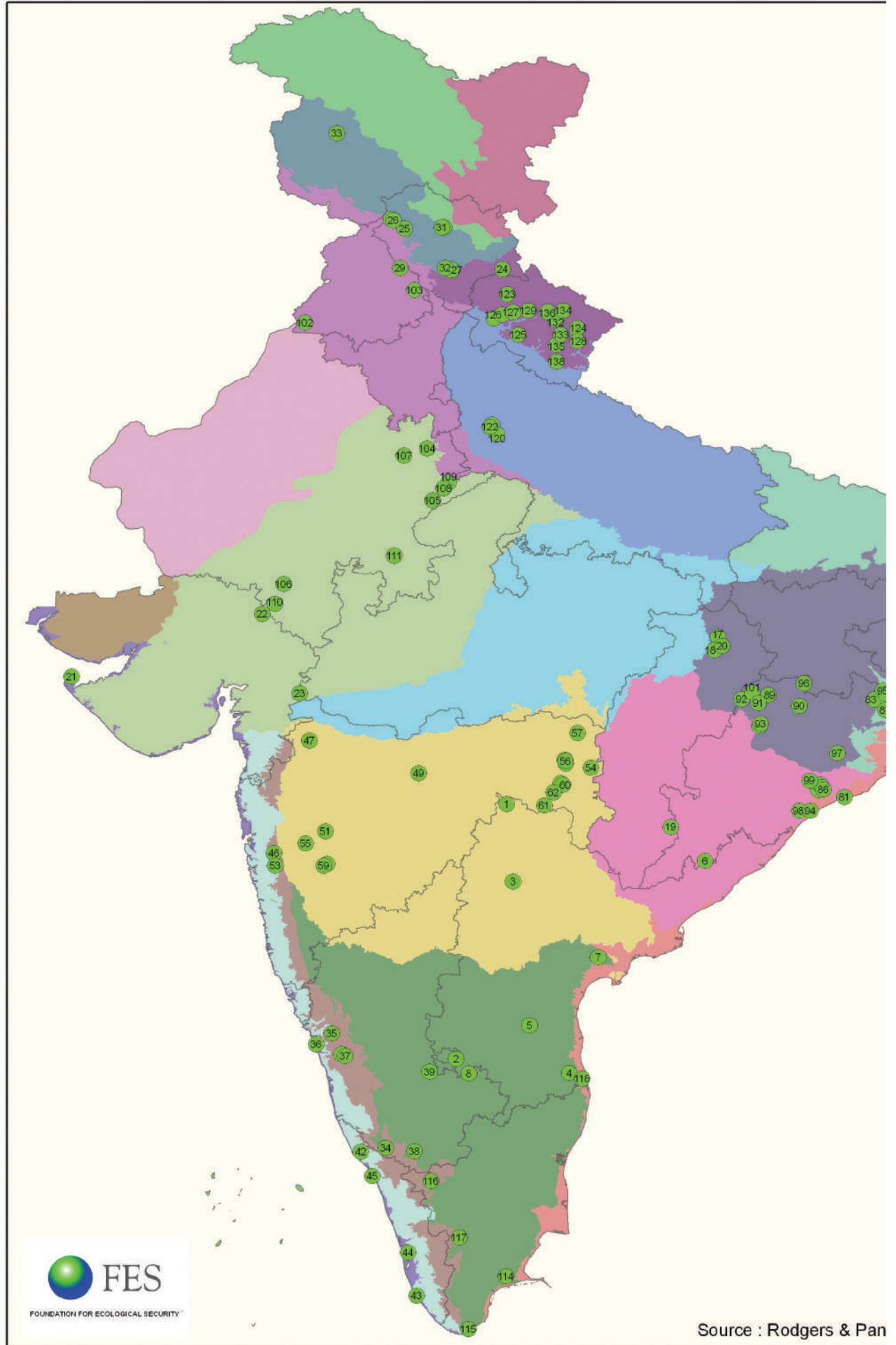
Note: This is not a comprehensive list of CCAs in India but only a few examples that have been documented in this Directory



CCAs with Forest Types

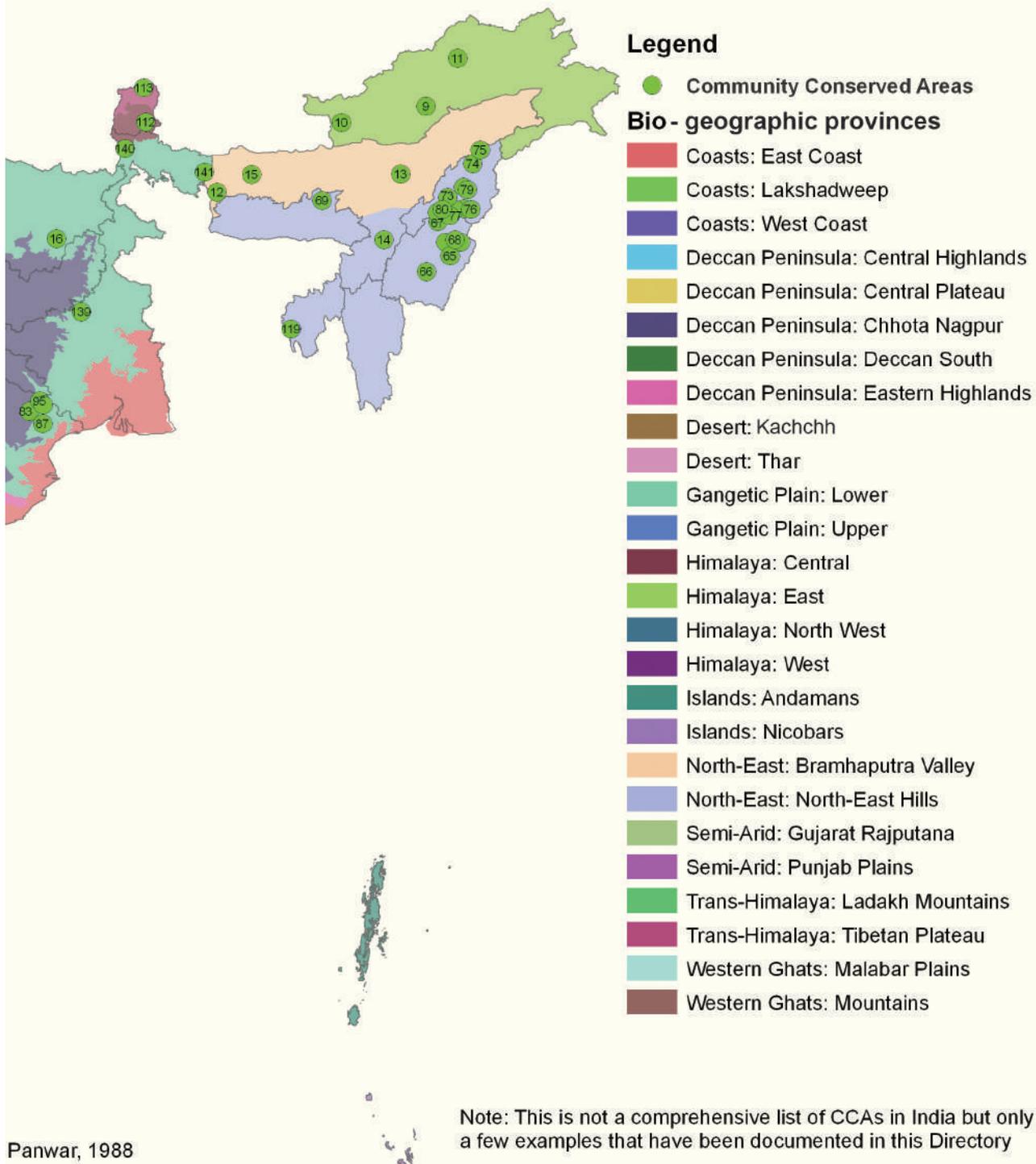
(Listed on pages 38-40)





CCAs with Bio-geographic Zones

(Listed on pages 38-40)



List of CCAs as referred to in the maps

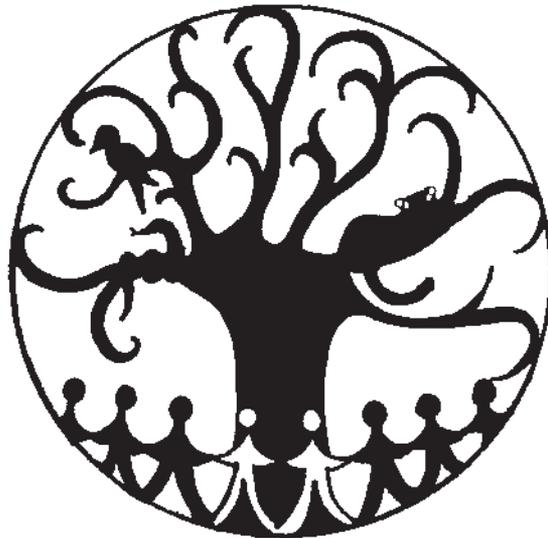
Map ref. no	State	Village	District	Kind of initiative
1.	Andhra Pradesh	Behroonguda village	Adilabad	Forest
2.	Andhra Pradesh	Veerapuram village	Anantapur	Heronry
3.	Andhra Pradesh	Kalapavalli (8 villages)	Anantpur	Forest
4.	Andhra Pradesh	Pedullupalle village	Cadappa	Heronry
5.	Andhra Pradesh	Uppalapadu village	Guntur	Heronry
6.	Andhra Pradesh	Mantoor village	Medak	Forest
7.	Andhra Pradesh	Nellapattu & Vedurapattu villages	Nellore	Heronry
8.	Andhra Pradesh	Sova village	Vishakapattanam	Forest
9.	Arunachal Pradesh	Mega, Molo and Dipu villages	Along	Sacred grove
10.	Arunachal Pradesh	Apatani valley	Lower Subhansari	Forest
11.	Arunachal Pradesh	Sangti valley	West Kameng	Species
12.	Assam	Shankarghola village	Bongaigaon	Species
13.	Assam	Chakrashila sanctuary	Dhubri	Species
14.	Assam	Khawrakrai village	Karbi-Anglong	Forest
15.	Assam	New Kubing village	North Cachar Hills	Forest
16.	Bihar	Motichak village	Bhagalpur	Species
17.	Chhattisgarh	Junawani and Ulnar (with 12 villages)	Bastar	Forest
18.	Chhattisgarh	Chamanpur village	Sarguja	Forest
19.	Chhattisgarh	Ganeshpura village	Sarguja	Forest
20.	Chhattisgarh	Karundamunda village	Sarguja	Forest
21.	Gujarat	Chusana Island	Jamnagar	Mangrove
22.	Gujarat	Malekpur village	Vadodara	Forest
23.	Gujarat	Kawant region	Vadodara	Forest
24.	Himachal Pradesh	Kamla village	Chamba	Forest
25.	Himachal Pradesh	Rajain village	Chamba	Forest
26.	Himachal Pradesh	Mcleodgunj & nearby villages (Pong wetland)	Dharamshala	Species
27.	Himachal Pradesh	Chhitkul village	Kinnaur	Forest
28.	Himachal Pradesh	Padhar village	Kullu	Forest
29.	Himachal Pradesh	Shanag village	Kullu	Forest
30.	Himachal Pradesh	Nanj village	Mandi	Forest
31.	Himachal Pradesh	Thalli village	Mandi	Forest
32.	Himachal Pradesh	Panjawar village	Una	Forest
33.	Jammu & Kashmir	Garooru village	Baramulla	Forest
34.	Karnataka	Sacred groves of Virajpet taluka	Kodagu	Sacred grove
35.	Karnataka	Kokare Bellure village	Mysore	Heronry
36.	Karnataka	Hunsur village	Shimoga	Sacred grove
37.	Karnataka	Shiroor Alalli village	Shimoga	Forest
38.	Karnataka	Kaggaladu village	Tumkur	Heronry
39.	Karnataka	Nagavalli village	Tumkur	Species
40.	Karnataka	Doddabail hamlet, Bhairumbe	Uttar Kannada	Forest
41.	Karnataka	Halkar village	Uttar Kannada	Forest
42.	Kerala	Iringole Kavu	Eranakulam	Sacred grove
43.	Kerala	Aravanchal Kavu	Kannoor	Sacred grove
44.	Kerala	Ashtamudi lake	Kollam	Estuary
45.	Kerala	Kolavipaalam Beach, Iringal	Kozhikode	Species
46.	Maharashtra	Hiware Bazaar village	Ahmadnagar	Forest
47.	Maharashtra	Bolunda village	Bhandara	Sacred grove
48.	Maharashtra	Botha village	Buldhana	Forest

49.	Maharashtra	Belgata village	Chandrapur	Forest
50.	Maharashtra	Chorati village	Chandrapur	Forest
51.	Maharashtra	Lakhapur village	Chandrapur	Forest
52.	Maharashtra	Saigata village	Chandrapur	Forest
53.	Maharashtra	Adiyal tekdi	Chandrapur	Forest
54.	Maharashtra	Siddheshwar village	Chandrapur	Sacred grove
55.	Maharashtra	Satara Tukum village	Chandrapur	Forest
56.	Maharashtra	Baripada village	Dhule	Forest
57.	Maharashtra	Mendha-Lekha village	Gadchiroli	Forest
58.	Maharashtra	Ajeevali village	Pune	Sacred grove
59.	Maharashtra	Morachi Chincholi village	Pune	Species
60.	Maharashtra	Ravangaon village	Pune	Species
61.	Maharashtra	Shirsuphal village	Pune	Forest
62.	Maharashtra	Maangaon village	Pune	Sacred grove
63.	Manipur	Loktak lake	Bishnupur	wetland
64.	Manipur	Upper Ngatan village	Senapati	Forest
65.	Manipur	Khambi village	Ukhrul	Forest
66.	Manipur	Shirui Hill, Shirui	Ukhrul	Species
67.	Manipur	Mapum village	Ukhrul	Forest
68.	Manipur	Ngainga village	Ukhrul	Forest
69.	Meghalaya	Thiang sacred grove (7 villages)	Ri Bhoi	Sacred grove
70.	Nagaland	Khonoma village	Kohima	Forest and species
71.	Nagaland	Sendenyu village	Kohima	Forest and species
72.	Nagaland	Toufema village	Kohima	Forest and species
73.	Nagaland	Changtongya village	Mokokchung	Forest and species
74.	Nagaland	Kongan village	Mon	Forest
75.	Nagaland	Chizami and neighbouring 5 villages	Phek	Forest and species
76.	Nagaland	Luzophuhu village	Phek	Forest and species
77.	Nagaland	Kikruma village	Phek	Forest
78.	Nagaland	Zanibu peak	Phek	Forest and species
79.	Nagaland	Chishilimi village	zonheboto	Forest and species
80.	Nagaland	Tizu village	zonheboto	Species
81.	Orissa	Rupabalia reserved forest (8 villages)	Dhenkanal	Forest
82.	Orissa	Manglajodi village	Ganjam	Species
83.	Orissa	Rushikulya rookery	Ganjam	Species
84.	Orissa	Jhargoan village	Jharsuguda	Forest
85.	Orissa	Budhikhamari village	Mayurbhanj	Forest
86.	Orissa	Patharaghara village	Mayurbhanj	Forest
87.	Orissa	Sunaposi (11 villages)	Mayurbhanj	Forest
88.	Orissa	Ghusuria village	Mayurbhanj	Forest
89.	Orissa	Dengajhari village	Nayagarh	Forest
90.	Orissa	Dhani Panch Mouza (5 villages)	Nayagarh	Forest
91.	Orissa	Gadabankilo village	Nayagarh	Forest
92.	Orissa	Samantsinharpur, Andharua villages	Nayagarh	Forest
93.	Orissa	Balukhand Konark sanctuary	Puri	Mangrove
94.	Orissa	Binjgiri hill (8 villages)	Puri	Forest
95.	Orissa	Huta village	Sambalpur	Species

96.	Orissa	Maneshwar temple	Sambalpur	Species
97.	Orissa	Jharbeda village	Sundargarh	Forest
98.	Orissa	Kodbahal	Sundargarh	Species
99.	Orissa	Phuljhar village	Sundargarh	Forest
100.	Orissa	Jarmal village	Sundargarh	Forest
101.	Orissa	Suruguda village	Sundargarh	Forest
102.	Punjab	Abhor (13 villages)	Ferozepur	Species
103.	Punjab	Todar Majra, Makrian, Chunni Khurad, Makar & Majatri villages	Ropar	Species
104.	Rajasthan	Bhaonta-Kolyala villages	Alwar	Forest
105.	Rajasthan	Kishori village	Alwar	Forest
106.	Rajasthan	Kailadevi sanctuary	Karauli	Forest
107.	Rajasthan	Ledhor-Kala village	Karauli	Forest
108.	Rajasthan	Patari Dang (Hill), Alampur village	Karauli	Forest
109.	Rajasthan	Udपुरia village pond	Kota	Wetland
110.	Rajasthan	Kichan village	Udaipur	Species
111.	Rajasthan	Suali, Bhamti village	Udaipur	Forest
112.	Sikkim	Kabi sacred groves	Gangtok	Sacred grove
113.	Sikkim	Khangchendzonga sacred landscapes	Yuksam	Wetland
114.	Tamil Nadu	Longwood shola	Coimbatore	Forest
115.	Tamil Nadu	Pulicat lake	Nellore	Lagoon
116.	Tamil Nadu	Pambar shola	Palni Hills	Forest
117.	Tamil Nadu	Chittarangudi village	Ramanathapuram	Wetland
118.	Tamil Nadu	Koondakulam village	Tirunelveli	Wetland
119.	Tripura	Melghar village	West Tripura	Forest
120.	Uttar Pradesh	Amakhera village	Aligarh	Wetland
121.	Uttar Pradesh	Daupur village	Aligarh	Wetland
122.	Uttar Pradesh	Gursikaran Forest (20 villages)	Aligarh	Forest
123.	Uttarakhand	Khirakot village	Almora	Forest
124.	Uttarakhand	Simalgaon village	Bageshwar	Forest
125.	Uttarakhand	Dharamghar region	Bageshwar and Pithoragarh	Forest
126.	Uttarakhand	Gwaldam village	Chamoli	Sacred grove
127.	Uttarakhand	Haryali Devi	Chamoli	Sacred grove
128.	Uttarakhand	Pakhi and Jalgwad villages	Chamoli	Forest
129.	Uttarakhand	Nahikalan village	Dehradun	Forest
130.	Uttarakhand	Thapaliya-Mehargaon village	Nainital	Forest
131.	Uttarakhand	Dungri Chopra village	Pauri Garhwal	Forest
132.	Uttarakhand	Lohathal sacred grove	Pithoragarh-	Forest
133.	Uttarakhand	Makku village van panchayat (Makku and 8 villages)	Rudraprayag	Forest
134.	Uttarakhand	Nagchaund village	Tehri Garhwal	Forest
135.	Uttarakhand	Holta village	Tehri Garhwal	Forest
136.	Uttarakhand	Jardhargoan village	Tehri Garhwal	Forest
137.	Uttarakhand	Dakhyatgaon village	Uttarkashi	Forest
138.	West Bengal	Jogyanagar village	Birbhum	Heronry
139.	West Bengal	Rasikbeel village	Cooch Behar	Wetland
140.	West Bengal	Makaibari tea-estate	Darjeeling	Forest

Community Conserved Areas in India

An overview



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Community Conserved Areas in India - An overview

Neema Pathak¹

Introduction

In 1798, in a small village called Vedanthangal near Chennai, British soldiers shot some storks in the local wetland. The villagers stormed the collector's office and made him issue a *koul* or order that no one was to harm the nesting birds.² This is long before the concept of protected areas (PA)³ as we know them today was even thought of. Indian history is peppered with numerous such examples, many reported by the British and in recent times by many other scholars and researchers such as Chandran and Kalam (1997),⁴ Chandrashekhara and Shankar (1998),⁵ Das and Malhotra (1998),⁶ Gadgil (1995)⁷ and Gadgil and Guha (1962)⁸. Many of these local efforts at conservation, regeneration and/or management have continued for generations but many others are emerging in newer situations and circumstances. The reasons for their existence, continuance and emergence are varied: countering depletion of life-sustaining resources, maintaining watersheds, seeking ecological benefits, conservation of wildlife and biodiversity and or religious/cultural sentiments. The local institutions used to achieve these objectives are also diverse: they could either be traditional structures, revived structures in modified form, or sometimes even completely new structures. One common thread in these efforts is that their roots often lie in the traditional or local knowledge systems and experiences, and the primary managers and decision-makers are the local communities. The mechanisms and approaches followed are locale-specific, based on the nature and character of the residing or user human society, surrounding natural resources, nature of interaction between the two, and other internal and external factors influencing the community and the resource. Considering that India is a country of a huge diversity of cultures, ecosystems and species, it is not surprising that the community efforts at conservation are also extremely diverse. The strength of these systems lies in the social rules that they follow and local systems of conflict resolution that they adopt. In a country as culturally and ecologically diverse as India, the diversity of such initiatives, their characteristics, objectives, systems of management, rules, regulations and impacts is but natural.

On the other hand, whether in India or abroad, nature conservation today is formally predominantly understood to happen only within the limited boundaries of PAs declared and managed by government agencies under statutory provisions. Invariably these PAs are conceived as islands where any form of human intervention is considered harmful for the ecosystem and species. It is therefore not surprising that in a densely populated country like India, where millions of people still live within and depend for survival on natural ecosystems, this has resulted in numerous conflicts between the local communities and official managers of these protected lands and waters.⁹ The fact that a relatively large network of conservation efforts by local people in India could provide a system of biodiversity conservation that is complementary to the government-run network of protected areas has remained largely unrecognised and hence unexplored. As per our understanding, losing out on this experience of generations has been one of the greatest losses for wildlife and biodiversity in India, as many of these efforts could provide important lessons on how to tackle the conflicts that wildlife officials face with the local people, or how to build robust institutions for governance and management.

Lack of sufficient and detailed information about these initiatives and their assimilation into the policy making system is to a great extent responsible for their lack of recognition as important models to achieve conservation and livelihood security in the country. We believe that if such initiatives are officially recognized and lessons learnt from their strengths and weaknesses find their way into conservation laws and policies, then India could bring more than 10 per cent of the country's landmass under conservation (official PAs cover a little less than 5%).

In the past few decades, much work has been done towards examining traditional systems and knowledge related to conservation, religious and spiritual sentiments and their role in conservation, and government-sponsored schemes such as joint forest management (JFM) and their role in involving local people in forest regeneration. However, there were only occasional mentions and articles on other kinds of efforts of local communities, such as those achieving conservation while protecting resources for livelihood needs, or local communities protecting resources to assert their rights and responsibilities, or local communities protecting biodiversity for the sake of biodiversity or to protect a specific species or habitat. Thus the full range, extent and impacts of the phenomenon that we have chosen to call community conserved areas (CCAs) (as defined in Section 1.2) remained unrecognised.

With this realisation, the Directory of Community Conserved Areas was initiated less than a decade

ago to document a diversity of efforts. Conservation here does not only mean 'strict protection', but includes a continuum of practices ranging from strict protection to regulated multiple-use.

What are the main objectives of the CCA Directory?

The main objectives with which this Directory was started included exploring the following facets in detail:

1. Reasons that motivate communities to start conservation initiatives
2. Social and ecological processes that are involved in these initiatives
3. Constraints that these communities face and opportunities that are available to them
4. The manner in which internal differences and inequities in a community impact the conservation efforts and vice versa
5. Effective legal and policy changes needed to facilitate these initiatives
6. Area of the country that is under such conservation
7. The reasons because of which these initiatives succeed or fail
8. Role of these initiatives in sustaining local livelihoods
9. Role of these initiatives in achieving conservation of resources and protection of species

This analysis and compilation is not to give the impression that communities everywhere in India are conservation-oriented. Even if they number in their thousands, initiatives like the ones mentioned in this directory would still be small compared to India's enormous landmass. In many communities (probably the majority), traditions of conservation have been eroded, and natural ecosystems have been converted to other land uses. Nor are we implying that all village-level initiatives are unqualified successes. Like official protected areas, CCAs too have a host of serious problems to contend with. These include dissension and inequities within the community, weaknesses in countering powerful commercial forces from outside, lack of knowledge regarding the full range of biodiversity and its value, the pressures of abject poverty, and others.

However, the fact remains that many such efforts have existed and continue to emerge in the current fast-changing global and local socio-economic situations. They can do with considerable support from NGOs and government agencies to deal with internal weaknesses and to thwart external pressures and threats. There is an immediate need for further studies on these initiatives, so that their full biodiversity and social values can be gauged and others can learn about and from them. Some such work has been done, such as by Godbole et al (1998);¹⁰ Gokhale (2001);¹¹ Kalam (1996);¹² Kushalappa et al. (2001);¹³ and others, yet much needs to be done, particularly in areas outside of those protected for religious reasons. It may also often be necessary to accord these CCAs legal backup, especially so that communities can enforce their customary or unwritten rules.

About the overview

The rest of this overview is an attempt to share our understanding of key characteristics of CCAs, their strengths and weakness, some major issues facing them today, important lessons that they reveal, and the limitations and constraints that they face. This overview draws partly from the work done in the past by a number of researchers, academics, grassroots workers and others, but is largely based on the state chapters and case studies in this directory (please do bear in mind that the limitations of the Directory as mentioned in the 'Introduction to the Directory' may have a bearing on this analysis too). A number of national and international dialogues and debates have also helped in the analysis presented here. **For a detailed list of case studies see annexure 1.**

How is this overview structured?

Section 1 deals with definitions, criteria and clarifications.

Section 2 deals with some of the main characteristics of CCAs, such as how much area a single CCA conserves, how these efforts get initiated, who or what motivates them, how they evolve in different circumstances, what kinds of rules and regulations they follow, what kinds of institutions they have established, and so on.

-Section 3 explores whether CCAs in the Indian context can be considered PAs.¹⁴ This section

draws from international experiences, debates and discussions in this regard. It further explores the similarities, differences and complementarities between CCAs and PAs.

Section 4 looks at the positive and negative impacts that CCAs have had on the conserving communities, as well as the biological diversity in these areas. This includes kinds of costs and benefits that the communities have incurred.

Section 5 deals with some of the major threats that CCAs face, dividing such threats into two main categories—external threats and internal threats.

Section 6 considers whether CCAs can provide solutions to all problems of conservation in India or do they have limitations too. It examines what these limitations are and how they can be overcome.

Section 7 explores a large range of issues and lessons that are involved in a discussion on CCAs, mainly to see if the environment in the country is conducive to support and promote CCAs. This section then goes on to examine some ways in which such an environment can be created. This section also explores the lessons that can be learnt from the strengths and weaknesses of CCAs for a more inclusive conservation model in the country, including consideration of a landscape approach.

Section 9 looks at how effectively current Indian laws and policies are able to support CCAs or whether they are in fact a hindrance.

Section 10 is the concluding section which also briefly discusses some steps for future action.

There are also a number of annexures along with this analysis. These further elaborate some of the points mentioned in the text or provide more in-depth background.

1. Definitions and clarifications

This section deals with the definitions and terms that we have used.

1.1 What are Community Conserved Areas (CCAs)?

Before exploring the concept and the definition of CCAs it may be useful to take a glimpse at different kinds of conservation efforts by ordinary people across India. Boxes 1 to 4 describe some such efforts in different ecosystems (for details on these case studies see the case studies section of specific states).

Box 1

CCAs for forest ecosystems

- The Gond tribal community in Mendha (Lekha) village of Gadchiroli District, Maharashtra, initiated protection and de facto control over 1800 hectares of forest over two decades ago.
- Jardhargaon village in Uttarakhand has regenerated and protected 600-700 hectares of forest, and revived several hundred varieties of agricultural crops.
- *Van panchayats*¹⁵ like Makku in Uttarakhand are protecting tens of thousands of hectares of high-altitude pasture lands and forests.
- Villagers in Shankar Gholi in Assam are protecting forests that contain the highly threatened golden langur.
- Community forestry initiatives in several thousand villages of Orissa have regenerated or protected forests. Elephants are reportedly being sighted here now.
- Areas have been conserved as forest and wildlife reserves in Nagaland by various tribes in dozens of villages, including a people's sanctuary for the endangered Blyth's tragopan in Khonoma village.
- In Tokpa Kabui village of Churachandpur district in Manipur, 600 hectares of regenerated village forest have been preserved in the Loktak Lake catchment by the Ronmei tribe.
- With help from the NGO Tarun Bharat Sangh (TBS), several dozen villages in Alwar district have restored the water regime, regenerated forests and, in one case (Bhaonta-Kolyala), declared a *lok abhyaranya* (people's wildlife sanctuary).

Box 2

CCAs for wetland, coastal and marine habitats

- Uttar Pradesh is a locus of traditional wetlands conservation. In Amakhera village of Aligarh district, the traditional wetland is used for irrigation and fishing. The wetland hosts a large number of migratory birds, whom villagers are careful not to disturb. Patna Lake in Etah District is home to up to 100,000 water birds in favourable seasons. The lake, declared a wildlife sanctuary in 1991, has been protected for centuries as a sacred pond. Sareli village in Kheri District supports a nesting population of over 1000 openbill storks, considered harbingers of a good monsoon.
- Communities in hundreds of villages across India have protected heronries (e.g., Sareli in UP, Nellapatu in Andhra Pradesh and Chittarangudi in Tamil Nadu). At Kokkare Bellur, Karnataka, villagers offer protection against hunting and untoward treatment, sometimes even foregoing their tamarind yield so that nesting birds are not disturbed. In Tamil Nadu, the 700ha Chittarangudi tank attracts storks, ibises, herons, egrets, cormorants and other migratory birds. Villagers do not allow any hunting or stealing of bird eggs. They do not burst crackers during Diwali,¹⁶ and avoid commercial fishing. Local communities are protecting similar tanks throughout coastal and wetland regions of India.
- Fisherfolk in Mangalajodi and other villages at the Chilika lagoon, Orissa, are protecting a large population of waterfowl (once extensively hunted).
- A number of coastal communities are protecting critical coastal wildlife habitats such as mangroves (in Orissa) and sea turtle nesting beaches (in Orissa, Goa and Kerala).

Box 3

CCAs for protection of individual species

- Protection of sea turtle eggs, hatchlings and nesting sites by fisherfolk communities is taking place at Kolavipaalam in Kerala, Galgibag and Morjim in Goa, and Rushikulya and Gokharkuda in Orissa. In 2006 and 2008, over 100,000 olive ridley turtles are reported to have nested at Rushikulya.
- Youth clubs from the villages around Loktak Lake (Manipur) have formed the Sangai Protection Forum to conserve the greatly endangered brow-antlered deer, which is endemic to this wetland. They take part in the management of the Keibul Lamjao National Park, which forms the core of the lake.
- The Buddhist Morpa community in Sangti Valley in Arunachal has co-existed with the endangered blacknecked cranes for generations, viewing them as a harbinger of better rice yields.
- In Khichan village in Rajasthan, the local population provides refuge and food to a wintering population of up to 10,000 demoiselle cranes, ungrudgingly spending up to several hundred thousand rupees annually to feed them grains.
- The Bishnoi community in Rajasthan, famous for its self-sacrificing defence of wildlife and trees, continues strong traditions of conservation. In neighbouring Punjab, lands belonging to the Bishnois have been declared as the Abohar Sanctuary in recognition of their wildlife value. At all the Bishnoi sites, blackbuck and chinkara are abundant.
- At Buguda village in Ganjam District, Orissa, inhabitants have been protecting blackbuck for centuries. Buguda was recently awarded the Chief Minister's Award for wildlife conservation.

Box 4

Sacred sites as CCAs

- Sacred groves¹⁷ and landscapes are found throughout India, serving to protect rare and endemic species, as well as critical biodiversity assemblages. Such groves also help meet the

religious, cultural, political, economic, health and psychological needs of communities. Local livelihood needs are sometimes met through restricted harvesting of biomass. Sacred forests (*orans*) in the desert regions of Rajasthan are typically managed by the *gram sabhas* (village assemblies). Some are open to limited grazing by livestock. *Orans* are important components in the recharge of aquifers in the desert, where every single drop of water is precious. In most *orans*, particularly in western Rajasthan, the dominant tree, khejari, is worshipped for its immense value, as the tree enriches soil nitrogen, and during drought and famine its bark is mixed with flour for consumption.

- The Khasi Hills of Meghalaya are characterised by pockets of rich biodiversity that have been protected by the Khasi tribe and form the basis of nature worship practices in the area, manifested in the trees, forests, groves and rivers. The Khasi people believe that those who disturb the forest will die, and that sacred animals such as the tiger bring prosperity, happiness and well-being. In fact, the people of Thaianing believe that the destruction of their forest by their forefathers has caused 'good luck' (i.e., the tiger) to leave, leading directly to suffering due to a scarcity of medicinal plants, wood, water and fertile soils. Sacred groves are often quite limited in size, but there are at least 40 of them in Meghalaya (out of a total recorded 79) that range from 50-400 ha, including the well-known Mawphlang sacred grove at 75 hectares.
- There are several thousand sacred groves in Maharashtra, some still managed well, others under grave threat. These include the famous Bhimashankar and Ahupe *deorai* in Bhimashankar Wildlife Sanctuary, Durgubaicha Kila and others between Bhimashankar and Kalsubai Harishchandragad Wildlife Sanctuaries. Ajeevali village in Pune district manages a protected site for both spiritual and commercial reasons.
- Often entire landscapes are considered sacred (e.g. the Rathong Chu/Khangchendzonga valley in Sikkim), helping to conserve many of its elements.

In addition to the kind of examples mentioned above there are many communities who have traditionally led lifestyles with a minimal ecological footprint such as the Changpas of Ladakh (see Ladakh section in Jammu and Kashmir chapter for more details). Such initiatives and lifestyles, although highly threatened by today's fast changing socio-economic conditions, have been responsible for maintaining biological diversity in many parts of India to a great extent. Given this, it is not surprising that India is among the 12 biodiversity hotspots in the world. In fact, it may be one of the community-conservation-initiative hotspots too.

In these times when India is on a fast track of economic development and globalisation, the community conservation initiatives of the kind mentioned above are crucially supported or complemented by grassroots activism against destructive development. Several large hydroelectric projects, such as those in Bhopalpatnam-Ichhampalli (Maharashtra and Chhattisgarh), Bodhghat (Chhattisgarh), and Rathong Chu (Sikkim), which would have submerged valuable forest ecosystems and wildlife habitats, have been stalled by mass tribal movements. Hundreds of communities across Orissa, Chhattisgarh, Jharkhand and other states are fighting against large and powerful mining companies and industries, and are often brutally killed in the process. Many fisher communities across India are struggling against destructive fishing, including demanding a ban on commercial trawling and fighting for implementation of the coastal regulation zone (CRZ) notification. Their struggle will also help to save coastal and marine ecosystems from destructive development activities.

1.2. How can CCAs be defined?

Considering the huge diversity of initiatives, it has been a big challenge for us to define these dynamic efforts in a few words. After much discussion with a number of individuals working on this subject we have finally adopted the following working definition for CCAs in India.¹⁸

Natural ecosystems (forest/marine/wetlands/grasslands/others), including those with minimum to substantial human influence, containing significant wildlife and biodiversity value, being conserved by communities for cultural, religious, livelihood, or political purposes, using customary laws or other effective means.

The three important components of the term 'CCA' are 'community', 'conservation' and 'area'. To be able to understand CCAs better, it is important to understand what we mean by these three terms.

a. What do we mean by a 'community'?

For the purpose of this compilation the definition of a community can be considered as:

A group of people geographically, culturally and traditionally linked, sharing an interest in and/or interacting with a common natural resource base (ecosystems and species). The term, 'community' does not necessarily indicate a homogeneous entity.¹⁹

The term 'communities' in the subsequent sections could refer to an entire village or a group or section of people (but not an individual or an individual family), who manage or conserve a given area. It is also used as short form for an indigenous people (also called tribal people in India).

b. What do we mean by 'conservation'?

By conservation we mean ***maintenance of one or more natural ecosystems and species***. This could be through absolute protection of a site or a species or through regulated multiple use. Ecological data on most CCAs is non-existent and a glaring gap that needs to be filled. In the absence of such data to ascertain the conservation efforts, we have based our conclusion that an effort is leading towards conservation on perceptions, impressions and observations by a range of actors, including local people, forest officials, personal observations of Kalpavriksh team members, NGOs, amateur or professional ecologists and others. This data has been used in conjunction with two other parameters:

1. There should be a specific aim (cultural, ecological, political or economic) of management or conservation.
2. Taboos, rules and regulations (e.g., no hunting, no commercial use, regulated self-use) have been established under local²⁰ or state laws and are being followed. In our view, this implies that resource use is regulated, providing a greater chance for sustained existence of ecosystems and species.

c. What do we mean by an 'area'?

For this documentation we have selected sites where conservation values are operating within specified boundaries. Systems, rules and regulation are implemented within this area. In India there are numerous examples where conservation principles are ingrained in the ethos of the common people such as worshipping the peepal tree, not harming the Hanuman langur, etc. However, this does not necessarily mean that those who maintain these beliefs would definitely come together as a community to protect the species if it is faced with a threat. This Directory has not documented such widespread belief systems.

We do realise that the above definition is not very sharp and contains non-quantified terms such as 'substantial human influence' and 'significant biodiversity value'. However, some openness in the definition is in the very nature of our current incomplete understanding of this phenomenon and of its sheer diversity. We hope these terms will become more sharply defined as this understanding grows. Rather than a concept to be defined, our experience reveals that CCAs need to be seen as ***a philosophy of biodiversity conservation based on transparency and participation, a philosophy that is open to a vast array of approaches in which, at any given time and place, the local context would determine the most appropriate approach towards conservation.***

1.3. What criteria can be used to call an area a CCA?

For the purpose of this Directory sites which fulfill the following criteria have been considered CCAs:

1. There is an identified **group of people** that can be considered a community (as defined above) who are involved in the effort.
2. The concerned **communities have substantial ethical, livelihood, cultural, economic or spiritual associations with and dependence** on the conserved area.
3. The concerned **communities are the major players or among the major players in decision-making** and implementation of decisions.
4. The concerned communities have **established systems** (institutions, regulations, processes) for achieving their objective.

5. Irrespective of the objective of the initiative, the efforts lead towards **maintenance or enhancement of one or more natural ecosystems and species** therein.
6. The effort is taking place within a locally **identified boundary** (even though this may not always be very clear on a map).

In the above definitions and criteria much still needs to be sharpened and clarified. Keeping this in mind we consider this **compilation only a preliminary and baseline information on community conservation rather than a comprehensive assessment of CCAs.**

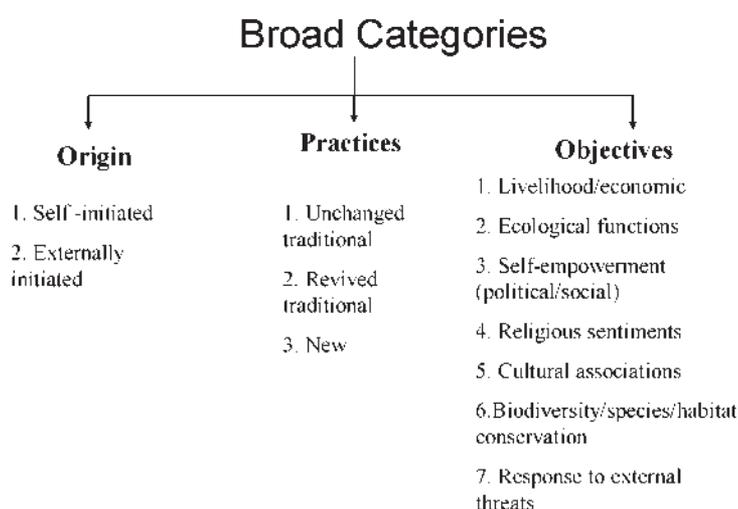
2. A categorisation of CCAs based on some of the main characteristics²¹

As mentioned above CCAs are site-specific in their approach and varied in their origin. In the following sections we attempt to analyse case studies presented in the Directory based on some key characteristics and develop a categorisation. Note that the 'categories' are not necessarily distinct, and that CCAs will not always neatly fit into one or the other category. Also to be kept in mind is that this analysis is based on information that is not necessarily comprehensive about all aspects of the case study.

Some of the characteristics used for defining categories are:

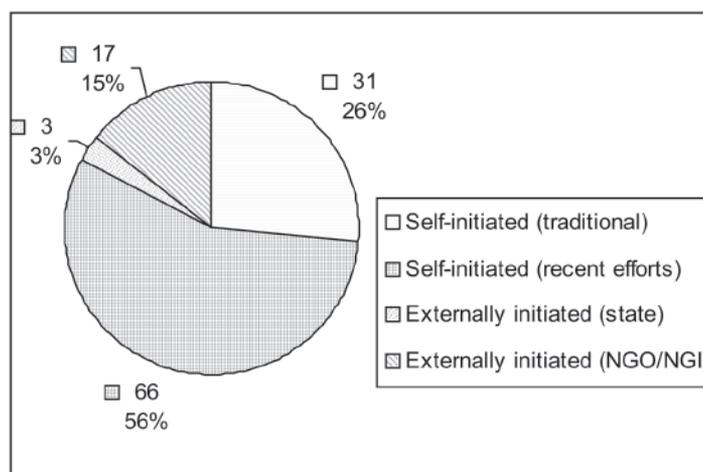
- Origin
- Objectives or motivations
- Area under conservation
- Ecosystems being conserved
- Management systems being followed, and
- Institutions established

Figure 1: Example of a broad categorisation based on three of many characteristics.



2.1. What are the origins of CCAs?

CCAs are either initiated by local communities on their own without any external help, or external individuals and institutions have played an important role in initiating the process. The latter could be either on a request from the local communities themselves, or an NGO or a government agency on their own responding to local situations. Objectives for initiation could vary under both categories (see Section 2.2 on objectives of CCAs). It is sometimes difficult to locate the origin, especially in older CCAs, which could be a combination of many factors such as a need being felt in the community to revive a dying tradition, concern for depleting biodiversity, and these factors coinciding with the emergence of an inspiring local leadership. Sometimes the origin may well be a mix of internal and external factors, e.g., a young person from the community who has studied outside and brings back new ideas (the youth representing internal factors but influenced by external factors such as education). Our classification in Figure 2 is based on 'who the main initiators' are, irrespective of the direct or indirect influences that motivated them.

Figure 2: Origin of CCAs

i) Self-Initiated

These include community conservation efforts initiated by the communities entirely or primarily on their own. Such initiatives may be influenced by a number of factors as mentioned in Box 5. Such initiatives could be:

Continuation of traditional practices: This is usually an old practice, the roots of which are difficult to trace. It is difficult to say how this practice began but communities are continuing with it. This continuation of the practice could also be with or without particular objectives or reasons, e.g. protection of birds in numerous heronries across the country.

Initiated by a local individual: One or two members of the community are motivated by local factors or influenced by factors mentioned in Box 5. Usually these are started as village discussions on issues such as resource scarcity, water depletion, reducing crop fertility, forest degradation, external development-related threats, concern for the species or habitats and so on. Examples include Saigata in Maharashtra, Jardhargaon in Uttarakhand, Ghusuria and Jharsuguda in Orissa. Examples such as Binjgiri Hills in Orissa and Sangti Valley in Arunachal clearly highlight role played by local conservation-oriented individuals or local schoolteachers in initiating conservation efforts. These individuals are often able to inspire and influence a large number of people and villages because of their neutral position and the respect that they command locally.

Initiated by a group of individuals from within the community or community as a whole: In many instances a group of individuals from the community, influenced by various factors, start conservation efforts on their own. This group may bring their concern to the entire community or the *gram sabha* for discussion and with the consent of the entire *sabha* decide to initiate conservation efforts. Such groups often include the local village youths, church groups, women's groups or groups of respected elders, e.g. several CCAs in Nagaland.

Box 5

Influences and inspirations behind CCAs

It is not inevitable that communities facing resource scarcity or ecological hardships would initiate conservation efforts collectively on their own. However, often it is some influence or catalysts that triggers off the conservation effort. Some such influences or catalysts are mentioned below:

Spiritual and social movements: CCAs initiated under the influence of spiritual or social movements include, villages such as Hiware Bazar in Maharashtra which was influenced by the neighbouring Ralegaon Siddhi village and its legendary leader Anna Hazare. The success of Ralegaon Siddhi led to the Government of Maharashtra announcing an award for model villages under a scheme called the Adarsh Gaon Yojana (Model Village Scheme)²², inspiring many villages. Similarly veteran leader Baba Amte, and the Bhoodan Gramdan Movement²³ have inspired many communities. Some young students in the late 1970s were influenced by Jayaprakash Narayan (political and social leader) and his philosophy of using youth power for social upliftment in India. A number of individuals who subsequently spread out to various

parts of the country and played important role in initiating social and ecological movements were part of his Chhatra Yuva Sangharsh Vahini (a youth social movement).

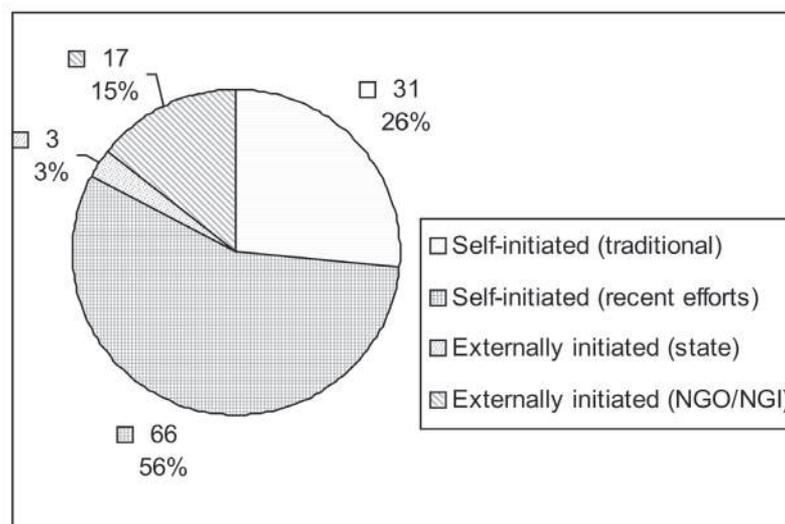
As mentioned in Section 1.1, in recent times many communities have had to stand up and fight against strong commercial or developmental forces threatening their livelihood resources. These movements may die down or subside once the conflict is resolved, but have sometimes resulted in reviving the communities' faith in cohesive community efforts. Consequently they have led to collective efforts towards achieving social justice and/or better management of natural resources. Such cases include,

Mendha (Lekha) in Maharashtra, where the movement towards tribal self-rule and forest conservation was a result of a larger struggle against a hydro-electric project; and natural resource and traditional seed conservation in Jardhargaon was an outcome of the famous Chipko movement in the hills of Garhwal in Uttarakhand.

Other CCAs or neighbouring villages: In some villages in Orissa, Uttarakhand, Maharashtra, Rajasthan and other parts of the country the conservation effort was initiated after being influenced by similar efforts in neighbouring villages. There are examples where the benefits resulting from conservation efforts in one village has inspired others to conserve. There are also examples where conservation in one village meant restrictions on use by others, or conserving villagers going to the non-protected forests of other villagers to meet their own needs. In the latter circumstances the neighbours initiated conservation to ensure that their resources are not degraded while others protect their own.

Other Influences: The influence of researchers who come to a village, or radio and TV programmes are also common factors influencing villagers to initiate conservation.

Figure 3: Agency that inspired the origin



Fifty six per cent of all initiatives described in this Directory have been initiated in recent times by the communities on their own (Figure 3). 26 per cent have always been part of a culture and tradition and are continued by the communities, while 17 per cent have been initiated with the help of NGOs, 3 per cent by government agencies or individuals.

ii) Externally initiated

By external we mean agents outside of the conserving community.

Initiated with the help of NGOs/NGIs:

These are cases where an NGO or NGI from outside the community has directly influenced the natural resource conservation process. The association of the NGO/NGI could be for the following reasons:

1. A new initiative as part of a larger natural resource conservation programmes aimed at overcoming a resource availability crisis, to fight against social injustice, to work for conservation of biodiversity. For example, WWF-India²⁴ in Arunachal and Samrakshan²⁵ in Meghalaya and Mizoram.

2. Intervention to revive a lost tradition or support a continuing tradition, e.g., the regeneration of river Arvari in Rajasthan, through the revival of the system of *johads* (checkdams) facilitated by the local NGO, Tarun Bharat Sangh.

Initiated as part of state-sponsored programmes or by individual government officials:

In some areas sensitive government officials have played a crucial role in starting successful community conservation initiatives. The credit for the Indian government adopting the joint forest management (JFM)²⁶ programme goes as much to forest officials as to the local communities. Even in the government schemes and programmes that adopt a participatory approach in natural resource management, it is the sensitive and interested officials who are responsible for the extent of the success of these programmes. For example success of JFM in Satara Tukum in Maharashtra was because of the sensitive forest staff that was posted there at the time.²⁷ Similarly, the North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP) is a joint project of the Government of India and International Fund for Agriculture Development (IFAD). This programme has also helped revive or initiate many community conservation efforts in north-eastern India.

2.2. What are the main objectives of CCAs?

Communities appear to have a range of objectives for which they conserve biodiversity, indeed the primary objective is not necessarily always biodiversity conservation. Some of these objectives are described below. Figure 4 given below also analyses 120 case studies from the Directory to understand what are the major objectives:

Resource enhancement and/or maintenance: Communities facing a serious scarcity of fuelwood, fodder, timber for household needs, medicinal plants could start an effort towards conservation and sustainable management of surrounding ecosystem. In some situations where resources have not already degraded, communities start such efforts to ensure continued availability. For example the sanctified *van panchayat* forests in Uttarakhand, community conserved forests inside Kailadevi Wildlife Sanctuary in Rajasthan, Jardhargaon in Uttarakhand, many community forest management (CFM) villages in Orissa and West Bengal (some of which subsequently became a part of the official JFM scheme)²⁸. The analysis shown in Figure 4 below indicates that resource enhancement and maintenance is one of the highest motivations for communities to start conservation at 77 (64 per cent) sites.

To counter ecological threats: Communities facing ecological threats or hardships such as reduced soil fertility because of erosion; frequent landslides; recurring drought situations; reduced or non-availability of water because of degraded watersheds; and impacts of cyclones along the coastal areas and other natural calamities. Examples include Hunsur village in Karnataka, and Konark-Balukhand in Orissa. In Khambi village in Manipur, if villagers had not regenerated their forests they would have had to relocate their village because of water scarcity. 2.5 per cent of the cases were motivated to take action because of ecological hardships.

To fight external development threats: Impending threats from development or commercial forces, or alienation from the resource/habitat on which the community's livelihood depends. Examples include the Chipko Movement (against timber logging) Uttarakhand and Mendha (Lekha) village (against dams and a paper mill) in Maharashtra.

Religious sentiments: Religious sentiments associated with species, sacred landscapes and other elements. Examples include sacred groves like Ajeevali village in Maharashtra, wildlife protection by the Bishnois in Rajasthan, sacred landscapes of Sikkim, and sacred ponds and forests of Uttarakhand. Nine percent of the analysed CCAs had religious sentiments as the major objective.

Cultural concerns and traditional systems: There are many traditional and cultural practices which are not necessarily linked to religious sentiments, but to ethics or cultural beliefs. Examples include community land-use systems in the north east India, and heronries in villages like Kokkare Bellur in Karnataka. Figure 4 indicates that religious and cultural sentiments together are responsible for motivating 28 (22.5 per cent) of CCAs.

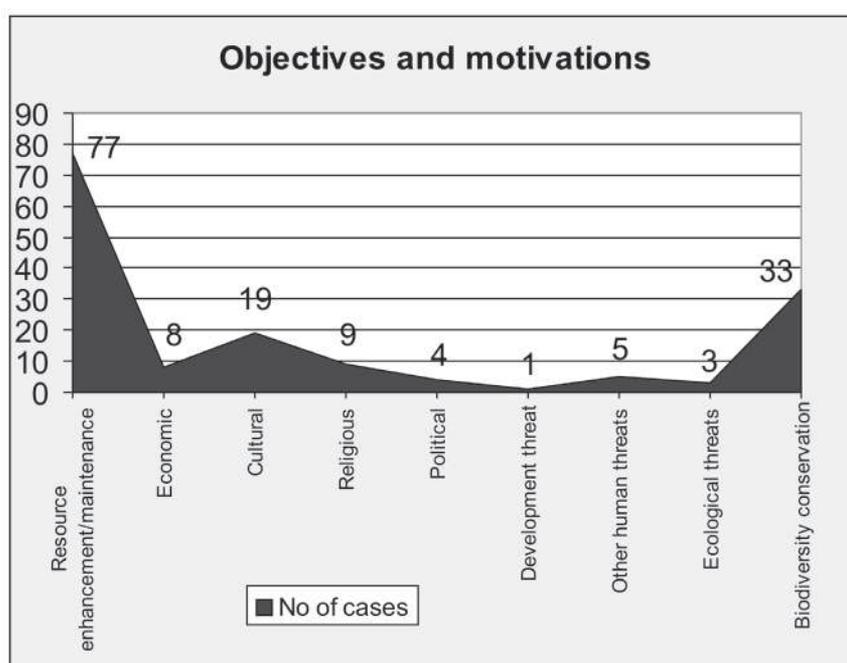
Political reasons: A larger movement towards self-rule and local empowerment where rights and responsibilities over natural ecosystems and species therein are considered very much a part of all other rights and responsibilities of the local inhabitants in the concerned area. Examples include Mendha (Lekha) in Maharashtra, and Kudada in Bihar. 3 per cent of the CCAs were initiated because of a movement towards self-rule, or had political assertion as one of their objectives.

Biodiversity concerns: In recent times, there is a realization among the youth in many villages about the threatened status of wild species are found in their area. For example, there are a number of villagers along the coasts of Goa, Kerala and Orissa who are extending protection to marine turtles. Such protection is also often given to many other species and habitats as part of tradition, for example protection of fish and fresh water turtles. In these situations the attention is more on the protection of the specific species and only occasionally is the habitat or other species in that area taken into consideration. However, conservation of the habitat as a whole for a particular species, is also not uncommon. For example wildlife reserves in Nagaland, and Shankarghola in Assam and a few more in the other north-eastern states of India. (for more details on these see Section 4.3). As per Figure 4, the second highest motivation for CCAs appears to be the concern for certain species and their degrading habitat. This accounts for 33 (27.5 per cent) of the cases. (Interestingly, 58 per cent of these 33 have their roots in strong cultural and religious sentiments, while 42 per cent have been initiated in recent times out of concern for wildlife).

Other external human threats: Threat from human factors such as government deciding to harvest timber or carry out plantations of only commercially important species at the expense of local ones, increased activities of timber smugglers, increased activities of migratory herders, etc. have been responsible for initiating 5 (4 per cent) of the CCAs.

Economic reasons: Economic reasons have been one of the motivating factors behind eight (6 per cent) of the cases. This does not mean that economic benefits are not welcome in other cases or that such benefits do not accrue but that this is not often the main motivation behind starting an initiative.

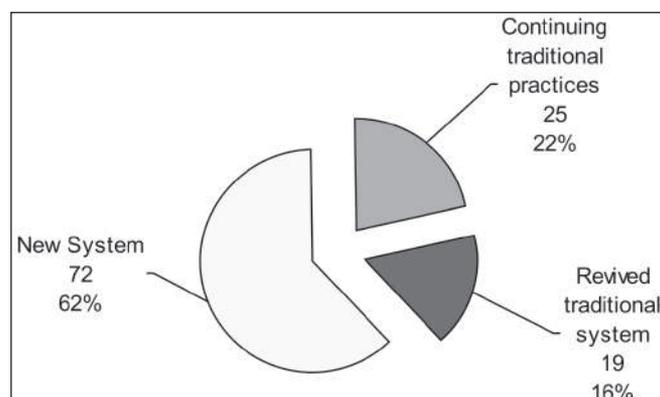
Figure 4: Objectives and motivations behind CCAs



It is important to mention here that any one of the above mentioned case studies could have more than one objective for initiating conservation efforts. For example, communities could start conservation with the objective of resource enhancement as well as to overcome ecological hardships and protecting some endangered species.

2.3. Are the management practices new or old?

CCAs can be classified based on whether the management practices adopted for the CCAs are traditional (old) or new. Traditional practices can be those that are continuing without a break or those which had broken down and were subsequently revived. By traditional or old practices we mean those practices whose time of origin and often even the rationale cannot be traced by anyone in the community, while new practices are those where the time of origin exists in the memory of the community. It is important to mention that most traditional practices, whether continuing or revived, do get modified over a period of time depending on the changing circumstances and situations.

Figure 5: Old or new management practices**a. Continuing traditional practices**

An analysis of 116 CCAs shown in Figure 5 indicates that in 22 per cent of the documented CCAs, traditional conservation and management practices are being followed. These could be in their original form or with modifications. Examples include heronries, Indian peafowl conservation, blackbuck conservation, and sacred groves.

b. Revived traditional practices

Figure 5 also shows that in 16 per cent of the documented cases, the management practices that were adopted were revived traditions that had once broken down. This is irrespective of who initiated the process—the communities themselves, NGOs or government agencies, or individuals. For example, in many instances there existed in the past a system of the entire village selecting a few respected and elderly people (for e.g. *gaon buras* in many north eastern states) in the village as village heads to resolve conflicts and take decisions. In some cases village assemblies as a whole (*gram sabhas*) used to take decisions. When villagers or NGOs are in the process of initiating a conservation effort they often look into the history of the community itself to arrive at the best system of decision-making for that area, e.g. by trying to revive the role of village elders.

Similarly the past is sometimes explored when solutions are needed for recurring problems. For example, in areas with water shortage, conserving communities or associated NGOs have looked at traditional systems of water harvesting in the area and tried to revive them with or without modifications.

Box 6**Reviving tradition out of necessity**

In the Himalayan State of Uttarakhand, villagers have been legally in charge of surrounding or adjoining forests for over seven decades. The local *van panchayats* (forest councils) were entrusted with the management of forests. With the burgeoning populations, reducing resources, and monoculture plantations in the surrounding government controlled forests, *van panchayats* were increasingly finding it difficult to sustainably manage the forests. Consequently many *van panchayats* decided to revive the tradition of sacred groves and declared the forests under their management sacred for a specified period of time to allow for their regeneration. After five (in some cases ten) years, the results are extremely encouraging, e.g., in the Dharamghar region of Uttarakhand (see case study section of Uttarakhand).

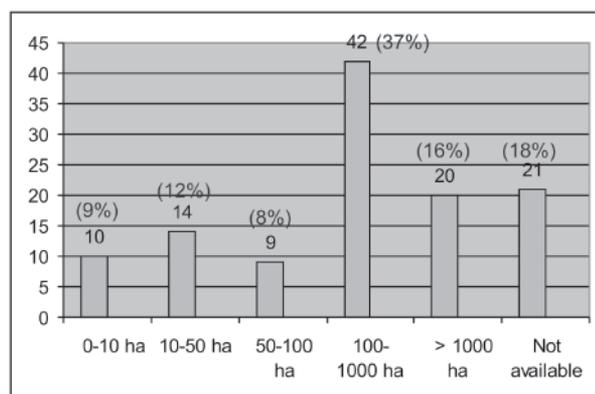
c. New management systems

According to Figure 5, the highest number of examples, at 62 per cent, are from CCAs where new management practices have been devised after the decision to conserve. This challenges the common belief that community conservation efforts are only in those areas where they have existed traditionally. New community conservation initiatives are continuously emerging. Examples of this are turtle conservation at Rushikulya in Orissa, CCAs in Nagaland, Satara Tukum and Saigata in Maharashtra and many others.

2.4. How much area do CCAs conserve?

It is generally believed that communities, if and when they conserve natural resources and biodiversity, do so only in small and sporadic patches. This may be true if one considers only those areas as CCAs which communities have set aside as completely no-use zones, such as a few sacred groves. However when a diversity of initiatives are considered (such as in this Directory), with a huge range of objectives (Section 2.2) and institutional arrangements (Section 2.6), this does not hold true. Conservation in such examples is achieved through a continuum of land-use practices ranging from areas of no human use to areas of regulated multiple use. Resources cannot be sustained if the area on which communities are dependent and are conserving is very small. It is therefore logical that, given an option, communities would want to bring larger areas with multiple-use systems under CCAs (This reality has been reflected in Figure 6). This indicates that conservation requires a landscape approach with management taking into account high human use, low human use and no use.

Figure 6: Range of area within which the documented CCAs fall



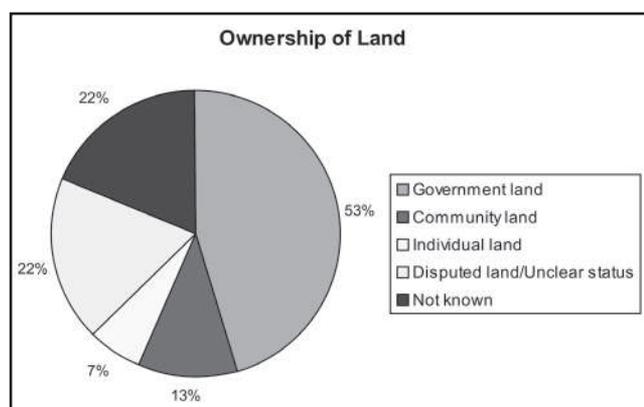
Over one third of the CCAs (37 per cent), recorded in this Directory are conserving areas between 100 to 1000ha, and 16 per cent over 1000ha.

In states like Nagaland, where communities own much larger landscapes, the size of a few no-use zones (declared in last couple of decades) meant exclusively for wildlife protection is also large. But the situation is different in rest of India. Here the populations are rising and available resources are shrinking, so sacred groves (which are usually inviolate with no or minimal use) become smaller and smaller in size. It is therefore important that CCAs including sacred groves are not seen as isolated entities but as part of the larger landscape, and effective management of the surrounding landscape is also given as much importance for conservation as the conserved site (with varying degrees of use-regulation).

2.5. Who owns the lands on which CCAs exist?

Our experience with CCAs in India shows that existence of CCAs is often not dependent on the ownership of land. CCAs documented here were found to be existing on lands owned by communities, government agencies, or even disputed lands (disputes could be among various communities or between communities and government agencies). The analysis in Figure 7 shows that 53 per cent of the CCAs exist on government-owned lands.

Figure 7: Who owns the lands on which CCAs exist?



In 22 per cent of the CCAs, the ownership status is not known but it is likely that many of these would also be on the government lands. Only about 12 per cent of the CCAs are on lands owned privately or by the community as a whole. Most of these are in Nagaland (which is the only state in the country where almost all the land is owned by communities or individuals), or are in areas like the Bishnoi lands in Punjab and Rajasthan. This could be because land and forests are largely owned by the government in most parts of the country. Some of the state chapters in this Directory deal extensively with the history of nationalization of land by the colonial and post-colonial governments (see chapters on Uttarakhand, Himachal and Karnataka).

In many such areas where CCAs exist, even when owned by the government, communities have had traditional or customary rights and associations for generations. Sometimes such rights have been accepted and recorded in the government documents, such as the *nistar*²⁹ rights of the erstwhile Central Provinces and Berar region (now forming parts of Maharashtra, Chhattisgarh, and Madhya Pradesh). However, in most cases these rights have neither been recognized nor recorded. Conservation efforts on such government lands are initiated by first claiming a *de facto* control within their own traditional boundaries. Such boundaries are often not part of any government records but are strongly embedded in local oral traditions and historical and cultural memories. Traditionally, these areas have been divided among the resident villages, defined largely by the drainage patterns, rivers, mountains and so on. However, since these are unofficial boundaries there are no physical demarcations of such traditional boundaries on the ground. Nowadays, this sometimes gives rise to conflicts with neighbouring communities. Such conflicts are more pronounced in areas where land has been taken over by the government in the past and redistributed for usufruct³⁰ rights (without recognizing the original boundaries)—e.g., in the case of *van panchayats* in Uttarakhand.

2.6. What institutions are commonly used for conservation?

CCAs use a variety of institutions to fulfil their objectives. These range from a single institution for all decisions in a village (including the ones related to conservation) to multiple institutions established for different purposes. Some of the commonly used institutions are mentioned below. It is important to keep in mind that the categorization (as mentioned below) is not hard and fast—local variations within each of the categories is encountered from community to community.

2.6.1. Village as a whole (*gram sabha/aam sabha* or village assembly)

In such CCAs the village as a whole makes the decisions about the initiative and is also collectively responsible for implementing them. Usually in such examples the village assembly or council meets at regular intervals (periodicity and regularity varies from case to case). In most such examples, the presence of a certain minimum number of members is compulsory. Who constitutes a council or assembly also varies from case to case. In some cases it is the entire voting population (or all adults) of the village, while in others it could be one member per family. In a few cases participation of women is compulsory and encouraged by the men in the village, while in others women are not allowed to participate in *gram sabha* meetings. Even if in the government revenue records the conserving village or hamlet is a part of another larger village or group of villages, the conserving community often considers its *gram sabha* to be separate from that of the larger village and decisions are made at their own level. The role of the *gram sabhas* is taken over by the village councils (VC) in Nagaland. VCs are a combination of a traditional institutional structure, officially accepted in a modified form (see Nagaland state chapter for more details). Under the Village Council Act of the state, all decisions related to the village governance, including forest and other natural resources, are taken by the village council.

In some cases a village may decide that the matters related to forests and conservation would be handled by the *van suraksha samiti* (VSS) or forest protection committee (FPCs) in the village. However, the composition of the VSS is exactly the same as that of the *gram sabha*—the distinction here is that in VSS meetings only matters related to the forests are discussed.

CCAs which are also part of JFM follow the official JFM structure. They have a general body constituted of either one member per family, or one male and one female member per family, depending on the state. For day to day matters an executive committee is elected, usually comprising of 7-9 members from the general body. The local forest officer is the member secretary of the VSS. It is mandatory to have members from underprivileged communities and women in this committee. In villages like Mendha (Lekha) in Maharashtra, the VSS executive appointed under JFM exists only on paper and decisions are made by the entire *gram sabha*, which meets once a month or more.

The term 'entire community' can also refer to a specific group of people interacting with a common resource and informally coming together for use, management and conservation of the resource. For instance, all the clam collectors in Ashtamudi lake in Kerala have formed an informal group that decides on how the clams should be caught and when a ban on fishing should be implemented. This group ensures that fishing ban orders are issued by the District Collector at an appropriate time every year.

2.6.2. A representative body/ies

This could be of the following kinds:

- i. **Set up by the entire village, gram sabha, or village council:** In these cases the entire village decides to elect or select a few members to take decisions related to conservation. It is important to keep in mind that the reality on ground may vary from case to case. For example, in some situations the institutions mentioned below may have actual decision-making powers, while in others they may have the responsibility only of implementing the decisions. In still others they may be mandated to make some decisions but not all. Various categories under this could be the following:
 - A few respected elders in the community who meet as and when required. Usually, they play an important role in conflict resolution within the community.
 - Specific institutions selected/elected by the village, such as the *van panchayats* of Uttarakhand, for management and conservation of forests.
 - A *van suraksha samiti* (VSS) but not under JFM. In such cases too there is a huge diversity in representation and equity. Some villages are very careful about equitable participation and ensure presence of women and representatives from minority groups, while in other such institutions powerful individuals dominate, and women and minorities have nearly no role to play. However, wherever the VSS is more equitable, the community initiative appears to be more successful. In some cases, even when decisions are made by the dominant communities the needs of the minority groups or underprivileged groups are given special consideration, e.g., Binjiri Hills in Orissa.
 - Sometimes, when the village is very large the community decides to notionally divide the forests for management and use among various sub groups. The institutional arrangements of these smaller units may vary from each other. In Makku village in Uttarakhand, the *van panchayat* is managing over 2000 ha of forest. The village decided to divide some patches of forests closer to the village among women's groups for management and use. The forests further away from the village are protected and managed by the *van panchayat*.
 - Wildlife Management Committees instituted for the protection of wildlife such as in Sendenyu village and Khonoma Nature Conservation and Tragopan Trust (KNCT) in Nagaland.
 - Women's groups, which either come together organically with village consent or are elected by the village, are taking the lead in conservation efforts in many parts of Uttarakhand, Orissa and other states. In Dengajhari (Orissa), and in Ganeshpura and Karundamuda (Chhattisgarh), forest protection is entirely the responsibility of women's groups. In other villages such as Jardhargaon in Uttarakhand and Mendha (Lekha) in Maharashtra, women's groups are an important part of the decision-making process and in implementation of CCA rules.
 - Youth groups in many areas are concerned about the threatened species or habitat and are taking a lead in initiating action towards conservation. In most cases, however, their role is more about ensuring protection and making sure that the rules and regulations are being followed rather than about taking decisions—e.g., Luzuphuhu, Ghosu and some other CCAs in Nagaland. These youth groups are often responsible for a number of other village-related issues apart from forest protection.
 - As in the case of Rupabalia in Orissa, management of different patches of forests can be a responsibility of different caste communities.
- ii. **Set up by an external agency:** This could include a representative body that has been constituted by an NGO, government agency or any other agency for the purpose of a conservation programme initiated by them. Such institutions could be functioning independently but with the acceptance of the local community³¹. These could also be the representative bodies, which have been formed with the consent of the traditional institutions. Examples of such institutions include:

- A few members elected as per the JFM resolution of the state governments to constitute the executive committee of the VSS, usually about 7-9 people. The forest department (FD) plays a crucial role in such selections.
- Natural resource management group (NaRMG) formed under the International Fund for Agricultural Development-funded North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP-IFAD).

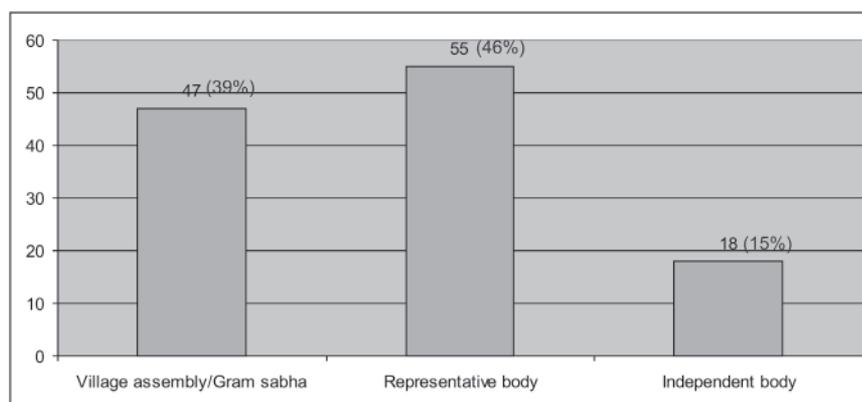
2.6.3. Sub-unit of the larger village community but functioning independently

These could again be those that have set themselves up with or without external help or that were set up by the larger village but given a mandate to function independently. Examples include:

- Theeram group in Kerala working for turtle conservation and protection of the beach against sand mining.
- Rushikulya Turtle Protection Group in Orissa.
- Kuraj Sanrakshan Vikas Sansthan working for the conservation of demoiselle cranes in Khichan in Rajasthan.
- In cases like Binjgiri and Dahni Panch Mauja in Orissa it is seen that forest protection is started by groups of individuals who get together organically.
- Many times the community entrusts the responsibility of managing the sacred grove to a larger trust, e.g., Aravanchal Kavu in Kerala.

These groups work more or less independently of the decision-making process in the village. In fact, some of them are now registered trusts or societies. They are usually not in conflict with other village institutions and follow local rules, regulations and interests, but are not necessarily answerable to those institutions regarding conservation-related activities.

Figure 8: Types of institutions



Analysis of existing case studies (Figure 8) shows that nearly half (46 per cent) of the CCAs use a system of decision-making in which the village or the concerned community as a whole elects or selects a group of people for day-to-day functioning and decision-making. The general body in such cases meets at regular intervals (with variations from case to case) to ratify decisions, monitor and elect or select the next executive body. In 39 per cent cases the decisions are being made by the village as a whole and in 15 per cent of the examples, an independent sub-unit has been formed or has formed itself.

2.7. What are the conservation systems, rules and regulations used?

Our experience with a wide range of examples, including those documented here, indicates that the nature and kind of rules are as varied as the institutions involved in management. All CCAs do have some kind of rules and regulations to ensure that the objectives are being met. However, monitoring systems may vary from very stringent to fairly relaxed. Rules and regulations could vary from very well worked-out to not so detailed out to not well-defined but well understood, and from formally written down to orally passed on, and so on.

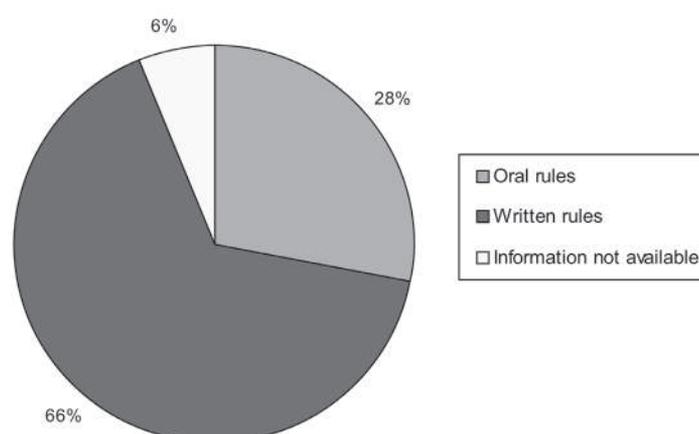
Figure 9: Written and unwritten rules

Figure 9 shows that in 66 per cent of the documented CCAs, the communities have decided to have written down rules while in 28 per cent cases, rules are orally followed.

Irrespective of whether these rules are written down or not, explicitly specified or not, the success of the CCA seems to depend on how effectively these are implemented, followed, or monitored.

a. Rules and regulations

Protection through traditional beliefs is among the common systems of protection and management, particularly in areas where traditions and religious sentiments are still very strong.

In newer initiatives, when the villagers decide to protect, they discuss a set of rules to be followed. These rules are often not static but change according to the situation and context. Sometimes rules are selectively relaxed. For example, in Dhani Panch Mauza in Orissa absolutely no extraction was initially allowed, so as to ensure regeneration of forests. However, once the forests regenerated, rules had to be changed to accommodate some local needs. Similarly, in some situations rules are relaxed for lower-income groups.

In many cases, the communities have now started recording the minutes of the meetings where rules and their violations are regularly recorded.

Given below are some of the most commonly used rules (various combinations of which are used in different CCAs). Rules are framed depending upon the kind of protection to be accorded.

- Strictly no extraction of resources.
- Regulated extraction by the local villagers and absolutely no extraction by outsiders. This could mean specifying how many cartloads of fuelwood can be extracted, how many timber trees (for personal use only) can be felled, that only dead and dry wood can be collected for fuelwood, that axes are not to be carried in the forests and so on.
- Permission to be sought from local institutions for any extractions.
- Regulated extraction by local villagers as well as some neighbouring villagers (especially if they have been traditionally dependent on the same resources).
- No hunting or regulated/seasonal hunting/fishing.
- No commercial exploitation of timber.
- Using local resources to meet only local needs. Most villagers have worked out details of how many live trees can be cut in a year and for what purposes.
- Zonation, e.g., villagers from Gadabanikilo in Orissa mark out zones for extraction, zones for grazing, completely inviolate zones and so on.
- Specifying the number of livestock that can be kept per family in the village.
- Regulated use and equitable distribution of water, e.g., not growing water intensive crops.

b. Monitoring systems

In some situations, particularly in the case of conservation based on traditional beliefs, there are no specified monitoring systems and no action is taken by the community if rules of entry and

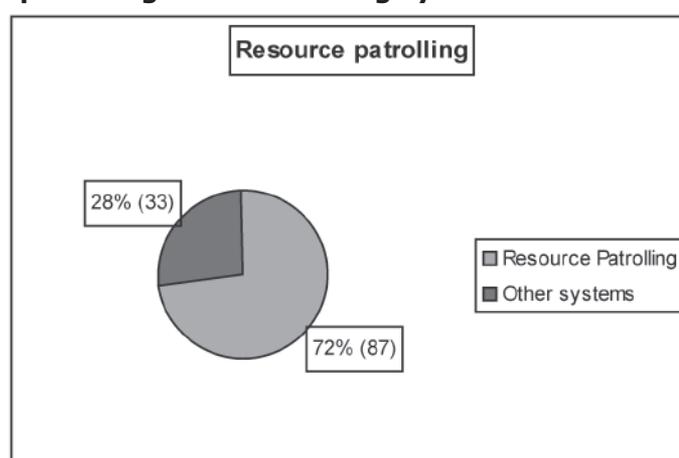
resource collection are violated. It is the fear of a wrathful deity and misfortune that may befall if rules are broken that keeps offenders away. Local people often tend to make connections between such misfortunes and violations of traditional belief systems. Such beliefs are further strengthened in the local folklores and mythologies. An interesting example of this is the Thaiang sacred grove in Meghalaya, where the village elders revived the system of sacred grove protection when they felt that disappearance of the tiger has led to misfortune for the village in the form of lack of water and medicinal plants. The youth in the village are now strictly protecting the grove.

In the community-managed heronries, or in Bishnoi areas in Punjab and Rajasthan, or where Indian peafowl and blackbuck are protected, there is a general understanding about not harming the concerned species. Usually all local people adhere to the rules. A few violations may even go unchecked, but if the frequency increases the community would come together to deal with the situation. For example in Buguda village in Orissa (see Orissa state chapter for details), if someone comes across incidents of blackbuck-hunting they inform the village, which gathers together to deal with the situation.

Sometimes villagers do not have any specific monitoring system and it is the responsibility of the entire village to keep an eye on violations and report them to the village institution. Since everyone is more or less equally involved, violations rarely go unnoticed. There may in such situations be a penalty even for those *not* reporting a violation to the community, e.g., Bhaonta-Kolyala in Rajasthan.

One of the most commonly used systems of monitoring is that of patrolling of the CCA by rotation as shown in Figure 10. This system is used in about 72 per cent of the documented CCAs and the system has different names in different places. In Orissa, this is referred to as *thengapalli* and in Uttarakhand as *lath panchayat*. Here the villagers take turns at patrolling the forests—a person who has finished his turn places a *thenga* or *lath* (stick) outside the door of the family who then has to take the next turn. In areas like Satara Tukum the stick is not used, but the patrolling assignments are decided in the village meetings.

Figure 10: Resource patrolling as a monitoring system

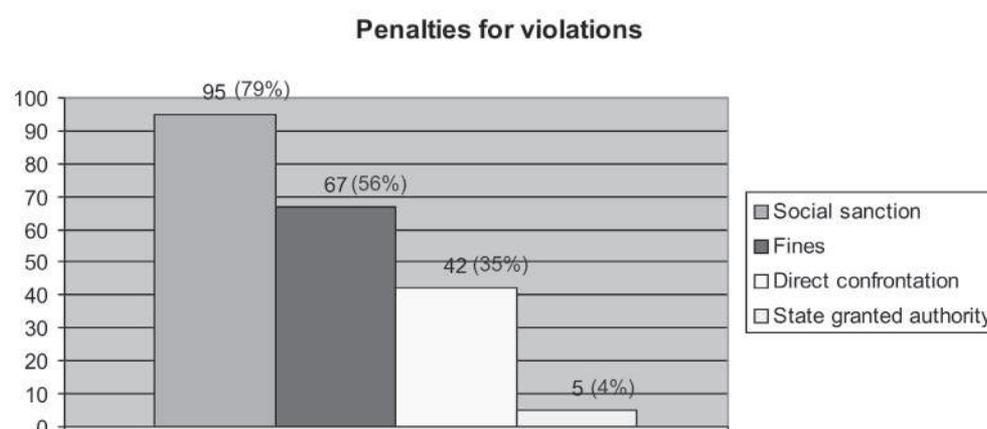


Another commonly used system is that of appointing watchers. The village community contributes either in kind or cash to pay the remuneration of the watchers. Contrary to common belief, the watchers can be both men and women. The forests of Thapalia-Mehragaon in Uttarakhand were zealously watched over by Rewati Devi (now well into her seventies) for years. In numerous situations there are local individuals who take a keen interest in protection activities and monitoring activities voluntarily.

Local innovations for guarding forests are quite common. In Dengajhari, for example, forest protection against timber smugglers proved difficult for the menfolk due to threats to life. The women then came forward and started protecting the forests in small groups. They were certain that it would be difficult for the offenders to attack women because of social and political reasons, and they have been proven right.

c. Fines and punishments

Rules and regulations and monitoring systems would not be effective if communities did not put in place a system of penalties or fines for offenders. Such penalties could include social sanctions, and fines in cash or kind, or directly confronting the offenders and confiscating what they have extracted and tools they used.

Figure 11: Penalties for violation of CCA rules

As illustrated in Figure 11, penalties in cash or kind are one of the most commonly used systems of punishment for violation of rules and regulations with 95 (79 per cent) examples following this system. This system is more common with offenders from within the community. 67 (56 per cent) follow a system of direct confrontation with the offenders. Usually, confrontations are more common with offenders from outside the community. 42 (35 per cent) CCAs follow a system of social sanctions where the offender is socially boycotted. This is more common with habitual offenders from within the community. Only in 5 cases (4 per cent) was the conserving community found to have some kind of authority from the government to deal with the offenders directly. It must be mentioned here that the fields in Figure 11 are not mutually exclusive, which means that one community may have followed one or more of the above systems. Some commonly used penalties are:

Fines for violations: Such fines often depend on the economic value or the value assigned by the community to the illegally procured article. For example, sambar is considered locally threatened in Sendenyu village in Nagaland and its hunting invites much higher fines than other species. The fines may also vary depending on the number of times a certain offence has been committed by the same offender, as also on the basis of the economic status of the offender, with economically better-off people paying higher amount. Sometimes the value of fines for a certain crime changes according to circumstances.

Box 7

Hunting fine in Khonoma, Nagaland

In Khonoma, Nagaland, villagers recount an interesting story. In order to discourage it the village has imposed a heavy penalty on hunting wild animals. In one incident a group of villagers had hunted a sloth bear. The village had imposed a fine of Rs 5000 on killing sloth bears. The hunters negotiated a rate of Rs 10,000 with the trader to ensure that Rs 5000 could be paid as a fine. The village then changed the rule such that the fine for hunting an animal is as per its market value and also includes confiscation of the hunted animal.

- Confiscation of implements such as axes, sickles, fishing nets, used for the offence is another common punishment.
- Compounding of livestock that stray into prohibited areas for grazing.
- Social sanctions which prohibit the individual or the family from attending any community meetings or functions or barring them from marriage relations. Most villagers would keep away from offences for the fear of social ostracism.
- For outside offenders and habitual offenders, the communities often seek assistance from the FD, police or others.
- There are also instances in Orissa where offenders from the other villagers are tied to trees in the forests till the elders of the offenders' village come for negotiation. These elders have to guarantee that such incidents would not be repeated.

d. Conflict Resolution

Intra-community conflicts that arise because of the implementation of the rules or for other reasons are often resolved within the community. Such conflicts are taken outside the community only in exceptional circumstances or when the internal unity and cohesiveness of the community is very low. Resolution of such conflicts is usually done by the *gram sabha* or a group of trusted elders.

Inter-community or inter-village conflicts are mostly resolved at inter-village/community institutions (traditional or new). For example, in Kailadevi in Rajasthan, such conflicts are resolved by *barah gaon ki panchayat* (executive committee of 12 villages). This is a traditional conflict-resolution body where elders from 12 villages make decisions together. The offending village has to host this meeting and bear all costs. Once a decision is taken, the respective *panchayats* ensure that individual villagers adhere by it. Similarly, Mendha (Lekha) village in Maharashtra is a part of a cluster of 32 villages that have been traditionally meeting to resolve such conflicts. In Nagaland, all tribes have their own traditional area councils called the tribal hoho. In recent times, new area councils such as Chakesang People's Organisation (for the Chakesang tribe), Angami People's Organisation (for the Angami tribe) and so on have taken over the role of overall monitoring of tribal affairs, including district-level conservation activities and conflict resolution. In Orissa, such conflicts are resolved by district-level community forest management (CFM) federations, such as Ranpur federation that consists of 180 villages.

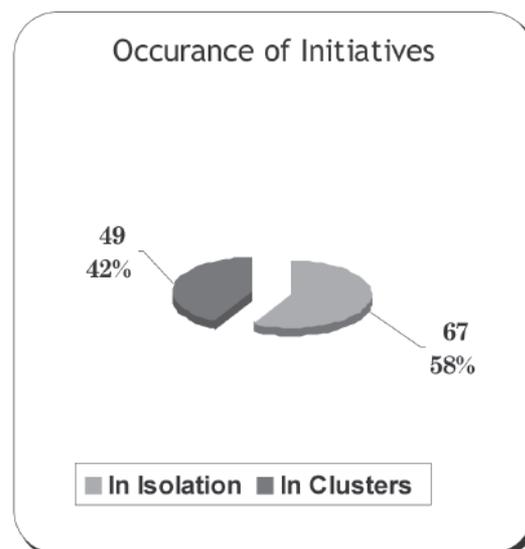
Such institutions for inter-village disputes do not exist in all cases, and where they do not exist, villagers largely depend on the government agencies, in particular the FD, for such conflict resolution.

2.8. Do CCAs always exist in isolation?

Contrary to the general belief that CCAs are sporadic and isolated, the documentation reveals that CCAs often tend to exist in clusters (see Section 7.7). The clustering of CCAs seems to be most common under the following circumstances:

- In areas where the pressure on resources is very high and resource scarcity pushes people to initiate conservation efforts. When one village starts protecting, it sometimes leads to higher pressure on the forests of the others (till the resources are regenerated). The neighbours then start protecting their forests to safeguard against over-use.
- In areas where neighbours initiate conservation after seeing the benefits of conservation for the concerned CCA.
- In areas where leaders that have initiated the effort in one village also inspire others in the neighbourhood to take similar steps.
- Programmes such as JFM are also often initiated in more than one village in an area.
- Large NGOs or institutions that initiate action (e.g., IFAD-NERCORMP programme in north-eastern India) also prefer to work in more than one village in a neighbourhood at a time.

Figure 12: CCAs occurring in clusters

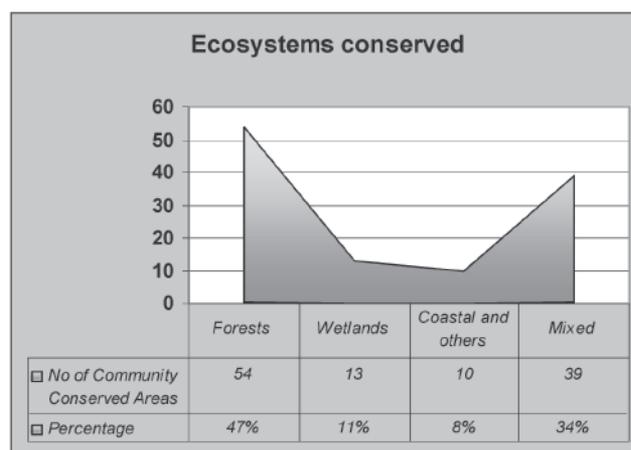


Our analysis (Figure 12) of the documented CCAs shows that about 49 (42 per cent) exist in clusters while 67 (58 per cent) exist in isolation or in groups of two. The trend in cluster formation is more prominent in some regions and states. The best examples of clusters of CCAs are found in Orissa, particularly in forest ecosystems. Nagaland, Uttarakhand and Gadchiroli district in Maharashtra also have clusters of CCAs. Although not documented in the Directory, anecdotal accounts indicate that such cluster formations are also found in Chhattisgarh and Jharkhand regions. The phenomenon of clustering appears to be more common among communities conserving forest ecosystems and species therein. The incidents of clustering of turtle conservation sites by communities in marine areas (inspired by neighbours) are also now coming up, e.g., in Rushikulya area, and in Kerala.

2.9. Which ecosystems do CCAs cover?

Are CCAs restricted to certain kinds of ecosystems or habitats only? The documented examples show that this is not the case, though forests seem to be the commonest. Of all the cases documented in this Directory, the maximum pertain to forest ecosystems (more than 47 per cent). 34 per cent of CCAs exist on mixed ecosystems, which would normally contain a combination of forests, grasslands, wetlands, and/or high-altitude pasturelands and so on.

Figure 13: Ecosystems that CCAs conserve



The third most protected ecosystem seems to be the wetlands at 11 per cent. Only 8 per cent of CCAs documented are located in marine and other ecosystems. The reasons for this could just be that the conservation efforts in forest areas are better known and documented than other ecosystems, which in turn could be due to the larger number of organizations and individuals working on forest-related issues. Anecdotal accounts and observations suggest that there is much more happening out there, many more undocumented CCAs than what we have been able to bring out in this compilation, particularly in ecosystems other than forests.

3. CCAs as protected areas (PAs)

As CCAs are gaining greater recognition the world over, governments and conservation organizations are faced with the question: Can CCAs be compared to PAs and hence given equal attention from the point of biodiversity conservation? Considering the various kinds of threats faced by CCAs in current times (see section 5 for details), getting such recognition and support will be valuable for many CCAs. In this section an attempt has been made to answer this question, albeit only in the case of CCAs in India.

In India, any area can be declared a PA by the government if the government 'considers that such area is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance, for the purpose of protecting, propagating or developing wildlife or its environment' under the Wild Life (Protection) Act 1972. Cultural and other values have so far not been taken into account. The most widely used and common categories of PAs in India are national parks and wildlife sanctuaries. Conservation reserves and community reserves are two new categories that have been added as per amendments in the Act in 2003 (see Section 8.1(i) on laws and policies for more details). Since in this process there are no identified criteria based on which a PA can be declared, it is difficult to say whether CCAs in India can fit those criteria. Additionally, declaration and management or administration has so far been the prerogative of the government. CCAs, on the other hand, are established by the concerned communities, based on values identified by them, and administered

with the help of local rules and regulations and through local institutions. In the absence of clear criteria the available legal spaces could be used to review whether CCAs fit in those spaces. This has been dealt with in greater detail in Section 7.

Internationally,³² the most commonly used definitions of a PA are those used by the International Union for Conservation of Nature (IUCN) and the Convention on Biological Diversity (CBD).

IUCN/WCPA (World Commission on PAs) defines PAs as: *'An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.'* CBD defines PAs as *'A geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.'*

The key elements of PAs emerging from both these definitions are:

- Well-defined geographical limits.
- Main aim is to achieve conservation (although other related objectives or benefits are not excluded).
- Establishment and management by legal or other effective means.
- Existence of a body of governing rules.
- A clearly identified organization or individual with governance authority.

An analysis of case studies documented in the Directory (Figure 14) indicates that 30 per cent of the case studies fit all the key elements mentioned to be a PA (Type 1). 27 per cent fit all other criteria except that the CCA was not initiated with the *main* objective of biodiversity conservation, although biodiversity conservation could be one of the objectives and the initiative may be leading towards conservation (Type 2). 43 per cent are such examples, where the primary objective of the CCA may or may not be biodiversity conservation (but is one of the objectives), but they do not fulfil at least one of the other criteria—for instance they may not have well-defined rules and regulations rather may be working on some common understanding on what to do and what not to do. This analysis shows that the CCAs documented in this directory, barring a few, exhibit most of the key elements except that their main aim may not always be conservation (although the initiative may result in conservation).

Box 8

Major points emerging from international debates on whether CCAs can be considered PAs

Are CCAs 'natural' enough? IUCN's guidance on the PA categories is that only those areas be considered PAs in which two-thirds of the area is in its 'natural state' (defined as 'ecosystems' where since the industrial revolution (1750) human impact (a) has been no greater than that of any other native species and (b) has not affected the ecosystem's structure'). Many CCAs (or for that matter PAs!) would not fulfil this criterion; however, if the CBD definition is accepted, CCAs would certainly qualify as PAs. It can in fact be argued that a more inclusive conservation-oriented definition may be needed to accommodate not only CCAs but also many existing PAs and other areas that are important from a biodiversity conservation point of view, even if they do not fulfill this 'two-thirds' criterion.

Do CCAs always have geographically defined boundaries? It has been pointed out that community conservation initiatives may be embedded in notions of 'cultural' spaces rather than strict or easily delimited geographical spaces; the boundaries may shift in time, or may be notional, 'porous', related to seasons and weather patterns rather than to geographical territories (e.g., in some communities, the 'sacred hill' or site may shift from time to time, and the community shifts with it). Given that one of the criteria for defining a PA is that it should have a clearly defined boundary, does this pose problems for such CCAs coming under the PA category? This issue is of particular relevance to special cases, such as mobile communities. One way of resolving this may be to define, as the CCA the entire possible territory in which the 'shifting' conserved site is located and then to consider appropriate internal zonation (which can change over time) to demarcate the actually protected area within the overall CCA. Another option is to suggest flexibility in the definition of PAs, to accommodate, in the case of CCAs, shifting geographical boundaries which are defined by communities through cultural means. In addition, time-related variability, i.e., the existence of seasonal patterns of protection should be explored/accommodated.

Are areas with considerable agrobiodiversity, to be considered as CCAs and indeed as PAs? If one takes the CBD definition, such areas would fit. The latest WCPA/Cardiff Guidelines on Category V PAs (2002) clearly includes areas with agrobiodiversity. However, acceptance of this will need attitudinal re-orientation amongst conservation professionals, since the tendency so far has been to focus exclusively on predominantly natural sites. There needs to be growing recognition that in the case of many community managed areas, and especially landscape-level CCAs, the presence and maintenance of agrobiodiversity (which also directly or indirectly supports greater wildlife than monoculture farming/pastoralism) should be considered a positive attribute for considering them as PAs.

Source: Note prepared by Ashish Kothari, based on inputs from Grazia Borrini-Feyerabend, Hanna Jaireth, Gonzalo Oviedo, Adrian Phillips, and Marshall Murphree. The note was written for the IUCN Strategic Direction on Governance, Communities, Equity and Livelihoods (TILCEPA) formerly known as the Theme on Indigenous and Local Communities, Equity, and Protected Areas. Contact: asishkothari@vsnl.com, gbf@cenesta.org, or tilcepa@vsnl.net.

One major difference between PAs and CCAs in India is that CCAs have been established by different communities under a diversity of rules and regulations and have been managed by a diversity of institutions, while PAs are established under specific statutory provisions, and follow uniform rules, regulations and institutional structures. Till the year 2002 only the FD was mandated to manage PAs. This has legally changed with an amendment in 2003 and inclusion of community reserves as one of the categories of PAs. However, use of this category has remained highly restricted because of various reasons (see section 8.1 for more details). Therefore, for all practical purposes it can safely be said that PAs in India till today continue to be managed by government agencies (i.e., the FD), with other governance models slow to come.

Arguments in this section attempt to equate CCAs with PAs in order to emphasise two basic points:

1. CCAs in many situations are able to resolve a number of contentious issues such as land encroachment, resource smuggling, wildlife hunting, and achieve resource enhancement. This indicates that if taken into account people can become strong allies in conservation programmes. However, their strengths, weaknesses, values and limitations as explained in subsequent sections will have to be taken into account.
2. Often CCAs fulfil many requirements of officially declared PAs, and also need to be given similar recognition, importance and support. However, if CCAs are to be formally accepted as a model of conservation in the country and recognized as PAs, then much effort will be required towards resolving the issues related to the responsibilities, access and rights of the local communities in these areas as also in recognizing and maintaining their diversity (as detailed in Section 7). CCAs cannot be managed in the same exclusionary manner in which PAs have been managed in India so far.³³

The situation mentioned in point 2 above can be resolved by looking at recent discussions about the six PA categories of the IUCN. The categorization here is based on the objective of the protected area. However there is an active proposal to add a 'governance' dimension to this category system. This essentially means that categorisation of PAs would remain as per the objectives, but management of such PAs could be either by the government or by the communities or a collaboration of one or more organisations depending upon the local situation³⁴. The acceptance of this proposal would add weight to the increasing demands of including non-official conservation areas that are being managed by agencies other than the government in national PA systems.

Following on from this, a table can be formulated with CCA types that could fit into each of the 6 IUCN PA categories (for international discussions on this see www.tilcepa.org).



Table 1: CCAs in India that can potentially be included under various IUCN PA categories.³⁵

IUCN Category	Description	CCA type that could fit in this (with suggested interpretation and variations that would facilitate their inclusion)	Potential CCA , some examples
Ia & 1b	<p>Strict Nature Reserve: PA managed mainly for scientific purposes or wilderness protection</p> <p>Wilderness Area: PA managed mainly for wilderness protection</p> <p>Absolutely no use allowed except research in 1a.</p>	Sacred/forbidden or otherwise 'no-use' groves, lakes, springs, mountains, islands, etc. with prohibition on uses except very particular occasions, such as a once-a-year ceremony (IUCN definition may need to be expanded to include cultural and/or religious aims, as these may often be the main reasons for the communities to protect many areas with such strictness)	<ul style="list-style-type: none"> • Khonoma Nature Conservation and Tragopan sanctuary, Nagaland • Sendenyu wildlife reserve, Nagaland • Chusana Island, Gujarat
II	National Park: PA managed mainly for ecosystem protection and recreation	Sacred/forbidden or otherwise 'minimal-use' areas (as above) with minimal and strictly regulated use (collection of dry and fallen wood, collection of sap, eco-tourism, etc.)	<ul style="list-style-type: none"> • Chakrashila Sanctuary, Assam • Shankarghola, Assam • Longwood Shola, Tamil Nadu • Tuofema village forest reserve, Nagaland
III	Natural Monument: PA managed mainly for conservation of specific natural features	Natural monuments (caves, waterfalls, cliffs, rocks) that are protected by communities for religious, cultural, or other reasons	
IV	Habitat/Species Management Area: PA managed mainly for conservation through management intervention	Heronries and other village tanks, turtle nesting sites, community managed wildlife corridors and riparian vegetation areas	<ul style="list-style-type: none"> • Nellapatu heronry, Andhra Pradesh • Uppalapadu heronry, Andhra Pradesh • Rushikulya (sea turtles), Manglajodi (waterfowl), and Buguda (blackbuck), Orissa • Khichan (demoiselle cranes), Rajasthan
V	Protected Landscape/ Seascape: PA managed mainly for landscape/seascape conservation and recreation.	Traditional grounds of pastoral communities/mobile peoples, including rangelands, water points and forest patches strongly inter-dependent for herd, ecosystem and cultural survival; sacred and cultural landscapes and seascapes, collectively managed river basins (such natural and cultural ecosystems have multiple land/water uses integrated into each other, and given a context by the overall sacred/cultural/-productive nature of the ecosystem; they would include areas with high agricultural biodiversity)	<ul style="list-style-type: none"> • Apatani Valley, Arunachal • Arvari Sansad area (River catchment landscape), Rajasthan • Lands of the Chagpa's of Ladakh • Sacred landscapes of Sikkim Range, Orissa
VI	Managed Resource PA: PA managed mainly for the sustainable use of natural ecosystems.	Resource reserves (forests, grasslands, waterways, coastal and marine stretches, including wildlife habitats) under restricted use and communal rules that assure sustainable harvesting through time	<p>Jardhargaon, Uttarakhand</p> <ul style="list-style-type: none"> • Mendha (Lekha), Maharashtra • Behroonguda, Andhra Pradesh • Hiware Bazar, Maharashtra <p>(Nearly all cases mentioned in section 2.2 under resource enhancement and maintenance)</p>

Source: Adapted for India from a table presented in a note prepared by Ashish Kothari, based on inputs from Grazia Borrini-Feyerabend, Hanna Jaireth, Gonzalo Oviedo, Adrian Phillips, and Marshall Murphree. The original table was for the IUCN Strategic Direction on Governance, Communities, Equity and Livelihoods (TILCEPA) formerly known as the Theme on Indigenous and Local Communities, Equity, and Protected Areas. Contact: ashishkothari@vsnl.com, gbf@cenesta.org, or tilcepa@vsnl.net.

4. Impacts of CCAs

4.1. What costs do CCAs entail for communities?

It is now well established that people living closest to conserved areas or protected areas pay the highest price for achieving conservation, willingly or unwillingly³⁶. Conservation does not come without a cost even when it is being done by communities themselves. Many times communities consider these costs integral to their efforts while at other times the costs begin to impact the sustainability of the initiative and communities even look for help to counter them. Some of the major costs incurred by communities from CCAs include:

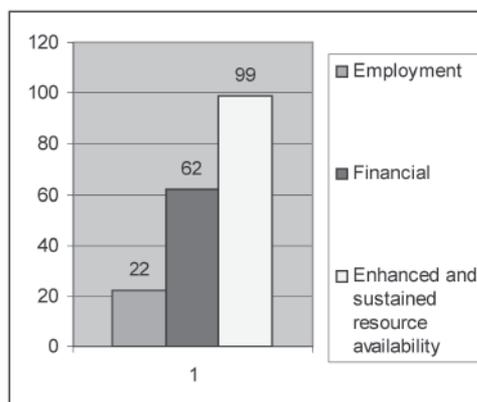
- **Investment of time and effort for protection, management and planning activities:** Most of the communities involved in conservation activities are subsistence farmers, forest produce collectors, fishers and other economically underprivileged people. They must work everyday on their farms or forests, wetlands or pastures, or be engaged in daily wage activities, to be able to sustain family incomes. In these situations, giving a certain number of days for conservation activities (including patrolling, meetings, and at times even court cases, etc.) can have a serious impact on the family's income. The situation is more serious for families where there is only one earning member or which is constituted of widows or old men and women (see Section 6.2 on social limitations for more details).
- **Investment of funds for salaries or corpus conservation fund:** Some communities have taken a decision to contribute a certain percentage of their earnings to pay for the conservation effort, mainly to avoid being dependent on external sources for funding or to be able to sustain the efforts irrespective of external support. These contributions are meant for carrying out various management activities or payments to the watchers and guards, and so on.
- **Temporary loss of access to natural resources:** When the objective of management is regeneration of natural resources, villagers have to face self-imposed restrictions and hence scarcity of resources for a few years till their resources have regenerated. Such restrictions again affect those who are more dependent on the resources, such as women, artisans, and pastoralists (see Section 6.2 on social limitations for more details).
- **Donation of private lands for conservation:** In states like Nagaland and in areas belonging to Bishnoi community, privately owned lands or community lands have been donated for conservation. Often there is little or no compensation for such donations, which are done for the larger good of the community, either willingly or under community pressure.
- **Conflict situations with neighbours or migrating communities:** Once communities start protection, they need to clearly identify the boundaries within their jurisdiction. Since traditional boundaries in many areas have not been recognised in government records and these are the boundaries that villagers claim for protection, it gives rise to conflicts with other villagers who may also be extracting resources from the same area. Sometimes conflicts may also arise between two conserving communities. Conflicts between migratory communities and settled communities (which in the past had traditional tie-ups) are among the highest (see the case study on Buldhana in Maharashtra for details). In many situations where the conserved land is owned by the government, conflicts with government agencies are also common.
- **Threat to life and property:** Many communities carry out conservation under grave threat to their lives from those engaged in illegal timber trade, poaching and so on. In some situations conservation continues despite no support in such circumstances from the government or any other agency (e.g., see case study on Dengajheri in Orissa).
- **Increased crop depredation due to increase in wild animal populations:** In villages like Jardhargaon in Uttarakhand, Bishnoi villages in Punjab, Buguda village in Orissa (see Orissa state chapter for details) and Khonoma in Nagaland, crop depredation by wild animals is a major problem faced by the villagers. In Buguda, villagers claim to be not able to cultivate about 60 per cent of cultivable land because of crop damage. In Jardhargaon, monkeys and wild boars cause serious damage to the crops (also see Section 6.1. on ecological limitations).
- **Loss of livelihood opportunities:** Youth involved in the conservation of olive ridley turtles in Rushikulya in Orissa or Kolavipaalam in Kerala need to put in their entire time in issues related to conservation. They are left with little time to engage in livelihood generation activities and turtle conservation does not earn them any livelihood. When the pressure to generate a livelihood begins to mount, this often becomes a reason for abandoning conservation activities, such as at Morjim Beach in Goa, where the initiative of the youth for protecting turtles has been overwhelmed by huge tourism-related investments and other activities.³⁷

- **Opportunity cost or other economic cost:** In many heronries (e.g. Kokkare Bellur in Karnataka), villagers have to let go of the harvest from tamarind trees if the storks and pelicans happen to be nesting on those trees. In Khichan village in Rajasthan, villagers contribute thousands of rupees to be able to buy grains for the demoiselle cranes.

4.2 How do communities benefit from conservation?

Our analysis indicates that most communities have benefited from the conservation initiative economically, politically,³⁸ in terms of developmental inputs, and so on. However, with the available information it has not been possible to carry out a cost-benefit analysis to see in how many cases the benefits have outweighed the costs.

Figure 16: Benefits to the communities³⁹



Note: Each CCA used in the analysis above has more than one benefit

Benefits envisaged by the communities from the CCAs include livelihood security, ecological benefits such as control of soil erosion and increased availability of water, community empowerment, social recognition, among others.

a. Long term availability of biomass

One of the most important benefits for communities is sustained availability and access to biomass that the communities require for survival. Communities are willing to face self-imposed restrictions, as this would result in regeneration of and subsequent sustained access to resources, or because they would help achieve cultural, ethical, or religious goals. This is true of almost all the examples mentioned in this directory. Women who often face the brunt of conservation most often do follow restrictions to the extent possible in the hope of eventual gain. Figure 16 shows that nearly 83 per cent of the conserving initiatives have led to long-term availability of resources.

b. Financial and employment related benefits

Economic benefits from the sale of surplus resources or other ecosystem-based activities such as eco-tourism are an important benefit for many communities. Villagers in Botha and Hiware Bazar in Maharashtra and many others have regenerated their grasslands and are now generating substantial income by selling surplus grass. In Mendha (Lekha), villagers have worked out a system by which the village institution is now in a position to provide year-round employment to the villagers, thus reducing the need to move out in search of employment. In Bhaonta-Kolyala twin villages in Rajasthan, most young men would migrate out in search of employment till a decade ago. Conservation of surrounding forests has not only ensured year-round availability of water (in this drought-prone area) but has also increased soil fertility. Agriculture is now so beneficial that the village has much less out-migration for employment.

Figure 16 shows that in 62 (52 per cent) of cases there is a direct financial benefit to the village/community as a whole (towards village fund) and/or to a majority of the community members. About 22 (18 per cent) of the CCAs have managed to ensure some year-round employment for most people in the village. In many initiatives (not included in the 18 per cent), employment opportunities have improved but only for a few people in the community.

The following two categories of benefits do not reflect in the Figure above as they are difficult to quantify, however discussions with the conserving communities reveal that these are important benefits for the communities.

c. Social and cultural benefits

Community cohesiveness: Conservation efforts often bring the community together for a common cause or are a result of communities coming together for some other cause. A more informed, organised and empowered community could work towards establishing more locally appropriate development processes in the village, such as systems of education, health and finance. An example of this is Hiware Bazar in Maharashtra, where the village organisation takes care of the education of meritorious village youth, the health of the village community, among other things.

On the other hand cohesiveness is one of the requisites for conservation efforts; otherwise serious problems can be created from people within the group. This is illustrated by the example of Jharbeda village in Orissa. This example however also shows that if there is determination among the community members, conservation can be achieved despite all opposition. Orissa also has many examples where women have stood against all odds to protect their forests.

Social recognition: Under the current development paradigm the local communities, their efforts, knowledge systems and technological innovations remain unappreciated and unrecognised. Decades of lack of recognition and endorsement has instilled a feeling of inferiority among local knowledge holders and innovators. Often the conservation efforts draw the attention of the national and global community towards the local communities, leading to social recognition of their efforts. Initiatives such as Jardhargaon, Mendha (Lekha) and Bhaonta-Kolyala have received national and global recognition. Some like Hiware Bazar and Saigata in Maharashtra have received official government awards, strengthening their resolve to continue.

Overcoming social inequities: Saigata village in Maharashtra has seven castes and classes, many of them socially and economically disprivileged. Forest conservation initiated by a *dalit* youth helped in bringing various castes in the village together. An equal sharing of conservation and protection responsibilities eventually led to equitable sharing of resources, thus improving the status of the downtrodden in the village. This may not be the situation in all CCAs but it shows the potential of conservation efforts in facilitating reduction in social inequities. Another example of socially disempowered sections of society gaining power because of forest conservation is Dengajheri and surrounding villages in Orissa. Here forest conservation and decisions related to the forests are largely the responsibility of the women. Consequently women, who had never travelled outside their village, have now developed the capacity to not only make decisions about the forests but also to represent the village in the Ranpur Federation (see Orissa chapter for details). The status of women is such that they also play an important role in general village level decision-making, which is traditionally a forbidden territory for women. The same has happened in a number of Chipko movement-inspired CCAs in Uttarakhand.

d. Political benefits

Changes in political dynamics reflect both the relationship of the community vis-à-vis outside agencies, including the government and the relationship between the dominant and the underprivileged sections of the community. Although not reflected in the analysis in Figure 16 many communities benefit politically from their coming together to manage and/or conserve the surrounding natural resources.

In tribal-dominated areas, where livelihoods are heavily ecosystem-dependent, there is a move towards tribal self-rule. After more than a century-old centralised rule and marginalisation by colonial and national governments, villagers are now taking control over land, water and forests, and developmental and other processes affecting their lives. In Mendha (Lekha), the movement towards self-rule started when villagers opposed unjust restrictions on forests and a process of elimination of traditional rights. The first step towards achieving self-rule was taking control over the forests and protecting, managing and using resources in a regulated manner. Community forestry efforts in Orissa are often of a similar nature.

Starting a conservation initiative often means greater interaction with the people and processes from outside the village. Making themselves familiar with these processes involves building local capacities. Whenever communities have started village corpus funds, micro-credit schemes, etc., they have had to learn systems of accounting and dealing with banks. Because of a more equal interaction with the government departments and officials, villagers are better informed about various government programmes and their impacts on their lives. Many empowered village representatives involved with conservation have been able to participate in national policy dialogues. Some have even travelled to international forums to share their experiences and express their views. Establishing local institutions and participating in their day-to-day running as also establishing and implementing rules and regulations enhances the administration

capacity of the villagers. It appears that *vis-a-vis* outsiders, conserving communities have gained greater political and negotiation power. However, within the community whether such political empowerment has spread equally is difficult to say with this level of information. There are some examples in this directory such as Makku in Uttarakhand and Dengajhari and other villages in Orissa and elsewhere, where women seem to have gained greater decision-making power, but this cannot be extrapolated to all examples.

4.3 How do CCAs benefit wildlife and biodiversity?

As explained in Section 1.2b very few of the areas documented here have been subjected to scientific assessments to understand exactly how the CCA initiative has benefited habitats and species. Some studies by wildlife scientists or NGOs show clear ecological benefits, e.g. plant biodiversity conservation in Jardhargaon (Uttarakhand) or increase in nesting Pelican numbers in Kokare Bellur. In the absence of such studies elsewhere, ecological impacts could only be judged based on visual impressions and interactions with local people. For example, in Nagaland it is in general easy to come across forested areas (over 80 per cent of the state has forest cover) but very difficult to come across signs of birds or mammals. Exceptions to this rule were the community protected areas where one frequently encountered signs of various species and saw and heard many birds. In Khonoma, where hunting is completely banned, birds and signs of other animals were very common. 600ha of regenerated village forests of Tokpa Kabui village of Churachandpur district, in the adjacent state of Manipur provide a critical refuge for many endangered birds, including blyth's tragopan, grey sibia, beautiful sibia, grey peacock pheasant, rufous-necked hornbill and white-naped yuhina. Villagers also report sighting other rare species, including the spotted linsang, tiger, leopard, wild dog, stump-tailed macaque and Asiatic black bear. Villagers in Shankarghola are protecting the endangered golden langur, and fresh reports from Meghalaya show that other communities are also involved in protection of the hoolock gibbon there (see Meghalaya chapter for details). Another (somewhat ironic) indication of increase in wildlife in many CCAs is the increase in crop or livestock damage in areas surrounding the CCAs. The table below gives some examples from the Directory where ecological benefits can be seen.

Table 2: Positive ecological impacts of CCAs in India⁴⁰

No.	Type of initiative	Result	Examples ⁴¹
1	Traditional protection of religiously and culturally important sites and new wildlife reserves	Protection, often total, of forests, grasslands, tanks and other ecosystems and habitats resulting in absolute protection to all species and their habitats	Chusana Island in Gujarat, Aravanchal Kavu in Kerala, Khonoma Nature Reserve and Sendenyu in Nagaland
2	Traditional or religious protection of sacred species	Absolute protection to a certain species, but often with less thought about their habitat or the other species in the area	Khichan in Rajasthan, Uppalapadu in Andhra Pradesh, Abohar in Punjab, Buguda in Orissa
3	Traditional and recent initiatives towards sustainable use practices for habitats, including sacred sites where some regulated use may be allowed but protection of wild animals is also one of the primary objectives.	The area is used but wild plant and animal species are consciously protected. Protection usually not restricted to any particular species	Ajeevali in Maharashtra, Mangalajodi in Orissa, Veerapuram in Andhra Pradesh, Bhaonta-Kolyala in Rajasthan, Behroonguda in Andhra Pradesh, Ashtamudi lake in Kerala, Doddabail in Karnataka, Balukhand-Konark sanctuary and Kodbahal in Orissa, Loktak lake in Manipur
4	Recent initiatives towards protection of threatened species	Revival or protection of threatened populations of wild animals. Threatened species such as golden langur, Blyth's tragopan, Hoolock gibbon, Olive Ridley turtle, etc. So far no examples of special protection of large herbivores like elephants or carnivores like tigers have been encountered in such kind of initiatives	Olive ridley protection in Iringal and surrounding villages at Kolavipaalam in Kerala and Purunabandha and other villages at Rushikulya in Orissa, Blyth's tragopan protection in Khonoma, Chizami and other areas in Nagaland, Shankarghola in Assam

5	Recent initiatives to conserve and/or regulated use relatively intact ecosystems	Habitat conservation. Protection efforts are generic, not directed at any particular species or habitat needs, and like all the other categories in this table, not necessarily informed by present-day conservation priorities. However, these do provide reduced threat situations. Sometimes larger herbivores and carnivores also benefit from such initiatives	Mendha (Lekha) in Maharashtra, Suva in Andhra Pradesh, Dengajhari and Jhardeda in Orissa, Kailadevi and Kishori in Rajasthan, Chittrangudi and, Longwood Shola in Tamil Nadu, Gursikaran forests in UP, Makku Van Panchayat in Uttarakhand
6	Recent initiatives to revive degraded habitats and sustainably use them and protecting wild species therein	Some of these are regeneration initiatives with the objective of reviving wild species as much as overcoming resource scarcities while others were initiated mainly for resource enhancement but have now seen revival of many other wild flora and fauna species. These do provide a better habitat and reduced threat to wildlife.	Shankarghola and Chakrashila in Assam, Jardhargaon, Nahinkala and Lohathal in Uttarakhand, Satara-Tukum, Belgata, Charoti and Saigata in Maharashtra, Thaing sacred grove in Meghalaya, Binjiri Hills in Orissa
7	Examples where water and soil quality has improved and impact of natural disasters such as floods, landslides, droughts, cyclones, etc. has been reduced	Improved status of soil and water, and reduction in situations of droughts, floods, etc.	Binjiri Hills and Budhikhamari in Orissa, Bhaonta-Kolyala and Kishori in Rajasthan, Melaghar in Tripura, Dakhyat and Lohathal in Uttarakhand

In Gadchiroli district of Maharashtra, Udaipur district in Rajasthan, Uttarakhand and other areas, conserving communities have managed to contain encroachment of forest areas for agricultural purposes. In Jardhargaon, Saigata, and Bhaonta-Kolyala, wild animals have returned to the conserved village forests after decades. Many endangered birds such as the spotted pelican and the great Indian bustard as well as animals like the blackbuck survive today because of the protection given to them by the local villagers. Almost all CCAs are conserving habitats which support wildlife populations. In Orissa, the entire Ranpur range is under protection from different villages. The overall result is that, compared to the completely bare hillsides in the surrounding area, this entire range is well forested. In Dengajheri, in the same state the villagers spoke about elephants visiting their forests. It was very clear that the quality of forests was much better than those outside the range where there was no community conservation. It appears that as the corridors are getting destroyed and migratory routes blocked, regenerated forests under CFM become good habitats for elephants to move into. This is an observation that still needs to be ascertained and scientifically established.

It is important to note that the quality of ecosystems and resources is not merely controlled by the forces within the communities. Several factors beyond the control of the conserving communities have a direct impact on the conserved area. For example, in Satara Tukum in Maharashtra the forest development corporation (FDCM) (see case study for details) is carrying out clear-felling in good patches of forests immediately adjoining the conserved area. This has led to human population dependent on the cleared forests diverting their pressure to the forests protected by Satara Tukum. Also this means that fauna species from elsewhere come to the protected patch for shelter, increasing the human-wildlife conflicts. The demand of the villagers that the surrounding forests be included under JFM has not yet been accepted.

An attempt has been made in Figure 17 to understand the impacts of CCAs documented in this Directory. This analysis is based on very broad indicators involving personal observations, local interviews, and views and observations of NGOs or government agencies about the particular site.

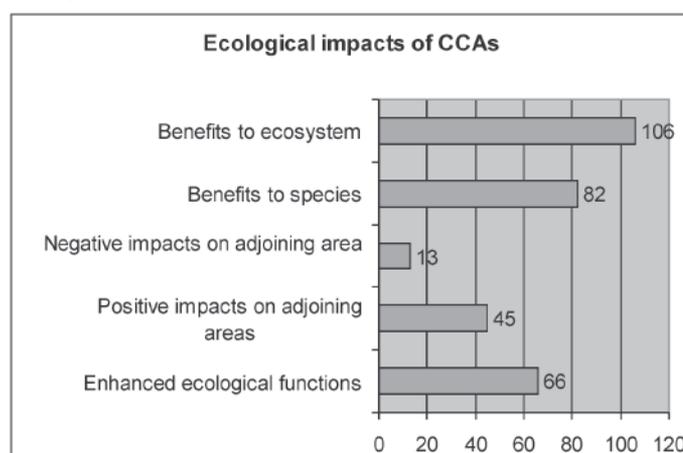
Figure 17: Ecological impacts of CCAs

Figure 17 indicates that in 106 (88 per cent) cases documented here, there appears to have been an enhancement or maintenance of an ecosystem, indicating a potential benefit to many wild plants and animals. In 82 (63 per cent) of the cases, some specific species have benefited, and in 66 (55 per cent) cases there has been an improvement in the water or soil situation or a reduction in landslides, droughts, etc. In 45 cases (38 per cent) there has been a positive impact on the adjoining area, mainly by inspiring neighbours to initiate conservation activities and sometimes by people meeting their own requirements from the regenerated resources. In 13 (11 per cent) of the cases, respondents report that conservation efforts in the area have meant an increased pressure on resources in the surrounding area.

Box 9

Why CCAs are important for conservation

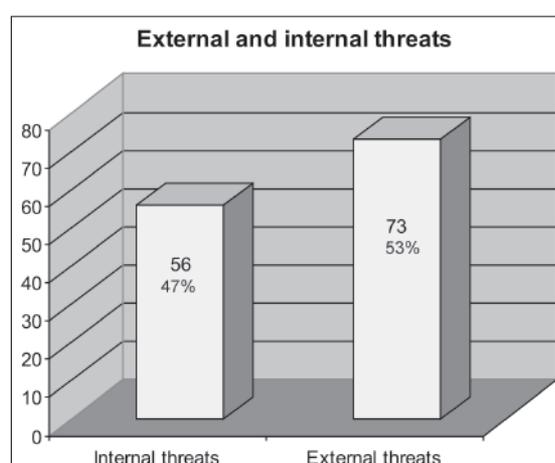
- They protect habitats and species which are otherwise threatened (including some globally threatened species).
- They have significant ecological, cultural and traditional knowledge-related values.
- The traditional or new management systems (institutions and organizations), while being important in the social sense, are also important from the context of conservation.
- They help maintain essential ecosystem functions such as water security, controlling soil erosion, working as cyclone barriers, protection of gene pools and so on.
- Conservation is often a part of normal livelihood or cultural activities, through existing systems and structures, thus reducing external financial inputs.
- While usually not large in size, CCAs can be connected and could be a focus for natural forest and landscape restoration as well as for landscape management, as in the case of the *van panchayats* between Nanda Devi National Park and Askot Wildlife Sanctuary in Uttarakhand.⁴²
- They help synergise links between agricultural biodiversity and wildlife, providing larger landscape-level integration.
- The sheer number (and, by implication, the area) of CCAs found across the country is of importance. They would mostly classify as protected areas, though few have formal recognition.
- They help provide corridors and linkages for animal and gene movement.
- They are a key point of entry for linking rural livelihoods to conservation.
- They provide critical lessons for better management of government-established and managed PAs, especially in integrating conservation and livelihoods and in resolving disputes.
- They may provide crucial elements and resources for mitigating and adapting to climate change.

5. Major threats and challenges faced by CCAs

CCAs all across the country are faced with numerous internal and external threats. Many of these threats have their roots in the national and global context within which we all exist today. The model of 'development' that our societies, economies and polities are governed by mandates maximum use of resources in minimum time. This is a model where costs and benefits are weighed only in financial terms, directly contradicting the spirit and principles of sustainability or nature conservation, a model that believes in absolute preservation of nature in small islands and maximum extraction for human use everywhere else. It is therefore not surprising that the efforts of the communities based in regulated usage along with conservation are viewed with suspicion and scepticism. This prevents them from getting social, administrative and legal recognition. Lack of recognition in turn intensifies the existing internal and external threats or makes it difficult to deal with them.

In the following analysis the threats faced by the communities have been divided into two broad heads, those internal to the community and external, including those which manifest within the communities but are a result of external factors:

Figure 18: CCAs threatened by internal and external factors



5.1. What are the internal threats faced by CCAs?

Although internal social inequities, conflicts, political rivalries, and so on exist in some form or the other in most CCAs documented, about 47 per cent (56 out of 120 cases analysed) seem to be in a situation where they could impact the success of the initiative. Below are given some such factors that have an influence on a CCA and can threaten its existence:

a. Traditional social inequities: Communities are often highly stratified with many decisions made by the dominant sections of society (men, large landowners, 'upper' castes) without considering their impacts on the less privileged (women, landless, 'lower' castes). Such disparities in decision-making can create local dissatisfaction and affect the long-term sustainability of the initiative (also see Section 6.2 on social limitations).

b. Demographic changes: Human and livestock populations have increased manifold in several areas. Due to this (and a number of other reasons) the habitats have degraded and the total available resource base has shrunk. This leads to conflicts with others as also to over-exploitation of resources that communities are sometimes not able to curb on their own.

c. Reduced availability of resources: In some places previously sustainable levels of resource use may now be causing over-exploitation, as a number of extraneous circumstances may have led to the decline in the extent or abundance of these resources. This is the situation, for instance, with traditional hunting of wild animals where the populations of these species have declined due to various factors emanating within and outside the community.

d. High cost of conservation: In most circumstances the costs mentioned in Section 4.1 are borne by the community. Communities sometimes find it difficult to deal with issues such as investment in time and labour, paying salaries for village forest guards, conflicts with other communities, human-wildlife conflicts, dealing with powerful outside offenders, unable to earn livelihoods and so on. If they do not receive support at these critical times then the initiative itself comes under threat.

5.2 What are the external threats faced by CCAs?

a. Lack of legal backing and tenurial security: There is no comprehensive government policy to support CCAs. Additionally, few of the initiatives mentioned above have a status *vis-a-vis* statutory law, other than in Nagaland (also see Section 8 for legal status of CCAs). Many CCAs are on lands owned by the government, over which the community does not have ownership or recognised access rights. The government can decide to change the land-use or lease the land for any other purpose without consulting or even informing the conserving communities. This can in some situations seriously threaten a CCA. For example:

- Saigata village faced a strange situation in the late 1990s when they stopped outsiders from entering their forests. They were not only questioned by the trespassers about their authority to protect forests, but the FD officials asserted that the villagers had no legal authority to conserve the forest. They argued with the FD that they were merely fulfilling their obligation as citizens of this country by protecting the forests.
- Because of a lack of recognition, government agencies often do not support the communities involved in conservation activities. Communities are left to fight their own battles. For example, in some villages in Orissa when women started protecting the forests and apprehended the offenders, the forest officials did not come to help. This discouraged and disheartened the protecting groups, as the offenders also got a clear message that the villagers were not backed by the government.
- On the other hand, when the forests have regenerated or protected rivers have fish in them because of community efforts, the government agencies then sometimes contract these out for harvest and revenue-generation, and the efforts of the community are not recognised.

b. Inappropriate or no government support: CCAs that contain commercially valuable resources (e.g., timber, fauna, minerals) are often encroached upon or threatened by commercial users, land grabbers, resource traffickers or individual community members.

A lack of support to deal with the above kinds of situations, negative intervention or influence by government agencies or policies, and indifference towards CCAs have been found to be major reasons for discouraging communities in many of the documented CCAs. Some such situations are described below:

- In some CCAs, socially sensitive government officers have used various government schemes and policies for initiating CCAs or supporting them at critical junctures. However, such initiatives hinge delicately on the continued presence of this particular officer (or group of officers) for a certain duration. When the officer is transferred out, the next one may not have the same social sensitivity, and this can be very detrimental for the initiative.
- Even when well-intentioned, when government policies to support CCAs are implemented, they are based on straitjacketed approaches, often taking over key community functions. They may also establish uniform and parallel institutional bodies based on representative politics to replace the existing institutions, without taking into account local peculiarities. More often than not this angers and upsets the concerned communities as they prefer facilitation or improvement of the existing institutions or working out new site-specific institutions in consultation with the local people. There are numerous examples cited in this compilation—CFM initiatives in Orissa, CCAs in Kailadevi in Rajasthan—where imposition of new institutions has led to the breakdown of otherwise well-functioning initiatives (see Section 7.7 on external intervention; See also Section 8.1 (i) on the imitations of legal provisions relating to CCAs).

c. External development projects and processes

Many CCAs are faced with detrimental developmental and market pressures. Often the community initiative itself is a response to such threats (see section 2.2 above), but many times these pressures could undermine the efforts of the conserving communities.

- A 30-year mining lease was given in the early 2000s in forests protected by women near Jardhargaon (Uttarakhand). In Halkar village (Karnataka), the government leased out the forests protected by the villagers for commercial timber extraction.
- With industrialisation being put on the fast track in Orissa, many CCAs are under threat. In 2005, the forest lands and other common lands were leased for open-cast coal mining at Rajjharan in Orissa. These forests are densely covered with sal forests. Four villages—Rajjharan, Nandijhor, Goalgadua and Similisahi—have been protecting and managing the forests for the last 15 years. These include villages which are under the government-sponsored joint forest management scheme.

- The turtle conservation effort in Kolavipaalam in Kerala is threatened by commercial extraction of sand by powerful people from outside the community. The turtle mass-nesting sites and community efforts to protect these sites are threatened by port development and large-scale commercial fishing activities in Orissa. In Morjim village in Goa, the effort at protection of the turtle nesting site fizzled out as the youth involved in protection activities were eventually drawn into the highly lucrative tourism business. Owning a beach shack and supporting construction of hotels for the tourist was much more economically and socially sustainable than opposing large-scale tourism in order to protect turtles. Lack of help in being able to draw positive links between economic growth and turtle conservation led to a complete collapse of the initiative.⁴³

d. Smuggling and poaching: Communities like Dengajheri in Orissa are constantly under threat from the timber smugglers, while in Shankarghola in Assam the villagers have to be very vigilant against animal poachers. The situation is particularly difficult in areas where forests support valuable species of flora and fauna such as medicinal plants, mammals, teak and other trees.

e. Attitudes of others: Attitudes of conservationists and government agencies towards some ecological issues can sometimes be a major stumbling block in resolving some issues related to CCAs. For instance, the official attitude that shifting cultivation is necessarily harmful in all situations may differ substantially from that of the local population, and its imposition would affect local management practices and autonomy.

Often it is difficult to distinguish between the internal and the external threats, particularly when situations have manifested within a community as a result of external influences. For example:

f. Breakdown of traditional institutions and knowledge: Traditional institutions and knowledge systems have eroded to a great extent because of a number of reasons, including colonial or centralised administration and politics. This has weakened communities' abilities to manage their own environment. This often makes them dependent on constant external facilitation and inputs.

g. The education system: The education system does not emphasise or even acknowledge the value of local natural resources, culture and traditional knowledge. This results in a disconnect between the semi-educated village youth and the village and its life. Little traditional knowledge passes on to the newer generation and their interaction with the surrounding environment ends up becoming indifferent or negative. The youth often find local values irrelevant in the face of changing socio-economic scenarios and severe livelihood pressures.

h. Changing value systems and aspirations: Community values, motivations and organisations are constantly faced with contradictory values and influences such as national and international markets along with inherent inequities within them and powerful commercial forces. Intrusions by dominant religions often have serious impacts on local value systems and traditional conservation practices (especially among indigenous/tribal communities). Local institutions have to be very strong to be able to face up to these challenges. Additionally, market forces have deeply penetrated local economies, increasing local material aspirations and individualism, thus further weakening traditional value systems.

i. National and sub-national party politics: Party politics often enters villages in India in perverse ways, completely politicising local institutions and creating divisions and conflicts with the villages. The local concerns and issues in such circumstances take lower importance over the 'larger' matters of the concerned political party. In many cases extraordinary powers get divested to a handful of party supporters, who use hooliganism to create fear. This impacts conservation processes adversely. If such people are engaged in breaking the rules of the community, the community has little power to stop them. In some villages like Mendha (Lekha) and Hiware Bazar, villagers have shown their strength by keeping such politics out of their villages.

j. Global market forces: Global economic policies and market forces make it difficult for communities to establish and maintain local and decentralised economic systems and markets, affecting their financial sustainability.

6. Main limitations of CCAs

CCAs have their own limitations which need to be understood and resolved.

6.1. What are the ecological limitations?

Human-wildlife conflicts: In Jardhargaon, villagers are very proud of their efforts. The wild animals can now be seen in the village after many years. However, this has also meant increased incidents of crop and fruit depredation (as mentioned in Section 4.1). Such situations exist in many

CCAs, where increasing populations of birds and mammals have been leading to crop damage or livestock losses. Such conflicts become particularly serious in sites where the surrounding habitat is completely degraded, making the area conserved by the communities the only refuge for wildlife. In a few CCAs, villagers are beginning to wonder whether they should seek a reopening of regulated hunting of some species such as wild boar in order to resolve this problem. So far, few communities have been able to resolve this issue, particularly crop damage.

In the recent times some organisations have been trying to focus on this issues, particularly in government protected areas. Experiences of these organisations could be of use to CCAs as well. For example the Snow Leopard Conservancy in Hemis National Park in Ladakh⁴⁴ has initiated a programme aimed at helping local people in reducing damage to livestock caused by the snow leopard and help them in getting adequate and timely compensation for the incurred damages.

Protection of large carnivores and non-utility elements of biological diversity: In all the efforts documented so far, there were just a few examples where animals covering a large range or big carnivores are being protected by the communities, (such as elephants in Ranpur in Orissa, hoolock gibbons in Meghalaya or lions in some villages around Gir National Park in Gujarat). In many areas where stretches of forests are being protected, the presence of big carnivores such as tigers and leopards is reported, but there are very few examples where areas are being protected specifically for these species.

Many conservationists believe that community conservation may not always address the issue of overall biodiversity conservation, as species that are not in use or are undesirable to the community may not be given attention. However, only detailed ecological studies can substantiate or invalidate this argument.

Lack of monitoring and evaluation: There are very few community conservation efforts that are regularly monitored to assess their social or ecological impacts. This is particularly important because a large number of CCAs have regulated use as their main management strategy. It is important that studies are carried out to understand the impacts of resource extraction on the habitat and the species therein. This could help in communities establishing processes and levels of extraction that would be economically viable and ecologically less damaging. Also important is to help them establish internal monitoring systems.

Lack of baseline information: It is clear that there is a need to carry out detailed assessment of how conservation initiatives have benefited the ecosystem and various species. In most of the cases not even a basic inventory of the flora and fauna found in these areas is available. In many CCAs, youth have expressed an interest in developing such inventories or being part of the biodiversity studies. Such local human resources and expertise should be used for the benefit of the area. Detailed oral histories, especially of elders, would also provide an invaluable source of information.

Forest fires: Forest fires are a common annual phenomenon in many Indian forests. Local communities often do not consider annual forest fires detrimental to the health of the forest ecosystems, claiming that the forests have acclimatized to these fires. Some ecologists may not agree but there are not enough studies to suggest the validity of either points of view, or to indicate optimum levels of fire in different ecosystems.

Impacts on the surrounding area: It is often claimed that the local community may be conserving a small patch, but this is at the expense of added or diverted pressure to some other surrounding areas. Can this then be called sustainable management of resources? A situation like this could increase the existing conflicts or create new conflicts among two neighbouring communities or with the official agency in-charge of the area to which the use has now been diverted. Figure 17 on ecological impact shows that in 13 out of 120 documented sites, the conserving community has exerted a negative pressure on the surrounding forests. Studies of areas where such impacts have not been recorded and those where the initiative has actually led to the betterment of the surrounding areas need to be carried out, to get a better idea of where the balance lines.

6.2. What are the social limitations?

Local inequities: As mentioned in Section 1.3(a), it is quite clear from the documented examples that communities themselves are often highly stratified. Assuming that devolving power to the 'community' will necessarily lead to just and sustainable ecological and social processes can be a serious mistake.⁴⁵ In many community initiatives (such as Saigata) this issue has been tackled carefully and efforts have been made to ensure equal participation from all sections of the society. On the other hand, there are many examples where decisions regarding conservation

and protection of resources are taken by those sections of the society that are powerful (men, big landowners, 'upper-caste' communities) and do not depend heavily on the concerned resources for livelihood.⁴⁶

After communities take a decision to conserve an area, people have to either manage within the limited available resources or travel greater distances to collect the required biomass. In most cases, it is the women who have to bear the brunt of this situation, as collection of fodder and fuelwood is essentially their responsibility. The situation is especially serious in women-headed households where the women have to leave small children and other family responsibilities and spend a major part of the day collecting biomass. The pressure becomes very high if the major source of income for the family is sale of headloads (fuelwood for sale carried on the head as bundles) collected from the surrounding areas.⁴⁷ For example, in male-dominated societies like Rajasthan, where protection efforts have been initiated mainly by men, women's needs are often not taken into account. Women are expected to meet biomass requirements without entering the forests. If the decision about conservation is taken by dominant sections of the community without consulting others who may be more dependent on the resources (artisans, headloaders, pastoralists etc.), the less dominant communities suffer more due to the restrictions.

Such disparities can have serious implication on the success of the initiative itself. As has been mentioned by people in Dhani Panch Mauza in Orissa, protection responsibility often means a higher cost for the poor, as they have to forgo their daily income when fulfilling the protection responsibilities or attending village meetings. On the other hand, the rich have the option of employing others to go patrolling on their behalf. This raises concerns of both social justice and sustainability of the conservation initiative. Such efforts may appear successful in the short run but may not sustain themselves in the long run due to growing dissatisfaction among the suppressed sections.

It is in situations like these that the role of an external agency often gains importance, as such agencies can help resolve some of the inequities which community members may find too difficult to resolve themselves. However, unless done with extreme care, this can also cause sudden disruption of local power structures, which may cause strong resentments (also see Section 7.7 on role of an outsider).

Limited capacity: Although there are examples where community members manage their own finances, manage ecosystems and even carry out ecological monitoring and evaluation, this is not always possible. In many instances, community members depend heavily on outsiders for many administrative skills. On the other hand, government officials working in an area rarely understand or are sympathetic towards such needs of the people. For decentralised conservation efforts to succeed, capacity-building through intensive training and reorientation programmes for all actors at all stages becomes imperative.

Capacity-building programmes need to orient forest officials to the social face of conservation and officials of other departments to issues of conservation, sensitising them to the needs and aspirations of the local communities, developing capacities to play the role of sensitive co-managers and extension officers, and devising mechanisms for making information available to the local communities. These programmes also need to sensitise local communities to the larger picture of conservation needs and to overcome the traditional distrust of the government agencies. They should sensitise NGOs to the need for a combination of livelihood security and biodiversity conservation, opening up a debate on the model of development and conservation to be followed in the country; and devise ways and means of working together in a cooperative environment. Several NGOs are now involved in such efforts.

Slow progress: Community conservation is a social process and has to progress taking into account various circumstances and issues. This limits the speed of these efforts. In order to make CCAs a success, implementing agencies need to work at a pace that communities are comfortable with and are able to deal with. In 1999 the chief minister of Orissa made an announcement that all villages in Orissa should form JFM Committees to manage their surrounding resources within a short period. This announcement clearly indicates a lack of understanding of the ground realities. Many communities no longer have the capacity to handle these responsibilities. Such devolutionary efforts often only mean transfer of power from faraway political strongholds to local political strongholds. Such short-sighted announcements only lead to officials establishing forest protection committees on paper, without much change on the ground.

Community conservation is more likely to succeed when the entire community is empowered; has a capacity to take informed decisions; and has the legal, economic, political, and social support structure in place. Creating conducive environment for local empowerment will often need serious social reforms and all-round capacity-building, which requires patience and perseverance from all relevant actors.

7. Key issues and lessons⁴⁸

7.1. Security of tenure

In nearly all the cases mentioned in this directory, it has been found that a sense of belonging or custodianship towards the area, resources or species being conserved is one of the most important factors in the decision of a community to start and carry on conservation efforts. Security of tenure of the land being conserved, or the confidence that they could continue with their initiative irrespective of the legal ownership of the land, is key to a successful community initiative. This sense of belonging or security develops over a period of time through constant consumptive, economic, cultural and religious associations and interaction with these resources. Therefore continued access to the resource and security of tenure are key to a sense of responsibility towards the resource among local communities. Analysis of some CCA initiatives which did not succeed also indicates that lack of tenure was often a major reason for the failure. This is not to imply that security of tenure will necessarily lead towards conservation, but rather that such security would increase chances of initiating CCAs where they do not exist and strengthening the ones that do.

On the other hand the conservation effort itself strengthens a sense of security by increasing the confidence among the communities about exercising their authority over the conserved land and resources. In this directory there are many examples where people have gained *de facto* control even when they do not have legal rights. Conservation efforts have thus given the villagers a confidence about demanding legal security of tenure over the area that they have a strong sense of belonging to, whether or not they own it.

7.2. Site-specific and decentralised management

It is becoming increasingly clear that uniform and straitjacketed models of development and conservation are not sustainable. As is clear from the preceding discussion, community initiatives are decentralised, site-specific and varied in their objectives and approaches. This is in contrast to most government efforts, which have largely been centralised, top-down and working under uniform legal and management prescriptions, not taking site peculiarities into account, though many officials have tried breaking through the mould to design locally adapted initiatives (see Section 5.2 on inappropriate or inadequate government support). However, making laws and policies flexible as well as firm and strong against misuse of the flexibility is a tricky question, and will involve serious debates and explorations.

One way of building in greater flexibility into the PA system would be to expand the number of categories of protected or conservation areas, to include a range of different ecological and socio-economic situations and governance types. The site-specific planning strategy (for zoning of PAs and others) for these areas (specially the ones where human settlements exist) could be then done based on participatory research with the local communities.

Such a paradigm shift is increasingly being accepted in international forums such as IUCN-International Union for the Conservation of Nature, and the Convention on Biological Diversity (CBD). One key aspect of this is the addition of the governance dimension, reorganising that all kinds of PAs can be managed by different kinds of actors, not only by governments. The PA type as per the governance categorisation and governance-type matrix could thus look like table 3 below (examples are not added here as they have already been given in table 2).

Table 3: Different governance types for IUCN categories of PAs.⁴⁹

Governance type (across) PA category (down)	Government-managed PAs	Co-managed PAs (jointly managed by communities, government and/or other concerned agencies)	Private PAs (conservation on privately owned lands and resources)	CCAs (Examples as shown in table 2)
I Strict Nature Reserve and Wilderness Area				
II National Park (ecosystem protection; protection of cultural values)				
III Natural Monument				
IV Habitat/Species Management				
V Protected Landscape/ Seascape				
VI Managed Resource				

A protected area management and governance model as given in this matrix would be able to provide support and recognition to a vast array of conservation arrangements, including CCAs.

In India we still do not have any clear criteria to decide what category a PA should be assigned: a national park, a sanctuary, a community reserve, a conservation reserve or a tiger reserve (and if one goes beyond the WLPA, then any of several other conservation categories; See Section 8). This causes ambiguity about the management objectives and practices to be followed for these PAs. It is therefore imperative that PAs are established and categorised after some level of ecological and socio-economic research, and with specific objectives. Understanding and assessing various community institutional arrangements, customary or new conservation rules, and systems of natural resource management followed by different conserving communities can give important leads in formulating such a flexible and locale-specific policy framework.

In terms of site-specific policy space, lessons can be learnt from Nepal, where under a common national law some areas are declared conservation areas. Each conservation area has a separate set of specific rules and regulations for its management.⁵⁰ While identifying the objectives, the ecological importance of inviolate zones (with no or minimal human use) will of course have to be considered. However, the process of identification of such zones could itself be participatory as also the conservation practices that will need to be followed in these zones. The importance of completely inviolate areas has been recognised for generations in community systems of management, as shown in examples in table 1.

7.3. Coordinated action and support

Conservation of resources by communities is a part of livelihood insurance and is linked with other social dynamics. Conservation initiatives can lead to other social reforms in the village, e.g., equity, empowerment, etc. On the other hand other social processes such as efforts towards generating empowerment may lead to initiation of conservation. Conservation, therefore, cannot be seen in isolation from other social, economic and political processes within the community. However the government and NGOs working in an area do not necessarily operate with this view. Local development and conservation activities are highly compartmentalised, with each line agency focusing on its own area of work, sometimes conflicting with or contradicting that of the other line agencies. Often, while the conservation agency is trying to discourage goat-rearing in an area, the animal husbandry department tries to promote goats. This is also true of NGOs working in local areas.

Most government and civil society agencies have now realised that formation of people's saving groups at village level is a useful way of mobilising communities, and achieving conservation or rural development objectives. However, there are many examples where not less than six agencies (including NGOs) operate different saving groups in the same village, thus not only spreading the resources thin but also dividing the community to achieve their own agenda. There needs to be much greater coordination amongst such agencies.

A fine example of holistic development is that of Mendha (Lekha) village in Maharashtra. Here conservation efforts have also meant, among other things, achieving local self-rule, managing their water resources, establishment of a grain bank for the villagers, working towards ecologically and socially sensitive education for village youth, and ensuring employment for everyone in the village. In order to reduce excessive dependence on forests for firewood, villagers have managed to create alternative sources of fuel in the village by encouraging various line agencies to pool their resources.

In many wildlife and forest areas, authorities can overcome the problem of inadequate resources, especially for the provision of ecologically sensitive livelihood inputs to local communities, by pooling together resources of different line agencies. Financial constraints are often cited as important reasons for not supporting a community effort on the ground or for discontinuing a JFM programme once the external funds have run out. For example, in Amravati District of Maharashtra, an enterprising official put all the line agency budgets together, and managed to generate adequate resources for ecologically sensitive development inputs for villagers in/around the Melghat Tiger Reserve.⁵¹ But this was an individual effort, and without a formal institutionalised mechanism, such initiatives have remained personalised and short-lived. In recent times an initiative for ecological development and conservation of Chilika Lagoon has been tried with involvement of all local and political agencies.⁵² Community empowerment coupled with strong policy directives can help resolve this problem.

7.4. A landscape approach

The previous point leads us to the fact that areas conserved for biodiversity do not exist in isolation and are impacted by various social and political forces and land-use practices in the surrounding areas. Allowing resource-intensive activities in the surrounding areas could put more pressure on the biodiversity of the area to be protected (as is clear from the activities of the FDCM at Satara Tukum in Maharashtra), or act in contradiction to conservation objectives.

It is extremely important to orient regional planning towards the ecological and cultural dimensions of an area, including community conservation efforts. A community's wish to conserve a certain area needs to be respected and reflected in the regional planning. Some community efforts have very strongly indicated the need for a landscape approach towards conservation. For example, the villages located in the basin of the Arvari river in Alwar district, Rajasthan, have been conserving the catchment forests for over two decades, resulting in the seasonal Arvari river becoming perennial again. These villagers have formed an 'Arvari Sansad' (Arvari Parliament), which aims to be the primary decision-making body for the entire basin. This is based on the principle that a holistic landscape approach will need to be taken for the conservation and use of the catchment. Members of the Sansad believe that decisions made by individual villages are often restricted to the interests of their own villages and may not adequately take care of the eco-region as a whole. Similarly, in Orissa and Uttarakhand, CCAs are found in clusters and groups, sometimes taking mountain ranges as units.

7.5. Governance and decision-making

Good governance is increasingly being seen as an important factor in ensuring the success of any conservation effort. An IUCN policy brief states that 'governance is about power, relationships and accountability. It thus has major influence on the achievement of management objectives, the sharing of relevant responsibilities, rights, costs and benefits, and the generation and sustenance of community, political and financial support for wise and sustainable use.'⁵³ International debate has brought up the factors mentioned in the box below as crucial for ensuring 'good' governance.

Box 10

Principles of good governance of protected areas

Governance involves interactions among structures, processes, traditions and knowledge systems that determine how power and responsibility are exercised, how decisions are taken, and how citizens and other stakeholders have their say. It is a concept that applies at all levels in the field of protected areas—site-level, national, regional and global.

Principles of good governance of PAs in general include *legitimacy and voice, accountability, performance, fairness, and direction*. These principles need to be applied keeping in mind the following:

- a. Recognition of diverse knowledge systems;
- b. Openness, transparency, and accountability in decision making;
- c. Inclusive leadership;
- d. Mobilizing support from diverse interests, from within the community; and
- e. Sharing authority and resources and devolving/decentralizing decision--making authority and resources where appropriate

Source: G. Borrini-Feyerabend, A. Kothari and G. Oviedo, *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation*. (Gland, Switzerland and Cambridge, UK, IUCN, 2004).

The CCAs documented in this directory throw up the following two important sets of factors for good governance and long-term success:

Transparency, openness, and accountability: A transparent and democratic process of decision-making leads towards a more successful effort and long-term sustainability than situations where decisions are taken by a small minority through non-transparent means. The emphasis on equal representation of all sections of society in information sharing and subsequent decision-making is one of the unique features of many successful initiatives. For example in Mendha (Lekha), all decisions are taken by consensus, after frequent discussions are carried out on all aspects of the issue. Consensus-based decision-making is used in many CCAs. Besides, utilisation of community funds or funds coming from various external programmes is often a serious source of discontent within a community. Most successful community initiatives therefore have an open system of

accounting, and accounts are regularly disclosed to the village assembly (and not only to a few representatives) and expenditure explained. Where this does not happen, the efforts face hurdles and may break down.

Constant dialogue and informed decisions: Lack of information and awareness is often cited as a serious limitation by many communities, who seek help from outsiders in increasing their experience and awareness levels. Being equipped with adequate and impartial information is a critical factor in the success of CCAs. In many cases this has been made possible by constant interaction with outsiders and regular discussions within the village (for example the study circles in Mendha (Lekha) village in Maharashtra). Such interactions and information make people more conscious and aware, which in turn helps them in taking informed decisions.

In India there are rarely any consultations with the local villagers on any new schemes or changes of policies. For communities to have a stronger sense of belonging with their resources and the rules governing them, it is important that regular dialogues are established with them. Open and transparent public hearings or referendums on any intended new provisions or changes in policies need to be carried out before a final decision is taken. Regularity of dialogue is important in building the capacity of communities to be able to make an informed decision.

In recent times, some conservation organisations have attempted to resolve issues related to conservation of big carnivores because of such dialogues and consultations. Organisations like Samrakshan in Meghalaya, Nature Conservation Foundation (NCF) in Ladakh and Arunachal Pradesh, Snow Leopard Conservancy in Ladakh, World Wide Fund for India (WWF) in Arunachal Pradesh, Salim Ali Centre for Ornithology and Nature (SACON) in Nagaland, Vasundhara and Foundation for Ecological Security in Orissa and numerous others have initiated such consultative processes with the local communities to conserve wildlife and have been getting encouraging and positive results.

7.6. Institution building and local institutions

In implementing decentralised conservation policies, it is important that while entrusting the village community with the responsibility of resource management and protection, time and effort is also spent in building institutions and capacities of those institutions to handle such responsibilities.

Despite the success of Satara Tukum in achieving forest conservation, a meeting with the *gram sabha* revealed that there was serious discontent among the villagers about the functioning of the forest protection committee (FPC). Many villagers did not attend the meeting of the committee and were not sure whether the funds were being utilised appropriately. In some CCAs such as Saigata in Maharashtra, the initiative seems to be sustained entirely on the efforts of one or a few individuals. Although they are well respected and command the support of the entire village, there is no institution to take charge in their absence. On the other hand, in many examples in Uttarakhand, Nagaland, Rajasthan and Orissa, much attention has been paid towards developing local institutions that will sustain the initiative. This illustrates the importance that must be placed on the process of developing and strengthening local institutions if the objectives are to be achieved efficiently and in a sustained manner.

In Khonoma in Nagaland, a Khonoma Nature Conservation and Tragopan Sanctuary Trust (KNCTS) has been established under the village council to manage the sanctuary. The village council has worked out detailed terms of reference and rules and regulations regarding the management of the sanctuary. In Dengajheri in Orissa, the functioning of the women looking after issues of forest protection appeared to be extremely informal. However, so far Dengajheri does not face issues of fund transfers and resource allocation. Once these issues become important, a need for a more organised yet transparent system is likely to be felt.

7.7. The role of the outsider

i) Do CCAs need external support?

In many CCAs (though definitely not all) villagers have indicated and often demanded that management or conservation should be a joint activity of the communities and the government officials or NGOs. Communities often realise the difficulty of managing natural resources on their own, especially given the internal and external social dynamics and political and commercial pressures. As Devaji Tofa of Mendha (Lekha) village in Maharashtra says, 'However autonomous a decision-making process in a village may be, a village in these times cannot be completely independent of the world outside.'

Carrying on with the effort by themselves has not been an easy task for the villagers (see Section 4.1 on costs to communities). A great amount of effort and time is spent by the villagers in protection and patrolling of the forests. This is at the cost of wages that they would have earned, opportunities for which are otherwise few and far between. Because of their remote location and lack of awareness and knowledge, villagers are not in a position to find out about any beneficiary schemes that may be available from the government. Remoteness of the area means that there are few other employment opportunities. There is no existing system by which such information can easily reach the villagers. Villagers, therefore, often express a need for outside agencies to help them in exploring employment opportunities, and also guide them towards a sustainable conservation effort.

In Rushikulya in Orissa, or Tuefema, Khonoma, Ghosu and other areas in Nagaland, communities have requested NGOs and government agencies for developing a support mechanism which will help them in a sustained manner. This could include help in creating an eco-tourism model or other sources of income for the local youth, helping with inventorising local biodiversity and related knowledge, helping to create effective benefit-sharing models such that villagers benefit from the use of their knowledge, etc. In Nagaland, where the land is under the control of the local communities and forests are still abundant, the local people request support in developing management plans for sustainable harvest of resources for income generation from areas which are not wildlife reserves.

ii) What kind of intervention do CCAs not need?

The national and state policy environments within which CCAs are located have a great influence on their success and failure. For example, despite a widespread community forestry movement in Orissa there is still no state-level policy to facilitate or support these initiatives. The closest that the state government comes to supporting them is by implementing JFM scheme in these areas, which, as explained below, are not always successful, and often even counter-productive.

In Buldhana district in Maharashtra, successful JFM was initiated in some villages by a forest officer. Subsequently some parts of these jointly managed forests came under the newly established Gyanganga Wildlife Sanctuary, bringing with it the restrictive provisions of the Wild Life (Protection) Act (WLPA), applicable for a PA. Local people's efforts at conservation and the existing local institutions were discounted and became officially defunct. This created a serious conflict situation. This initiative had the potential of becoming the country's first jointly managed PA, if only wildlife authorities had taken advantage of the existing cordial relationship between the people and forest officials. However, the straitjacketed use of the WLPA brought the initiative to the verge of breakdown.

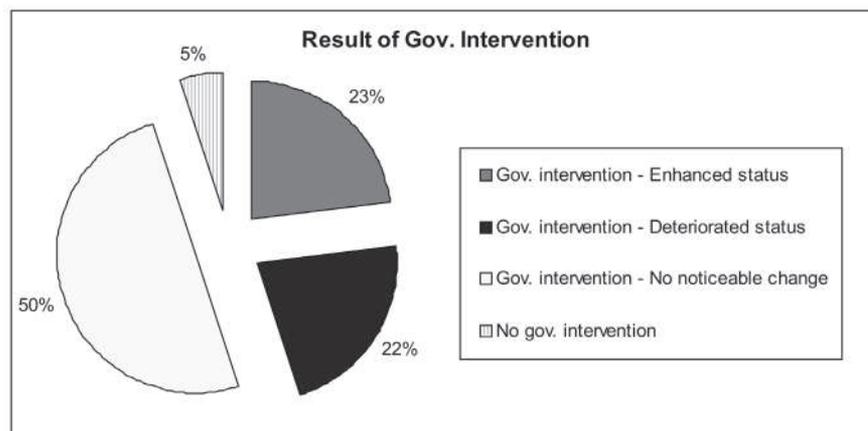
Similarly, in Kailadevi Sanctuary of Rajasthan, local people had forest protection committees much before the area was declared a PA. Many years after the declaration of the sanctuary, the FD began implementing the official ecodevelopment scheme.⁵⁴ The existing FPCs were co-opted to be the ecodevelopment committees (EDCs). After half a decade of ecodevelopment the scenario has completely changed. Whereas in the past these FPCs had numerous meetings on village and forest conservation issues, now many months pass before a single meeting takes place, mainly because of unavailability of the forest official, whose presence is mandatory for an EDC meeting. Ecodevelopment also came with funded projects and plans—community participation in conservation is therefore now more to avail the financial and other opportunities rather than a community feeling and/or concern for degrading natural resources as was the case earlier.⁵⁵

There are numerous examples of community forest management in Orissa where JFM was implemented in areas where communities were already managing their resources. In some cases (subject to the interest level and social sensitivity of the implementing officer) JFM provided the support the communities needed. However, in most cases it resulted in breaking down existing systems. JFM did not recognise the existing local institutions, systems of management or existing local rules and regulations. Under JFM new institutions and management systems had to be framed which often had little acceptance by the local people. As opposed to the entire village making decisions, under JFM decisions were made by a few selected individuals along with the forest staff concerned. This left ample scope for non-transparent financial dealings and corruption, consequently encouraging distrust and politicisation of the entire initiative.⁵⁶

Similarly, the *van panchayats* in Uttarakhand have been affected by imposition of the JFM scheme in the state. Kharg Karki, a village in Uttarakhand Champawat district has a VP formed in 1954. The VP was largely functioning well till JFM was introduced in 1998. Within 6 months of this the VP Sarpanch resigned due to friction with FD staff over handling of budgets. Since then the village has not been able to recover from the disruption. In another case, there was an old VP, formed

in 1945-47 covering 4 villages, which was functioning pretty well. Once JFM started in 1999, the forests were divided into 4 VPs, one for each village. As the forest area and its composition for the 4 villages is not uniform, some of the villages are left with forest patches with chir pine which is much less useful than broad-leaved species like oak. This has upset the villagers to the extent that most women do not participate in the forest management activities anymore.⁵⁷

Figure 19: Results of government intervention in CCAs



The analysis in Figure 19 shows that in 23 per cent of cases where an intervention was made it proved useful for the CCAs, while in 22 per cent of cases it was detrimental. Whether the intervention is detrimental or not depends on the concerned government agencies and officers and the strength of the local institution.

iii. What kind of intervention and support structures do CCAs need?

An active role of the state as a partner in the management of resources is often envisaged by local communities, but on equal terms and in the capacity of a facilitator and guide rather than a ruler or policeman. Such official intervention has to be very carefully thought out and implemented.

Based on the experience of the documented case studies and the analysis under various sections of this overview it appears that the external agencies can play an important role in the following ways:

1. Making information available to the conserving communities on a regular basis to help them take informed decisions.
2. Helping them resolve conflicts when such conflicts cannot be resolved internally or when conflicts are with powerful outsiders.
3. Helping in reducing traditional social inequities, attempting to ensure greater transparencies in local institutions, greater participation from all sections of the community, and so on.
4. Providing financial, technical, ecological, legal and any other help that may be required on a regular basis.
5. Help in establishing regular contact with outside agencies, particularly with the government agencies, to be able to resolve misunderstandings and conflicts.
6. Helping in gaining recognition, appreciation, pride and thus encouragement and support by bringing their efforts to the larger society.
7. Presently even remotely located communities are linked to markets and dependent on them to a varying degree for cash income. However, the markets with which these communities interface are often highly exploitative, and government policies often end up supporting the exploitation. Most communities need help with such interface, whether it is to do with marketing of non-timber forest produce, produce from other ecosystems, developing eco-tourism packages or any.
8. Outside agencies can help communities bring in ecological concerns more centrally into their efforts, inventorise ecological elements and local knowledge, conduct impact studies, devise systems for effective management of resources and wildlife therein, and so on.

For any agency interested in a positive intervention in a CCA, it is important to understand that any negotiations at the start of the intervention need to be done at the level of the village

or hamlet assembly/community council (involving all adult members, irrespective of caste, class, gender, etc.) or community groups, and not any representative/executive body selected by the intervening agency (although such bodies could be approached to help organise the larger meeting). Any decision-making bodies that are established need to be transparent and acceptable to all in the community. Along with a decision-making body it is important to have an open forum for discussion that will lead towards well-informed decisions by the community. External agencies could play a critical role at these discussion forums and bring in the larger perspectives often not so easily perceived by the villagers. In turn, outsiders could learn from the detailed site-specific information that the local people have.

It is also important to note that CCAs need decentralised decision-making systems but also a decentralised support and facilitation system, along with a central (state and national) framework (including legal and policy regimes) that facilitates such a system. Such support structures have organically emerged in many states or sub-state levels, like the CFM federation in Ranpur block of Orissa, Chakhesang People's Organisation in Phek District of Nagaland, CFM Federations in Udaipur District of Rajasthan facilitated by an NGO called Seva Mandir, and so on. In areas where such structures do not yet exist, but where there is a potential, the government or NGOs could provide need-based support.

In areas where there is currently no possibility of such systems developing organically, intervening agencies may need to create such forums with complete participation of the local people and taking into account understanding local dynamics and politics. The existing government institutions and spaces such as the State Biodiversity Boards (SBBs) can be explored for this. Such a forum, if created, should be well represented by government line agencies, non-government agencies, individuals associated with the initiative, and members of the concerned community. It is important that this forum:

- a. Gains an understanding of the local systems in operation in the community conservation sites in the area.
- b. Carries out an independent assessment of the strengths, weaknesses, needs, and limitations of these initiatives.
- c. Creates a mechanism for regular interaction and information/experience sharing.
- d. Encourages and supports the community to overcome its limitations, constraints and weaknesses, appropriately taking into account local sensitivities.
- e. Organises capacity building programmes whenever necessary.
- f. Helps communities monitor the impacts of their activities.
- g. Helps communities create an appropriate and non-exploitative market link.

While doing all of this the forum should be careful about not creating a dependence on itself.

7.8. Role of local leadership

Considering that a large amount of the local community's time must go into earning a livelihood, it is sometimes difficult to sustain the fervour for protection activities, especially if there are no immediate threats. In circumstances such as these, an individual or a group of individuals from within the community plays an extremely important role in motivating the community, carrying out important tasks and guiding the entire initiative. Often the initiative itself is a result of mobilisation by such social leaders. In Mendha (Lekha) (Maharashtra), Devaji Tofa, along with a group of elders from the village, has played that role; in Saigata (Maharashtra) a *dalit* youth, Surbhan Khobragade, who initiated the effort about 35 years ago, continues to play that role. In Jardhagaon (Uttarakhand), Vijay Jardhari has motivated and inspired his villagers towards forest protection as well as protecting the diversity of seeds. In Satara Tukum (Maharashtra), although the initiative was started by the forest department, the village youth soon took on the responsibility of forest protection. The leadership and motivation here is provided by these youth. Similarly, in CCAs across India local social leaders are playing an important role.

Sometimes there appears to be a heavy dependence on these leaders, with no one to take over in their absence. In some areas efforts are being made towards including the youth in the village processes. In developing a decentralised conservation policy it is important that efforts are invested in developing or creating circumstances for such leadership within the community to continue and elements of the same to be passed on to the next rung of leadership. Often such leaders have to pay an enormous personal price to play the required role, a phenomenon that can at times be a

hurdle towards a smooth transition to the second line of leadership. It is important to bear in mind that such leaders, working largely for the social cause, cannot be replaced by leadership emerging out of financial, political, and other selfish motives.

7.9. Integration of conservation and livelihoods

In nearly all CCAs, a strong link between conservation and local livelihoods emerges. Local communities necessarily bring in elements of their livelihoods into the equation. In a few cases they may decide to completely forego any direct livelihood benefits (e.g., Khonoma). In most cases, however (and given other favourable factors), they will tend to integrate conservation and livelihoods, deriving substantial and subsistence ecological benefits (e.g., Dengajheri), or considerable direct extractive benefits (e.g. Satara Tukum, Saigata, Mendha (Lekha), and others). This is an important lesson to keep in mind while formulating participatory conservation plans for government-managed PAs.

Community initiatives have often also integrated the conservation of both 'wild' and 'domesticated' biodiversity. Indeed, their stress on both indicates that the conventional divide between them is somewhat artificial, and that communities tend to look at them as part of a continuum from predominantly wild to semi-wild, and semi-domesticated to predominantly domesticated. Several traditional practices of optimising this range of biodiversity (such as home gardens in south and north-east India) are part of management systems in CCAs. In villages like Jardhargaon and Nahinkala in Uttarakhand, farmers who are involved in forest conservation are also reviving a range of agro-biodiverse practices, including trying out several hundred varieties/races of rice, beans and other crops. (This also reinforces the arguments presented in section 7.4 on why conservation needs to happen within a landscape rather than only in small, highly protected islands.)

Formal conservation planners and habitat managers would do well to build in such concerns to enable a marriage of livelihood requirements and biodiversity conservation. This is not to say that such marriages will be possible or easy to achieve in all circumstances but only to suggest that sincere efforts should be made.

Having said this, it is important to mention that a continuous monitoring and evaluation of the use of a resource and its impact on the conserved area needs to be an integral part of any conservation effort, particularly when meeting livelihood needs is one of the objectives too. This in itself may be most effective if it is participatory and transparent.

The *jungle abhyas mandal* (forest study group) in Mendha (Lekha) in Maharashtra, consisting of villagers and outside experts, was involved in assessing the impact of NTFP harvesting on the regeneration capacity of the concerned plants. Results of this study helped the villagers take various regulatory measures for extraction of major NTFPs in the village.⁵⁸

An initiative of the Vivekananda Girijan Kalyan Kendra (VGKK) and Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore, in Biligiri Rangaswamy Temple Sanctuary in Karnataka has helped the local tribals earn higher revenue by value-addition to the NTFP harvested by them. ATREE has also devised a mechanism for monitoring of resource extraction with the help of the local tribals.⁵⁹

If used effectively, conservation can often become a model for biodiversity-based livelihood options. By developing models of fair trade and encouraging value addition at source, livelihood options can be increased manifold, thus further strengthening conservation efforts. One could hypothesise that if conservation becomes a strong tool for social upliftment, more and more communities would want to become part of the wildlife protection movement, rather than being hostile or indifferent to it as is the case in many PAs today.

7.10 Funding

Many successful community initiatives try to avoid receiving huge external funding. Some communities have tried to build up a corpus fund by contributions from within the community and/or through executing fines and punishments. Others have managed to get funds from the local line-agencies. Examples suggest that rather than providing large amounts of external monetary inputs specifically for conservation, it is often more useful to mobilise and re-orient already available resources by helping to pool together the budgets of various line departments. Being relatively independent in financial terms is empowering for a community. On the other hand there are numerous examples of donor-driven community conservation programmes which collapse as soon as the donor pulls out unless financial sustainability has been built in from the start.⁶⁰ There are

also examples where the funds coming under a certain programme become the most important incentive for the community to participate in conservation activities, but this may not necessarily be effective.

This is not to say that communities never need external funding, but to emphasize the importance of the manner in which and time when financial contribution is made to a community. CCAs should be able to receive funds when critically required, and in ways that the communities can themselves manage. Communities could be encouraged to develop annual plans, budgets and assessments reflecting the nature of conservation and development needs and funds required.

The need for financial sustainability is the basis for a series of innovative mechanisms now being evolved by governments, NGOs, and donors, such as trust funds and foundations.

8. Legal and policy spaces for CCAs

It is important to understand relevant provisions in Indian laws that support (or hinder) CCAs (also see Annexure 3).

8.1 What spaces are available for CCAs in Indian law?

There is no national-level policy to recognize conservation efforts by communities, though there are references to such a need in documents such as the National Wildlife Action Plan, the draft National Biodiversity Strategy and Action Plan and some others (see below for details). Neither is there a law specifically focused on providing support to CCAs. However, there are limited spaces available in some laws—limited because they do not take into account the ground reality of CCAs, their local contexts and local institutions. As far as we know, very few CCAs have yet taken support from any of the laws and policies mentioned below (except in the case of Nagaland, where the state-specific law on village councils has been used).

(i) Wild Life (Protection) Amendment Act 2003 (also see Annexures 4, 5 and 6)

envfor.nic.in/legis/wildlife/wild_act_02.pdf

Till the year 2002, the Wild Life (Protection) Act 1972 had little to encourage or mandate people's participation in conservation, or to recognise areas conserved by communities. Two new categories of protected areas were introduced into the Wild Life (Protection) Amendment Act 2003, namely community reserves and conservation reserves. Bombay Natural History Society (BNHS), Wildlife Trust of India (WTI) and Kalpavriksh had organised a workshop in 2004 to understand how the new categories could support CCAs or help communities initiate conservation efforts. Deliberations during the workshop revealed that these two provisions provide very limited support to CCAs (for detailed analysis see Annexure 3). The analysis indicated the following:

Conservation Reserves: These are meant to elicit people's opinions in declaring government-owned lands protected for wildlife conservation. This category does open up some space in the law for people's participation in wildlife conservation. Consultations with local people before declaring an area a conservation reserve is mandatory, as opposed to the situation in other protected areas such as national parks and sanctuaries. Considering that local people generally do not become aware of the changed legal status of an area even after years of it being declared a national park or a sanctuary, any consultation (even if not opinion-seeking) is a step towards some form of democratic decision-making. However, most CCAs that we have interacted with are unlikely to be happy with this category. These CCAs are on government lands but they have their own well worked-out management and regulation institutions, and a high degree of *de facto* control. It is unlikely that these well-established institutions would agree to become part of a conservation reserve where their only role in decision-making would be to advise the chief wildlife warden (CWW) of the state, who may or may not agree to the suggestions. Additionally, the conservation reserve management committee to be established under the Act mandates representatives from *panchayats* in an area rather than people actually conserving and managing the area. This could be a good category to initiate conservation in areas where it may not be happening already.

Community Reserves: These can only be declared by the government on private or community lands by the government. Therefore they can be relevant to only a few states like Nagaland, or private forest areas in the Western Ghats, or wildlife that may exist on agricultural lands such as blackbuck. It may be possible to argue that the term 'community lands' should include government lands (particularly those which are being used as common lands), and at the time of going to press, it appears that Kerala may be doing this. In general, though, it is unlikely that such a broad interpretation will be given by most states. Moreover, in its current form the Act does not

recognize existing systems and institutions of management and has a uniform prescription for the composition of the local institutions. This would straitjacket a very diverse institutional reality. Finally, there are no guidelines on how these areas are to be declared.⁶¹ For all these reasons, community reserves is an inappropriate category for most CCAs.

ii. Wild Life Protection Amendment Act 2006

<http://164.100.24.208/ls/Bills52,2006.pdf>

Another amendment in the Wild Life (Protection) Act in 2006 has resulted in the setting up of a National Tiger Conservation Authority (NTCA). This was a result of the dwindling population of tigers in India. As one of the reasons for the decline in tiger population has been identified as lack of people's participation in PA and wildlife management, the Authority has been mandated to explore ways of facilitating people's participation in wildlife management. This may help in bringing about a change in the general exclusionary model of conservation, thus paving way for the recognition of CCAs in buffer zones of tiger reserves, though considerable advocacy will be needed to make this happen. The actual impacts of this amendment are yet to be seen.

iii. The Biological Diversity Act 2003⁶²

envfor.nic.in/divisions/csurv/nba_act.htm
www.nbaindia.org/notification.htm

The strengths of this Act are that it encompasses all elements of biological diversity, domestic and wild, and provides for protection of all kinds of ecosystems. One of the provisions of the Biological Diversity Act 2002 includes creation of Biodiversity Management Committees (BMC) at the village level. The National Biodiversity Authority and the State Biodiversity Boards established under the Act are required to consult the local BMCs while taking decisions related to the use of biological resources and knowledge associated with such resources. This provides a space for the local communities to participate in the governance and decision-making related to biological diversity to a certain extent. The BMCs are expected to be the local institutions for the management, protection and recording of local biological diversity and it may be possible to give existing or new CCA management institutions this status. The Act also provides for the declaration of areas being conserved for agricultural or wildlife biodiversity as Biodiversity Heritage Sites (BHS).

The National Biological Diversity Rules under the BDA were formulated in 2004. The Rules failed to empower the BMCs and thus the local communities to manage, use and conserve natural ecosystems. Under the rules, the BMCs are limited to recording the local knowledge and to help the state and national boards to grant permission for the use of biological resources and knowledge associated with it in their areas. They also have a uniform institutional structure, which would be inappropriate for most CCAs. Therefore, as per these rules, the space to provide legal backing to CCAs is very limited. The rules for BHS have not yet been formulated so the category has not yet been implemented anywhere in the country.⁶³

If these aspects are dealt with in the rules (as some states like Madhya Pradesh and Sikkim have done, going beyond the national rules), then BMCs and BHSs could become useful for providing legal backing to CCAs and CCA institutions.⁶⁴

iv. Indian Forest Act 1927

envfor.nic.in/legis/forest/forest4.html

The Indian Forest Act 1927 has a provision (section 28) for declaring village forests (VF), under which the village gets powers similar to the forest department. But despite being in existence for eight decades, this provision has hardly been implemented. No village forests exist except for a few sites in Uttarakhand, Karnataka, and Mizoram. If implemented, this can be a strong category to support forest CCAs, particularly forests on government lands that are currently being conserved by the local communities. Most existing CCAs in India are not just areas under strict protection but also areas from where biomass needs are met in a regulated manner. The village forest category entails handing over government-controlled reserve forests to local villagers for conservation and sustainable use and hence suits the purpose well. Many JFM villages such as Satara Tukum and others such as Mendha (Lekha) and Saigata have been demanding that they be declared village forests. NGOs in Orissa,⁶⁵ Uttarakhand⁶⁶ and Maharashtra⁶⁷ have in fact suggested draft rules for VFs in their states,⁶⁸ which await a response from the government.

The Government of India's Steering Committee on Environment, Forests & Wildlife for the Eleventh Five-Year Plan (2007-2012), has very strongly recommended that the village forests category be used for giving legal backing to existing JFM sites as well as to other initiatives of the communities towards conservation of forests.⁶⁹

v. Panchayat (Extension to Scheduled Areas) Act 1996

panchayat.nic.in/PESA.htm

The Panchayat (Extension to Scheduled Areas) Act 1996 (PESA) was passed in order to empower the communities that inhabit Schedule V areas (those which are largely inhabited by tribal communities and are listed in the constitution). These areas were only partially accessible to the British and therefore difficult to administer, and were called 'partially excluded'. These areas are also rich in terms of natural resources such as forests, minerals and water, and the people living in these areas are vulnerable to exploitation.

Box 11

Highlights of the provisions of PESA

This law for the first time recognized local traditional management practices and conferred a number of rights on local tribal institutions:

1. State legislation on the *panchayats* should be in consonance with the customary law, social and religious practices and traditional management practices of community resources.
2. Every *gram sabha* shall be competent to safeguard and preserve the traditions and customs of the people, their cultural identity, community resources and the customary mode of dispute resolution.
3. The *gram sabha* or the *panchayats* at the appropriate level shall be consulted before acquiring land in Schedule V Areas for development projects and before resettling or rehabilitating persons affected by such projects in Schedule V Areas; the actual planning and implementation of the projects in Schedule V Areas shall be co-ordinated at the state level.
4. Planning and management of minor water-bodies in Schedule V Areas shall be entrusted to the *panchayat* at the appropriate level.
5. The recommendations of the *gram sabha* or the *panchayats* at the appropriate level shall be made mandatory prior to grant of prospecting licenses or mining leases for minor minerals in the Scheduled Areas.
6. The prior recommendation of the *gram sabha* or the *panchayats* at the appropriate level shall be made mandatory for grant of concession for the exploration of minor minerals by auction.
7. While endowing *panchayats* in the Scheduled Areas with such powers and authority as may be necessary to enable them to function as institutions of self-government, a state legislature shall ensure that the *panchayats* at the appropriate level and the *gram sabhas* are endowed specifically with:
 - (i) Ownership of minor forest produce (or what is called non-timber forest produce or NTFP),
 - (ii) Power to prevent alienation of land in the Scheduled Areas and to take appropriate action to restore any unlawfully alienated land of a Scheduled Tribe;
 - (iii) Power to exercise control over institutions and functionaries in all social sectors; and
 - (iv) Control over local plans and resources for such plans including tribal sub-plans

Despite (or may be because of!) having some revolutionary provisions, this Act has not been implemented in most states, and where implemented has not been effective because of a number of reasons such as:

1. State governments subverting the powers provided to the *gram sabha* by diluting the provisions of the central act in their state adaptations. For example, states like Maharashtra have excluded

commercially important NTFP like *tendu patta* (leaves of *Diospyros melanoxylon*), one of the important sources of income for many communities, from the purview of local ownership.

2. Lack of clarity about the area under the jurisdiction of the *gram sabha*, particularly the issue of whether all the provisions mentioned above are applicable only to lands under the legal ownership of the village, or also government lands where customary usage, rights and interactions exist.
3. Lack of political and administrative will amongst states to implement the Act.
4. Lack of information about the provisions of the Act among the local inhabitants.
5. Limited applicability, since it is restricted only to Schedule V areas and not available in non-tribal areas, or even in states which have some tribal population but no Schedule V areas.

vi. Scheduled Tribes and Other Traditional Forest-Dwellers (Recognition of Forest Rights) Act 2006⁷⁰

(tribal.nic.in/bill.pdf, tribal.nic.in/rules-190607.pdf)

This Act is an outcome of long-standing demands from indigenous/tribal and other forest-dwelling communities for recognition of their rights on forest lands occupied by them and resources or on which they depend for subsistence. The Act mandates establishment of such rights for tribal and forest-dependent communities.

The Act allows for a greater role and empowerment of *gram sabhas* in determining claims, managing forests they have traditionally conserved, checking processes destructive of forest-dwellers' habitats, and protecting traditional knowledge. It also allows for greater livelihood security for traditional forest-dwellers who have been unjustly denied tenure, and mandates that any displacement and relocation can only happen by consent. It provides a greater possibility of community involvement in government-managed PAs. If applied meaningfully and transparently, this Act could lead towards many forms of co-management and to greater livelihood security than is possible in current management regimes of forests, including in the national parks and sanctuaries in India.

Additionally, community forest is a category under which the local communities can protect any forest that they have been traditionally protecting and can establish locally suitable institutions, rules and regulations. This kind of flexibility is not available in other acts to the conserving communities, and could therefore be of significant use to CCAs. Unfortunately the rules notified under the Act (in January 2008) do not elaborate how to opportunalise this provision.

Weaknesses include the fact that 'encroachments' on forest lands upto December 2005 are eligible for regularization. This has given rise to possibilities of misuse by vested interests, who are reportedly inciting people to encroach even in 2007 and claim it to be pre-December 2005 occupation. Certain development projects and activities (e.g., construction of roads) for the purpose of village development have been excluded from forest clearances under the Indian Forest Conservation Act 1980⁷¹. This opens up a potential for misuse at some sites to allow destructive projects in forest areas. Also this Act has an unclear relationship with existing forest/wildlife laws. The institutional arrangements for enforcement of the forest management and conservation provisions of the Act are also not very clear especially in relation to areas where the forest department has existing jurisdiction. Although the rights would now rest with the local people, there is unclear provision to assign conservation responsibilities on right-holders and *gram sabhas*.

Amongst all the new laws relevant to CCAs in India, this Act has the largest possible implications (at least for forested CCAs) and its implementation therefore needs to be closely followed.

vii. Environmental Protection Act 1986

This Act allows the declaration of stretches of ecosystems as Ecologically Sensitive Areas (ESA). Declaration of ESAs means that certain identified commercial, industrial and development activities would not be allowed in the area. There are several ESAs in the country, but none of the CCAs are covered under this category as yet.

The Act is a strong legal tool to fight against commercial and industrial pressures. However, communities know very little about this Act and how it can be used. Its relevance for CCAs has not been really tested and understood on the ground as yet.

viii. Are there any state-specific laws that can be relevant for CCAs?

There are some state specific laws and policies which are more appropriate for CCAs. For example, The Village Council Act 1978 of Nagaland is one of the strongest state legislations in the country, providing communities the right to manage their own lands. To be able to do so, the community is free to constitute any appropriate local institution. There are a number of community-owned and -declared protected areas in this state (see Nagaland state chapter and case studies from the state).

8.2. What spaces are available for CCAs in Indian policies and plans?

i. National Wildlife Action Plan (2002-2016)

projecttiger.nic.in/actionplan.htm

The National Wildlife Action Plan provides significant space for community participation in conservation, particularly in PAs. Some of these commitments include:

1. Evolving and prescribing guidelines for local community involvement in different management zones of PAs and adjacent areas. These guidelines would complement the WII guidelines for planning PA management and ecologically sound community welfare programmes.
2. Designing people's participation schemes for all PAs by focusing upon landless families so as to provide them gainful employment, particularly through NTFP.
3. Developing and implementing guidelines for providing incentives and measures for benefit-sharing among local communities.
4. Formulating schemes for conflict management, especially for loss of life and livestock and crop damage.
5. Providing a range of incentives to conserve wildlife in different landscapes across different land and water uses: rewards and public honour for commendable conservation work and actions, granting of biomass and water resource rights for personal consumption for communities that have helped protect or restore wildlife habitats, employment in local conservation works, financial rewards and incentives to protect sacred groves, share in penalties extracted from poachers, share in tourism revenues, and incentives to move away from ecologically ill-advised activities.
6. Encouraging people to help protect and manage wildlife habitats outside PAs (including community-conserved forests, wetlands, grasslands and coastal areas).

All these action points have been mentioned with a time frame in the Plan. However, more than five years after the plan came into existence little effort has been made towards its implementation. As described above, the legal tools to achieve such implementation remain weak or undeveloped.

ii. National Forest Policy 1988

<http://envfor.nic.in/divisions/fp/nfp.pdf>

This policy deals with conservation and management of forests, afforestation and with the rules governing people's access to government-owned forests and their products. This policy, for the first time after independence, placed greater importance on using local forest resources to meet local people's needs rather than the industrial needs. It was under this that the government resolution on JFM was passed in 1990. Since then millions of hectares of forests outside PAs have been brought under JFM, aimed at regenerating degraded forests with the participation of local communities and sharing the benefits accruing from timber harvests from these areas with the local communities. JFM has been a failure in some states and sites while it has been successful in others, depending on the state policies and the on-site methods of implementation.

The policy insists on the involvement of local people in the management of forests. Moreover, the need for their access to the forests and resources on which their livelihoods depend has been recognized. However, the policy has not been adequately translated into law till recently; hence many of its progressive provisions remain unimplemented. It is to be seen whether the new Forest Rights Act (see Section 8.1.vi above) would help achieve this.

iii. Final Report of the Steering Committee on Environment and Forest Sector, 11th 5 Year Plan (2007-2011), March 2007.

[www.planningcommission.nic.in/about us/committee/strgrp11/str11_6.htm](http://www.planningcommission.nic.in/about%20us/committee/strgrp11/str11_6.htm)

The draft 11th Five-Year plan based on the recommendations of the Steering Committee on Environment and Forest Sector :

'CCAs (such as sacred groves, heronries and wintering wetlands, catchment forests, turtle nesting sites, pastures for wild herbivores, etc) exist in a wide spectrum of legal regimes ranging from government owned lands (owned/controlled by forest department, revenue department, irrigation dept. or others) to community/panchayat/tribal council/clan lands, as well as private owned lands. Such CCAs may not necessarily be officially notified but should still be eligible for financial and other kinds of support as an incentive for community-led conservation practices. Most critically, while there are many forest-based CCAs, there are also several CCAs that are in grassland, montane, coastal and freshwater ecosystems. Support to such CCAs will ensure coverage to relatively neglected ecosystems and taking the focus of conservation attention beyond forests. It is proposed that separate budgetary support may be made available to such initiatives, while considering an appropriate legal status for them as available in the Wild Life Act (Community Reserves), Biological Diversity Act (Heritage Sites), ST and Other Forest Dwellers (Recognition of Forest Rights) Act (community conserved forests), and Environment Protection Act (ecosensitive areas), without imposing changes in the institutional arrangements that communities have developed for managing them. The MoEF has commissioned a Directory of CCAs⁷² and an initial prioritisation from this may be used for providing funding support to CCAs that appear to be conserving critically threatened wildlife or ecosystems, or are in other ways important for wildlife and biodiversity.'

If taken into account and implemented effectively, this could mean substantial attention and support for CCAs in the next five years.

Box 12

The National Biodiversity Strategy and Action Plan (NBSAP)

The process of drafting India's National Biodiversity Strategy and Action Plan (NBSAP) was started in the year 2000. Prepared in a highly participatory manner, over 50,000 people have participated in the preparation of the plan. This plan was submitted as the final technical report to the Ministry of Environment and Forests (MoEF), Government of India, by the Technical Coordinator in 2004. The plan has not been accepted by the government. What the final plan would be is quite unclear at this stage. However, the Final Technical Report recognises CCAs and emphasises legal, administrative and all other kinds of support to these areas.

Source: Kalpavriksh and Technical and Policy Core Group (TPCG), *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan (NBSAP)*. Prepared by Technical and Policy Core Group, Delhi/Pune, Kalpavriksh, 2005

8.3. International context and support for Community Conserved Areas⁷³

Recognition of the existence and importance of community conserved areas (CCAs) has been rather recent, both in national and international circles. But it has also rapidly occupied central focus, largely due to two key international events in 2003-04: the World Parks Congress (WPC) in September 2003, and the 7th Conference of Parties of the CBD in February 2004. The discussions, decisions, and outputs of these events have firmly established the role of community-based approaches to protected area management and conservation, and in particular the role of CCAs in achieving biodiversity conservation.

1. The 5th WPC, organised in Durban in September 2003 by the World Conservation Union (IUCN), was the biggest-ever gathering of conservationists, with over 5000 participants. Amongst its major outputs were the Durban Accord and Action Plan, the Message to the CBD, and over thirty recommendations on specific topics. All these strongly stressed the need to centrally involve indigenous peoples and local communities in conservation, including respecting their customary and territorial rights, and their right to a central role in decision-making. The biggest breakthrough was the recognition of CCAs as a valid and important form of conservation. The Durban Action Plan, with a specific recommendation on CCAs, highlighted the need to incorporate and support CCAs as part of national PA systems. (see www.iucn.org/themes/wcpa/wpc2003, for copies of these documents)
2. The 7th Conference of Parties to the CBD, held in Kuala Lumpur in February 2004, had 'protected areas' as one of its main topics. Since the CBD is a legally binding instrument, its outputs are

of great significance for all countries. One of its main outputs was a detailed and ambitious Programme of Work (POW) on PAs. A crucial element of the POW related to 'Governance, Participation, Equity, and Benefit-sharing' explicitly urges countries to move towards participatory conservation with recognition of indigenous/local community rights. As in the case of the WPC, the POW also made a major breakthrough in committing countries to identify, recognise, and support CCAs (see www.biodiv.org, to download the POW).

3. The World Conservation Congress of IUCN, held in Bangkok in November 2004, re-affirmed the outputs of the WPC Durban, and a specific recommendation on CCAs was adopted.
4. The first marine protected areas congress, held in Geelong, Australia, in October 2005, reinforced the message from the WPC Durban, with specific reference to marine sites.

In all the above processes, a key role was played by the IUCN Strategic Direction on Governance, Communities, Equity and Livelihoods (TILCEPA) formerly known as the Theme on Indigenous and Local Communities, Equity, and Protected Areas. TILCEPA is a working group of two commissions of the World Conservation Union (IUCN), the World Commission on Protected Areas (WCPA) and the Commission on Environmental, Economic, and Social Policy (CEESP). TILCEPA coordinated the Communities and Equity cross-cutting theme at the WPC and the Marine Parks Congress, both of which included several case studies and analytical inputs on CCAs. Of great significance was its role in facilitating the participation of community representatives from CCA sites from different parts of the world. TILCEPA members were also a part of an expert group set up by the CBD Secretariat, to make inputs to the draft Programme of Work for discussion at the Kuala Lumpur COP. It is because of this involvement that a separate section on 'Governance, Participation, Equity, and Benefit-sharing' was added. This section included specific action points on CCAs.

The secretariat of TILCEPA has since its inception been housed in Kalpavriksh, with one of its members being the co-chair. The information and learning generated by Kalpavriksh's work on CCAs in India and other countries of South Asia was used as a base for TILCEPA's inputs to the WPC and the CBD Conference of Parties. This included some specific case studies that were generated or expanded during the work on the CCA Directory, and key lessons that emerged from the work on various CCA examples. It also included drafting a Policy Brief 'CCAs: A Bold Frontier for Conservation',⁷⁴ and a note on 'How Can We Support CCAs?', published by TILCEPA for circulation to delegates to the CBD Conference of Parties.

In 2006, a global initiative was started by TILCEPA to support and promote CCAs. The initiative seeks to deepen the understanding of the CCA phenomenon with respect to varying historical/regional contexts; to identify field-based crucial initiatives where CCAs can be safeguarded, enabled, strengthened and/or promoted in practice; and to support consequent national, regional and international policy, in particular through the CBD Programme of Work on Protected Areas and the Millennium Development Goal follow up mechanisms. Also TILCEPA is putting together a global picture of the current state of national legislation and policy, regarding CCAs in different countries.⁷⁵ A special issue of the magazine *PARKS* on CCAs was produced in 2006.⁷⁶

The India CCA Directory is likely to be the first nationwide survey of CCAs, and has therefore become an example for other countries to learn from and generate their own national surveys. Such a process would help to implement the outputs and decisions of the above-mentioned international events.

9. Conclusion and way ahead

In these times when biological diversity is under grave threat globally and nationally, and economic and development policies are aimed at maximum profit with little regard for nature or natural resources, conservation efforts of local communities gain immense significance. The case studies presented in this Directory indicate that a few communities in India have been able to resolve some of the dilemmas facing conservation although many still need to be resolved. This is not to say that all local communities everywhere are involved in conservation but that given the right kind of facilitating environment there is an immense potential for local communities to become the biggest allies in conservation, as indeed many of them have been at various points in history.

Unfortunately, till recently the potential of these initiatives in achieving conservation has remained seriously underutilised in formal conservation programmes. Although most individual CCAs still remain unrecognised, the term CCAs is beginning to find place in conservation debates, discourses, and policy statements nationally and internationally. Some factors that have contributed to their recognition in recent times include:

- A more vocal demand for recognition by the conserving communities themselves, and by grassroots organisations working with them, such as Vasundhara and RCDC in Orissa, Kashtakari Sangathana and Vrikshmitra in Maharashtra, and Seva and Viksat in Gujarat.
- Efforts by NGOs and individuals to promote and facilitate local community action for conservation, including the Nature Conservation Foundation, World Wide Fund for Nature - India, Wildlife Trust of India, Samrakshan, Ashoka Trust for Research on Ecology and Environment, Foundation for Ecological Security, Kalpavriksh and others, and researchers from institutions such as Salim Ali Centre for Ornithology and Nature Conservation, and Wildlife Institute of India.
- Documentation and popularisation through write-ups, news reports and presentations on CCAs at national and international forums by organisations such as Kalpavriksh, Centre for Science and Environment and others.
- Extension of legal and other assistance to CCAs by the above-mentioned NGOs and lobbying for greater governmental and legal support for such initiatives by the above-mentioned organisations and many others. As a result, the Wild Life (Protection) Amendment Act 2002 incorporated two new types of protected areas: Community Reserves and Conservation Reserves. The 11th Five-Year Plan has put CCAs squarely in its ambit, and the Wildlife Action Plan talks about recognition of CCAs.
- International lobbying with the help of international networks and NGOs such as TILCEPA, CEESP, WPC 2004, CBD and many others.

However, this recognition has not yet translated itself into an actual policy on the ground, or into legal, political, or administrative recognition and support. This lack of recognition in the context of the fast-track process of globalization and industrialization, changing value systems and aspirations, and fast-changing demographic and socio-economic profiles has led to serious threats to many CCAs. Communities need much internal strengthening and external support to be able to deal with such threats. Effective support could come in some of the following ways.

Greater recognition and support

- Documenting and bringing out more such examples and their role in conservation.
- Developing more detailed maps using GIS, possibly through a series of site-specific workshops with the local communities to seek their inputs. We hope that these maps would be used by the concerned communities for the effective management of the conserved sites.
- Maintaining and updating the existing database on CCAs.
- Continuing to lobby for recognition, and effective legal, administrative and political support of CCAs.
- Creating national, state or sub-state systems and/or institutions for continuous support, guidance and monitoring of CCAs. This could include support and facilitation of regional cooperation and the building of coalitions/federations among CCAs or newer bodies similar to those of State Wildlife Advisory Boards constituted under Wild Life Protection Act.
- Reducing costs of conservation by helping communities resolve conflicts with powerful offenders, particularly those from outside the community, providing critical financial and other support.
- Supporting local institutions, systems, rules and regulations, and giving such rules and regulations the status of statutory provisions.
- Helping to strengthen local institutions and facilitating greater equity and transparency in their decision-making process.
- Formulation of management plans for conserved resources and species, a need often expressed by the communities.
- Facilitating the adaptation of appropriate ecologically friendly technologies for enhancing their livelihoods, and where appropriate, linkages with consumers and sensitive markets in order to generate resources. This includes developing fair and equitable models of eco-tourism. Such interventions should however be carried out with a strong precaution that new technologies and markets can also cause disruption and damage, if not carefully controlled!
- Action to tackle the critical threats and challenges facing these initiatives, including those emanating from the communities themselves, such as inequities in decision-making and benefit-sharing, and those emanating from external forces such as unsustainable 'development' and commercialization.

Technical support related to ecological, social, and economic issues

- Conducting some detailed studies on the ecological and other aspect of CCAs to help them establish their role in conservation. Such studies will also help communities resolve issues related to specific species and their needs, and impacts of extraction of resources on biodiversity. Such studies would also help communities formulate management plans for their sites, helping them to regulate use and manage ecosystems more effectively. Often community members themselves would be interested in carrying out such studies with technical help and guidance from outside experts.
- Training in appropriate resource/wildlife management, monitoring techniques, basic accounting, marketing, management and leadership skills.
- Help in reducing human-wildlife conflicts, particularly to deal with damage to crops, livestock, and property. Communities usually do not want to take retaliatory action in such cases, but unless urgent supportive measures are considered by governments and NGOs, their tolerance levels may be crossed if the damage increases.
- Conducting awareness and training programmes for communities on the importance of biodiversity conservation in the national and global context, gender and social equity, and local governance issues.
- Supporting youth (leadership) programmes, and other local conservation groups and initiatives.
- Providing social recognition and awards to exemplary CCA initiatives.

Legal and policy measures

- Bringing about changes in existing policies and laws to further facilitate and enable community-based approaches, and, meanwhile, preparing clearer guidelines to maximize the available spaces in these policies and laws. This includes amendment of the community reserves provision of the Wild Life Act to encompass community-conserved government lands as also to empower a diversity of community institutions. Among the critical changes/strengthening needed is in the area of tenurial rights and responsibilities of local communities over natural resources.
- Incorporating of community-based approaches into relevant conservation schemes and programmes, including through the orientation of staff implementing these programmes.
- Through a consultative process, developing and finalising guidelines for legally and otherwise supporting CCAs where they exist, and facilitating their replication in other areas.

A question that needs to be addressed is whether national policies relating to natural resources can be built around the kind of a pace and diversity as reflected by CCAs? If yes, how? If the pace needs to be changed, what are the factors that need urgent attention? Should a greater role as an extension officer by the government agencies be considered? Villagers often do not seem to have the time or the resources to carry the initiative out on their own or to sustain it beyond a point. Situations are often more complex than may appear in this overview. At the same time, communities must be credited for having resolved important issues, such as encroachments, destructive commercial exploitation of resources, over-exploitation of resources, and so on. Therefore it is important to stress the fact that these efforts despite their limitations are viewed as positive processes. Obstacles faced should not be viewed as failures but as constraints, which can be solved within the concerned social and ecological context. Such obstacles and constraints should also not be used as an excuse to not provide CCAs the recognition and support that they deserve. This may take longer than normal 'project or programme cycles', yet may prove more sustainable in the long run.

One of the most critical lessons we learn from CCAs is that areas important for biodiversity conservation are often also important for the survival and livelihood security of traditional communities. The issue of people within and around official protected areas has plagued conservationists for decades. Increasingly there is recognition that livelihoods will need to be integrated without compromising the existence of ecosystems and species. Many CCAs provide valuable insights into how this can be done. It is also important to realise, however, that all of these initiatives cannot be extrapolated to other areas without appropriate changes. In order to arrive at a participatory conservation system in the country, it is crucial to understand the strengths and limitations of such initiatives and evolve workable models for a particular site. One important path towards wildlife conservation is to first meet people's most critical survival needs, like water and biomass, and tie up biodiversity imperatives with these. To be able to do this effectively, an area will have to be looked at as part of a larger landscape and planned for through

fair and transparent participatory processes, taking into account commercial development, local livelihoods and conservation.

No single agency is capable of saving India's biodiversity including its wildlife. The FD, even if highly motivated, has simply too few resources, manpower and knowledge. Local communities often find themselves helpless in the face of powerful internal and outside forces, while most NGOs are too small to handle the complex and enormous problems that natural habitats face. So the solution is to combine the strengths of each of these...and to help each other to tackle weaknesses.

Endnotes

¹ Many thanks to Ashish Kothari, Tejaswini Apte, Seema Bhatt, Sharmila Deo, and Aparna Watve for their valuable inputs and critical comments. Also thanks to Saili Palande for helping in preparing the database tables and generating pie charts and bar charts, and Persis Taraporewala and Erica Taraporewala for help at various stages.

² V. Saberwal, M. Rangarajan, and A. Kothari, *People, Parks and Wildlife: Towards Coexistence* (New Delhi, Orient Longman, 2001).

³ Areas designated by the government under specific laws for protection of wildlife.

⁴ M.D.S. Chandran, 'Review of Sacred Groves in Kodagu District of Karnataka (South India): A Socio-historical study by M.A. Kalam', *South Indian Studies*, 3, Jan-June 1997.

⁵ U.M. Chandrashekhara, and S. Shankar, 'Structure and functions of sacred groves: case studies in Kerala', in P.S. Ramakrishnan, K.G. Saxena and U.M. Chandrashekhara (eds), *Conserving the Sacred for Biodiversity Management* (New Delhi, Oxford and IBH Publishing Co. Pvt. Ltd., 1998).

⁶ K. Das and K.C. Malhotra, 'Sacred Groves Among the Tribes of India: A Literature Survey of Ethnographic Monographs' (Integrated Rural Development of Weaker Sections in India, Semiliguda, Mimeo., 1998).

⁷ M. Gadgil, 'Traditional conservation practices', in A.N. William (ed.), *Encyclopedia of Environment Biology*, Volume 3, (California, Academic Press, 1995).

⁸ M. Gadgil and R. Guha, *This Fissured Land: An Ecological History of India* (Delhi, Oxford University Press, 1992);

M. Gadgil and V.D. Vartak, 'Sacred Groves of Western Ghats of India', *Economic Botany* (1976), 30: 152-160.

⁹ In A. Kothari, N. Singh, and S. Suri, (eds.), *People and Protected Areas: Towards Participatory Conservation in India* (New Delhi, Sage Publications, 1996).

¹⁰ A. Godbole, A. Watve, S. Prabhu, and J. Sarnaik, 'Role of sacred groves in conservation with local people's participation: A case study from Ratnagiri District, Maharashtra', in Ramakrishnan et al. (eds), *Conserving the Sacred for Biodiversity Management*. (as above)

¹¹ Y. Gokhale, 'Management of *Kans* in the Western Ghats of Karnataka', in U. Shaanker, R. Ganeshiah, K.N. Bawa and K.S. Bawa (eds), *Forest Genetic Resources: Status, Threats and Conservation Strategies* (Delhi, Oxford and IBH Publishing Co. Pvt. Ltd, 2001).

¹² M.A. Kalam, *Sacred Groves in Kodagu District of Karnataka*, Pandy Paper on Social Sciences (French Institute, Pondicherry, 2001).

¹³ C.G. Kushalappa and S.A. Bhagwat, 'Sacred Groves: Biodiversity, Threats and Conservation', in U. Shaanker et al. (eds), *Forest Genetic Resources*. (as above)

¹⁴ Areas protected for wildlife under the Indian Wild Life (Protection) Act 1972, mainly national parks and wildlife sanctuaries.

¹⁵ *Van panchayats* (VP) or the executive village committees for management of forests were established by the British in 1931 and a large number of these continue to manage their forests effectively even today (for more details see Uttarakhand chapter).

¹⁶ A Hindu festival celebrated as the victory of good over evil, mostly by bursting crackers and lighting earthen lamps.

¹⁷ Forest patches of near-natural vegetation dedicated to ancestral spirits/deities, and protected on the basis of religious beliefs.

¹⁸ This is similar to an internationally used definition of CCAs see, www.tilcepa.org.

¹⁹ A. Kothari, N. Pathak, and F. Vania, *Where Communities Care: Community-based Wildlife and Ecosystem Management in South Asia* (Kalpavriksh, Pune and International Institute of Environment and Development, London, 2000).

²⁰ Which may or may not be recognized by the national legal system.

²¹ See Annexure 1 for the tabular database used for analysis in this section.

²² A scheme of the Government of Maharashtra inspired by the work of Anna Hazare, where villages are given financial awards for following the principles of Adarsh Gaon (model village). These principles include *Kulhad Band* (felling ban), *Charai Band* (ban on free grazing), *Nasha Band* (ban on alcohol), *Nas Band* (family planning), and *Shramdaan* (volunteering labour, time and effort for social good).

²³ A movement started by legendary social worker Vinoba Bhave in 1951 aimed at equitable distribution of land and resources. As part of this movement many large land-holders gave up their land for the sake of landless. This movement also encouraged the villages to consider their village land as common property so that resources could be shared equitably among all members.

²⁴ www.wfindia.org

²⁵ www.samrakshan.org

²⁶ Joint Forest Management is a country-wide programme of the forest department aimed at regeneration of degraded forests with the help of the local communities. The programme envisages that the benefits from all kinds of harvests in such forests would be shared with the involved community.

²⁷ A very good example is from Kalakad Mundanthurai Tiger Reserve (KMTR) in Tamil Nadu or Periyar National Park in Kerala, where, despite the inherent limitations of the ecodevelopment programme, the team of officials have gone beyond their mandate to involve local people in the protection of the PA and ensure that people benefit from the jointly envisaged activities under the programme. The efforts of the ecodevelopment team have been so successful that those involved with poaching and timber felling are now strengthening the hands of the government in protection against such activities. Women around Periyar have responded to these initiatives by voluntarily patrolling the forests on a daily basis. These are not examples from CCAs but have been mentioned to illustrate the important role that sensitive government officials can play in mobilising communities for the cause of conservation.

²⁸ Over the last 15 years or more JFM has spread over several million hectares. However, while it has been very successful in many places, the programme suffers from a number of deficiencies: the power-sharing between the FD and villagers remains poor, benefits to communities have often been inequitably shared, corruption is often very high, and in places traditional institutions of management have been displaced by JFM committees imposed from above.

²⁹ Entitlements from the forests to daily biomass needs for the people residing in and around forest areas (under government jurisdiction).

³⁰ Meeting daily biomass needs for personal consumption.

³¹ There are many examples across the country where representative bodies have been set up by external agencies for conservation with little interaction, consent or acceptance of the local communities. However, we have not taken into account such examples as CCAs so they would not figure in this analysis.

³² This section on international debates on whether CCAs are PAs is adapted from a note prepared by Ashish Kothari, based on inputs from Grazia Borrini-Feyerabend, Hanna Jaireth, Gonzalo Oviedo, Adrian Phillips, and Marshall Murphree. It was written for The IUCN Theme on Indigenous Peoples, Local Communities, Equity and Protected Areas. Contact: ashishkothari@vsnl.com, gbf@cenesta.org, or tilcepa@vsnl.net.

³³ In Kothari et al. (eds), *People and Protected Areas* (As above)

³⁴ Note prepared by Neema Pathak, Seema Bhatt, Tasneem Huzefa, and Ashish Kothari, with inputs from Gonzalo Oviedo and Grazia Borrini-Feyerabend, on behalf of the IUCN CEESP-WCPA Theme on Indigenous and Local Communities, Equity, and Protected Areas (TILCEPA). Kalpavriksh, Pune (Kalpavriksh@vsnl.net) and Cenesta (cenesta@cenesta.org), Iran.

³⁵ See case study sections for the relevant states for details on the case studies mentioned here.

³⁶ C. Leisher, P. van Beukering and L.M. Scherl, *Nature's Investment Bank: How Marine Protected Areas Contribute to Poverty Reduction*. (Arlington, USA, The Nature Conservancy, 2007)

Policy Matters 15: Conservation and Human Rights. Magazine of the IUCN Commission on Environmental, Economic, and Social Policy. July 2007. <http://www.iucn.org/themes/ceesp/publications/publications.htm>

M. Lockwood, G. Worboys, and A. Kothari, (eds), *Managing Protected Areas: A Global Guide*. (London, IUCN, Gland and Earthscan, 2006)

M. Colchester, (Conservation policy and indigenous peoples) *Environment Science and Policy*, 7: 145-153 (2004).

³⁷ R. Kutty, 'Community-based Conservation of Sea Turtle Nesting Sites in India: Some Case Studies', in K. Shankar and B.C. Choudhury (eds), *Marine Turtles of the Indian Subcontinent* (Dehradun, Government of India-UNDP and Wildlife Institute of India, 2006).

³⁸ Political benefits entail the self-empowerment of communities, including the power to negotiate terms with government and non-government agencies.

³⁹ Examples with more than one benefit have been mentioned in all relevant benefit fields in Figure 16

⁴⁰ Adapted from a similar table in Kothari et al., *Where Communities Care* (As above)

⁴¹ This is not an exhaustive list of examples, but only some randomly selected ones.

⁴² Foundation for Ecological Security, *A Biodiversity and strategy input document: The Gori River Basin Western Himalaya*, Prepared under the National Strategy and Action Plan, India. Submitted to the Ministry of Environment and Forests, New Delhi (2003). Kalpavriksh and Technical and Policy Core Group (TPCG), *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan (NBSAP)*. Prepared by Technical and Policy Core Group, Delhi/Pune, Kalpavriksh, 2005.

⁴³ R. Kutty, 'Community-based Conservation of Sea Turtle Nesting Sites in India' (As above)

⁴⁴ R. Jackson, and R. Wangchuk, 'A Community-based Approach to Mitigating Livestock Depredation by Snow Leopards', *Human Dimensions of Wildlife* (2004), 9: 307-15.

⁴⁵ M. Sarin, with L. Ray, M.S. Raju, M. Chatterjee, N. Banerjee and S. Hiremath, *Who is Gaining? Who is Losing? Gender and Equity Concerns in Joint Forest Management*, (New Delhi, Gender and Equity Sub-Group, National Support Group for JFM, Society for Promotion of Wasteland Development, 1996).

⁴⁶ For more details on social stratification and its implication on conservation efforts see A. Kothari, F. Vania, P. Das, K. Christopher and S. Jha (eds), *Building Bridges for Conservation: Towards Joint Management of India's Protected Areas* (New Delhi, Indian Institute of Public Administration, 1996); N. Pathak, *Joint Forest Management and Gender: Women's Participation and Benefit-sharing in JFM in India*, A report prepared for ADITHI, a women's organisation in Patna, Bihar (2000).

⁴⁷ As above

⁴⁸ These key issues and lessons are based on the analysis in the previous sections as well as other work and past experience of Kalpavriksh, including:

A. Kothari et al., *Where Communities Care* (As above)

While this Directory was being compiled, a number of other reports were written and /or published, which were to some extent based on the learnings from the Directory. These include:

A. Kothari and N. Pathak, *Protected Areas, Community Based Conservation and Decentralisation: Lessons from India*, A Report Prepared for the Ecosystems, Protected Areas, and People Project (EPP) of the IUCN World Commission on Protected Areas (through the IUCN Regional Protected Areas Programme, Asia) (2006).

⁴⁹ This table has been adapted from a more detailed table in G. Borrini-Feyerabend, A. Kothari and G. Oviedo, *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation*. (Gland, Switzerland and Cambridge, UK, IUCN, 2004).

⁵⁰ A. Kothari et al., *Where Communities Care* (As above)

⁵¹ P. Pardeshi, 'Conserving Maharashtra's Biodiversity through Ecodevelopment', in A. Kothari et al. (eds), *People and Protected Areas* (As above)

⁵² A. Kothari and N. Pathak, *Protected Areas, Community Based Conservation and Decentralisation*. (As above)

⁵³ CMWG and TILCEPA, 'A Policy Briefing note on Governance of Natural Resources—the Key to a Just World that Values and Conserves Nature'. For details see www.tilcepa.org or contact Grazia Borrini-Fereyabend at gbf@cenesta.org.

⁵⁴ A Government of India scheme, funded in this case by the Global Environment Facility, meant for diverting human pressures from a PA by providing alternative sources of livelihood.

⁵⁵ D. Priya, 'The Politics of Participatory Conservation - the case of the Kailadevi Wildlife Sanctuary, Rajasthan'. G. Shahabuddin and M Rangarajan (eds), *Making Conservation Work* (New Delhi, Permanent Black, 2007)

⁵⁶ R. Panigrahi, 'Democratisation of Forest Governance: Myths and Realities (An analysis of implications of democratized forest policies and processes in Orissa, India)' Paper presented at the eleventh Biennial Conference for the International Association for the Study of Common Property, 19-23rd June 2006, Bali, Indonesia (Vasundhara, Bhubaneshwar, R. 1996).

⁵⁷ M. Sarin, 'Empowering and Disempowering of Forest Women in Uttarakhand, India', *Gender, Technology and Development Journal* (2001), 5 (3).

⁵⁸ N. Pathak and V. Gour-Broome, *Tribal Self-Rule and Natural Resource Management: Community Based Conservation at Mendha-Lekha, Maharashtra, India* (Kalpavriksh, Pune and International Institute of Environment and Development, London, 2000).

⁵⁹ ATREE, *An Integrated Approach to Management of Tropical Forests for Non-Timber Forest Products. Annual Report for Biodiversity Conservation Network* (Bangalore, Ashoka Trust for Research in Ecology and the Environment, 1999).

⁶⁰ A. Kothari et al., *Where Communities Care*. (As above)

⁶¹ Kalpavriksh has drafted a set of guidelines for the declaration of Community Reserves. These guidelines were circulated for comments by MoEF to the state governments in 2005, but subsequent action is unclear.

⁶² A detailed critique was made in a letter related to the concerns regarding Biological Diversity Rules 2004, addressed to National Biodiversity Authority and Shri Thiru A. Raja, Minister of Environment and Forests. Written by Ashish Kothari, Kalpavriksh, Pune; P.V. Satheesh, Deccan Development Society and AP Coalition in Defence of Diversity, Hyderabad; Utkarsh Ghate, RANWA, Pune; and Madhu Sarin, Chandigarh. Dated 6th June 2004. Contact: Kanchi Kohli at kanchikohli@gmail.com.

⁶³ Kalpavriksh has formulated draft guidelines for Biodiversity Heritage Sites and submitted to National Biodiversity Authority for consideration, in 2006.

⁶⁴ For regular update on the implementation of the Biodiversity Act, see <http://groups.yahoo.com/group/bioDWatch>.

⁶⁵ 'Orissa Village Forest (Amendments) Rules, 2007 (A Draft). A Civil Society Organisation's Initiative'. For details contact Abhishek Pratap at vasundharanr@satyam.net.in

⁶⁶ For more details, contact Tarun Joshi, Sainyon Ka Sangathana, Nagari Gaon, Post Bhavali, Dist. Nainital 263132, Uttarakhand. Tel. 05942-220714/220255.

⁶⁷ For details contact Mohan Hirabai Hiralal at mohanhh@gmail.com

⁶⁸ Contact Mohan Hirabai Hiralal (As above).

⁶⁹ Planning Commission, *Final report of the Steering Committee on Environment, Forests & Wildlife for the Eleventh Five Year Plan (2007-2012)* (Planning Commission, Government of India, March 2007).

⁷⁰ Also see Kalpavriksh's note 'Scheduled Tribes and Other Traditional Forest-Dwellers (Recognition of Forest Rights) Act 2006: Critical amendments, clear rules, and assessment period needed. Kalpavriksh Position and Recommendations', March, 2007. For more details see www.kalpavriksh.org or contact Neema Pathak at the editorial address.

⁷¹ Which prohibits diversion of forests for non forestry purposes without central government clearance.

⁷² Reference to this Directory.

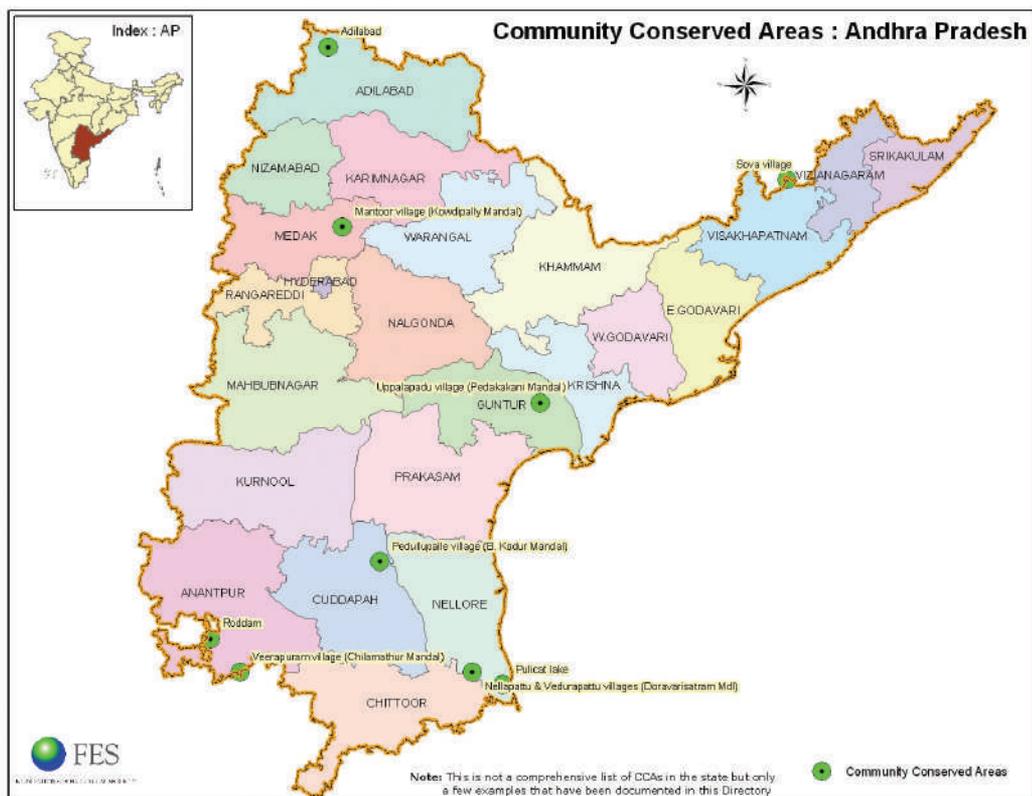
⁷³ Information contributed by Ashish Kothari with inputs from Tasneem Balasinorwala, Kalpavriksh, Pune.

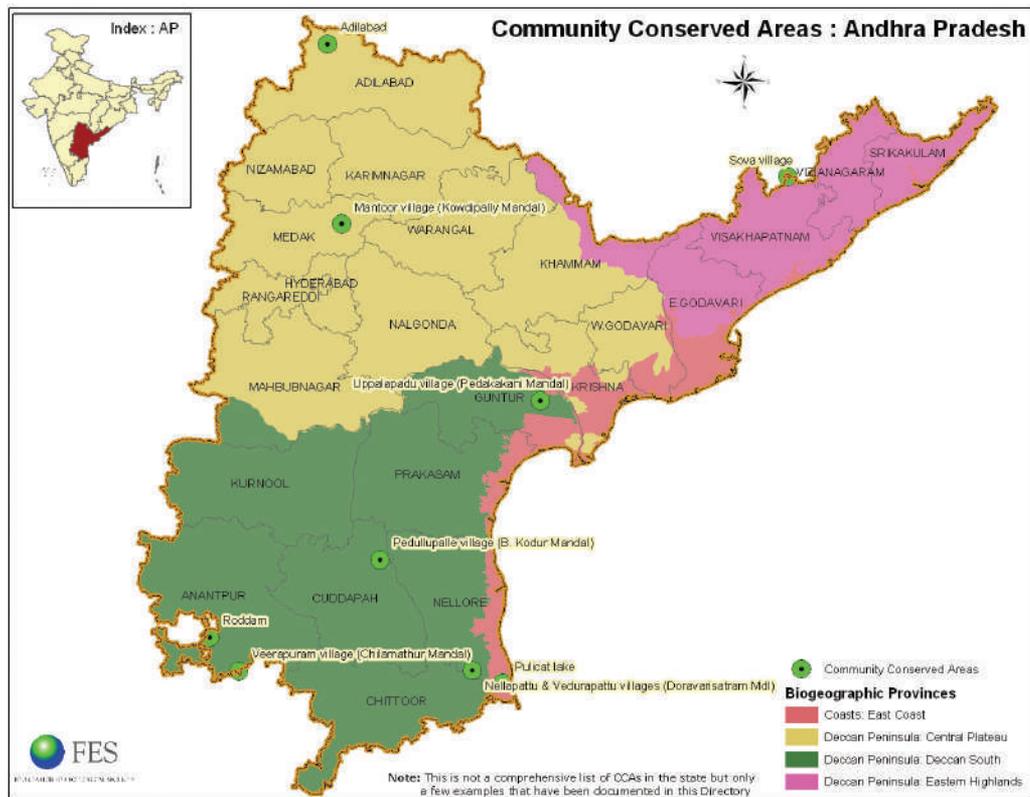
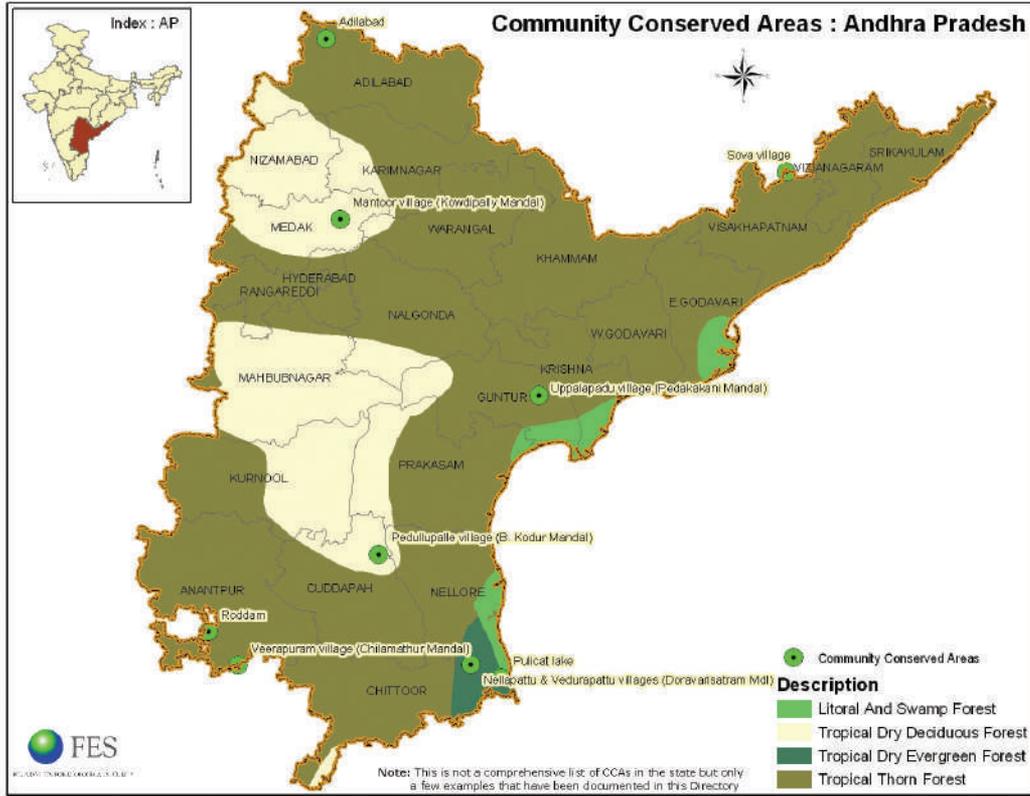
⁷⁴ See www.iucn.org/themes/ceesp/Wkg_grp/TILCEPA/CCA%20Briefing%20Note.pdf.

⁷⁵ See <http://www.iucn.org/themes/ceesp/CCAlegislations.htm>.

⁷⁶ See www.iucn.org/themes/wcpa/pubs/parks.htm#parks161.

Andhra Pradesh







Community conservation in Andhra Pradesh

Neema Pathak

1. Background

1.1. Geographic profile

Andhra Pradesh lies between 12°37' and 19°54' N latitude and 76°46' and 84°46' E longitude, with Tamil Nadu to the south, Orissa to the north, Maharashtra and Karnataka to the west, and the Bay of Bengal on the east. It has a geographical area of 276,000 sq km. Out of this, 63,770 sq km (23 per cent) is classified as forest. About 40 major, medium and minor rivers flow through the state, the most important being the Godavari, the Krishna, the Pennar and the Vamsadhara.

Andhra Pradesh can be broadly divided into three natural regions: the coastal plains, Eastern Ghats and the Andhra plateau. The coastline of Andhra Pradesh is about 966 km long, and is located between 13°24' and 19°54' N latitude and 80°02' and 86°46' E longitude.

The forest department controls 23 percent of the state's area, 79 per cent of which is Reserve Forest. 26 per cent of the official forest area lacks any forest cover. The forests are classified as southern tropical dry deciduous and moist deciduous, and southern tropical thorn forest, with a small percentage of littoral and mangrove forests.¹ The forests are mainly in the west and north of the state, in the semi-arid hills of the Deccan and on the borders of Orissa. Areas rich in forests are dominated by tribal populations, which constitute 6.3 per cent of the total population of the state.

Agriculture accounts for 40 per cent of the state's income and provides a livelihood for 71 per cent of its population. The major commercial crops are paddy, *jowar*, groundnut, tobacco, chillies, cotton, castor and sugarcane, while these and a wide variety of millets and pulses continue also to be grown for domestic consumption.

1.2. Socio-economic profile

Andhra Pradesh has a population of 76.2 million as per the 2001 census, of which 73 per cent is rural and 27 per cent urban.² This contains a diversity of tribal or *adivasi* communities, including the Gonds, Kolams, Naikpods, Pradhans and Thoties. While the Gonds practiced settled cultivation, the Kolams and Naikpods have been shifting cultivators (*podu*). Community livelihood has depended heavily on the forests and the Kolams and Naikpods owe their income to the sale of non-timber forest produce (NTFP). Tribal families or clans have custodianship of the land, but traditionally the concept of private ownership was alien to their culture. Though there are several tribal communities, they together consist of only 6.6 per cent of the state's population.³ The majority of the state's population consists of Hindus (89 per cent) and Muslims (9 per cent).⁴

Andhra Pradesh is believed to have about 50,000 ha of forest land under illegal occupation.⁵ Disputes over illegally occupied lands; forest reservation policies and increased restriction on the use of the forests by local people have created deep-seated conflicts between the tribals and the government. These conflicts have provided a fertile ground for the growth of the Naxalite⁶ movement.

2. A brief history of administrative control over land and resources

2.1. Pre-independence period

Much of the state was under the rule of the Nizam⁷ of Hyderabad until 1948, when he was forced to accede to the Indian Union; the remainder was under British rule till 1947.

2.1.1. Nizam dominions

Representatives of the Nizam, such as the Jagirdars, Watandars and Deshmukhs, played a role similar to the Zamindars. Lands including forest tracts were awarded to them for use. Remnants of large areas of land in non-forested areas are still under the ownership of the families of Jagirdars. *Jagir* forest lands, although owned by individuals, were openly accessible to the local communities for collection of non-timber forest produce and firewood, and in some cases even timber for construction⁸. Settlement of rights for these communities was accomplished under the Hyderabad Forest Act, 1890.

Several areas were controlled by the forest department of the Nizam's Government, which followed policies designed to regulate access to forests so as to regulate and exploit timber, prevent destruction by fires and so on. Concepts of forest management do not, however, seem to have been employed till about the end of 1800s.

Areas under the Nizam's dominion were highly forested and inhabited largely by tribals till the 1940s. The construction of motorable roads in following decades increased access to the region and led to the influx of migrants from outside the state. The new settlers were aggressive and shrewd and soon occupied most of the tribal lands. Unable to assert ownership over these lands, the tribals were pushed further into remote areas and forced to 'encroach' newer forest areas. These migrations led to tribal rebellions in many parts of the Hyderabad State, forcing the Nizam to commission a study by the famous German anthropologist F. von. Haimendorf, who documented the pathetic condition of the tribal people, and recounted the stories of exploitation, extortion and displacement of unassuming tribals by migrant settlers. The recommendations of this study led to the appointment of a Special Officer to look into the grievances of the tribals. Many steps were taken to prevent land alienation of tribals, including the redistribution of lands under illegal control of non-tribals to the tribals.

A subsequent visit by Haimendorf in 1975 revealed a completely different story. By this time the population ratio had reversed drastically in favour of non-tribals from adjoining states, many of them earning their living by smuggling timber from forests. The tribals were once again under the grip of moneylenders, dispossessed of their land, and with their life-sustaining forests badly degraded.⁹

2.1.2. British dominions

Not much has been documented about the kinds of traditional forestry practices that existed in areas of Andhra Pradesh under British dominion. Around 1770 AD the British annexed well-forested, tribal-dominated areas, mainly in the Eastern Ghats, from small rulers and *zamindars* (landlords). Most forested and 'unclaimed' areas (often community lands, where the community had no wherewithal to stake a claim that was credible in the eyes of the government) came under the control of the state, thus restricting the rights of local communities. References in the state forest department's records claim that effective control and management of forests was not possible since much of the lands were also controlled by the Revenue Department, and were distributed under traditional land titles such as *pattas*¹⁰ and *ijaras*. Management was focused on conservation and plantation (mainly of teak and after the 1930s on other high-revenue-yielding plants such as bamboo and *katha*).

Following several tribal rebellions, the hill estates were given special status, exempting them from normal civil and judicial laws. In 1839, the Ganjam and Vaizagapatnam Act was passed, constituting these areas as 'Agency areas' under the jurisdiction of a special official called the Agent to the Governor General. This was followed by bringing these lands under the scheduled districts Act of 1874, the Agency Tracts Interest and Land Transfer Act of 1917, and the Government of India Act of 1935. Eventually, the Fifth Schedule of the Constitution (after Independence) marked most of the Agency area as a legally distinct entity (called Schedule V areas), and the Panchayat (Extension to Scheduled Areas) Act 1996 has special provisions for these areas. These legislations were ostensibly passed to protect the interests of local tribals against outside traders, settlers and moneylenders. *Muttadars* (hereditary local chiefs) were appointed to administer these areas but they had no ownership over the land. Their main responsibilities included revenue collection and discouraging the practice of shifting cultivation. The forest reservation and anti-*podu* policies faced strong opposition from the local tribals, which were suppressed or overcome in most areas.¹¹

The alienation of communities from their habitat is intimately related to rights and access to the forest resources they used, and can be traced back to faulty colonial understandings of land ownership. Alien concepts of private property and a centralised land revenue system introduced in the colonial era initiated a process of land titling, which resulted in alienation for two immediate

reasons: (i) the diversion of uncultivated land for agriculture by migrant settlers, land deeds (*pattas*) for which were subsequently issued to them by the Government, and (ii) the establishment of the forest department leading to large tracts of forested (and non-forested) land coming under control of the state. The extent of pre-independence alienation of tribal land in the state is difficult to ascertain, except in cases of land regularisation where the revenue department and forest department have measured losses in terms of the acreage of land lost.¹²

In 1932, when the forests may have been abundant and exploitation of timber was on a small scale and that of NTFP negligible, a forest policy was formulated by the Government of Hyderabad with the help of the then Inspector General of Forests of India, Mr. L. Mason. However, before the recommendations could be implemented the Second World War began and forest areas which were accessible were worked in advance to meet war needs. To rectify this over-exploitation, a post-war forest policy was prepared but when this was about to be implemented Hyderabad state was merged into the Indian Union and *jagirs* were abolished. As a result, large tracts of land were transferred to the forest department.¹³



2.3 Post-independence governance

2.3.1 Pre-JFM era (1947-1992)

In the post-Independence era, colonial policies and attitudes of mistrust and neglect of the tribals continued in AP, as in the rest of the country. The Panchayati Raj Act that was introduced in the 1950s to decentralise and democratise governance has little in common with the traditional institution of *panchayats* (village executive) and *gram sabhas* (village council) that were/are in place in many parts of the country. The institutions established under this Act were multi-village, bureaucratic and corrupt.¹⁴ Thus this Act failed to empower the local communities. There was also little linking between Panchayati Raj institutions and those responsible for forest management.

With the introduction of the Jagir Abolition Regulation 1949, 21 *Jagir* forest blocks covering a total area of 26,931 acres were claimed by the forest department of the Government of Hyderabad between 1951 and 1952. As more forests were taken over, either by the Government or by other settlers from outside, the rights of many tribal settlers were not legally recognised as many of them had no land records or *pattas* and also practised shifting cultivation. The lands left fallow in the shifting cultivation cycle were often taken over by outsiders or designated as forest land, and the tribals who came back after the cycle to reclaim the fallow area were either unable to do so, or, if they succeeded, were termed 'encroachers'. Under severe political pressure, the State Government was forced to regularise these 'encroachments' in 1972 and again in 1980. The settlement process was itself flawed, unjust and corrupt, leading to hardship to many tribals whose rights were not recognised, while many others got *pattas* on land not rightfully theirs.¹⁵ These regularizations led to an increase in the trend of encroachment. Events leading to the second regularisation in 1980 are significant in that they included open instigation of tribals by 'extremists' to indulge in illicit felling and encroachment into forests.

Meanwhile, the mandate of the forest department continued to be revenue generation rather than ecological safeguarding or meeting the requirements of the local people. A report by the National Commission on Agriculture in 1976 recommended clear-felling and establishment of industrially valuable plantations in degraded or other natural forests, completely ignoring the heavy dependence of local people on such forests and the impact of such a move on forest biodiversity. This report also recommended encouragement of farm forestry on common and private lands to meet industrial demand.¹⁶ The former recommendation laid the foundation for the establishment of the AP Forest Development Corporation (APFDC). Nearly 600,000 ha of state forest lands have been leased out to the corporation for plantations.¹⁷

The Social Forestry Scheme (supported by the Canadian Funding Agency, CIDA) was perhaps the first step towards any kind of state support for participatory management of natural resources in AP. However, the programme was not very successful for three major reasons: (i) not enough community lands were available for plantation; (ii) communities were distrustful of the government and in many cases refused to participate for fear of their limited common lands being taken over by the State; and (iii) benefits went mainly to big farmers.¹⁸ The programme did, however, provide some space for positive action amongst some local communities, supporting NGOs and interested government officials. The Social Forestry Programme stopped in 1993 with CIDA funding coming to an end.¹⁹ Among the most well-known examples of community forestry efforts in AP are the regeneration of degraded forests on Revenue Department hillocks in the drought-prone Anantpur district, facilitated and promoted by the Anana Paryavaran Parirakshana (APP), an active NGO. Local NGOs and communities in the Cuddappah district replicated this effort, supported by the funding agencies OXFAM and AFPRO.

The policy on NTFP is clearly reflected in the Government policy on bamboo. Forest-dependent communities use bamboo extensively: bamboo basket-making itself is believed to generate partial employment for about 23,000 people in the tribal areas. Yet areas rich in bamboo continue to be preferentially allocated to industry²⁰ while there are restrictions on the extraction of bamboo by local communities. Forest-dependent communities, mainly tribal populations, consider the industry responsible for degradation of forests and the extraction practices as unsustainable.

2.3.2. 1992 onwards – joint forest management and PESA

Andhra Pradesh adopted the 1990 central government Joint Forest Management Policy in 1992. Under this scheme, degraded forest lands could be handed over for reforestation and regeneration to local communities, with conditions relating to a share in the forest produce (including timber), and the villages' responsibilities towards conservation being specified from the start.

In 2000, a proposal was mooted by the government to hand over some degraded forests including joint forest management areas to industry. The contention was that industry would invest in these areas and share the benefits with the local people. The proposal met with massive opposition from all sectors including community members, academics and activists who felt that industry was too powerful a partner for local communities, and would gain more power over the forests in the long term, which would adversely affect local communities. Some NGOs also saw it as an effort to provide a direct entry point to industry in the forestry sector. Many believe that participatory programmes like JFM do not require massive external investment. Much of these can be generated locally, if funds already allocated for the area are utilized and dispersed among many line agencies.²¹

The 73rd amendment of the Constitution and the Extension to Scheduled Areas Act was enacted in 1996 by the Central Government, empowering village level institutions and conferring the rights (and in the case of scheduled areas, the ownership) over NTFP and many other decision-making powers to them. The Act has not yet been implemented in the state.²² The most valuable NTFP continues to be extracted by contractors and/or government monopoly institutions such as the Girijan Cooperative Corporation (GCC). Forest-dependent communities can collect nationalised NTFP but cannot sell it in the open market. On the other hand not much attention has been paid towards development, management and marketing of NTFP that is of lower commercial value but meets most local livelihood needs.²³

3. Origins of community conservation

Many communities have traditionally depended on the forest for various products. This includes:

- Fruits such as sitaphal, jamun, jaam, danim, jeedi or bilawa.
- Non-timber forest products such as mahua (flower and seed of *Madhuca indica* for making liquor and oil), thunki fruit and leaves, bel fruit, kawweet, thangedu and rela barks, and nuts like chironji;
- Resins and gums such as gum karaya, nalla tumma and tella tumma;
- Honey and beeswax;
- Bamboo;
- Katha;
- Medicinal products such as visha mushti, chilla ginjalu, ashwagandha, harda;
- Paala kodish, a soft wood used in making delicate items such as combs and numerous other materials such as rousa grass, basur grass, rope grass, fodder grass, jarob grass, kopir grass and bodha grass which are used in making ropes, mats, brooms and other household items, as well as some which are good fodder for cattle.

The strong dependence of the local people on these resources provides a powerful stake for conservation, if appropriately channelled.

Documentation of resources being conserved and managed by local communities in the state is scant. In the following sections, both traditional and newer initiatives at community conservation are explored along resource-based divisions: (i) forest resources, (ii) mangroves, and (iv) heronries.

3.1. Community conservation of forest resources

It is believed that the tribal- and forest-dominated districts of East and West Godavari, Srikakulam, Vizianagaram, Visakhapatnam, Nizamabad, Khammam and Adilabad have a rich tradition of systems and practices of forest resource management. Traditional forest management systems with clearly laid out rules for extraction can still be observed in villages like Oblapuram and Velidelkala in Kareemnagar district, and Yanampalli and Sikendarapur in Nizamabad district. There are examples of sacred groves in many parts of the state, such as in Warangal district.²⁴



Women collecting seeds in the regenerated and protected forest of Indur, Medak district, Andhra Pradesh Photo: Ashish Kothari

The much-talked-about JFM showcase of forest protection by the community at Behroonguda village, the first VSS to be recognized by the Government, was actually an initiative begun by villagers to overcome resource crunches²⁵. However, according to Samata,²⁶ an activist group fighting for rights of tribals, fine examples of traditional forest management in Srikakulam district collapsed after being included in the JFM Programme. A few villages in Adilabad district continue to manage their resources and have reportedly rejected JFM outright.²⁷

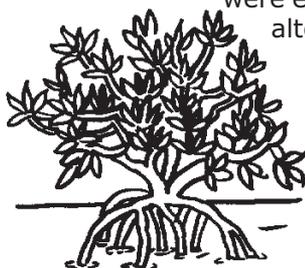
Communities in villages bordering Orissa, apparently influenced by the initiatives in Orissa (see Orissa state chapter for details), began spontaneously protecting their surrounding forests.²⁸ There are several instances where villagers have started forest protection as a response to resource scarcity or as a continuing traditional practice. Communities in Mantoor village, Medak district, began protecting a revenue hillock in 1994 after failing to find enough wood to erect stalls for the annual festival of the local deity. In 1997, after a protracted struggle, they stopped clear-felling of the surrounding Reserve Forest by the APFDC, which had intended to carry out commercial plantations in the degraded forests.²⁹ It was only in 2000 that they were included in the JFM programme.³⁰ Subsequent to their struggle, an order was passed that makes consent of the adjoining VSS(s) mandatory for APFDC before clear-felling is permitted in any forest.³¹

About 150 acres of degraded landscape around the Rishi Valley Education Centre in Rayalseema has been regenerated by the combined efforts of local farmers, NGOs and the schoolchildren.³²

3.2. Community conservation of mangroves

Andhra Pradesh has a coastline 996 km long, with some ecologically critical areas including the coastal lagoon ecosystem of Pulicat Lake in the south and the mangrove ecosystems of Krishna Delta (Nizampatnam and Machilipatnam), and Coringa in the Godavari estuary. Of the total forested area in the state, 582 sq km are mangroves.

Prawn seed collection from the wild has created large-scale ecological imbalance in the mangroves of Andhra Pradesh. In 2001 a programme was initiated by the M.S. Swaminathan Research Foundation (MSSRF), Chennai, for the regeneration of mangroves with people's participation. MSSRF adopted 10 villages in the East Godavari, Krishna and Guntur districts. Local communities were encouraged to establish Ecodevelopment Committees to assist members raise alternative fuel resources to reduce dependence on the mangroves. Resource maps were prepared using satellite imagery.



With support from the forest department, this initiative has succeeded in restoring 300ha of degraded mangroves in the three districts. Studies conducted by the Central Marine Fisheries Research Institute (CMFRI) have clearly shown a considerable increase in fish catch in these areas. Participating communities have so far earned Rs 51 lakhs from the various schemes promoted by MSSRF.

There has also been an attempt to follow the JFM model and initiate joint mangrove management (JMM). According to a MSSRF report³³ 'The Joint Mangrove management (JMM) model consists of two aspects. The first involves mobilization of institutional organizations and mobilization of the community towards mangrove management. It also involves village development through training and capacity building and awareness. The second part involves technical support...JMM in this region has resulted in the restoration of 515 hectares of degraded mangroves and brought over 9,442 hectares of verdant mangroves under the management of the village level JMM institutions.'

3.3. Community conservation of heronries

AP is known for its heronries, where a host of large waterbird species roost and breed on trees around traditional tanks. There are three major factors that attract birds to these:

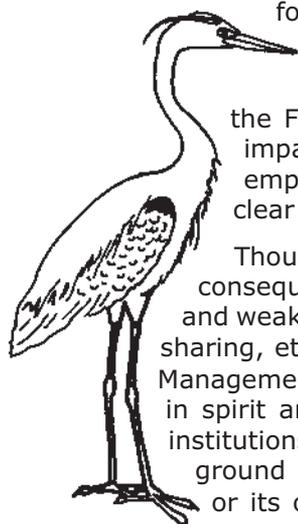
- a) Feeding conditions: Aquatic birds depend on large wetlands and they need many wetlands, distributed over a large area, a condition that decentralised village tanks ideally provide.
- b) Availability of nesting sites, usually trees, to help avoid predation.
- c) Safety (possibly the main factor).

In many instances the local villagers traditionally protect these sites. Heronries are to be found in Vedurupattu in Nellore district, Uppalapadu in Guntur district and Nelapattu in Nellore district among others (for details, see case studies). One of the well-known examples is that of Nelapattu. The heronry here was declared a sanctuary under the Wildlife (Protection) Act in September 1997. Unfortunately, due to this, local people's access to the lake was restricted, leading to serious conflicts between the sanctuary authorities (the forest department), and the local people who have been protecting the birds for generations.³⁴

It is interesting to note that birds from Neelapattu, Vedurupattu also feed on fish from Pulicat lake (see the Tamil Nadu state chapter in this volume). Pulicat lake is also a CCA site, where fisherman not only follow traditional fishing practices which ensure conservation but also vigorously fight against pollution and development project-related impacts.

4.1. Opportunities and constraints for community conservation

The JFM process has taken some steps towards effective people's participation and benefit sharing in the state. Since 1992, 12 amendments have been made based on feedback from NGOs and the JFM monitoring cell of the APFD. JFM is in fact now being seen as a means to resolve land conflicts with tribals. In many cases encroached lands have been included under JFM, providing a form of official sanction of tribal presence in these areas as long as it leads to conservation and regeneration of forests, though it does not of course resolve the deeper problem of land rights for the tribal community. The version of JFM popularly called 'Chief Minister's JFM' started in 1996-97 receives funds from the state exchequer and supports about 35 per cent of all VSSs in the state.³⁵ The then CM had three state-level meetings with the members of the VSSs. His interventions are believed to have been very effective in creating instantaneous operational changes.³⁶ According a report,³⁷ 'The joint forest management (JFM) movement has been in operation in more than 62,000 villages. This has improved the biophysical condition of around 11.2 million hectares of degraded forest and the socio-economic conditions of about 35,000 villages.'



In districts where a large number of VSSs exist and are either encouraged by the local NGOs or the FD, VSSs have started forming federations at the Forest Range level. These initiatives are still too new to comment on any impacts. The monitoring mechanism to ascertain ecological regeneration, local empowerment and transparent as well as efficient management of funds is not clear at this stage.

Though there have been notable positive outcomes of JFM, the negative consequences (e.g., undermining some self-generated forest conservation initiatives) and weaknesses (continued lack of power-sharing with villagers, inequities in benefit-sharing, etc.) are also important. The state government passed a Community Forest Management (CFM) Resolution in 2002³⁸ that appears the same as the JFM resolution in spirit and content. Although it aims at achieving greater empowerment of local institutions, local NGOs do not feel that the new Resolution will substantially change ground realities. Villagers continue to be largely unaware of the new resolution or its operational impacts.³⁹ There is also a lot of fear among tribals and tribal

activists that CFM may be used to term tribals practising shifting cultivation as encroachers and thus deny their rights.

Another programme aimed at decentralization of resource management is the 'Janmabhoomi Programme' proposed by the Chief Minister. Under this programme, villagers can take up projects and contribute free labour to the project through the local village institutions (*gram sabhas*).⁴⁰ It is not clear whether this has had any positive outcome for conservation of ecosystems around villages.

Much of the following text first appeared in the Andhra Pradesh section in Tejaswini Apte and Neema Pathak, 'International Community Forestry Networks in India', (Bogor, Indonesia, CIFOR, 2003). Despite many efforts we found it extremely difficult to update the information contained in this chapter. At the same time we were not able to get much information on the conservation efforts in marine areas or of mangroves. This limitation is regretted.

Endnotes

¹ Joint forest management in Andhra Pradesh: Final Report (Hyderabad, AP NGOs Committee on JFM, 1998).

² http://www.censusindia.net/t_00_003.html

³ http://www.censusindia.net/t_00_005.html

⁴ http://www.censusindia.net/religiondata/Religiondata_2001.xls. Note that most tribal communities seem to be classified as Hindus, Muslims, or Christians, having been converted to these mainstream religions at various stages of history.

⁵ Bharati and M. Patnaik, *Joint Forest Management in Andhra Pradesh* (Hyderabad, AP NGOs Committee on JFM, 1998).

⁶ The Naxalite movement is a leftist, armed movement, which started in protest against alienation of tribal land and continues to be strongly anti-establishment in tribal dominated parts of the country.

⁷ The Qutub Shahi dynasty ruled Hyderabad till 1687. It was extinguished by Aurangzeb in 1687. One of the Mughal nobles set himself up as an independent ruler of Hyderabad area. His title was Nizam-ul-Mulk and his successors were popularly known as the Nizams of Hyderabad. Their dynasty was called the Asaf Jahi dynasty. They ruled Hyderabad till 1948, when Indian forces took charge of the estate.

⁸ Sushruti Santhanam, 'Report on the Study of Sustainable NTFP Collection' (Pune, Kalpavriksh, Unpublished, 2000).

⁹ C.S. Rangachari and S.D. Mukherji, *Old Roots, New Shoots: A Study of Joint Forest Management in Andhra Pradesh, India* (New Delhi, Winrock International and Ford Foundation, 2000).

¹⁰ A *patta* is a memorandum of the particulars of a holding and land assessment, given by the state to the landholder, usually considered as constituting a title to the land. A *pattadar* is a holder of the *patta*.

¹¹ N. Sundar, R. Jeffery and N. Thin, *Branching Out: Joint Forest Management in India* (New Delhi, Oxford University Press, 2001).

¹² Santhanam, 'Report on the Study of Sustainable NTFP Collection'.

¹³ (As above).

¹⁴ R. Raina, 'Study on Networks in Community Forestry in India' (Bhopal, Indian Institute of Forest Management, 2002).

¹⁵ LAYA, *Land Rights in Tribal Areas* (1998).

¹⁶ Raina, 'Study on Networks'. (As above).

¹⁷ Personal communication with Satya Srinivas, co-convenor of AP NGOs Committee for JFM in Andhra Pradesh, 2002.

¹⁸ Rangachari and Mukherji, *Old Roots, New Shoots*. (As above).

¹⁹ Sundar et al., *Branching Out*. (As above).

²⁰ Bharati and Patnaik, *Joint Forest Management in Andhra Pradesh*. (As above).

²¹ R. Mahapatra, 'Seeking Reliance', *Down To Earth*, 15 September 2000; Personal communication with members of AP NGOs Committee for JFM in Andhra Pradesh, 2002; Personal communication with S.K. Chhotray, Conservator of Forests, Khammam, 2002.

²² Santhanam, 'Report on the Study of Sustainable NTFP Collection'. (As above).

²³ (As above).

²⁴ Personal communication with Surendra Pandey, Conservator of Forests, Nizamabad, 2002.

- ²⁵ E. D'Silva and B. Nagnath, 'Behroonguda: A Rare Success Story in Joint Forest Management', *Economic and Political Weekly*, 9 February 2002.
- ²⁶ Anon. *Joint Forest Management: A Critique Based on People's Perceptions* (Hyderabad, Samata, 2001).
- ²⁷ Personal communication with Madhoo, Anthra, Andhra Pradesh, 2002.
- ²⁸ Personal communication with Madhoo, Anthra, Andhra Pradesh, 2002; Personal communication with Bhanumathi, Samata, Andhra Pradesh, 2002.
- ²⁹ There are similar experiences in Karnataka where villagers opposed monoculture plantations proposed by the government under various schemes.
- ³⁰ Personal communication with Satya Srinivas, co-convenor of APNGOs Committee for JFM in Andhra Pradesh, 2002.
- ³¹ Personal communication with V.R. Sowmitri, Co-convenor of APNGOs Committee for JFM in Andhra Pradesh, 2002.
- ³² S. Rangaswami, 'Rishi Valley Experiment', *Hindu Folio*, September 1998.
- ³³ T. Ravishankar, R. Ramasubramanian and N. Sreenivasa Rao, *Intersectoral Linkages for Conservation and Management of Forest Resources - A Case Study on Mangroves of India* (Kakinada, M.S. Swaminathan Research Foundation, undated).
- ³⁴ Personal communication with Satya Srinivas, co-convenor of APNGOs Committee for JFM in Andhra Pradesh, 2002.
- ³⁵ Bharati and Patnaik, *Joint Forest Management in Andhra Pradesh*. (As above).
- ³⁶ Personal communications with V.R. Sowmitri, co-convenor, APNGOs Committee for JFM in Andhra Pradesh, 2002.
- ³⁷ Ravishankar et al., *Intersectoral Linkages*. (As above).
- ³⁸ G.O. Ms. No. 13, EFES&T (for III) Dept., dated 12.02.2002
- ³⁹ Personal communication with villagers of village Eliminadu in Ranga Reddy district, 2002.
- ⁴⁰ Sundar et al., *Branching Out*. (As above).
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Behroonguda village, Adilabad

Background

This case study gives an insight into the various challenges faced by a village while protecting 500 ha of degraded forest, and whose efforts have emerged as the benchmark in joint forest management in Andhra Pradesh.

The forests of Behroonguda in Adilabad district are dominated by teak with teak forming 59 per cent of the trees present here. Some other species include neem, usirr or amla, mahua and bamboo.

The inhabitants of Behroonguda were originally from a village called Tanimadgu, from where they were evicted in 1945, when the Kadam dam was built. Subsequently, the victims of an extensive fire in Utkoor village have also settled in Behroonguda. These villagers mainly belong to the gond and naikpod tribes. In 1990, the village had 97 households, out of which 57 belonged to gonds and the remaining 40 belonged to naikpods (also closely related to the gond community). The gonds possess a rich tradition of participation in secular and religious village affairs. The villagers have an obligation to attend all the village meetings and cooperate with the headman while implementing the decisions of the village council. Besides, the villagers also contribute in kind appropriate quantities of foodstuff that are required as religious offerings.

Towards community conservation

The area of Behroonguda was cleared of its forests mainly due to the resettlement of the gonds and naikpods. In 1990, the villagers began to feel the depletion of forest resources around them. There was no timber and no firewood that could be consumed by the villagers in the forest and thus their livelihoods were threatened. The villagers came to the conclusion that the remaining forest area needed to be protected in order to achieve a sustainable livelihood. Subsequently the villagers decided to take necessary steps to rejuvenate the natural resource around them. They organized themselves into a village forest protection committee (FPC). This posed a threat to the timber thieves from the neighbouring villages. The members of the VFPC had physical clashes with the timber smugglers, in which one of the villagers was fatally injured. In course of time they were able to establish their dominance and spread the message that their forests were now being protected from the plunderers.

In 1993, the forest department approached the village and the village was included in the state forest department's joint forest management (JFM) Programme. At that time the FPC was headed by a woman president named Gouribai and comprised 50 per cent women representatives. Behroonguda Forest Protection Committee became the first in the state to gain official recognition. A micro-plan was drawn up with the participation of almost the entire village, along with two NGOs and the forest staff.

The FPC made it mandatory for everyone in the village to patrol the forest area; failure to do so resulted in a penalty of Rs 100 to be paid by the offender. Anyone who missed patrolling more than thrice was removed from the VSS.

The forest department has signed a MoU with the villagers and the FPC members have been issued identity cards with their photographs that give them the authority to take corrective measures against timber thieves and other encroachers of the forest.

The meetings of the executive council of the village are held at least once a month and sometimes more often if required. The minutes of the meetings, the details of the decisions taken and a record of those who attended the meetings are regularly maintained.

The women are equal stakeholders in the conservation efforts, as a majority of the wage labourers in employment generated under JFM are women. The Behroonguda FPC had a woman president for a period of five years. A random survey has shown that the women are well aware of the objectives of setting up a forest protection committee and the financial dealings of the FPC.



Through the interactions with the villagers it is clear that the prime interest of the FPC is not based on the economic benefits acquired from the forest resources. The goal of the FPC is, as stated by the head of the panchayat, to equate the health and well-being of the forests with the wealth of the village—a gond perspective on life. These sentiments are clearly reflected in the FPC's decision to harvest only 30 trees in the first thinning exercise, whereas the silviculturalists had prescribed the removal of 173 trees from the forest. This suggestion would definitely have a positive impact on the quality of teak in these forests, although the action of the FPC is better for the forests from an ecological point of view. Besides, the villagers use the other forest produce and any step towards the creation of a teak monoculture will not be conducive to them. To adhere to this purpose the FD has planted other local species in the degraded forest patches.

The villagers' far-sightedness towards conservation efforts is clearly reflected in a decision taken by them in June 1998, to deposit their earnings of a sum Rs 4,00,000 derived from the first sale of timber poles, firewood, and grass into a five-year bank deposit rather than distributing it amongst the VSS members. The VSS was guided primarily by the concern for future generations to follow certain guidelines that would provide sufficient incomes for conservation in future.

Impacts of community conservation

After the community was organised, and with the support of the government, a number of activities were taken up by the villagers. Some of these activities and associated impacts are:

Soil and moisture conservation

1. Supported by the JFM programme, the villagers constructed a number of bunds across streams and excavated percolation tanks for soil and moisture conservation. Villagers reported a marked increase in the water level in the first year itself, offering better prospects for growing vegetables for the first time in this otherwise drought-prone area.

Social and economic impacts

1. Seasonal migration to nearby towns and villages in search of employment, especially from March to May, was a common feature in the village. The forest department introduced daily-wage employment opportunities to the villagers in silvicultural operations, soil and moisture conservation, and other support activities. Since the villagers could find a source of income generation in their own village, the trend of migration was eventually reversed.
2. The distribution of subsidized smokeless *chullahs* to half the households has cut the firewood needs of the village by 25 per cent. Some families have even started using biogas for cooking purposes.
3. Effective forest protection offered by the VSS has resulted in the re-emergence of non-timber forest produce (NTFP)¹ like *mahua* and bamboo in the forest. It has been estimated that after this commencement of regeneration the villagers have been extracting NTFP worth Rs 1,45,000 per annum for personal consumption.
4. Silvicultural operations in the forest have resulted in adequate timber to meet the needs of all the villagers. There is a surplus of timber that is eventually put up for sale in the market after all the local needs are met.²
5. In June 1998, the total cost of protecting and managing the Behroonguda forest worked out to Rs 2,48,290. However the total benefit received by the local community was about Rs 6,36,432. This indicated a benefit-cost ratio of 2.5:1. Out of this amount, Rs 3,59,500 was directed to the usufruct benefits of the villagers. Even after deduction of this amount from the total benefit, the profit exceeds the cost of protection. It is interesting to note that 31 per cent of the cost of protection is contributed by the community, mainly through voluntary patrolling of forests.

Ecological impact

1. The forest protection has resulted in a marked increase in the biological diversity of the forest, including improved production of NTFP.
2. For a good growth of teak in the natural forest, silviculturists had recommended a 20 per cent removal after the first six years of protection and 15 per cent of the remainder after 15 years. This would mean extraction of 173 trees after 6 years. However, the VSS decided to extract only 30 trees. While less than optimum extraction might reduce the commercial value of teak, it will not do any ecological damage to the forest.

3. The Jannaram Forest Division has undertaken participatory research in the Behroonguda forests. The forest staff and the local people have created research plots in the forests to monitor the impacts of silvicultural interventions and the local harvests on the growth of forest. The results show a good regeneration and a good quality of forest.

Behroonguda has now become a source of inspiration for the surrounding villages. In 1998, one of the neighbouring villages, Chintapally, inspired by Behroonguda, came together to form a VSS and petitioned the forest department for recognition. The committee members invited the president of the Behroonguda FPC to conduct meetings and maintain accounts for them in the initial stages.

Opportunities and constraints³

One of the major drawbacks in this conservation effort is that the forest department has not given a clear picture to the people about the period for which assistance in the technical and financial aspects will be provided. Another unresolved issue with JFM in Andhra Pradesh is the ambiguity on the issue of the final harvest, as to whether it will or will not take place.

Conclusion

There are a number of reasons for the success of Behroonguda. The gond community has a high sense of social organization. In addition, like the other efforts of this kind, local leadership has played a very important and inspirational role in the success of the conservation efforts in Behroonguda.

The forest department has also reciprocated by allocating one forest guard and forester working exclusively to provide help to the Behroonguda villagers in protecting and managing their 500 ha of forest.

The motto that has kept the village going has been:

*Dille tha sarkar manga vanya, Keda ayo vada-kedathe pandtha
Pandi na palun make mandaana, Mava nathe mava sarkar*

(The government in Delhi should come to our doorstep, the forest should become our backyard. The fruits of the forest should be ours, our government should be in our village).

All information has been extracted from E. D'Silva and B. Nagnath, 'Local people managing local forests: Behroonguda shows the way in Andhra Pradesh, India', Report prepared with help from Asia Forestry Network (1999).

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Endnotes

¹ Income from sale of NTFP and wages from forest work together constituted 43 per cent of the total family income in 1998.

² In 1998 itself, the villagers received Rs 3,59,500 from the sale of 3,198 teak poles thinned from 100 hectares as part of silvicultural operations.

³ Editor's note: It is not clear from the available information what is the faunal diversity in the area and how it has been impacted by the village initiative.



Kalpavalli forests, Anantapur

Background

Timbaktu Collective is an organisation based in Anantapur district of Andhra Pradesh. The collective has been working on ecological restoration, natural resource management, women's empowerment, alternative education, etc. The natural resource management project of the Collective has been concentrating on 8 villages of CK Palli and Roddam *mandals* since early 1990s. The overall objective of this project is to help the villagers protect and conserve their natural and common property resources so as to improve their livelihood conditions. One of the villages where this work began is Mushtikovila.

Towards community conservation

The Collective started mobilisation of this village through regular conversations in 1992. In 1993 the villagers agreed to regenerate 150 acres of their waste common lands. By 2004, eight villages in the area had started regenerating forests in their vicinity with the help of newly established village level forest protection committees (FPCs). The eight villages have also established a federation called Kalpavalli Adavi Samakya, which is protecting and helping regenerate 8,500 acres of contiguous forests. The Samakya has 1320 members in the general body.

The individual FPCs undertake activities like fire control, seed dibbling, soil and water conservation works, etc., with the help of the Collective. They have also appointed forest watchers for regular patrolling in the forest. The other activities of the FPCs include monitoring the forest watchers, planning activities to be undertaken in the protected forests, decisions related to the tamarind orchards (these orchards have been established on 273 acres in 9 villages with support from the district administration and the Collective), collection of fines from those cutting trees, sale of date-palm fronds and operating their respective bank accounts. All the FPCs meet regularly and participate in the federation meetings.

In the year 2003-4 there was a plan to construct windmills in this area. The federation wrote letters to the collector requesting him to not construct these mills in the area falling under the protected forests of villages Kogira, Kambalapalli, and Shyapuram.

Given the acute shortage of grass in this area, the Collective organised a number of awareness programmes about the need and ways of conserving grass and preventing fires.

Impacts of community action

Grass is one of the most important needs of this very dry and drought prone area. 2003-4, was the fourth successive year of drought. Yet Kalpavalli continued to produce grass. 3,222 farmers from 109 villages cut and took 6,948 cart-loads of grass worth Rs 27,79,200 and generating 55,584 workdays. Besides this, 1500 cattle and 5000 goat and sheep were brought here for grazing.

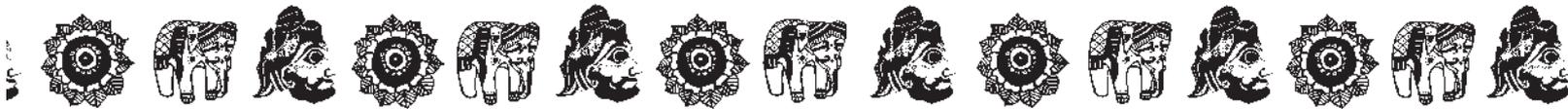
The date-palm tree has regenerated profusely along the main stream in the Kalpavalli forests. These trees are of great support to the poor in this area, particularly during droughts. The FPCs have been reaping benefits from the sale of date-palm fronds to basket- and mat-makers and as fees from the toddy-tappers. The poorest sections of the population here have been benefiting from collection and sale of dates in the local markets in summer. It is estimated that 54 people earned about Rs 79,828 from the sale of dates during May 2003.

All information has been extracted from the annual report (2003-2004) of the Timbaktu Collective, titled 'In Celebration of Life'.



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Veerapuram village, Anantapur

Background

The villagers have taken effective action towards conservation in Veerapuram village. This village is situated in the Chilamathur Mandal of Anantapur district in Andhra Pradesh. The village is located at a distance of about 100 km from Bangalore. This area receives an average annual rainfall of about 600 mm and the temperature varies from 18°C to 40°C during the year.

Most of the forests are widely scattered and a majority of them are dry deciduous or open scrub. The flora includes tellatamma, sundra, pedda manu, narlingi, yapa, yon, soper, rohi, etc., with common weeds like lantana and korintha. The major fauna of the region includes the leopard, jungle cat, wolf, jackal, sloth bear, four-horned antelope, chital, Indian wild boar, chinkara, etc. The common avifauna found here includes bulbuls, parakeets, Indian peafowl, snipes, teals, woodpeckers, etc., along with migratory waterfowl like Northern pintail, black ibis, glossy ibis, black-headed ibis, spotbill duck, painted stork, pelicans, etc.

The village consists of 150 households with a total population of about 600. The dominant community residing here is the Kapu (Reddy) community, whose main occupation is agriculture and sericulture. The common crops grown are paddy, bajra and groundnut. Borewells and traditional irrigation tanks are used as the major sources of irrigation in the village.

There are dozens of small and medium tanks within a 5-km radius of the village, of which Veerapuram tank is one. This tank has a water-spread area of about 30 acres, with agricultural dry lands on one side and a couple of hillocks on the other, which form the catchment of this tank. These tanks are a major source of food for many resident and migratory birds in this area.

Towards community conservation

Some of the avian visitors such as the painted storks, pelicans and white ibises have been nesting in the village since time immemorial. The villagers perceive the arrival of painted storks as a good omen and offer protection to them. A few storks arrive during the months of December-January to scout the area and are followed within a few days by thousands of them (about 5000 this year). A couple of days after their arrival in the village, the birds start building their nests on the trees within the village. The village has about 20 tree species, including chinta, nallatamma, sarkaritamma, rai and ganuga, with a sparse canopy, on which their nests are built. Grey herons also nest on the same trees, whereas white ibises only roost on them during the night.

Opportunities and constraints

In 2002, the highest number of painted storks (about 5000) came for breeding purposes to the lake. Two pelicans had also arrived then but they did not nest in the village. According to the villagers, during the last 10 years pelicans have stopped nesting in the village: they arrive at the beginning of the season (December-January), survey the place but do not breed. White ibises roost on the same trees during the night but they are not seen breeding in the vicinity.

Although the birds do not face any kind of threats from the host village, there are other threats faced by them:

- Due to heavy rains in the monsoons some of the chicks fall out of their nests.
- Indiscriminate hunting near Karnataka border, which is only 2 km away from the village, is a major cause for concern. In 2001-2, about 100 chicks starved to death as their parent birds did not return to the nests, probably killed by the poachers.
- There is a lack of nesting space as the old trees are dying.
- Large-scale fishing in the tanks in the vicinity is depriving the birds of stable feeding grounds.
- The tamarind trees in the village where the storks build their nests are being auctioned by the



panchayat for fruit, and while harvesting the bidders cause disturbance to the birds.

- Heavy silting of the feeding tanks has resulted in less water storage, and the tank dries up before the breeding season ends.
- Some of the trees on which the birds build their nests are in private lands. The villagers have so far been able to convince the owners not to cut the trees despite their need; however, they feel that this is only a short-term solution.

However, the villagers' efforts towards protection of birds have been recognized by a number of NGOs who have come forward to help the villagers. An NGO called PFA (People for Animals) from Bangalore is involved in nurturing the injured or orphaned chicks in a small temporary enclosure. An individual based in Puttaparthi in Anantapur district is also extending support to the young ones for their rehabilitation. Another NGO called Chaitanya, based in Lepakshi, offered a few thousand seedlings of tilapia fish to be released in Veerapuram tank during the last season as part of improving their feeding grounds. The Institute of Bird Studies and Natural History of Rishi Valley in Andhra Pradesh along with their staff and Mr. Ashish Pittie from Birdwatchers' Society of Andhra Pradesh planted five saplings in the village. They also facilitated villagers coming together and taking an oath for the conservation of the birds.

The Andhra Pradesh Government has initiated work for eco-tourism. The villagers, especially the youth, are enthusiastic and committed to conserving the birds. Six people from Kokkere Bellur (in Karnataka), another successful community-conserved heronry, visited Veerapuram last year and suggested to the local villagers that they could use the large quantity of bird droppings lying under the trees as manure for their agricultural lands. However, the villagers did not do this as they feel that scraping off the waste from under the trees might expose the roots and ultimately result in the death of the trees. Villagers are currently considering setting up a rehabilitation center for the rescued birds in an old community building in the village.

The villagers have resolved to seal off the sluice gate of the tank for the last seven years to make fish available to the birds during the season. They also opined that auctioning of tanks for fishing should be banned in the entire revenue village for this purpose.

Recommendations

Short Term Activities:

- Supply of fast-growing saplings for plantation within the village. Locals preferred banyan and pipal trees.
- Incentives/rewards for encouraging the efforts of the villagers in conservation.
- Education to the villagers on rehabilitation of injured chicks that fall out of their nests.
- Audio-visual education on conservation for the children of the village.
- Supply of fish seedlings for release in tanks around the village.

Long Term Activities:

- Take effective measures for desilting the tanks for increased storage of water.
- Improve the feeding grounds by releasing seedlings of tilapia fish.
- Work with the forest department of Gudibanda Division of Karnataka to take effective steps to check hunting of storks and other birds in the tanks around Veerapuram on their side.
- Closely monitor the impacts of the proposed eco-tourism on the health of the heronry.
- Conduct exposure visits to other community-conserved heronries like Kokkrebhelur in Karnataka and Pedullapalle in AP.
- Organise the villagers into a group and get it registered.
- Promote income generation through eco-tourism in order to raise funds for basic maintenance of the rehabilitation center.
- Explore the possibility of forming a Tree Growers' Co-operative Society of Veerapuram for regeneration of the hillock that forms the catchment of the Veerapuram tank, in order to reduce the siltation (soil run-off) into the tank.

Conclusion

Unlike Nellapatu (see the case study for details), the enthusiasm among the villagers for conservation of this heronry is still very high. The conservation lies in the hands of people with

a strong sense of ownership. The conservation efforts in this heronry can be further beneficial through implementing programmes designed with the people.

This case study was contributed by Suresh Jones and Dr. Subba Rao, Foundation for Ecological Security, Andhra Pradesh, in July 2002.

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Pedullapalle village, Cuddappah

Background

Pedullapalle village is located in B. Kodur Mandal of Cuddappah district of Andhra Pradesh. The forest type is mixed deciduous and the vegetation includes red sandalwood (endemic), axlewood, East Indian satinwood, anjana, shisum, white gulmohar, etc. The river Pennar flows about 40 kilometres south from this village where the Lankamala ranges meet the Palakonda- Seshachalam ranges of the Eastern Ghats. This place receives an annual rainfall of 600 mm and the temperature in the summer months shoots up to an oppressive 45°C.

There are diverse fauna species such as macaques, Hanuman langurs, sloth bears, leopards, jungle cats, wild boar, sambar, spotted deer, blackbucks and even an occasional tiger. The Jerdon's courser that was thought to be extinct was rediscovered in this area, subsequent to which the Lankamalleswara Wildlife Sanctuary was declared as a measure for its protection. The avifauna of this area includes partridges, quails, grey junglefowl, Indian peafowl and migratory waterfowl like snipes, teals, northern pintails, spotbill ducks, Northern shovellers, garganeys, etc.

Towards community conservation

Although the village is surrounded by wildlife as mentioned above the actual protection efforts have been focused within the village. Peddualapalle village is situated 34 km north of Lankamalleswara Wildlife Sanctuary. While villagers protect the birds and do not harm the roosting sites (as they believe the birds bring good rains), they do not have any existing system of wildlife protection outside the village.

This village has played host to a number of avian visitors such as painted storks, black-headed ibis, Indian coromorants and great coromorants in the trees of the village for over a century. These birds arrive here during the months of November-December. The communities have made successful protection efforts for these birds for generations, as they believe that they are harbingers of prosperity and a good agricultural yield.

Immature storks and white ibises are often seen resting on haystacks and rooftops of the village during the nesting period. According to the villagers, earlier a large number of pelicans, storks and ibises were also nesting in the village but they have stopped visiting this area since 1998 for reasons unknown. Other local birds like egrets and herons are spotted building their nests, placed under those of storks and getting their food supply from the fish that drop from the upper tier.

The major feeding ground for these birds is the Badvel tank that is located around 3 km from the village. This tank is fed by the Sagileru and Vankamarri reservoirs. Though fish form a major part of the diet of these birds, they have also been observed feeding crustaceans and molluscs to their young ones.

Opportunities and constraints

The villagers have observed a decreasing number of the avian visitors that come to the village for breeding and nesting purposes. The villagers attribute this decrease due to lack of nesting space for these birds. At present there are 23 tree species, including tamarind, Delonix elata, karanj, banyan and shirish, placed in the heart of the village. Although there are many trees around the village, the birds seem to prefer nesting in the heart of the village itself.

Some of the threats to the birds are:

1. During the time of the north-east monsoon, particularly during heavy rains, many young ones fall from their nests, and despite various attempts made by the villagers to save them, very few of them survive.
2. The local Yerikala tribe hunts the birds with nets and guns at the Badvel tank and occasionally even try to poach the birds in the village. However they have been driven away by the villagers several times.



3. Pisciculture is being encouraged by the Government as a means of revenue generation from auctioning the tanks, and this seems to pose a threat to the birds due to lack of food required for breeding.
4. There is a lack of nesting space for the birds on the trees in the village. This is because the birds occupy most of the big trees in the village, and once the birds roost the tree canopy reduces due to the guano/bird excreta, the acidic content of which reduces the canopy cover. Local people informed that the number of trees has also reduced in the last few years.

This case study has been contributed by Suresh Jones and Dr Subba Rao, Foundation for Ecological Security, Andhra Pradesh in July 2002.

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Uppalapadu freshwater lake, Guntur

The Uppalapadu-fresh water lake is located in Pedakakani Mandal of Guntur district of Andhra Pradesh. This lake is spread over an area of about 5 acres and is a breeding ground for about 50 local and intercontinental migratory bird species that have been visiting the lake throughout the calendar year for generations. This is not a legally protected area but the local villagers and gram panchayat take conscious efforts to offer protection to these avian visitors. In the year 2001, the lake was a nesting spot for around 1550 birds of diverse species, such as painted storks and adjutant storks, Asian open-billed storks and black-headed ibis. As per a report in January 2007, on an average over 3,500 pelicans and a similar number of painted storks visit this densely populated sanctuary. 'The number of Siberian migratory birds is also high and they have arrived one month ahead of the regular schedule this year,' points out Nageswara Rao, caretaker of the area.



Heronry at Uppalapadu Photo: Wild Orissa

The number of birds inhabiting this small stretch of land/water also makes it an area with one of the densest populations of migratory birds at any given time anywhere in India—the number of birds could range between 3,000 and 12,000. Ibises, which arrive around June and leave within three months, choose to breed here. Pelicans also breed here: while some of their eggs hatch, some fall in the water. But no one goes near to rescue them as they get frightened and abandon the nesting site. About 6,500 locals surrounding the lake take care of the birds that accidentally fall in the village outside the water. The caretakers rush the injured ones to the local veterinarian and later release them back into the flock.

Adapted from Susarla Ramesh, *The Hindu*, Friday, 29 December 2007.

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Mantoor village, Medak

Background

Mantoor village is situated in the Kowdipally Mandal in Medak district, of Andhra Pradesh, at a distance of 65-70 kilometers from the state capital, Hyderabad. The forests consist of teak, tellamaddi, billagodisa, gotti, bitluga, palaguidisa, sandra, pedda manu and nallamanu.

The village comprises 130 households with their main occupations being agriculture, livestock and agricultural labour. They utilize the forests resources for their regular requirements. Most of the villagers belong to the officially designated backward classes, including the mutraj, gaud, yadav, pichakutta, wadla, and carpenter communities and 11 households of scheduled castes. There are 8-9 landless households in the village, which depend on daily wages for subsistence. The smallest landholding owned by the villager is half an acre and the largest is 9 acres. Many youth migrate to nearby towns and cities in search of employment, while most others are unoccupied throughout the year. Their educational qualifications are around secondary school level. They are neither inclined towards village-based agricultural activities nor they are qualified enough to gain employment in the cities.

The important crops cultivated by the villagers include groundnut, paddy and sugarcane. Villagers mainly depend on the forest mainly for firewood and grass. Some knowledgeable individuals also depend on the forest for medicinal plants. There is not much NTFP in the forest except for some tendu trees, but the Mantoor villagers do not collect the leaves. Sometimes these leaves are collected by people from other nearby villages.

Towards community conservation

In the early 1970s due to failure of the monsoons for three consecutive years this area faced a severe drought. Because of this the villagers started depending on the surrounding forests for their major source of income. They sustained themselves through this period by tapping gum from the Tapasi Gum Tree. The villagers began to protect the trees by sleeping under them, since the demand for gum was high and the trees were few and therefore under threat. This practice continued for three years until the monsoons regularized in the village, finally diverting the villager's attention towards agriculture.

Neglect of the forest due to presence of the People's War Group, unregulated resource use by the locals and neighbouring villages, presence of migratory graziers and increase in agriculture reduced people's involvement in forest protection and resulted in its fast degradation.

In 1994, the people of Mantoor got together and decided to regenerate one of the adjoining revenue hillocks where vegetation had been reduced to a few shrubs. The event that triggered this initiative was when the villagers could not find enough wood to even erect stalls for the preparation of the annual festival of the local deity inhabiting the hillock. The temporary solution was to bring one pole from each household in the village to perform the ceremony. However, this experience shocked the villagers and in the very next village meeting they took stock of the rapidly degrading natural resources around them. A unanimous decision was taken to strictly protect the 60-acre hillock, which they also realized was once a sacred grove.

The villagers decided to impose a fine of Rs 500 on anyone who extracted resources from the prohibited area. A village committee was formed to monitor and control the issues of this sacred grove. Through this practice the hillock started steadily regenerating, giving the villagers tremendous encouragement.

In mid-1999, the Andhra Pradesh Forest Development (FD) allotted 60,000 acres of state-owned Reserved Forest to the Andhra Pradesh Forest Development Corporation (APFDC).¹ Mantoor village was adjacent to part of these leased-out forests. The APFDC started commercial monocultures. Mechanized techniques were adopted to uproot existing root stock to be replaced with eucalyptus plants. The villagers opposed this action of APFDC, foreseeing the consequences, such as depletion of the groundwater table due to monoculture plantations and severe shortage of firewood and grass.



The villagers had not been informed about the lease given to the APFDC or the future activities planned. The villagers' contention was that instead of leasing out the forest to the APFDC, the government should hand it over to the villagers for management. Encouraged by the impacts of their efforts at conservation on the hillock, they were confident that they could take on the responsibility of managing the Reserve Forest falling within their boundaries as well. They demanded that they should be included in the joint forest management (JFM) scheme of the government. A struggle that followed resulted in some villagers being kept in police custody, which invoked a debate in the meeting of the *van suraksha samitis* (VSS) of the neighboring area. The Andhra Pradesh NGOs network on JFM took up the issue and held a joint meeting with the villagers of Mantoor, the VSS members and the district NGO network. All the major newspapers and television channels covered the story of the village struggle. Subsequent to this publicity, the lease to APFDC was cancelled and the forests were decided to be jointly managed by the FD and the villagers under JFM.

A VSS was formed for the management of the forests and the meetings of the executive of the VSS are now held every month with minimal women's participation. All the members of the executive and concerned officials are intimated about this meeting. The minutes of all the meetings are recorded by the villagers.

The general body of the VSS includes one male and one female member from each household, which means a total membership of 256. The general body meetings are held once in three months.

So far the VSS has not explored or received any external sources of funding for its operations. Most of their expenses are met from the compound fee collected from the offenders against the forest rules and contributions from all members of the VSS general body (Rs 10 per person as and when needed). They received a small financial grant from the FD in 2000-1 for the desilting of water conservation tanks in and around the forests, which they successfully completed.

The villagers feel that they do not need large sums of money for carrying on with the VSS work as they can generate funds from within the community through personal contributions, compound fee, etc. However, they stressed that at critical and crucial times, when the community is in an urgent need for funds and they are unable to generate them internally, there should be a provision for funds during such times. The chairperson is not paid any remuneration for his services nor provided any reimbursement for the expenses incurred by him. He invests his time and energy in the VSS work purely out of commitment.

The VSS has taken up a number of steps to control and regulate forest resource use. These include:

1. The VSS has appointed forest guards to patrol the forests regularly. The forest guards are paid Rs 500 per month. Apart from this the villagers keep a vigil on the forest as and when they are in the forest. Forest watchers are especially appointed in the period between July and October. According to the villagers, this is the timber-felling season, as it is believed that timber felled in this season is not affected by pests.
2. The villagers have installed 30 gobar gas plants in the village in last two years. Many villagers also have an LPG connection. Before the conservation efforts started in the village, headloads were extracted from the forest for sale. But as of now only poor families and those who do not have biogas are allowed to collect headloads from the forest for personal consumption only.
3. Villagers have also restricted the use of forests by outsiders. A few villagers were concerned about those poor people who were earlier dependent on these forests for biomass needs and said they were unaware of how they were meeting their needs currently, while others felt that protection activities have had little impact on the outside communities. A much more detailed study of the area and the initiative is needed to understand the social implications of the conservation efforts on the villagers.
4. For personal use, people are also allowed to extract certain species for fuelwood. While earlier there were about four villages dependent on the resources of Mantoor forests, now only the villagers of Mantoor extract resources from the forest.

Impacts of community effort

The villagers have benefited after the introduction in the following ways:

1. A greater sense of empowerment and stronger association with forests.
2. Regular availability of daily wage labour from forestry works.

3. Under JFM the FD has asked the villagers to carry out thinning of vegetation. The wood that is collected is then auctioned by the villagers and the revenue obtained from it goes to the VSS account.
4. After ten years compartment wise felling may begin. Villagers were not very clear about the benefit sharing arrangement under JFM in the long run. However, they felt that such extractions should be carried out in a regulated manner not harming the forests. It appeared to us that the major benefit that the villagers saw from this program is not how much money will they be able to generate eventually but the fact that the forests were under their control and management. Also the facts, concerns and decisions made by the villagers about their forests mattered and was taken into account.
5. The use of biogas, and regulated internal and external use of forest has reduced dependency on the forest resources.

Presently the villagers are receiving some logistical help from an NGO called CARPAD. CARPAD has been focusing on local empowerment and resource management. With the NGO's help a few self-help groups have been formed in the village.

Opportunities and constraints

There are many issues related to forest management that the VSS still has not been able to resolve. These include the unabated grazing in the forest area by livestock such as goats and cattle from within the village and outside the village. The attempts to prevent the goat owners from outside villages have been futile.

The women's participation in decision-making for conservation activities is extremely poor. Although the village has formed a woman's group (*mahila mandal*), the presence of this group does not seem to have affected their participation in decision-making.

Mantoor villagers were in conflict with some of their neighbours because of restricting the use of forest resources. Two incidents in particular led to serious physical clashes. The Mantoor villagers explained to the offenders that if the issues were not sorted out locally they would have to seek judicial help. At present there are fewer offences from the neighbours.

The above information has been compiled from information received from Mr. Satya Srinivas, APNGO network, Andhra Pradesh, and an interview with Hanumayya (VSS member) during a field visit to Mantoor by Neema Pathak (Kalpavriksh), Girija Godbole, and Sowmithri and Satya Srinivas (AP NGOs Committee for Community Forestry) in June 2001.

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Endnotes

¹ The state governments established Forest Development Corporations (FDC) to cater to the needs of forest-based industries, to take care of marketing strategies and to undertake agroforestry. These corporations have been leased forestland by the state forest departments for undertaking commercial plantations. According to a 2006 report of the National Forest Commission, most of these corporations are either incurring huge losses or making profits by harvesting forest produce, which is often counter-productive to the forests and people dependent on them. Many of them have converted forests to monocultures.





Nelapattu and Vedurupattu villages, Nellore

Background

Nelapattu and Vedurupattu are two villages situated in Doravarisatram Mandal of Nellore district of Andhra Pradesh. They have one thing in common—since time immemorial these villages have played hosts to a diverse species of birds such as Asian open-billed stork, black-headed ibis, cranes and coromorants that visit these villages between the months of October and May for nesting.

These avian visitors avail of their food supply from the neighboring Pulicat lake and breed on the tamarind trees that are located in and around the fringes of Vedurupattu. Similarly the birds of Nelapattu reside on the bund, and breed on *Barringtonia* sp. trees that are located inside the village and in the tank area. They avail of their food supply from the tank as well as the Pulicat lake.

Towards community conservation

The villagers recall that these birds have been visiting their village for generations and that offering protection to these birds has been an old tradition. The villagers believe that the advent of the birds in their village is a good omen and a forecast for good monsoons. (Water scarcity for agricultural purposes is a crucial issue in this region.) The prime occupation of the villagers is agriculture and paddy is the main crop. The villagers also use bird droppings (*guano*) as a fertilizer to enrich their soils.

The villagers are very welcoming and warm-hearted towards the birds and even very young children are trained not to disturb or cause any harm to them. In the event of any accidental fall of the young ones from their nests, the village women nurture them and, if required, send them to the neighbouring Tirupati National Park for treatment. There have been instances of confrontation faced by the villagers with the neighbouring villages that have attempted poaching.

Opportunities and constraints

The Nellapattu tank was a traditional irrigation tank for the villagers. Besides the surrounding area was being used for grazing purposes by the villagers. In 1997 the forest department (FD) took over the protection of the Nellapattu tank by declaring it a sanctuary. The intention to declare the sanctuary was notified on 15 September 1997 wide notification G.O. Ms. No. 107 and the completion of procedure took a period of about two years. The area of the sanctuary is 4.58 sq. km. It is now one of the 11 protected areas in Andhra Pradesh. The government did not consider the utility of the tank for the villagers while declaring it a sanctuary. The people of Nelapattu were not aware of this decision taken by the government. Later on, with the help of a local NGO called CAMEL, the villagers came to know about the notification and immediately submitted their concerns to the Mandal revenue officers and forest officials. On declaration of the sanctuary, the entire tank area of Nellapattu was fenced off. The entry was restricted only to those visitors who would come for bird-watching within a specified time during the day. These restrictions imposed by the FD have caused many hardships to the local villagers.

Subsequently, Nellapattu village was selected as one of the eco-development sites under the World Bank-supported Andhra Pradesh Forestry project. As part of this scheme an eco-development committee was formed in the village by the FD. Due to the availability of funds from the scheme, borewells were also dug for a few beneficiaries, which could only be utilized by the well-to-do villagers. In addition, smokeless *chullahs* and solar cookers were also distributed to the members of the Eco-Development Committees.

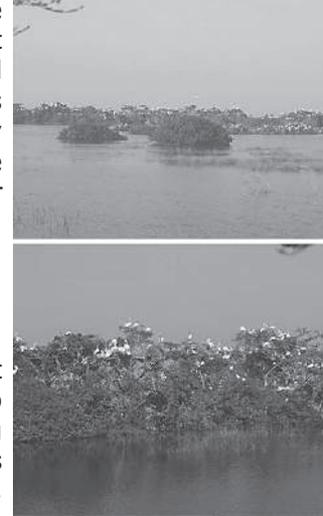
The eco-development scheme, however, does not address the fundamental issue of people's access to the tank and their traditional relationship with the birds. The activities prescribed in the plan for village development are neither conceived nor designed with the help of the villagers. In Nellapattu the villagers complain of no scope for development of fodder and fuel requirements of the villagers. The digging of borewells has not been able to meet the diverse requirements of



water for crops, cattle and the other needs of the entire village. The cattle grazing issue has also not been dealt with in the eco-development scheme. If the cattle are caught within the fenced area, the concerned villager has to pay a fine. In circumstances like these, many villagers have been compelled to sell their cattle. The villagers argue that they were the ones who offered protection to the birds before the FD came into the picture, and now the needs of the birds have taken priority over theirs.

Conclusion

Nellapattu is a classic example of conservation authorities not understanding the local circumstances and social issues related to conservation. The villagers had been protecting the birds in Nellapattu for generations. This heronry had gained fame among bird-watchers much before it was declared a sanctuary. Due to the villagers' efforts, the tank became a heronry and was declared a sanctuary. The sanctuary was declared without consulting or informing the villagers and this has strained the relationship between the people and the birds. The birds, which were once considered as harbingers of good fortune, are now considered to be a symbol of misfortune by the villagers. In the long run the apathy and indifference among the villagers caused by this situation is bound to threaten the security of the birds themselves.



Heronry at Nellapattu Photo: Subramaniam

This case study has been compiled using information provided in S. Srinivas, 'Village Bird Buddies 2001', unpublished report (Hyderabad, APNGOs Committee, 2001).

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Sova village, Visakhapattanam

Background

The story of Sova village is a reflection of how government interventions, whether legal or administrative, are completely indifferent towards the socio-cultural ground situations. These interventions often disintegrate positive community action rather than supporting them.

Sova village is located in Visakhapattanam district close to the Orissa border. The dominant community residing here are the Malis, and many of their kin reside in Orissa. This village has been settled in the last few decades due to the influx of people displaced from various development projects who were not provided any resettlement package.

Towards community conservation

Due to constant encroachments, migration of displaced people and many years of unregulated use, the forests in this area have degraded completely. The level of degradation was so high that the locals named these hillocks *borke* (degraded) forests. Over a period of time the local villagers began facing the impacts of depleting resources. Some of the villagers had visited their relatives in Orissa and were inspired with the community forestry being practiced there (see case studies from Orissa state in this volume). Hence the villagers took charge of patches of adjoining reserved forests and started protecting them from unregulated use. The efforts towards conservation resulted in the regeneration of the forests.

Opportunities and constraints

In the late 1980s, the forest department decided to cut down these regenerating trees and started planting commercially useful fast-growing species. The department also imposed restrictions on the access of villagers to these resources. Due to these rules enforced by the FD, people terminated their series of efforts towards forest protection and were compelled to steal fuelwood from the area that they preserved. The intervention of the FD resulted in resource exploitation of the forest area. Later on the Sova villagers, along with the help of four other villages, moved on to offering protection to another patch of forest, which was beyond the legal demarcations of a reserved forest (RF).

In 1993-94 despite the opposition raised by local NGOs, the government started joint forest management (JFM) in these forests. The advent of JFM meant an introduction of a formal institution in the village and an inflow of external funds. However this adulterated the entire concept of conservation and led to several conflicts, eventually leading to the murder of one of the community leaders. However, to date the community continues to protect the forest with their traditional guards and a good part of the hills have been regenerated. People now have increased access to firewood, fodder and resources for domestic use. The JFM programme has managed to sustain village conflicts amid a politicised atmosphere. In the second phase of the World Bank project—the community forest management (CFM) programme—these villages were denied extension of the benefits under the second phase for being critical of the project and highlighting the violations to the World Bank. Villagers consider this a very vindictive reaction of the department.

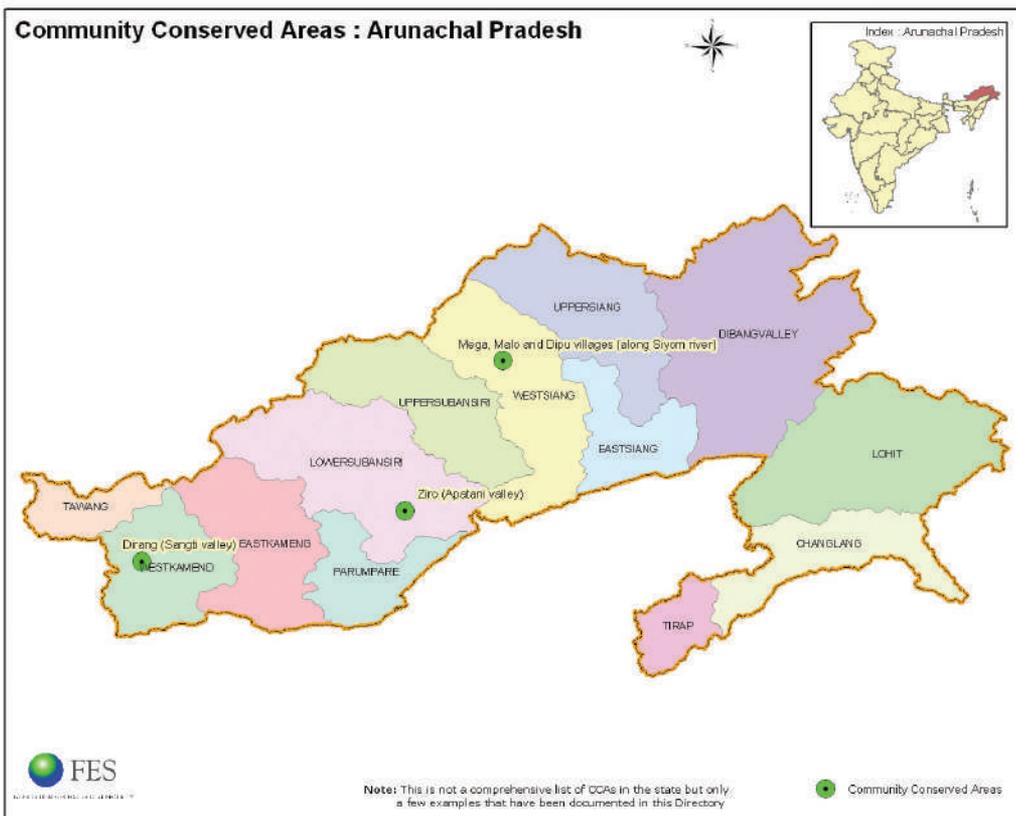
This case study has been contributed by Bhanumathi from Samatha, a group working on anti-mining and tribal rights issues, based in Hyderabad, Andhra Pradesh. Updated in 2006.

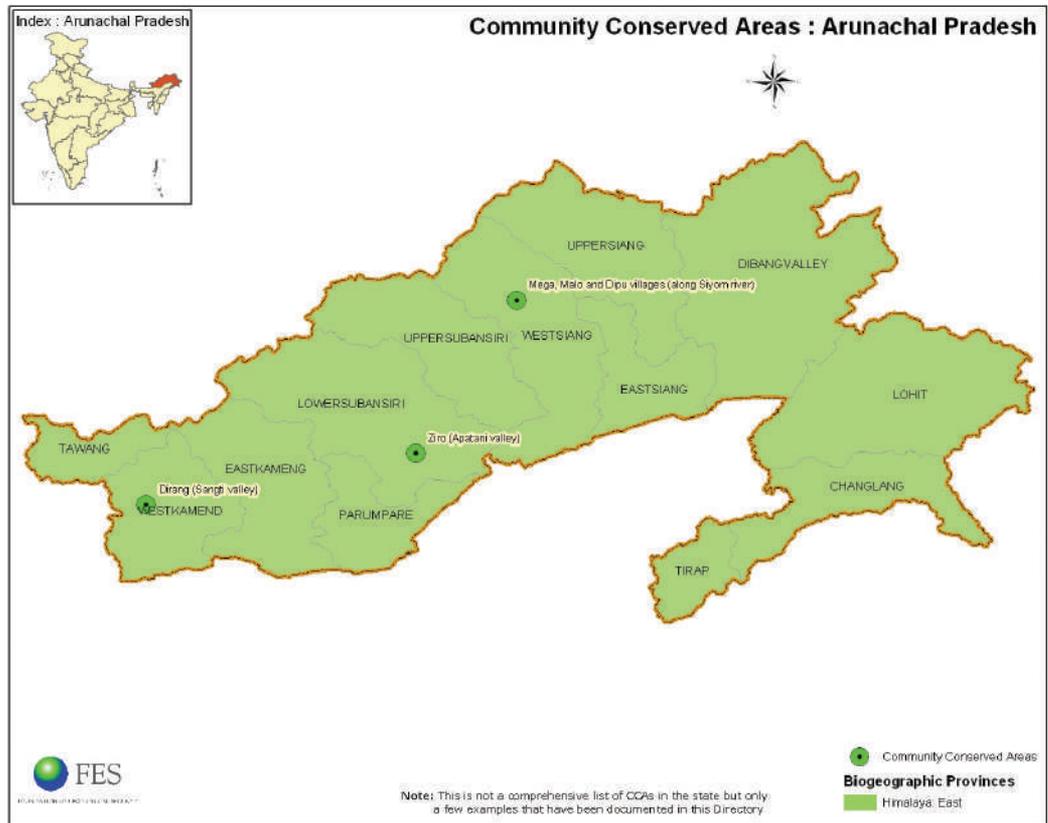
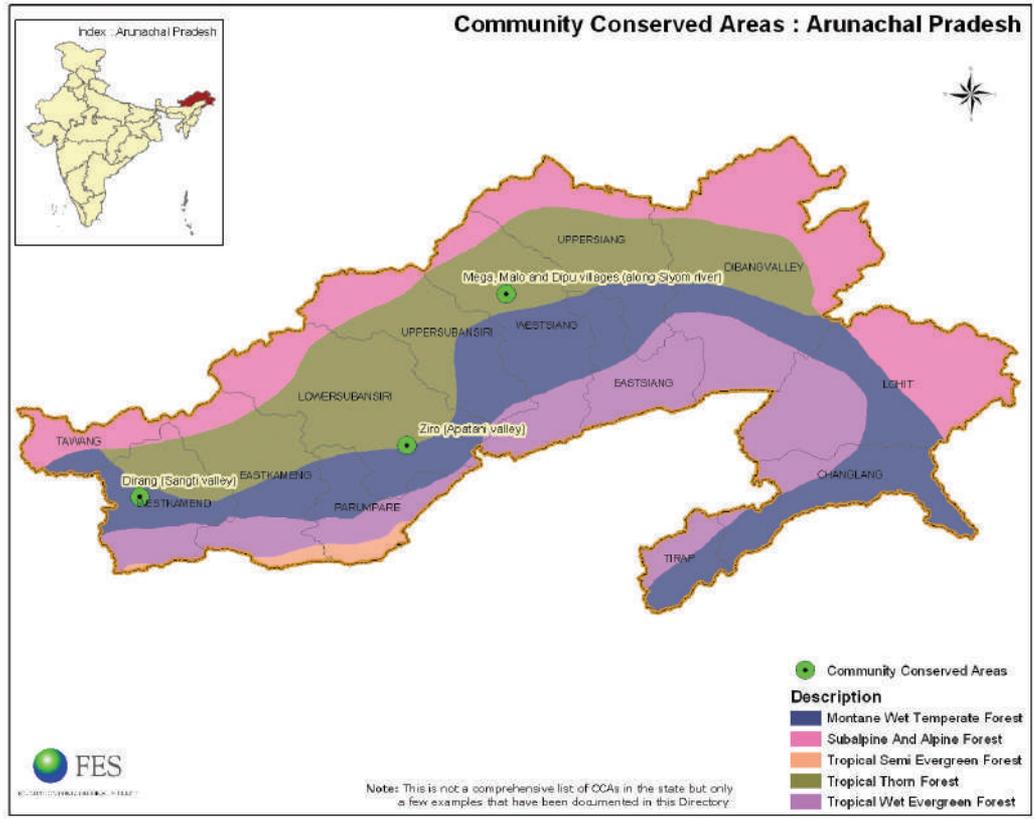
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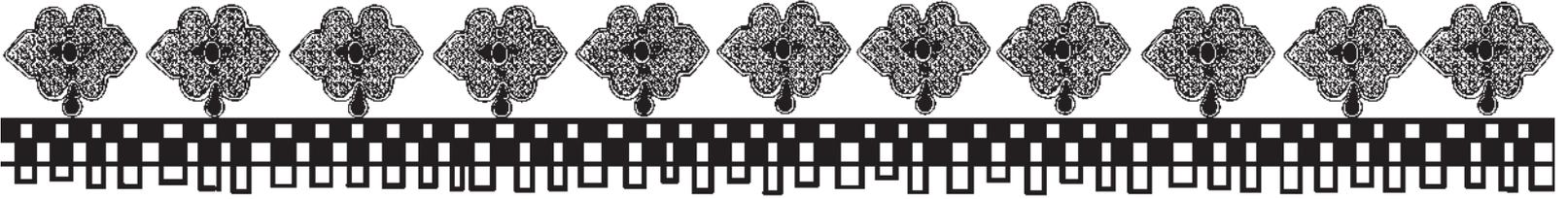
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Arunachal Pradesh







Arunachal Pradesh: Community conservation in the land of wilderness

Ruchi Pant

1. Background

1.1. Geographic profile

The largest state of north-east India, Arunachal encompasses an area of 83,743 sq km, and shares international borders with Bhutan in the west, Tibet in the north and Myanmar in the east. Arunachal Pradesh attained statehood in 1987, prior to which it was a Union Territory since 1972.

1.2. Ecological profile

Biogeographically, Arunachal is situated in the Eastern Himalayas and has been identified as a global hotspot of biodiversity. This is due to its location at the junction of the Palearctic (Indo-Chinese) and Indo-Malayan biogeographic realms.

The total area under forest cover in Arunachal is 51,540 sq km (62 per cent of the total geographical area) of which 36,210 sq km are classified as unclassed state forests (USF) that are under *de facto* control of local communities. Only 19 per cent of the total forest area (or 11 per cent of the total geographical area) is under the category of reserved forests.

1.2.1. Floral and faunal diversity

Nature has been extremely benevolent to Arunachal Pradesh. It has been endowed with a diverse and magnificent wildlife. There are over 5000 species of flowering plants, 85 mammals, over 500 birds and a large diversity of insects, reptiles and other flora and fauna.

Arunachal Pradesh has many species of endangered, endemic, primitive and relict flora. *Magnolia pterocarpa* is one such primitive angiosperm found in the foothills. Some other rare and endangered flora found in Arunachal Pradesh are *Amentotaxus assamica*, *Rhododendron arunachalense*, *Rhododendron dalhousieae* and *Tetracentron sinense*. The state harbours about 52 species of rhododendrons, 18 species of hedychium, 16 species of oak, 33 species of conifers and a large number of ferns and lichens. Of the about one thousand species of orchids found in India, six hundred are reported from north-east India, and Arunachal alone boasts of nearly five hundred species. Orchids have influenced the culture and belief of the local people and many species are considered sacred. A few orchids have medicinal properties, e.g., *Cleisostoma williamsonii*, used for healing bone fractures.

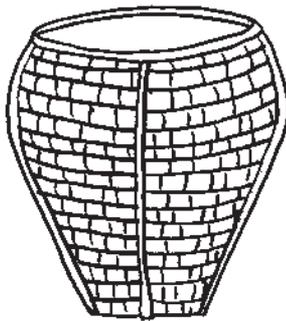
The fauna of Arunachal Pradesh is equally rich with as many as 25 species of mammals included in Schedule I of the Wild Life (Protection) Act, 1972. Large herbivores of the foothills and adjoining plains are the Asian elephant, gaur and wild buffalo. Four species of deer are found in the state: barking deer and sambar are confined to dense forests; the hog deer is found in comparatively open areas; and the musk deer, is seen in the alpine zone.

Arunachal Pradesh is perhaps the only state with four major cat species: tiger, leopard, clouded leopard and snow leopard. Lesser cats like the golden cat, leopard cat and the marbled cat are also found here. Seven species of primates—Hoolock gibbon, slow loris, Assamese macaque, rhesus macaque, pig-tailed macaque, stumped-tailed macaque and capped langur—are also reported from the forests of the state. This is the only state where all three goat-antelopes of India—mainland serow, goral, takin—are found. The highly endangered hispid hare is seen in low grassy areas of the state. Among the smaller mammals, several rodents (squirrels, porcupines and rats), civets, mongooses, spotted linsang, shrews and many species of bats are also found in low grassy areas of the state.

Over five hundred bird species inhabit Arunachal Pradesh including some endangered and endemic ones like the white-winged wood duck, Sclater's monal, Temminck's tragopan, black-necked crane, Mishmi wren or rusty-throated wren warbler and the Bengal florican. This is the richest state for pheasants, with some ten species occupying different altitudinal zones ranging from the plains to snowy heights.

The Siang river valley (the Tsangpo is called the Siang as it enters India in Arunachal Pradesh, and later the Brahmaputra when it enters Assam) in Arunachal Pradesh is one of the two important corridors of Indian migratory raptors. Of the 63 species of raptors reported in India, about 75 per cent are reported from these two North-eastern states. A total of 22 raptor species were recorded in a survey carried out under the aegis of ATREE, of which 10 are near-threatened and three are vulnerable species.

1.3. Socio-economic profile



With a total population of 864,558 (1991 Census), human density in the state is low. Besides harbouring a rich diversity of flora and fauna, the state can also boast of being home to myriad tribal communities: there are 25 major tribes and more than 110 sub-tribes that together comprise 63 per cent of the state's population.

Land use includes *jhum* and permanent cultivation, forest plantations, tea plantations, horticulture, timber harvesting (stalled for the time being to a great extent), grazing grounds, religious and ceremonial grounds, and bamboo-pine groves. Cadastral surveys have not been conducted and a land revenue system has not been introduced. No land records or records of rights are maintained by the state. People do not have any land *pattas* (title deeds), which is a hindrance, as people have no collateral while applying for loans. Tribal elders are aware of traditional boundaries that are demarcated by natural features like rivers, hills, rivulets, hillocks, etc. A large part of the land (including the forests) is under the control of local communities. Despite the lack of land records, distinct patterns of land ownership are observed among different tribes in the state.

In the past, an absence of land titles did not have any implications, but the state government has recently begun demanding land ownership certificates from beneficiaries of government-sponsored schemes.

2. A brief history of administrative control over land and resources

Till 1914, the present state of Arunachal Pradesh was an administered territory. In 1914, the British Government formed a separate unit of administration for this area and named it the North Eastern Frontier Tracts, placing it under the charge of Political Officers. These were inner-line areas, which implied that no foreign resident and no non-natives were allowed to cross over this line into the territory without a permit.¹

The north-eastern region of India is unique in its adjudicatory structures. The judiciary is not a distinct entity in Arunachal: there is no High Court in the state nor has a special bench of the Court been appointed to the state. Within the state, the civil administration performs the role of the judiciary. The DC is the highest judicial authority under statutory law at the state level and the forest department and its officials have been vested with the powers of a civil court.² Appeals protesting violations of fundamental rights or seeking reversal of the DC's or forest department's orders must be filed with the High Court of Assam in Guwahati.

The uniqueness however, stems from traditional tribal village councils that are empowered to exercise judicial and administrative functions within the village. The judicial authority of these councils was formally recognised under the Assam Frontier (Administration of Justice) Regulation of 1945. Under the Regulation, besides traditional village councils, institutions called the Village Authority have been created. The DC of the district appoints members to the Village Authority, who may or may not be members of the traditional village council. The Village Authority exercises limited powers in matters of village administration, while the traditional village council has enormous power under the tribal customary laws. Village authorities settle all civil matters and criminal matters of non-heinous nature according to customary law.

The village council is the primary redressal forum for violations of customary law. While nomenclature and structure of councils may differ from tribe to tribe,³ the basic concept of justice is the same in most tribes. Cases are usually settled outside of formal courts and a written note of the final decision is sent to the office of the DC.⁴

If this does not happen, the dissatisfied party can approach the DC. The DC arbitrates over conflicts with the help of a Political Interpreter who assists in interpreting customary law and social practices. If the disputants have approached the DC directly, he/she would normally send them back to the village institution. Sometimes, the DC may call the members of the village council and decide the case in their presence or may ask the village council to decide the matter in his/her presence.

Many of the socio-religious values that assisted natural resource conservation are now eroding, an effect that is telling on the state of resources as well as on the social structures within communities. Although the dispute settlement authority continues to remain with the village councils and the *gaon buras* (village elders), some plaintiffs have started approaching the formal judicial bodies for settlement of disputes. This practice is being observed largely amongst the village elite. Some people look upon it as a status symbol to take a matter outside the state for resolution.



Use of bamboo in an Apatani house
Photo: Rupesh Bhomia

Since there are a number of institutions that deal with disputes and violations of regulations, people can 'shop' for the forum they would like to take their complaints to: the village council, the forest department, the DC's Office or the High Court in Guwahati. Quite often, the guilty party prefers to approach the formal judiciary, especially when he knows that he will get a severe punishment if tried by the traditional village council. Multiple adjudicatory systems however, often punish offenders twice for the same offence: in a case involving an Adi who killed a tiger in self-defence, he had to endure both the punishment detailed by the village council as well as the judicial remand to which the forest department subjected him.⁵

Several instances have recently come to light where Government authorities, including the Army and the Indo-Tibetan Border Police (ITBP), have acquired lands (including forests) for the purposes of setting up security posts, townships and administrative establishments, but have paid minimal or no compensation to the tribal community. Traditional regulatory systems are often inadequately equipped to deal with cases involving non-tribal or government authorities, and this is reflected in the increase in the number of cases reaching the High Court of Assam in recent years.

2.1. Legal classification of forests

The area of forests under reserved forests, protected areas (wildlife sanctuaries and national parks) and village forest reserves is about 37.32 per cent of the total forest area in the state (see table 1 for details). The recorded forests cover 61.5 per cent of the total geographical area of the state covering 51,540 sq km.

Since there is no land revenue regulation in the state, the legal status of forests outside reserved forests, Wildlife Sanctuaries and National Parks, is not well defined.

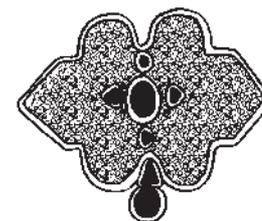


Table 1: Legal status of forests

Legal status of forest	Area in sq.km.
Reserved forest (RF)	9815.37
Wildlife sanctuary (WLS)	6777.75
National parks (NP)	2468.23
Village forest reserves (VFP)	175.20
Total	19236.55
Anchal forest reserve (AFR)	256.08
Protected forests (PF)	NA
Unclassed state forest (USF)	32039
Grand total	51540 (61.54% of total geographic area)

Forest nationalisation in Arunachal Pradesh is a post-independence phenomenon. The state forest department, while blaming the practice of *jhum* (shifting cultivation) for the rapid degradation of forests, attempted to bring USFs under central control by declaring AFR, VFR, RF and PA. Declarations of RFs have been faulty and most people have no idea when their forests were converted.

Local communities consider the creation of state-controlled forests from erstwhile unclassified state forests as an encroachment on their lands by the forest department. The Department on its part alleges that, by not moving out of RFs, people are encroaching on government property. In some cases people have cleared plantations in reserved forests in order to reside there. In two instances where eviction orders were issued, the villagers (of the Nishi community) filed separate Public Interest Litigations (PILs) in the Guwahati High Court. The judge sympathised with the people, ordered a stay on the evictions and issued a show cause notice to the forest department demanding to know why the people should not reside there. In another PIL, an individual challenged the conversion of his clan lands to reserved forests, alleging that due process had not been adopted by the forest department during the notification.

The declaration of the Tale Valley Sanctuary in 1995 created much discontent amongst the Apatanis. They feel that their efforts towards the conservation of the resources of the valley have been ignored because the forest department has not involved the local community in PA management. Though the present WLS was created from declared RF (and the department was not legally required to settle any rights), the Apatanis challenged the very process of RF declaration. They filed a case in the High Court in Guwahati claiming that the sanctuary stood on Clan Forests and stating that the forest department had not applied due process while declaring the forest a RF. The Court disposed off the matter directing the Government of Arunachal Pradesh for a fair settlement of the case, yet the dispute remains unresolved. The boundary issue could never get resolved and in the years that followed resulted in the filing of another matter involving his grandson.⁶

AFRs were declared under the Anchal Forest Reserve (Constitution and Maintenance) Act, 1974, with an idea of sharing the net revenue earned in the ratio of 50:50 between the department and the *anchal samiti* (a *panchayat* unit, now scrapped). *Anchal* is a unit formed from a group of villages. Problems began to arise at the time of revenue sharing. Problems also arose because proper procedures were not applied at the time of creation of anchal forests. At the time of creating AFRs, the forest department is supposed to get the consensus of all villagers involved in this, but most often the department took into confidence only the village leaders, which was later challenged by the larger community. In 1975, the state amended the law for the constitution of AFRs and introduced a new category of VFRs, with the aim of reducing conflicts related to benefit sharing by demarcating VFRs village-wise. Gradually the government lost interest in these categories, which is evident from the figures related to AFR and VFR in the table. In the late 1980s, the state forest department introduced the scheme of Apna Van with the objective of reforestation of USFs degraded due to *jhum* cultivation. It gave saplings and provided maintenance expenses to the beneficiaries for a period of three years. People lost interest in this scheme soon after the three years were over.

3. Elements of community conservation

Elements of nature have traditionally been either worshipped or have formed part of ceremonial rites and rituals. Certain trees were considered sacred, while some fruits, flowers and animals held a special position in community rituals and festivals. As these species held great importance for the community, controlled utilisation led to conservation. For instance, among the Apatanis, rites conducted during the Mloko festival (celebrated in rotation by a group of villages together) require the paw of a monkey (species not clear) and a monkey skull. Representatives from all the villages would participate in this annual hunt, but only one monkey from one community forest would be killed: people believe that this system ensured the availability of the monkey for the coming festivals. The tiger holds a significant position among the Adi and some other tribes of Arunachal: they consider the tiger to be their elder brother. Even accidental killings of a tiger are followed by an arduous year-long penance during which the person has to live in isolation, cook his own food and is not permitted to participate in community festivals and rituals including hunts.⁷

Sentiments towards certain species of plants also derive from the sites where they are planted. Sometimes a species is protected for its great value to society: the Apatanis consider pine trees planted by their ancestors as sacred, and even decaying trees of these species are not felled for private or commercial use. Instances have come to light where fallen sacred trees have been used for purposes of community welfare—for example, planks are used as walks to cover marshy and muddy patches on dirt tracks during the rains. Apatanis use flowers of the plum tree (*thakum*) in rituals and hence the tree is considered sacred. Taboos are also associated with some trees: local lore warns that persons felling trees regarded as the abode of a deity will result in the death of one of their family members.

Self-imposed restrictions developed by communities have always regulated resource use and extraction in Arunachal. Two decisions of the village council in a Nishi village show the understanding of the people about their forest and environment. In a case of over-extraction of cane from a community forest, the *nyel* (the village council of the Nishi community) adjudicated that an individual can extract cane from the community forest only for personal use and not for commercial purposes. In another case of a person raising a mustard plantation in a degraded community forest, the *nyel* decided that nobody start plantations in community forest areas. Its order included the observation that degraded forests should be allowed to regenerate and grow into a mixed forest, as mono-cropping is not good for the health of the forest.

Lands were traditionally reserved for meeting the domestic needs of people such as firewood, cultivation (both settled and *jhum*), grazing and browsing grounds, hunting, medicine and dyes, material for house building, sacred sites for rituals and burial grounds, etc. Rights over water bodies such as streams and rivers were also clearly defined. Though conservation may not have been the central objective of such traditional land management systems, a closer look reveals the tremendous conservation value inherent in some of them. Illustrated by the traditional land and resource management systems of the Apatani of the Lower Subansiri District and the Adi gallongs of West Siang District in the sections that follow (for details on these see the case study section).

3.1. The Apatanis of the lower Subansiri district

Apatani people, occupying the Apatani valley⁸ in Arunachal, are considered to be the most industrious and enterprising community in Arunachal Pradesh. They are mainly engaged in farming and also rear pigs, fowl and mithun (*Bos frontalis*, a semi-domesticated bovine). They follow an integrated approach to management of their resources such as forests, water, bamboo-pine groves, etc. This fact is attributed to the limited land at their disposal. The Apatani valley with a population density of 625 is the most populous area within the state (compared with the state's average population density of only 10 persons per sq km). The



Layout of an Apatani forest settlement and agricultural fields
Photo: Rupesh Bhomia

total Apatani population in the Apatani plateau is approximately 20,000. Limited resources and a high population demand conservation and the entire Apatani plateau offers an excellent example of community resource management. The customs and social practices of the Apatani, unlike other communities, do not differ between clans or villages.

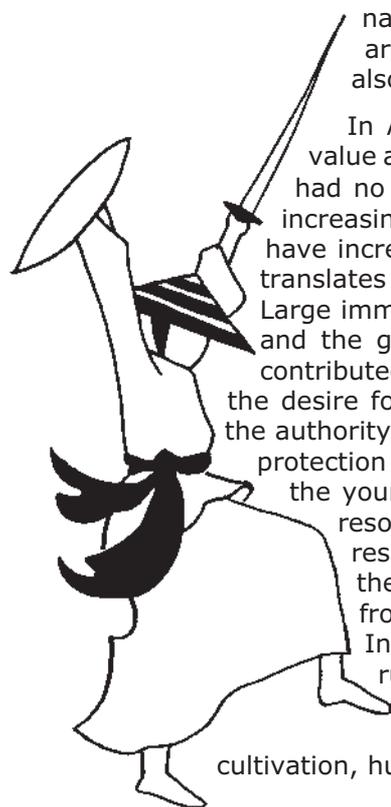
3.2. The Adi Gallong of Mega, Molo and Dipu villages, West Siang District

Three villages lie on the river Siyom in the West Siang District (28°33'N and 28°29'N and 94°35'E and 94°41'E): Mega is on the right bank of the river, about 40 km upstream of Along (the district headquarters) and across from the Along–Mechuka road; Molo is 25 km upstream of Mega at the confluence of the rivers Siyom and Sike; and Dipu is 18 km upstream of Molo village on the Siyom River. Molo and Dipu are close to the roadhead but Mega is across the Siyom on the slope of the mountain. Close to 200 ha of forests in the vicinity of these villages are protected by the local community because of sacred sentiments. Fishing is regulated in some stretches of the river and only traditional fishing equipment is permitted. No specific institution is involved in the protection of these forests but the *kebangs* deal with violation of regulations related to land and resource use. Violations are negligible, as people fear the wrath of supernatural elements. Many taboos are attached to felling of trees and killing of certain animals in forests, preventing people from violating socially accepted norms with respect to these forests.

The exact reasons behind the preservation of these forest patches by the Adi Gallongs are unknown, but the *kebangs* unanimously rejected the felling system under the timber permit scheme of the State Government. The forest department has respected this decision.

4. Conclusions

Over the years since independence, Arunachal Pradesh has witnessed tremendous changes. Tribal society has not been immune to cultural as well as religious invasions.⁹ The weakening of the social and moral values has allowed for the setting-in of the process of degradation of the natural resources in recent years.¹⁰ Not only has the nature of disputes arising over forest resources changed, but the number of disputes has also increased manifold.



In Arunachal's early days, natural resources had little or no commercial value and resources were extracted only for personal or community use. People had no use for money and followed a barter system till very recently.¹¹ With increasing monetisation of economies and the influx of television media, wants have increased, and can now only be met by selling assets—in most cases, this translates to a transfer of ownership rights over their valuable natural resources. Large immigrations of people from outside the state, including timber merchants and the gradual realisation of the value of timber, are also factors that have contributed to the younger generation abandoning traditional value systems in the desire for more consumerist lifestyles. In the midst of these transformations, the authority of village institutions has declined. However, since 1993, village forest protection committees have begun sprouting in the region as a youth initiative, as the younger generation became increasingly aware of rampant destruction of resources by external influences, an inequitable distribution of benefits from resource use and (in some cases) by diminishing cultural factors such as the effects of taboos and restrictions on resource use. These are distinct from Forest Protection Committees formed under the JFM programme. In some areas, Joint Action Committees (JACs) have been formed and rules framed prescribing sale of residential plots only with the permission of concerned *gaon buras* (village headmen) and the JACs. Penalties for outsiders have also been prescribed if found indulging in *jhum* cultivation, hunting, fishing or exploitation of trees of any forest.

4.1. Suggested recommendations for effective conservation

The transmission of traditional customary laws and social practices related to management and conservation of natural resources to the younger generation should be facilitated by the government in cooperation with village elders and traditional institutions so that the new generation can take

pride in and respect their own regulatory systems.

Recent Supreme Court orders—first in 1996 banning felling in forests, and a subsequent order in February 2000 prohibiting the collection of NTFP from reserved forest and protected areas—have had differential impact on the local communities. Where the decision of the Court in the first matter left local tribal communities with no options for eking a livelihood from the forest, the latter judgment didn't have such a severe impact on the people and their livelihood. Earlier local people would sell their timber permits to saw mills or other traders (sometimes a single permit would fetch anywhere between Rs. 600 – Rs. 60,000 depending on the species). This had a serious impact on the lives of the local people, which led to the increase in the rate and extent of extraction of NTFPs such as cane and medicinal plants. As compared to the order in the first case, the order of the second judgment wasn't implemented in its letter and spirit. These orders have been issued in spite of the fact that these forests are under community control and the fact that forest cover in the state is nearly 80 per cent, far above the National Forest Policy recommendation of 66 per cent for hilly regions.

Proper policy with regard to collection and processing of NTFP to benefit local communities is a felt need. The state will have to make a concerted effort to develop wood-based industry to make opportunities available for the local populace, keeping in mind the attitude and flair of the people.

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Endnotes

¹ This Regulation continues to be in force even today.

² Vide section 72 of the Indian Forest Act, 1927.

³ For example, *kebangs* of the Adis, *buliangs* of the Apatanis, *nyels* of the Nishis, and *bangos* of Hill Miris.

⁴ Many such cases in the field of forest management have been extensively documented. See R. Pant, *Legal Appraisal of Unclassed State Forests in Arunachal Pradesh* (Delhi, CEL, WWF-India, 1996).

⁵ Personal communications with a former Deputy Wildlife Warden (who also happens to be an Adi) in October 2001.

⁶ R. Pant, 'Conflicts, Resolution and Institutions in Forest Resources Management: Experiences from the Traditional Mountain Communities of Arunachal Pradesh', in K. Seeland and F. Schmithusen (eds), *Man in the Forest* (New Delhi, D.K. Printworld (P) Ltd., 2000).

⁷ In one case involving an Adi killing a tiger in self-defense, he had to endure both the penance, and harassment from the forest department who subjected him to judicial remand.

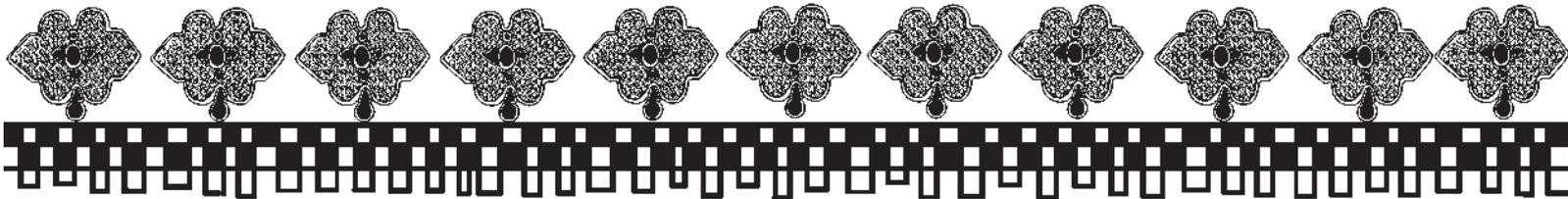
⁸ Since the Apatani valley is quite accessible, it has been well surveyed for its flora and fauna. Several agencies such as the G.B. Pant Institute for Himalayan Environment and Development, Arunachal Unit, World Wide Fund for Nature – Arunachal office, State Forest Research Institute, Botanical Survey of India, etc., have already surveyed the place. Christoph von Furer-Haimendorf, a social anthropologist, spent long-periods of time in the region many decades ago and had written several books on the Apatanis.

⁹ By changing their religion, people are forced to drop their earlier beliefs. Certain practices, wherein the community used to work together for the preparation of the fields before the sowing, are no longer attended by the Christian tribals as they have to attend church on Sundays. This used to be an occasion when people could get over their earlier grudges from the previous agricultural season, keeping disputes under control. After religious conversion, prohibitions on felling of certain trees, once considered sacred, are made out to be mere superstitions. Ceremonial prohibitions of felling trees are losing their value.

¹⁰ Some of the factors leading to this breakdown are modern education, effect of modernisation, improvement in road transport and means of communication, commercialisation of forest resources, monetised economy, and mass movement of people from the remote areas to areas closer to roads and plains. For more details see Pant, *Legal Appraisal*. Christoph von Furer-Haimendorf, *A Himalayan Tribe: From Cattle to Cash* (Berkeley, California, University of California Press, 1980)

¹¹ The barter system continues to dominate the economy in many parts of the state, especially in the more remote regions.





Apatani valley, Lower Subansiri

Background

The Apatani valley¹ (or the Apatani plateau as it is also called), bifurcated by the river Kele, is located in Arunachal's Lower Subansiri District (93°57'E to 94°12'E and 27°30'N to 27°40'N). The headquarters of the Lower Subansiri district are located in Ziro, one of the major townships of the Apatani valley. Ziro is well connected by road with Itanagar, the capital of Arunachal Pradesh, which lies at a distance of about 100 km from it. The town is also well connected by taxi service with other district headquarters within the state.

The plateau is bowl-shaped surrounded by high hills and interspersed with paddy fields and bamboo-pine groves. Nearly 52 sq km in area, the valley lies at an altitude of 1524 m with temperatures on the cooler side. Although it doesn't snow, elderly people of the valley remember water freezing up during winters. This does not happen now.

The valley lies between the river valleys of Kamla and Khru on the north and Palin on the south. All these rivers eventually drain into the Subansiri river, a tributary of the Brahmaputra. The villages are situated at the periphery of the circular valley with tropical evergreen, sub-tropical grassland formation, and sub-tropical evergreen forests.

The higher altitudes have vegetation like east Indian almond, dhale katus, siriasing, amari, chaplash, kanak champa, sal and hirda, ferns, orchids and *araceous* species. Red silk cotton tree, screw-pine and the rare species *Hyptianthera stricta* occur along the banks of the river and along the streams. Apatanis have extensively planted rawami and bamboo in the surrounding hillocks as sources of material for construction of houses and household articles. The occurrence of Himalayan white pine is shrouded in mystery as it does not grow anywhere else in this area. The Apatanis claim that their ancestors brought them from Central Mongolia when they migrated, a place that they believe they originate from.

The fauna comprises the tiger, golden cat, large Indian civet, spotted linsang, common palm civet, Himalayan palm civet, jackal, Indian elephant, sambar, barking deer, gaur, Indian wild boar, Assamese macaque and capped langur.

The area witnesses copious rainfall throughout the year at an average of 3000 mm. High precipitation and fertile soils have helped in the growth of luxuriant vegetation. The forest types broadly are of sub-tropical broad-leaved, temperate broad-leaved, and temperate conifer types, depending on altitude. In several places, forests are dense with a profuse growth of epiphytes (mainly orchids and ferns). The hilly terrain in the valley is covered with forests and bamboo-pine groves, while the flat valley is used for paddy cultivation and pisciculture.

Approximately 10 per cent of the forests in the Apatani valley are under government control, legally categorised as unclassified state forests (USF). The rest are under the control of family, clan or the community (village). These lands are managed according to traditional rules governing allocation, use and transfer.

The community inhabiting the Apatani valley in Arunachal Pradesh is somewhat unique in its traditional wisdom and practices. Furer Heimendorf in his earlier writings in the mid-1940s mentions seven Apatani villages. Recent articles put the number of villages in the valley at around twenty. The population continues to be confined to the central regions of the Apatani plateau around the old Ziro or Hapoli township, former headquarters of the district.

Inhabitants of this valley are named variously—Onka Miri, Ankas, Apa Tanang, etc.—collectively called as the Apatani (*Apa* means regard and *Tani* means human race). Apatanis, cohabit with other tribal groups called Nishis and Hill Miris; but unlike them, they live in nuclear families. They are divided into a number of clans and each clan lives in a clearly defined part of the village. They worship the sun (Donyi) and the moon (Polo) and there are several fascinating myths attached to their deities and their origin which serves to reinforce their uniqueness as compared to the neighbouring communities. Almost all their festivals are even today connected to nature conservation and community welfare.



Towards community conservation

Another factor that sets them apart from their neighbours who practice shifting cultivation is their effective utilisation of every inch of cultivable space. This practice has won them fame all over the world. The typical land use pattern is in concentric circles, with privately owned land as the epicenter followed by clan land in the middle and common village land at the periphery.

Clan lands are usually not concentrated in one place but are dispersed over many hills. Clan members can indulge in trapping on such lands, but other Apatanis are also allowed to hunt, earlier with bows and arrows only, but more recently with firearms too. Since hunting by traps can be dangerous for others using the forest, within a clan forest, specific areas are assigned to individual families so that they can each lay their traps with the knowledge of others. Community hunting for festivals is conducted only in village forests.

Individual families are assigned areas within clan forests for extraction of cane. Individuals can sell their rights to hunt, trap and extract cane to other members of the clan owning the forest. Fishing rights depend on the type of ownership of the forest through which the stream or river flows. Clan land consists of sites for public assembly platforms called *lapangs*, meadowland for pasture and burial grounds, and forests for clan owners to hunt and trap animals. Burial grounds are usually under clan or community ownership, but in some villages clans do not have burial grounds.²

The Apatani believe that there is no life without bamboo. They build their huts solely of bamboo and pinewood. Therefore, an integral feature of their villages is well stocked and carefully tended bamboo and pine groves. Many varieties of wild bamboo grow in the surrounding hills. However, in their individually owned groves, they grow a variety that is locally known as *bije* or Japanese timber bamboo (*Phyllostachys bambusoides*). This species of bamboo stands up to cold winters with seasonal frost and occasional snow. This species is only found in this valley and nowhere else in the region. The blue pine (*Pinus wallichiana*) is also a characteristic of this area and is not found anywhere else in the region. The old blue pine trees worshipped by the Apatanis are called *Khoda Satnii* in the local dialect.

Pinus wallichiana is also planted in clan forests, but these trees are then considered to be the individual's property and not clan property. Anyone felling these trees (other than the owner) is fined one cow.

The groves close to villages contain a variety of fruit trees and other trees that are considered sacred, such as the thakum, a plum tree with white flowers. The groves running up the hill slopes have pine and fruit trees interspersed with a few other trees, whose wood is used for hut building. The lush pine groves on hillsides surrounding the valley are the evidence of the remarkable forestry skills of the Apatani.

Common village land is confined to a few insignificant stretches of pasture land inside the valley and forest tracts on the periphery of the valley.

Privately owned land comprises all cultivated land, i.e., irrigated fields, pisciculture, land suitable for dry crops, garden plots and groves of bamboos, pines, fruit and other useful trees, as well as house and granary sites.



An Apatani settlement with forest and agricultural fields
Photo: Rupesh Bhomia

The value of land use decreases with its distance from the centre and paddy fields, and the pine and bamboo grown nearer to the house site are prized more than the ones some distance away, the reason being that the Apatanis allow organic waste generated from domestic refuse to mix through small channels with the water that flows from the hill slopes into the paddy fields, which makes the water quality richer in terms of organic nutrients in fields closer to the village.

A study of the agricultural system followed by the Apatanis reveals an indigenous and scientific system which provides them with surplus paddy to be bartered with the neighbouring

communities. The Apatanis are known for their intensive permanent cultivation practices, wherein every available inch of land is utilised to the maximum extent possible: wet rice cultivation, where paddy stands in water throughout the season, enables them to practice pisciculture in the same small terraced fields. Because of the fish, they refrain from the use of chemical fertilisers and pesticides. On the raised edges of the terraces, which normally remain dry, they grow finger millet.

Some salient features of their agricultural methods are:

- The laying out of fields on the hill slopes in such a way that the water flowing down the hill can be channelled inside the fields using an intricate design of contour bunds that divide the plots.
- Prudent use of water emerging from forest water sources and ground water, which erupts through springs, to cultivate paddy twice a year (one ripening early and the other late in the year). One set is permanently inundated under water; the other dries out and hardens after the harvest is over.
- Use of human faecal matter and pig and fowl droppings and decomposed stubble of the last harvest to act as a fertiliser for their crops.
- The practice of aquaculture by digging a vertical pit in the centre of the paddy field and introducing fingerlings a month after paddy transplantation is yet another unique Apatani practice. During August and September, the water is drained out and the fish is harvested.
- The cultivation of two varieties of millet, one on the bunds of the paddy fields and the other in open dry fields is a peculiarity of the Apatanis.

The only inputs to the agricultural system are human labour and organic wastes generated by the community, as a result of which the energy efficiency of the system is very high.

Almost every household in the Apatani valley maintains a kitchen garden where beans, chillies, tobacco, cucumber, taro, ginger, potato, tomato and coarse type of spinach are grown. The Apatani households also rear semi-domesticated mithun, pigs and fowls, which provide them with an essential protein supplement. Pigs are considered as a very necessary sanitary institution, as they feed on human faecal matter. It is interesting to observe that the Apatanis depend upon the neighbouring communities (the Nishis and Hill Miris) to graze their cattle as their landscape is better suited for the purpose.

Table 2. Resource use pattern in the USF among the Apatanis³

Ownership Type	Resource Use
Individual	Kitchen garden, bamboo-pine grove, granary site
Clan land	Burial grounds, hunting grounds, wood for house and granary construction, religious and sacred areas, site for public assembly platforms (<i>lapang</i>)
Community of village	Burial grounds, grazing grounds, community hunting for festivals, sites for community worship during festivals
All cultivated lands—irrigated rice fields, dry fields, gardens and bamboo-pine groves, and house and granary sites—are individually owned.	
Grazing lands belong to the village and cannot be sold or purchased. Kitchen gardens can be acquired by inheritance and/or purchased.	

Transfer of Apatani land to non-Apatanis is not permitted, although land does change hands within the tribe. As cadastral surveys have not been conducted, changes in land ownership are difficult to trace. Despite the lack of village maps, these land regulation systems have been kept intact for generations. However, with the monetisation of the area's economy and the commodification of forest resources (especially timber and cane), conflicts of ownership have begun to arise.

Social structures in Apatani society that complement the land management system and help resolve conflicts

Dapos originated as symbolic peace treaties during the settlement of the plateau. Surrounded (geographically) by hostile Nishi tribesmen, the Apatanis wanted to keep inter-village and inter-tribal disputes to a minimum and formal treaties of friendship between villages formed a fundamental part of their political system.⁴ In the likelihood of disputes arising over boundaries of forest lands (irrespective of ownership), three poles of (usually) bamboo about 3–4 feet long are erected in a vertical criss-cross manner to depict a *dapo* at negotiated boundaries of such areas.⁵ The *dapo* still has relevance today, with an added element of threat as resource crunches become more prevalent⁶.

The practice of *buning* or the making of ceremonial friends also helped diffuse inter and intra-village tensions. *Bunings* were normally from other clans and tribes. *Buning* can be inherited: they are made after long periods of friendship and the relationship is accorded formal status by inviting *bunings* to feast at the Mloko festival. Relations are considered severed if a *buning* is not invited to a feast.

Some dispute settlement mechanisms in the past, which have continued till recent times, include systems of oaths and ordeals. To a great extent, these systems kept crime and disputes within the community to a minimum, as ordeals were generally severe. If the village authorities were unable to resolve disputes by negotiations and mediation, the practice of ordeals was resorted to. Several taboos are associated with felling of certain trees and animals. There is a need to document these practices.

Performances of private and religious rites are common in the villages and these take place quite often as a part of ceremonies such as weddings or funerals, or reasons as common as an illness in the family, commencement of house building, a fire in the village, or a personal crisis. During festivals and religious ceremonies, entry into forests for cutting firewood or extraction of other resources is not permitted.⁷ During special ceremonies held at home, members of the family are not allowed to leave the premises of the house for a period of up to seven days. Violation of these norms is considered taboo. The Apatanis perform a seasonal rite in July/August in the name of Yapun, god of thunder. The performance of this rite is believed to ward off the danger of damaging the crop from hailstorms. No villager is allowed to go beyond the cultivated areas—i.e., to the forests—during the ten days following the performance of these rites. Breach of these rules could lead to hailstorms damaging the crops. These rites and restrictions are followed till date.

Opportunities and constraints

The Apatani's way of life reveals a remarkably developed management system for sustainable use of bio-resources which is based entirely on their indigenous knowledge and innovations. However, the elders of the village (*gaon buras*) express concern over the changing trends in the valley, which include:

- Introduction of exotic varieties of rice at subsidised rates by the government. This has led to decrease in growth of local varieties. The elders feel that these imported varieties were not suited to their soil.
- The village forests have had the legal status of unclassed state forests. In Arunachal, most unclassed forests have disputed claims: while some consider these to be government lands, local people consider these as community owned lands. The state government is increasingly bringing more unclassed forests under their Aanchal Forest scheme,⁸ under which the management of the forest rests with the forest department and the revenue is shared between the Department and the community. The Apatanis do not see any reason why they should share the revenue from what has been their land since times immemorial.
- The local people are upset about the fact that their ancestral lands were declared reserved forests by the government in 1976. The villagers had no information about this. According to them no process of settlement of rights was undertaken. In fact, one clan in the valley has filed a case in Guwahati High Court against the government, claiming that these lands have belonged to the clan for generations.
- Tale Valley Sanctuary was declared in 1995 in a part of the reserved forest. The villagers claim that parts of the sanctuary include their traditional lands. The local people are extremely upset about the fact that first the reserved forest and then the wildlife sanctuary were declared without any consultations with the local communities.

- To reinforce their claim on the forests, the Apatani community has started erecting boards in their forests with a warning statement saying that a fine will be levied in case of violation of local rules and stealing of their resources.
- In 1993, the Apatanis formed village forest protection committees, with the involvement of the youth. According to the community members the idea about forming this committee came after a realisation that outside influences and cultural factors such as diminishing effects of taboos and social restrictions following modern education were causing rampant destruction of forests.

Conclusion

Over many generations Apatanis have evolved an intricate system of natural resource management. These include efficient forestry and agricultural skills. There is a strong sense of belonging even today because of the critical cultural, religious and biomass dependence on the ecosystem. Under the influence of modern education and changing socio-cultural scenario, some of the traditions seem to have weakened. However, the fact that the villagers have realised the damage such changes can bring about to their ecosystem and have initiated the village forest protection committees is a strong indication that community-based conservation can be a success in the area if the right conditions are provided. One such condition could be a positive wildlife conservation policy, which would take into account people's participation in the management and protection of the ecosystem rather than alienating them by creating conflicts, such as creation of the sanctuary without their consent or information.

This case study has been put together by Ruchi Pant. The material for the case study has been extracted from S. Chatterjee, S. Dey, A.R.K. Sastri and R.S. Rana, *Conservation and Sustainable Use of Natural Bioresources: A case study on Apatanis in Arunachal Pradesh* (World Wide Fund for Nature, New Delhi, 2000); R. Pant, 'Conflicts, Resolution and Institutions in Forest Resources Management: Experiences from the traditional mountain communities of Arunachal Pradesh', in K.Seeland and F. Schmithusen (eds.) *Man in the Forest* (Delhi, D.K. Print World (P) Ltd., 2000); People's Commission on Environment and Development, 'Report on Public Hearing on Environment and Development' (New Delhi, The People's Commission on Environment and Development, 2002).

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Endnotes

¹Since the Apatani valley is quite accessible, it has been well surveyed for its flora and fauna. Several agencies such as the G.B. Pant Institute for Himalayan Environment and Development, Arunachal Unit, World Wide Fund for Nature – Arunachal office, State Forest Research Institute, Botanical Survey of India, etc., have already surveyed the place. Christoph von Furer-Haimendorf, a social anthropologist, spent long periods of time in the region many decades ago, and wrote several books on the Apatanis.

²In these cases, families bury their dead in their cultivated lands within a special enclosure.

³Christoph von Furer-Haimendorf, *A Himalayan Tribe: From Cattle to Cash* (Berkeley, California, University of California Press, 1980).

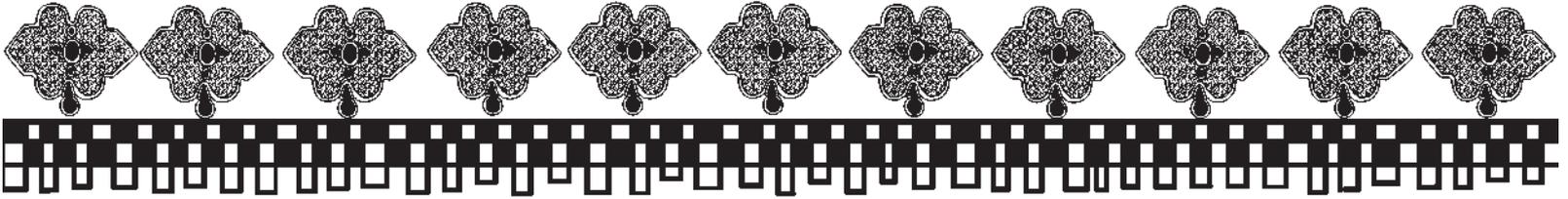
⁴ von Furer-Haimendorf, *A Himalayan Tribe*. As above.

⁵ These days the literate in the community have started writing a note of warning that mentions the punishment and the fines a violation would attract on a wooden plaque affixed at the center of the structure.

⁶ Personal communications with the elders of Hang village during field work in 1985.

⁷ The period of abstinence during the Mloko festival is known as *anyodo*.

⁸ A scheme under which forests are managed jointly by the forest department and the local community. The local communities see this as an effort by the department to assert their rights in areas which are the strongholds of the communities and considered by the communities as their own.

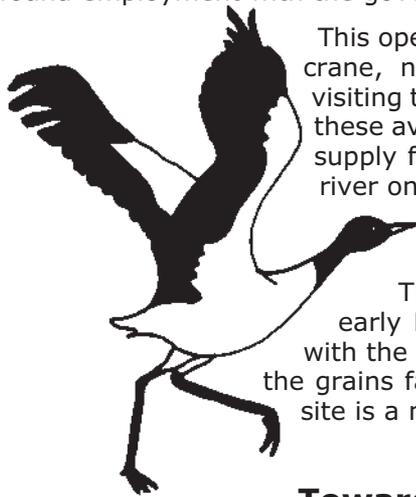


Sangti village, West Kameng

Background

Sangti village is in the catchment of the Sangti river, in the West Kameng District of Arunachal Pradesh. It is located at a distance of 11 km from the Bhalukpong-Tawang road, and to go there one has to get off the road at Dirang, cross the Dirang river and follow the dirt track along the Sangti river. With an altitude of about 1500 m, the winters here are cold and dry. The landscape is that of a wide, open valley with paddy fields, some of which are marshy along the river on one side.

The Morpa community which inhabits this area are mainly Buddhists and also followers of the ancient animist tradition. Rituals involving sacrifice are still prevalent amongst the animists. Agriculture is one of the occupations practised by the villagers, in which most agriculturalists grow paddy and maize. Besides this, horticulture, rearing of hens, sheep, cows, goats, pigs and horses is also practised. The rate of literacy amongst the Morpas is very high, and some of them have found employment with the government and the army, stationed here.



This open valley has been an ideal habitat for the wintering black-necked crane, now an endangered species. These birds have been regularly visiting this valley since the early 1950s. It is an ideal breeding ground for these avian visitors and the marshy lowlands act as a good source of food supply for them. At night the birds choose to roost in the middle of the river on sandy islands with vegetation, in order to safeguard themselves from wild animals like leopard, jackal, common civet and wild dog.

The black-necked cranes arrive towards the end of November or early December and leave the area by early February (this coincides with the lean period of the villagers). The cranes also feed on insects and the grains fallen in the fields after the harvest. The birds' choice of nesting site is a marshy spot in a field owned by a farmer.

Towards community conservation

The villagers believe that these birds are harbingers of better yield of paddy in the following season, and that if they do not visit the area, their crops will suffer a pest onslaught. Even the children in the village are taught at a young age not to tease or cause any kind of harm to the birds.

Prior to 1990, it was believed that the black-necked cranes had become extinct in India. In 1990, a Pune based ecologist, Prakash Gole, surveyed the area with the logistic help of the army and he came across a few birds at a site close to Sangti. The discovery of a so-called extinct species aroused within him a search to find more of these birds. This brought him to Sangti village where he found a roosting population. This 'discovery' of the black-necked crane roosting site in India delighted Gole and he organised several meetings with the local people, the local school authorities and the army. As an outcome of these meetings it was decided to form a committee that would take on the responsibility to offer protection to the cranes and their habitat. The Black-necked Crane Conservation Committee (BCCC) was then formed, which comprised key individuals, including Kazang Namsay (the village headman, *Gaon Bura*), D. Siam (Deputy Director, Government Sheep Breeding Farm), S. Koltia (Headmaster, Sangti Head School), Sharma (Teacher, Sangti School), and Prakash Gole, (Ecological Society of India, Pune).

The Sangti School, was 1 km away from the breeding site and took the responsibility for maintaining regular records of the date of arrival, departure and total number of the birds at that time. It became an important centre for holding meetings, dissemination of information related to the birds and spreading awareness amongst the student community.

The winter months, being a lean period after the harvest, are also a time for the locals to rejoice. Very often the area selected for this rejoicing is close to the breeding ground. Very often picnickers would be playing loud music and littering the place with packing-material waste and food leftovers.



In 1994, the army deployed 2 sepoy (guards) to protect the area from such noise-making parties that scare off the cranes. Simultaneously, in the same year, the road construction work along the river was stalled after making requests to the Public Works Department, since it caused a disturbance to the birds. In 1996, the forest department promised to provide free saplings to the community and the school to plant on the barren hill slopes.

Opportunities and constraints

Unfortunately, after 1994 the movement of the committee slackened due to transfers of some of the key persons from the area and differences between the army and the forest department. These differences resulted in the withdrawal of the sepoy who were posted for the bird's protection. The plan of afforestation on the hill slopes did not materialise. The local committee was disheartened since they were expecting a number of tourists in the area but only a few tourists came. In due course of time the committee disintegrated.

In the meanwhile, despite there being no obvious threat from the villagers or from excessive tourism due to the Inner Line permit restriction,¹ the number of birds visiting the area is declining. The winter of 2000–1 witnessed the arrival of a lone bird, which stayed only for one day. The reasons for this could be:

1. The drying up of the marshy land, which is a crane feeding area, caused by the felling of trees on the hill slopes;
2. As a result of the deforestation on the hills, the temperature has increased, leading to a change in the course of the Sangti River which now cuts through the paddy field which is a roosting ground for the birds.
3. Another factor influencing their diminishing numbers is that the farmer who owns the field has started using chemical fertilizers and pesticides since the past 2–3 years in order to increase his yield.
4. Continuing picnics and loud noise in areas close to the roosting site.

In 2001, the new headmaster of the Sangti High School and the teachers decided to restart the conservation process for the birds. The community was identified as the main stakeholder and it was realised that successful conservation could not occur if they were excluded from it. The teachers were of the opinion that the reason for the failure of earlier conservation attempts was that the committee did not consist of enough community members. It was decided that the local community, along with the various departments like the forest department, Irrigation and Flood Control Department, the Tourism Department, the Deputy Commissioner, and the local political leaders, would be given responsibility for effective and long-term conservation. Rekindling the interests of the people, making them aware of the ill-effects of the use of pesticides and chemical fertilizers and education about conservation became a part of the new agenda. The status of this initiative since 2001 could not be ascertained.

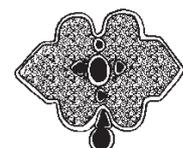
This case study is based on information gathered in the year 2001 by Ruchi Pant for this directory, from the following sources: Personal communication Mukul Sharma (Monpa), Sr. teacher and Headmaster; Ali, Teacher, Sangti School; Prakash Gole, Ecological Society; Kolta, Former Headmaster Sangti School, 1995 and Soumen Dey, WWF – Itanagar Field Office. Additional information was incorporated from P. Gole, 'When the Birds come Home', *Down To Earth*. 31 December 2006.

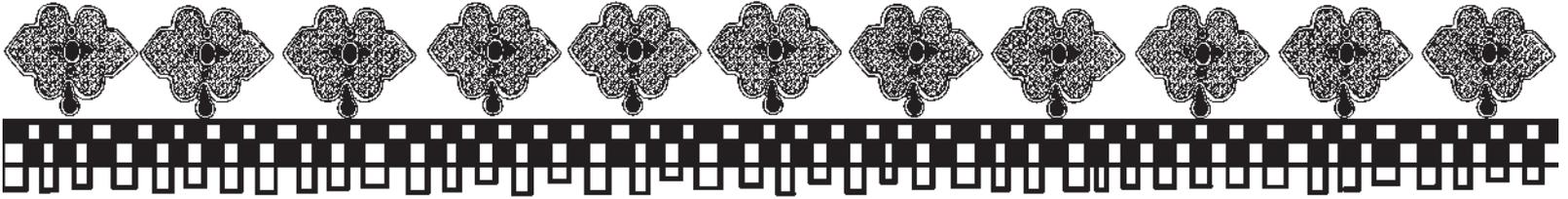
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Endnotes

¹ A provision under which all visitors need to get a permit before entering the state.





Mega, Malo and Dipu villages, West Siang

Background

This case study depicts the conservation efforts undertaken in three villages, namely, Mega, Molo and Dipu, located along the River Siyom in the West Siang District of Arunachal Pradesh. The forests protected by these villages are legally categorised as Unclassed State Forests (USFs), under the Assam Forest Regulation Act, 1891, applicable to the state of Arunachal Pradesh. These stretches of forests have always belonged to the people and the management of these resources has been vested with the Adi Gallongs, the local tribe. USFs are not officially declared; but all forests that do not belong to any of the categories¹ of Reserved, Anchal, Village Forest or Sanctuaries and National Parks are considered as USF in law. Large tracts of forests in the state of Arunachal fall under the category of USFs, and are used and managed by the local communities.

Mega village is 40 km from Along district headquarters on the Along-Mechuka road. Moyo is 25 km from Mega village and Dipu is 18 km from Molo. The Siyom River joins these villages and Molo village is situated at the juncture of the Siyom and Sike rivers. The state bus is the most efficient means of transport to get to Molo and Dipu villages. Mega has the largest population with 80 households; Dipu has 30 and Molo 25 households.

These villages are inhabited by the Adi Gallong tribe, which is one of the progressive sub-tribes of Arunachal Pradesh. The Adi Gallongs are animists and worship different elements of nature. In Adi society, the tiger is considered to be an elder brother and killing a tiger is considered the biggest sin. Killing of a tiger either by mistake or even in self-defence attracts very serious punishment in the form of a year-long period of penance during which the person has to live in isolation, cook his own food and is not allowed to join the community in various festivals and rituals including hunts. Adis were hunter-gatherers earlier but subsequently took to *jhum* (shifting cultivation) cultivation. The main occupation of the villagers is farming and the main crops grown by them are maize, mustard, millet, chillies, beans and pumpkin. As the younger generation is getting educated and not interested in farming, the manpower available for *jhum* is on the decline. Consequently, many villagers have now resorted to settled wet rice cultivation. With the rise in education, villagers have also found employment in government offices.

Prior to 1996, contracting out part of their forests for timber extraction to timber traders was one of the major sources of income for the villagers. These contracts were usually given out for secondary forests regenerating on *jhum* lands. In 1996, the Supreme Court of India banned extraction and sale of timber from all kinds of forests unless done under working plans approved by the Forest Department. As the villagers do not yet have approved working plans, the ban has resulted in a loss of income in these villages. This had led to a heavy dependence on non-timber forest products from the forest belt adjoining the villages. They collect boulders, stone chips, gravel, sand, *toko* or multipurpose palm leaves, charcoal, firewood, bamboo, cane and medicinal plants. Animal husbandry is yet another source of income to these villagers, who rear *mithun* (semi-domesticated cattle), pigs and fowls.

Topographically, this area is largely hilly and rugged, with some parts of the undulating mountainous terrain having a steep drop to the river. The community-protected forests are dense primary forests largely comprising sub-tropical evergreen forest species, with the presence of some components of tropical forest. Some of the cane species endemic to this general region and found in these forests include *Calamus arunachalensis* and *Calamus khasiana*. Some of the dominant floral species found in these forests are *Actinodaphne obovata*, dhup, dhale katus, bastard cedar, dalchini, thanet, mewa or mauwa, khewanua, *Lindera sp.*, kusavithagari, *Phoebe sp.*, ar kanla, East Indian almond, *Vitex sp.*, rasamala, *Cinnamomum spp.*, oak spp., hairy mountain fig, orchid, avocado.

Bamboo and cane species found here include rawthing or giant bamboo, *Calamus arunachalensis*, *Calamus flagellum*, *Calamus inermis*, takhe-tikhe, phulrua or red bamboo, and chal.

Some common species of mammals found here include barking deer, civet, Assamese macaque, tiger, leopard, jungle cat, fishing cat, common mongoose, smooth otter, yellow-throated martin, tree shrew, and hoary-bellied Himalayan squirrel.



Avifauna species seen in this area include Kalij pheasant, rufous-necked hornbill, pompadour green pigeon, pin-tailed green pigeon, common snipe, common sandpiper, white-rumped vulture, crested serpent eagle, harrier, sparrow hawk, common kestrel, and greater racket-tailed drongo.

The Siang River Valley in Arunachal Pradesh is one of the two important corridors of Indian migratory raptors. Migration of raptors between Palaeartic regions and the Indian subcontinent occurs principally along two corridors: the Indus river and the Tsangpo-Brahmaputra river (when the Tsangpo enters India in Arunachal it is known as Siang, and later when it enters Assam it is known as the Brahmaputra). Out of the 63 species of raptors reported in India, about 75 per cent are reported from Arunachal Pradesh and Assam. A total of 22 raptor species were recorded in a survey carried out under the aegis of ATREE, of which 10 are near-threatened and three are vulnerable species.

Table 1: A checklist of raptors from Siang Valley of Arunachal Pradesh along with their threat category and status.

Common name	Latin name	Threat	Status
Amur Falcon	<i>Falco amurensis</i>		FC
Cinereous Vulture	<i>Aegypius monachus</i>	NT	R
Common Kestrel	<i>Falco tinnunculus</i>		C
Crested Serpent Eagle	<i>Spilornis cheela</i>		C
Eurasian Griffon	<i>Gyps fulvus</i>		R
Golden Eagle	<i>Aquila chrysaetos</i>		R
Greater Spotted Eagle	<i>Aquila clanga</i>	V	FC
Greyheaded Fish Eagle	<i>Ichthyophaga ichthyaetus</i>	NT	FC
Imperial Eagle	<i>Aquila heliaca</i>	V	R
Jerdon's Baza	<i>Aviceda jerdoni</i>	NT	FC
Lesser Fish Eagle	<i>Ichthyophaga humilis</i>	NT	R
Lesser Kestrel	<i>Falco naumanni</i>	V	FC
Lesser Spotted Eagle	<i>Aquila pomarina</i>		R
Long-billed Vulture	<i>Gyps indicus</i>	NT	C
Palla's Fish Eagle	<i>Haliaeetus leucoryphus</i>	V	C
Pied Falconet	<i>Microhierax melanoleucos</i>	NT	R
Pied Harrier	<i>Circus melanoleucos</i>		C
Red-headed Vulture	<i>Sacrogyaps calvus</i>	NT	FC
Red-necked Falcon	<i>Falco chicquera</i>	NT	FC
Stepped Eagle	<i>Aquila nipalensis</i>		R
White-rumped Vulture	<i>Gyps bengalensis</i>	NT	C
White-tailed Eagle	<i>Haliaeetus albicilla</i>	NT	R

Source: Collar N.J., M.J. Crossby and A.J. Shattersfield. 1994. *Birds to Watch 2, The World List of Threatened Birds*. Cambridge, UK: BirdLife International.

Note: C = common, FC = fairly common, R = rare, NT = near-threatened, V = vulnerable.

Towards community conservation

Close to 200 ha of forests in the vicinity of these villages are protected by the local community. These are dense primary forests, largely comprising sub-tropical evergreen forest species with the presence of some components of tropical forest

These forests are undisturbed due to the decision taken by the ancestors of the present generation. The exact reason for the preservation of these stretches is unknown but has been followed strictly for generations by one and all in these three villages. Even the system of felling of trees under the timber permit scheme of the government is not acceptable to the village council. This decision of these villages is well known and widely respected by all, including the Forest Department officials. It is for this reason that contractors, traders and forest officials have not approached local people for felling timber under the timber permit scheme in these forests.

Some officials believe that the true reason for the pristine condition of these forests is their inaccessibility. The steep slopes of the mountainous forests do not allow people to access resources there. However, some local people are of the opinion that the reason behind the decision to preserve the forests is the foresight of the ancestors to provide for the future generations (inter-generational equity).

No specific institution is involved in the protection of these forests. The traditional village councils deal with violation of the regulations related to conservation. Violations are negligible, as people fear the wrath of the supernatural elements. Many taboos are attached to felling of trees and killing of certain animals in forests, which are associated with death in the family. Such taboos prevent local people from violating the socially accepted norms with respect to these forests.

These habitats are also well protected because there exists a buffer area, where people practise *jhum* and extract resources for meeting their other requirements. The forest adjoining Mega village is located on steep mountainous slopes, thus making the resources there inaccessible.

Regulatory rules are not restricted only to the forests but also extend to the local rivers and streams. Fishing in the nearby rivers and streams is a regular practice and more of a sport and mode of entertainment for the unemployed youth and old men, though it does add to the food intake and nutritional balance. Blasting and explosives are rarely used. People have rights over different stretches of the river. Some parts of the river are community-owned, while others have family or clan ownership. Ownership over the river can be sold within the clan, mainly for fishing purposes. Anyone overexploiting the fish resource by use of explosives is punished by the village council (*kebangs*). Only traditional fishing equipment is allowed for fishing.

Opportunities and constraints

The stretches of secondary forests in the vicinity of the villages are used for NTFP collection, bamboo extraction and periodically for *jhum* cultivation. These are now in a relatively degraded state and incapable of meeting the domestic and commercial requirements of the locals. If attention is not paid to these forests, people may eventually be forced to use the resources from the protected forests.

Another severe threat to the conservation practices in these villages is the erosion of the value system amongst the younger generation due to modern education. This has resulted in the increase in the commercialisation of the economy that has inflicted a commodity approach to the forest resources.

The Supreme Court of India's order in 1996 banning timber felling without a working plan, and a subsequent order in February 2000 (in another case) prohibiting collection of NTFP from forest and protected areas leaves the local tribal community with few options for eking out a livelihood from the forest. Earlier local people would sell their timber permits to saw mills or other traders (sometimes a single permit would fetch anywhere between Rs 600-60,000 depending on the species). This has led to the increase in the rate and extent of extraction of NTFPs such as cane and medicinal plants.

Conclusion

Considering that these forests are under community control and existing practices of conservation are deeply embedded in the customary law, and also considering that the forest cover of the state is nearly 80 per cent (far above the recommended 66 per cent for the hills as per the Forest Policy), a proper policy with regards to collection and processing of NTFP to benefit the local communities needs to be formulated rather than imposing bans of the kind mentioned above. The state needs to make a concerted effort to develop wood-based industry to make opportunities available for the local populace, keeping in mind the attitude and flair of the public.

Transmission of traditional customary laws and social practices related to management and conservation of natural resources to the younger generation is also required with efforts from the government, village elders and traditional institutions, in order that the new generation takes pride and respect in their own systems and carries forward the tradition of forest protection.

This case study has been contributed by Ruchi Pant in the year 2001 in her report for the Directory of Community Conserved Areas in India by Kalpavriksh. The flora and fauna information has been adapted from the 2001 field notes of Dipankar Ghosh (member, WWF – Kolkata).

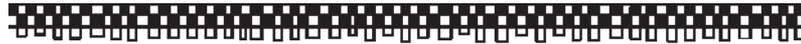
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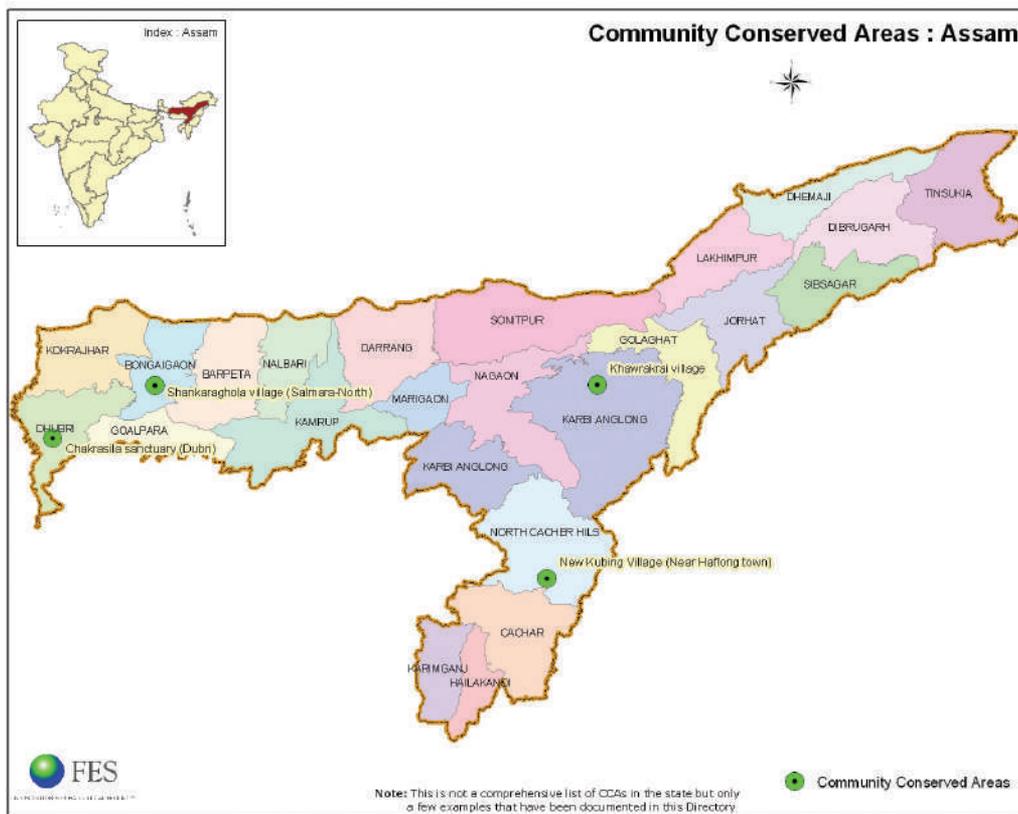
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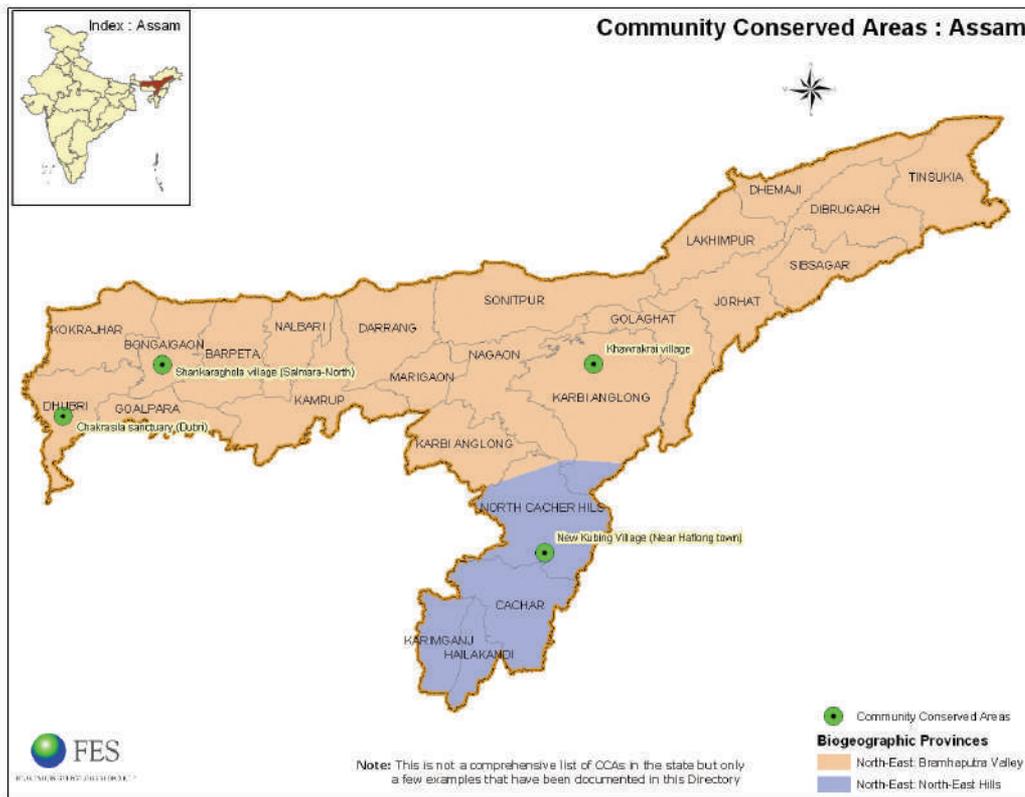
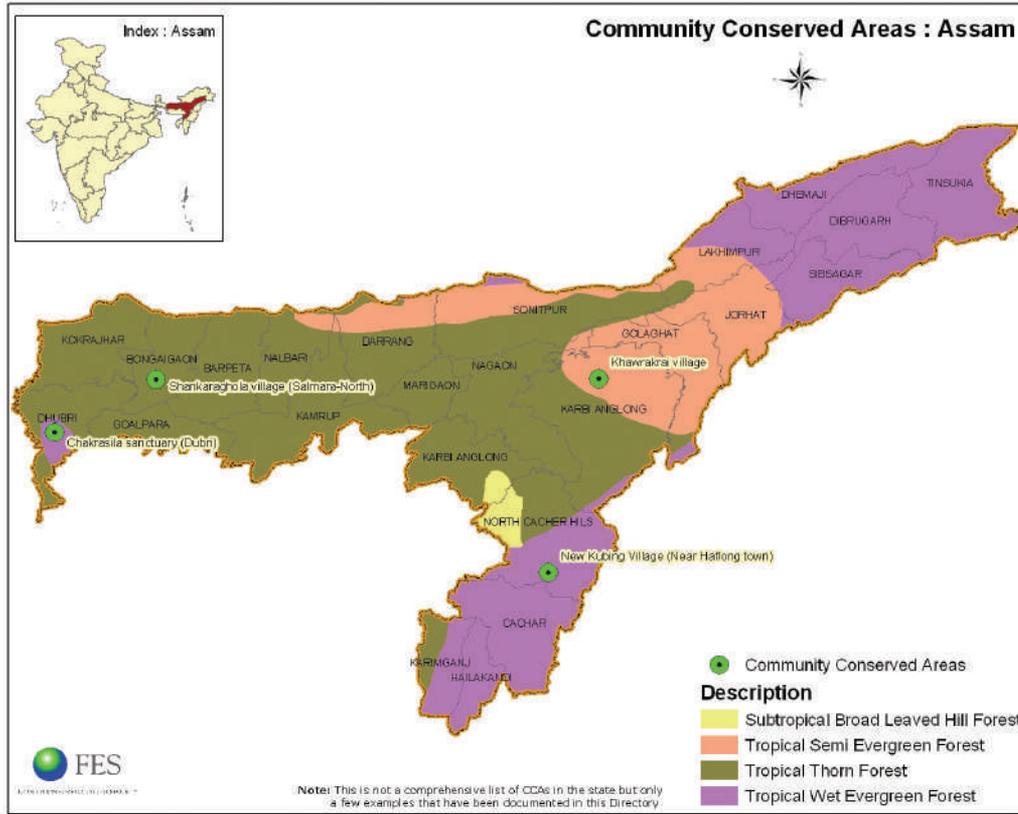
Endnotes

¹ For more details on the legal status of forests in Arunachal, see the Arunachal Pradesh State Chapter.



Assam







Assam – an introduction

Location and biogeography

Assam holds a unique position in the country's strategically very important north-eastern region. The state is bounded by Bhutan and Arunachal Pradesh on the north; Arunachal Pradesh, Nagaland and Manipur on the east; Mizoram and Meghalaya on the south; and Bangladesh and West Bengal on the west. The state is open to the mainland of the country on the west through a narrow corridor (about 40 km wide) between Bangladesh and Nepal. The state extends from 24°09' to 27°58' N latitude and from 89°42' to 96°01' E longitude. The state has an area of 78,438 sq km.¹

Assam has a monsoon-type climate with a hot and wet summer and a cool and dry winter. Annual rainfall in the state varies from less than 1000 mm in some parts to more than 6000 mm in others. The temperature generally ranges between 7°C (minimum in winter) and 36°C (maximum in summer). The relative humidity is found to vary between 60-85 per cent during a year.

The present physiographic configuration of Assam is characterized by diverse features such as floodplains, marshes and *beels* (lakes), scattered hillocks, folded hill ranges and old plateaus. Thus, Assam can be divided into three major physiographic divisions: (i) the Brahmaputra valley, (ii) the hills of Karbi Anglong and North Cachar, and (iii) the Barak valley. The Brahmaputra and the Barak are the major river systems in Assam with their flood plains covering around 80 per cent of the geographical area. The state is dominated by tropical evergreen semi-evergreen forest, grassland and wetland ecosystems. The total forest cover of the state is 27,826 sq km according to the Forest Survey of India, 2003. This makes up about 35.48 per cent of the total geographical area of the state. Of the total forest area about 14,784 sq km is open canopy forest. The total state reserved forest is 18,242.23 sq km and proposed reserved forest is 3,933.62 sq km.²

The state has as many as 3513 freshwater wetlands. Assam is dominated by two river plains: the Brahmaputra plains (56,480 sq km) drained by the river Brahmaputra and its 43 tributaries, and the Barak plains (6962 sq km) drained by the river Barak and its tributaries.

Biodiversity

As many as 102 species of flora belonging to 75 genera are endemic to the state. About 193 species of mammals and more than 958 species and sub-species of birds are so far reported from Assam. About 750 species of butterflies have been reported. There are 14 species of primates, which constitute a sixth of the total primate species of the world. 19 cat species are reported from the state. The state houses 45 Red Data Species of fauna belonging to 19 families. Assam holds the entire known world population of the pigmy hog, 75 per cent of the world population of the Indian rhinoceros and the wild water-buffalo and a sizable population of Asian elephants and tigers.

Socio-economic profile

Assam harbours several ethnic groups. The Karbi and Dimasa are the major hill tribes while Bodo, Mishing, Rabha, Tiwa, Sonowal Kachari and Deuri are the major plain tribes distributed in different districts of the state. The present population (as per 2001 census) of the state stands at 26,655,528. There are 16 scheduled caste communities, making up 6.9 per cent of the total population, while scheduled tribes make up about 12.4 per cent of the total population.

The majority of people in the state are engaged in agriculture, with others working in tea plantations, livestock farming and lumbering. In various hilly areas, shifting cultivation or *jhum* is a common practice among certain tribal groups and villagers.

Administrative and political profile

As elsewhere in the country, Assam also has a five-tier administrative framework: state (*rajya*), district (*jila*), sub-division (*mohkuma*), block (*khanda*) and *panchayat*. On the revenue front, there are two other units called circle (*rajah-chakra*) and *mouza* (a combination of a few revenue

villages). There are altogether 23 districts, 48 sub-divisions, 219 blocks, 2,501 panchayats and 25,590 villages in the state.

Constitutional provisions such as Article 371-B; and Articles 244 (2) and 275 (1) of the Sixth Schedule are operational in the state. Two councils—Karbi Anglong Autonomous Council and North Cachar Hills Autonomous Council—have got full autonomy to deal with almost all the important areas like education, agriculture, rural development, veterinary and forests (except the reserved forest s). In addition to the above two councils in the hill districts, there are four newly constituted councils in the plains districts of Assam. They are: Bodo Autonomous Council, Kokrajhar; Mishing Autonomous Council, Gogamukh; Tiwa Autonomous Council, Morigaon; and Rabha Hasong Autonomous Council, Dudhnoi.³

Conservation

There is growing displacement of people, due to natural hazards like flood and bank erosion and shifting of river courses, and conflicts among different ethnic groups. This is directly affecting the interest of biodiversity conservation. Destruction of natural habitats for commercial felling, encroachment for settlements and cultivation, short-cycle *jhum* cultivation in the hill slopes, overgrazing, extension of infrastructure facilities and various development activities pose a serious threat to the biodiversity of Assam.

As a part of conservation initiatives, the forest department has identified 5 national parks, 16 wildlife sanctuaries, 2 tiger reserves (Manas and Pakhui-Nameri) and 2 biosphere reserves (Manas and Dibru-Saikhowa).⁴

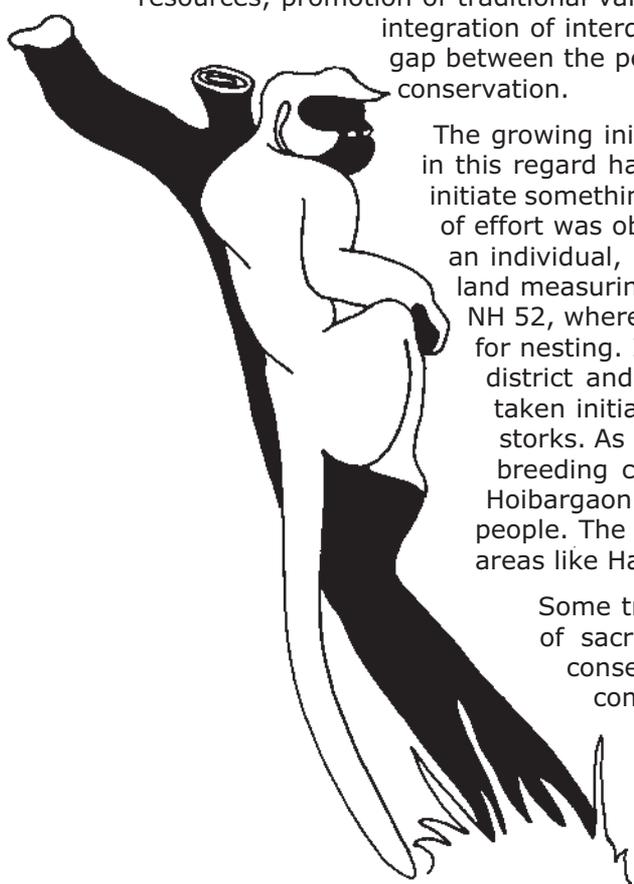
Deepor Beel, spread over 4000 ha, is a permanent freshwater lake in the former channel of the Brahmaputra river, of great biological importance and also essential as the only major stormwater storage basin for the city of Guwahati. Deepor Beel supports an important fishery, providing a means of livelihood for a number of local families. Local people traditionally utilise the *beel* to collect fodder for domestic cattle; for food such as vegetables, flowers, aquatic seeds, fish, molluscs; and for other essential requirements. It is a Sanctuary, an Important Bird Area and the only Ramsar Site designated in the state. However, 22 more Ramsar sites are proposed in the state.⁵ 46 sites in the state have been declared as Important Bird Areas.⁶

Joint Forest Management (JFM) was introduced in the state in 1998 and so far 245 JFM committees have been formed. Along with the above, the FD is also involved in ecodevelopment, involving local communities, in fringe areas of protected areas and also in conservation of medicinal plants, endangered and endemic orchids, and bamboo and cane varieties.

The activities of NGOs in the state are many and very diverse, covering environmental education and awareness, people's participation in forest and wildlife conservation, sustainable use of biological resources, promotion of traditional values relating to environment and biodiversity conservation, integration of interdepartmental activities of the government and bridging the gap between the people and the government in the fields of environment and conservation.

The growing initiatives and positive activities of the people and the NGOs in this regard have been able to draw attention of the government and to initiate something in this direction. One of the exciting examples of this kind of effort was observed in Brahmajan near Bihali in Sonitpur district where an individual, Mahendra Agarwal, has sacrificed a plot of highly valuable land measuring nearly 1 hectare within his residential plot by the side of NH 52, where thousands of birds congregate every year during a season for nesting. It is also reported that in places like Mukalmuwa in Nalbari district and Purani Gudam in Nagaon district, many individuals have taken initiatives in conserving trees like simul for nesting of adjutant storks. As reported by Green Guard Nature Organization there are two breeding colonies of Greater adjutant stork in Khutikatia and north Hoibargaon area of Nagaon district maintained undisturbed by the local people. The efforts of the people for conservation of native flora in the areas like Hajo and Uparhali in Kamrup district are also worth noting.

Some traditional institutions are generally interested in plantation of sacred as well as fruit-bearing trees. People's initiatives to conserve certain trees of religious and medicinal importance are commonly observed throughout the state.



This information has been compiled by Saili S. Palande, Kalpavriksh, based on S. Baruah, *State Biodiversity Strategy And Action Plan Assam*, Assam Science Society. Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests (Government of India).⁷ Other sources for specific information are mentioned in the text.

Endnotes

¹ Government of Assam, *Statistical Handbook of Assam*. (Guwahati, Directorate of Economics and Statistics, 1992).

² Forest Survey of India, *State Forest Report of Assam*, 2003.

³ Advisory Panel on Decentralisation and Devolution, 'Empowerment and strengthening of Panchayati Raj Institutions'; A Consultation Paper on 'Empowering and strengthening of Panchayati Raj institutions/autonomous district councils/traditional tribal governing institutions in north east India' (New Delhi, National Commission to Review the Working of the Constitution, 2001).

⁴ TPCG and Kalpavriksh, *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan*. Prepared by the NBSAP Technical and Policy Core Group (Pune, Kalpavriksh, 2005).

⁵ M.Z. Islam and A.R. Rahmani, *Potential Ramsar Sites in India*. (Mumbai, IBCN, BNHS and Birdlife International, UK, 2006).

⁶ M.Z. Islam and A.R. Rahmani, *Important Bird Areas of India: Priorities of Conservation* (Mumbai, IBCN, BNHS and Bird Life International, UK, 2004).

⁷ Contained in TPCG and Kalpavriksh, *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan* (as above).





Shankarghola village, Bongaigaon

Background

Shankarghola village is situated in the North Salmara taluka in the Bongaigaon district of Assam. The forests of Shankarghola have been home to a considerable number of mammal species like the golden langur, wild boar and barking deer, along with a large number of avifauna including the black eagle. Legally these forests are proposed reserved forests (RF) under the Aie Valley Division, Bongaigaon.



Community protected forest of Shankarghola
Photo: Ashish Kothari

The main communities inhabiting this village are the Rabha tribe and the Bengali Hindu community. The village comprises 45 households of the Rabha tribe and 25 households of the Bengali Hindu community. Their main source of livelihood is agriculture (rice and jute) in the low-lying areas. Besides this, they also cultivate chili, ginger, etc. and rear livestock. Some of the women earn a living from the sale of handloom garments. The socio-economic situation of the village is not very good, poverty and illiteracy are common problems.

Towards community conservation

The low socio-economic status of the villagers compelled them to sell the natural resources in their vicinity. There were enough outsiders interested in buying the forest resource that the villagers were selling cheap. Villagers also started receiving requests for the golden langur. In the 1980s, huge trees from the forests were being sold at Rs 5 per tree and the golden langur at Rs100. These activities over a long period of time resulted in forest degradation and the decline in the population of golden langur, which was otherwise common.

By 1990s, the effect of indiscriminate logging in the forests was clearly visible. The once-perennial stream Kangalkati, which flowed through the forest, dried up. It was during this period when a local youth named Hemanta Rabha, who had traveled out of his village for college education, returned to the village and realized the extent of damage that had been caused. In 1993, he, along with four of his friends, called for a meeting with all the villagers to discuss the cause of degradation and prescribe certain protection measures. This led to the formation of a committee called the Shankarghola Ban Sanrakhan Samiti to protect 50 ha of the forest with Hemant Rabha appointed as the secretary.

The Samiti consists of one representative from each family. An executive committee of seven members was also formed to take care of day-to-day functioning. Despite many efforts by the villagers from Shankarghola, the surrounding villages that use the resources from the protected patch of forests did not agree to participate in the protection efforts.

The protection efforts of the villagers received some encouragement from the support of the patrolling Beat Officer, Biswajit Sarkar. The committee was re-formed and renamed as Tinikonia Pahar Sanrakhan Samiti. Later an *anchalic samiti* (Regional Committee) was formed by the DFO (District Forest Officer) of the Aie Valley Division under the Joint Forest Management Programme or the Anchal Van Programme.

Impacts of community conservation

The conservation efforts taken up by the villagers over a period of nine years have shown remarkable results. The hill has revived, along with the Kangalkati stream becoming perennial once again. Species like the golden langur, wild boar and barking deer are now visible.



The villagers believe that the fertility of soils in their fields has increased and there has been an increase in the availability of firewood for domestic purposes.

Opportunities and constraints

The villagers face a constant threat from outsiders who come from the other side of the hill to smuggle timber. There has been no help received from the forest department to resolve this.



Some members of Tinikoniya Pahar Sanrakhan Samiti
Photo: Ashish Kothari

Conclusion

This case study reflects a direct relation between the socio-economic conditions of the villagers with forest resource exploitation. However, once villagers realize the long-term impact of forest degradation on their lives, they would come together to conserve resources against all odds. In this case, despite the villagers initiatives there seems a threat to the forests from outsiders. A little support here from the government agencies to resolve the issue of external threat as well as local livelihoods can go a long way in a secure future for the golden langurs.

The above information is provided by Hilloljyoti Singha, Zoology Department, Birjhora Mahavidyalaya, Assam.

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Chakrashila Wildlife Sanctuary, Dhubri

Background

The Chakrashila Wildlife Sanctuary is located in Dhubri district of Assam. The forests in the sanctuary are of dense semi-evergreen and moist deciduous type, with patches of grasslands and scattered bushes, and several water sources. The climate is temperate, with dry winters and hot summers followed by heavy rains.

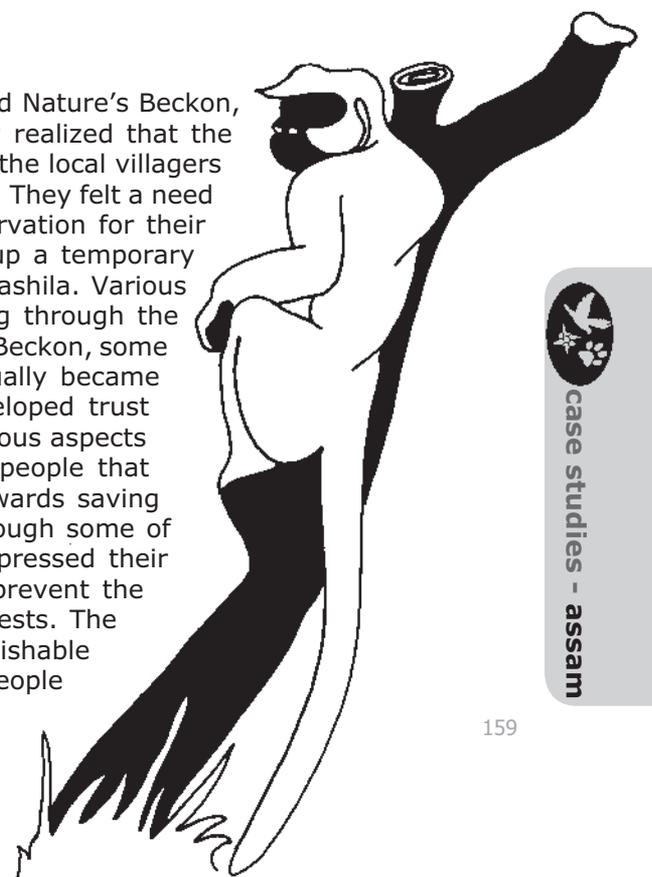
The diverse ecosystem has species like tiger, leopard, golden langur, leopard cat, gaur, crab-eating mongoose, Indian porcupine, pangolin, flying squirrel, and civet cat.

The tribes that inhabit the fringe villages of Chakrashila are the Rabha and Bodo. Besides them there are some Garo and the Rajbanshi tribals, along with some Muslim families as new entrants to the villages. Agriculture is the main occupation of the villagers, with paddy as the main crop. In addition to paddy, potatoes and green vegetables are grown for home consumption and a few livestock are kept. Most families own their own looms and weave their own cloth. The income levels of the villagers are low, and they depend upon the surrounding forest resources in order to meet most of their daily requirements, such as raw material for houses, agricultural and musical implements; and for food, fuel and fodder. Most of the protein in their diet comes from the forest areas in the form of fish, snails and insects. There is a heavy dependence on the perennial springs of the forest for irrigation and potable water.

Legally the forests of Chakrashila are categorized as USF (Unclassed State Forests).¹ The denudation of forests began here due to the extreme poverty of the local villagers. In order to earn a daily living, the villagers worked for the affluent merchants who hailed from different districts of Assam. They used the local villagers' services as labourers for extraction of firewood and valuable timber from these forests. Indiscriminate smuggling of sal and other valuable trees left this more than 5 sq km stretch of once-thick forest completely denuded. The degradation led to a scarcity of biomass for the local villagers. The major shortfall in the resources that could be used by the villagers led to the migration of youth to other places to seek employment. Most of them started working as labourers in the coalfields in Meghalaya, while the others came under the influence of political ideologies and took up arms. The rise in forest denudation led the villagers into encroaching deeper and deeper into the forest. This in turn caused further drastic shrinkage of the forests extending up to 20 sq km.

Towards community conservation

The conservation efforts were initiated by an NGO called Nature's Beckon, which has been visiting the area since the 1980s. They realized that the conservation of Chakrashila would not be possible unless the local villagers prevented outsiders from exploiting their forest resources. They felt a need to educate the local people on the importance of conservation for their own welfare. Towards this objective, in 1985 they set up a temporary settlement at Jornagra village on the periphery of Chakrashila. Various activities such as active bird-watching trips and trekking through the forest were taken up. Complimenting the work of Nature's Beckon, some of the village youth showed a keen interest and eventually became members of the group. Gradually, the local tribes developed trust towards the group and held active discussions on the various aspects of the environment. This group started convincing the people that the local people were the only ones who could work towards saving and restoring the natural resources of Chakrashila. Although some of the villagers were receptive to this suggestion, they expressed their inability and helplessness to take pro-active efforts to prevent the powerful merchants and poachers from invading the forests. The people were made to realize that these actions were a punishable offence and the benefit of the doubt would rest with the people who are working towards conservation.



The members of Nature's Beckon subsequently began visiting every house in Chakrashila and tried to understand the problems faced by them, like poverty, lack of education and poor health. The emphasis on women participation in environmental management was realized. It took a year for this NGO to gather the total support of the entire village, and hence November 1988 was selected for direct action against the poachers and smugglers.

Initially the villagers faced several violent clashes, which led to injuries to some youth, yet help from the forest department was not sought. They did not want to be dependent on any external agency for their needs. The youth repeatedly confronted the poachers and smugglers, often resulting in injury and death. On one such occasion a truck, which had entered the forest to smuggle trees, was burnt and a huge quantity of saws, axes, other tree-felling equipment and a few arms were seized. All the seized material was handed over to the forest department. In appreciation of their dedicated work, the state government rewarded them with an amount of Rs 5,000 from the Chief Minister's Relief Fund, which further boosted the villager's morale.

Since the periphery is mainly a sal-dominated forest, the green canopy was restored in no time, especially with round-the-clock vigilance of the villagers.

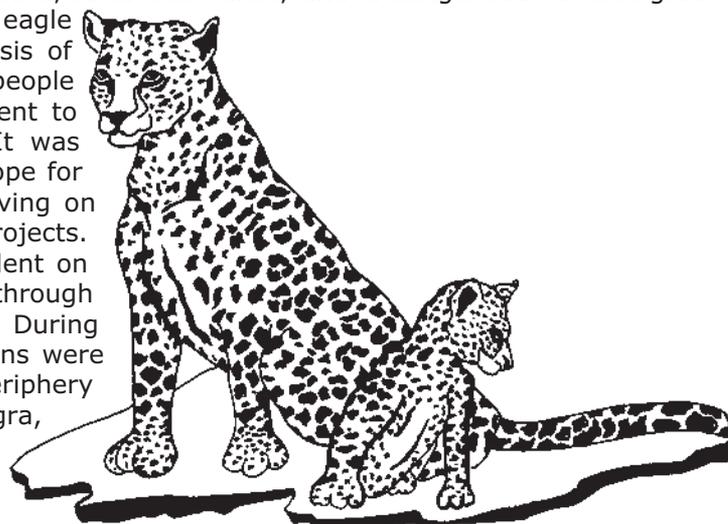
Constructive work also began simultaneously in the village itself. Due to paucity of funds, initial support was provided from the sale of Non-Timber Forest Products (NTFP) such as thatch, bamboo and grass. Villagers were encouraged to cultivate their traditional foods like wildflowers, edible roots such as tapioca, and to raise edible insects. They were also encouraged to eat their traditional foods like snails, field rats and crabs.

Kitchen gardens were raised with help from Nature's Beckon, who supplied the villagers with the various vegetable seeds. Poultry and pigs were raised which helped them to sustain themselves and were an added source of income. Weaving, which is a vital source of income for the tribal families, was started anew in many poor families.

Impacts of conservation

There was a remarkable effect after conservation efforts by the villagers providing them a sense of self-respect by way of improvement in their economic condition. They set an example to adjacent villages like Abhyakuti, Bandarpara, Kaljani, Damodarpur, Banshbari and many others. These villages approached Nature's Beckon to provide assistance. When the other villages around the Chakrashila Hills Reserve joined the effort, the need for an office and a training centre for the youth and women was felt. A campus, Tapoban, was developed for this purpose at no extra cost, as most of the work and resources necessary came spontaneously from the villagers. It is now a vital centre of learning and offers hospitality to naturalists and enlightened tourists from faraway places. Villagers are taught to plant trees, shrubs, medicinal plants, edible roots, fast-growing fuelwood trees, fruits and flowers, thatch and bamboo so that they could be spared the drudgery of collecting these from deep inside the forest. A small project of digging furrows to connect cultivable land and a perennial source of water has resulted in doubling of production of crops.

A forest area survey was taken up by Nature's Beckon. A checklist of birds, mammals, reptiles, plants and other species was prepared. It was discovered that not only was Chakrashila home to the endangered golden langur but was also a habitat of many other endangered mammals like Chinese pangolin, crab-eating mongoose, clouded leopard, leopard, gaur, tiger; endangered reptiles like monitor lizard, water monitor, king cobra, Asian leaf turtle; and endangered birds like great hornbill, oriental pied hornbill, Eurasian eagle owl, osprey, black baza, etc. On the basis of this information, the NGO along with the people decided to approach the forest department to declare the area a wildlife sanctuary. It was thought that this would provide more scope for the social development of the villages living on the periphery through eco-development projects. When the state government remained silent on this issue, public pressure was created through repeated appeals and media coverage. During this period, from 1988 to 1994 plantations were taken up in the denuded areas on the periphery of Chakrashila in the villages of Jornagra, Abhyakuti, Kaljani, Damadarpur, Bandarpara and Chakrashila. The different



species that were planted were sal, poma, *Sida* spp., phulgamari, oxi, kum, bhelu, koroi, sonaru, jam and simul. Most of them were planted for the golden langur and other wild animals. Artificial salt licks² were also created for the animals inside the forest. The villagers volunteered to clear weeds like lajukilata, jarmony bon, etc., which inhibit growth in the forest. Through all these activities the villagers continued to zealously guard the forests. Signboards of various kinds were also installed.

On 14 July 1994, the Governor of Assam notified the area a Wildlife Sanctuary. After the notification, Chakrashila started receiving funds for the socio-economic development of the fringe villages. However, the forest department did not discuss the planning or implementation of the scheme and utilization of funds therein with the villagers or local NGOs. The people feel that the funds have been misused. Chakrashila is still being protected by the village communities. Nature's Beckon has taken the initiative of developing infrastructure inside the fringe villages of Chakrashila. With the cooperation of B.R. Samal, Deputy Commissioner of Dhubri District, village roads, wells for drinking water, sanitary latrines for every household and brick houses with corrugated iron sheet roofing for every family were constructed. The brick houses were constructed for 160 families, making Jornagra perhaps the only tribal village in Assam with all these facilities for all the households.

Constraints and opportunities

Some of the constraints of community-based conservation in Chakrashila are:

1. Total lack of infrastructure for the management of the biodiversity (such as specialized field equipment) for this protected area.
2. Uncertain tenurial rights of the villagers over the forest resources.
3. Lack of knowledge among local people regarding government policies and laws relating to protected areas.

Conclusion

This case study reflects on the combined efforts towards forest protection by an NGO as well as the villagers. The main motive of forest protection has been realized by the villagers by way of understanding its importance and has led to forest regeneration. However there still is a need for transparent operations between the villagers and the government, as also for regulated resource use and for changes in the infrastructure.

This case study is based on S. Datta, 'An NGO Initiated Sanctuary: Chakrashila, India'. In A. Kothari, N. Pathak, R.V. Anuradha, and B. Taneja, *Communities and Conservation: Natural Resource management in South and Central Asia* (New Delhi, Sage Publications and UNESCO, 1998). We are thankful to the author for updating the information in August 2002.

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Endnotes

¹ These kinds of forests are considered to be acquired by the government but have not been assigned any specific categories so far. Local communities do not consider these as government owned forests and often continue to use and manage these as community forests.

² Salt licks are natural deposits or blocks of rock salt which animals particularly mammals lick. Artificial salt licks are created in the forest for the benefit of animals by burying 15-20 kilograms of salt into the earth in suitable locations inside the forest (generally created near waterholes of the forest), which are frequented by wild animals.

Khawrakrai, Karbi-Anglang District

Background

Khawrakrai village is located near the town of Hamren. This is a small village inhabited by the karbi tribe. Since 2003 the village is protecting an area of 6.70sq km. Prior to this the entire forest land was used for *jhum* (shifting cultivation) by the villagers.

In the 1990s the area was also extensively harvested for a local species of bamboo for paper mills. Illegal extraction of timber was also common. These activities resulted in severe degradation of local forest resources. Subsequently, the communities started experiencing scarcity of water, firewood, grazing land, construction material, wild edible plants, and wild animals in the forests.

Because of an earlier intervention from the forest department (FD), where they had helped villagers plant some forest species, the communities were already aware of the importance of forests. With the entry of the NERCORMP-IFAD¹ project, the communities decided to revive protection of their village reserved forests as a community conserved area.

Towards community conservation

The community decided to conserve the area for various reasons, mainly for protecting their water source. Additionally, their traditional sacred forest was located very close to this area.

NERCORMP-IFAD came to this village in 2001. The communities were organized into Natural Resource Management Group (NaRMG) and a series of orientations and trainings on livelihoods and natural resource management were conducted for the communities, including both the NaRMG and traditional village institutions. All the trainings and discussions were held with the permission of the village *goan bura* (village headman), who is traditionally the sole authority for management of village reserved forests. NaRMG members were trained and sensitized to assist the village council in protection, management and governance of the village reserved forests.

Rules and regulations were framed by the villagers with the help and facilitation by the project team and partner NGO. The rules are quite rigid mostly relating to prohibition and payment of penalties for violations. But at the same time some rules are quite flexible for poor villagers, especially for harvesting of non-timber forest produce (NTFP). However, no such relaxations are provided for the higher income households. For any amendment of the rules a majority of the villagers have to be present along with the village *goan bura*. Generally in such meetings the *goan bura* would preside.

Impacts of community effort

As per the villagers, after the conservation of this area there has been better water availability. There is an overall improvement on forest cover and forest regeneration. Some wild animals are also reported to have returned to the forest area. The conservation efforts have particularly benefited the poorer households as they can get enough forest resources within their village proximity.

Opportunities and constraints

There is an opportunity for increasing the area under CCA provided the NaRMG and village council (VC) agree. There are also opportunities for the communities to enhance their income from the village reserve forests if major NTFP, which is bamboo, can be better protected, regenerated and collectively harvested. However, the constraints are that the area is poorly connected and remote so economic opportunities are restricted. Investment opportunities, particularly credit from local sources are also limited which otherwise would have helped the communities improve their livelihoods through alternative means. Shifting cultivation continues to be one of the major land uses as available suitable lands for terrace development are limited. Further training and



convergence of activities are needed to benefit the communities from such conservation efforts or initiatives.

Conclusion

The rejuvenation of village reserves through a mobilized community is a fairly recent initiative. The reserve in this village is yet to be fully regenerated, and also yet to reach the level of governance that is completely equitable, transparent and accountable. However, the idea of conservation as initiated in this village is spreading in the surrounding villages. If only there could have been greater efforts from the government, the project ideas could have been replicated in many more villages through the communities themselves with minimal external investment of effort and resources.

This case study has been contributed by Vincent Darlong and Tutumoni Lyngdoh of North Eastern Region Community Resource Management Project for Upland Areas, and Putul Bhuyan of Karbi Anglong Community Resource Management Society in June 2007.

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Endnotes

¹ North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP) is a Joint Project of International Fund for Agriculture (IFAD) and the Government of India, Ministry of Development of North Eastern Region, North East Council, Shillong, Meghalaya. For more details on the programme, see www.necorps.org



New Kubing village, North Cachar Hills district

Background

New Kubing village is located in the North Cachar Hills District of Assam. The nearest town is Haflong. The village like others in the district had a traditional practice of protecting a patch of forest as village reserves. This practice was revived under the NERCORMP-IFAD¹ programme in 2001.

As per the District Council Act in North Cachar Hills, Assam, when a new village is created or established, it is mandatory to have village reserve forest of at least 20ha. The village reserve of New Kubing was first declared in 1950 when the village was established. The reserve covers an area of 6sq km or 600ha. However, over the years with an increase in the population, pressure on land began to mount and the villagers began to *jhum* (shifting cultivation) randomly. In many cases this even meant encroaching upon the village reserved forest. The traditional institutions, expected to manage or protect these forests also became somewhat ineffective over years due to various reasons and influences. Like most other villages, New Kubing, which is inhabited by the zeme nagas, also experienced similar problems. As a result the traditional village reserved forest was severely degraded.

Prior to the NERCORMP-IFAD project intervention, the villagers faced water scarcity and change in local climatic conditions due to encroachment in the reserve forest and degradation of water catchments areas. After the project intervention and various awareness programmes, the community felt the need to conserve and protect village reserve forest and water catchment area.

Towards community conservation

The NERCORMP-IFAD programme was initiated in 2001 by organising the local community into a natural resource management group (NaRMG). A series of orientation and training sessions on livelihoods and natural resource management were conducted. The members of the village council (VC) were brought in as members of NaRMG. They were also requested to strengthen the functioning of the VC, particularly in the areas of forest protection and management. A comprehensive forest management training was conducted in collaboration with the forest department (FD) on effective community forest management and revival of community conserved areas.

The community through the NaRMG and VC decided to maintain and protect the old traditional village reserved forest in addition to a nearby critical water catchment area. They also made rules and regulations for maintaining this reserved forest, including:

- i. Illegal felling of trees will attract a penalty of Rs.500/- per tree, in addition to planting and maintenance of the equivalent numbers of trees as felled.
- ii. *Jhuming* in the reserved area is prohibited and violation would attract a payment of fine such as a *salem* (a buffalo head).
- iii. Illegal timbering and killing of wild animals is prohibited. Willful violation of these rules will result in the eviction of the person/family from the village.
- iv. Making proper firelines while slashing and burning for *jhum* will be mandatory for every household. Any accidental forest fire has to be collectively attended by all the villagers as a fundamental duty.

Before drafting of rules and regulations, the NaRMGs were advised to be more sensitive to the needs of the poor and the women such that their livelihoods are not negatively affected. In the initial period the rules were more strict. With the improvement of the forest regeneration and improved governance, the communities have in recent times revisited their rules and regulations. Revised rules allow collection of wild vegetables, firewood (only dry branches), mushroom and medicinal plants to the women and the poorest households as identified by them. In case of an emergency situation, trees can also be cut for house construction and collection of firewood (such as marriage of poor households). This is not with the aim to relax prohibitions for the poor, women



and underprivileged, but to improve their livelihood opportunities and income condition through improved conservation practices. The village is also encouraging every household to carry out plantations in their respective vacant plots.

Impacts of community effort

NERCORMP-IFAD project interventions, such as training programmes, workshops on comprehensive forest management, biodiversity conservation and *jhum*, fallow management, introduction of participatory land use planning through the use of 3D models of their area, and others have enabled the communities to visualize the total village area, natural resources within and around the village, land use system, and so on. This has made the community realize the importance and values of bringing more forest areas (including fallow land) under community conservation and also the need to increase the *jhum* cycle.

As per the community's views the following reflect the importance of biodiversity conservation:

- i) Availability of water throughout the season, for kitchen garden, terrace development, minor irrigation and drinking water.
- ii) Availability of wild vegetables and other NTFP for self-consumption and sale.
- iii) Availability of firewood in time of need and requirement.
- iv) A healthy environment and improvement in local climatic condition around the village area due to increased forest cover.
- v) Increased income from kitchen garden and terrace development.
- vi) Less dependence on *jhum*, thus making time available for additional off-farm activities such as piggery, petty business, and so on.
- vii) Elimination of *hajira* (daily wage labour) outside the village, particularly for women.
- viii) Gains in human, social, physical and natural assets of the individuals and the community as a whole.

Opportunities and constraints

The government sponsored Joint Forest Management (JFM) has been introduced by the FD in the village due to the regenerated community reserved forest. There is a promise for higher investment under JFM for forest protection and management, and also for non-forest/non-land based livelihood activities. The community is however still not too clear in what way they would benefit by being part of the JFM. Their tribe members from other villages are noticing their progress and are also very keen to replicate their success story, which the village community is sharing with pride and conviction. Within the village the NaRMG and VC members are deliberating on whether or not to increase areas under conservation and what benefit that might bring to them both economically and ecologically.

The greatest constraint is that the people are generally economically weak, but their need for cash income is growing due to increasing expenditure for education, health care and general household expenses. Many households are looking at the current conservation effort as the possible source of economic returns. However, this may not be achieved as much as expected due to various other constraints such as absence of working scheme for harvesting of timber, among others.

Conclusion

The community has revived village reserved forest with the assistance of NERCORMP-IFAD project. They are now also deriving benefits from such conservation efforts. However, efforts need to be strengthened in certain areas which include:

- Linkages with the FD and other concerned government departments.
- Policy sustainability i.e. the efforts of the community to promote conservation through appropriate incentives and recognition by the government.
- Institutional sustainability, i.e. the continuity of the NaRMG and strengthening of the VC particularly in governance and financial matters.

- Financial sustainability.
- Technological sustainability.

The biodiversity assessment of the area is yet to be done. The village reserved forest has many varieties of plant and wild animals. Some of the important animals seen in the forest and vicinity are wild boar, deer, monkeys, fox, squirrels, wild fowl and bear, among others.

This case study has been contributed by Dr. Vincent Darlong of North Eastern Region Community Resource Management Project for Upland Areas, Mary Hmar of North Cachar Hills Community Resource Management Society, and Tutumoni Lyngdoh of North Eastern Region Community Resource Management Project for Upland Areas in June 2007.

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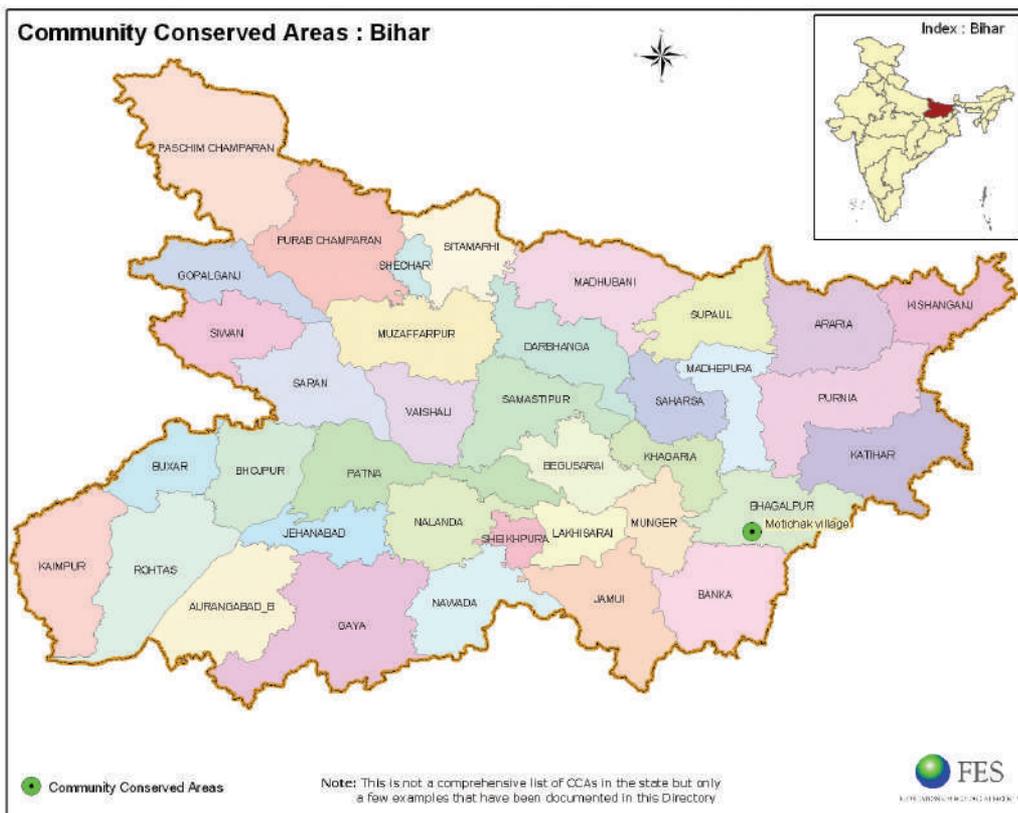
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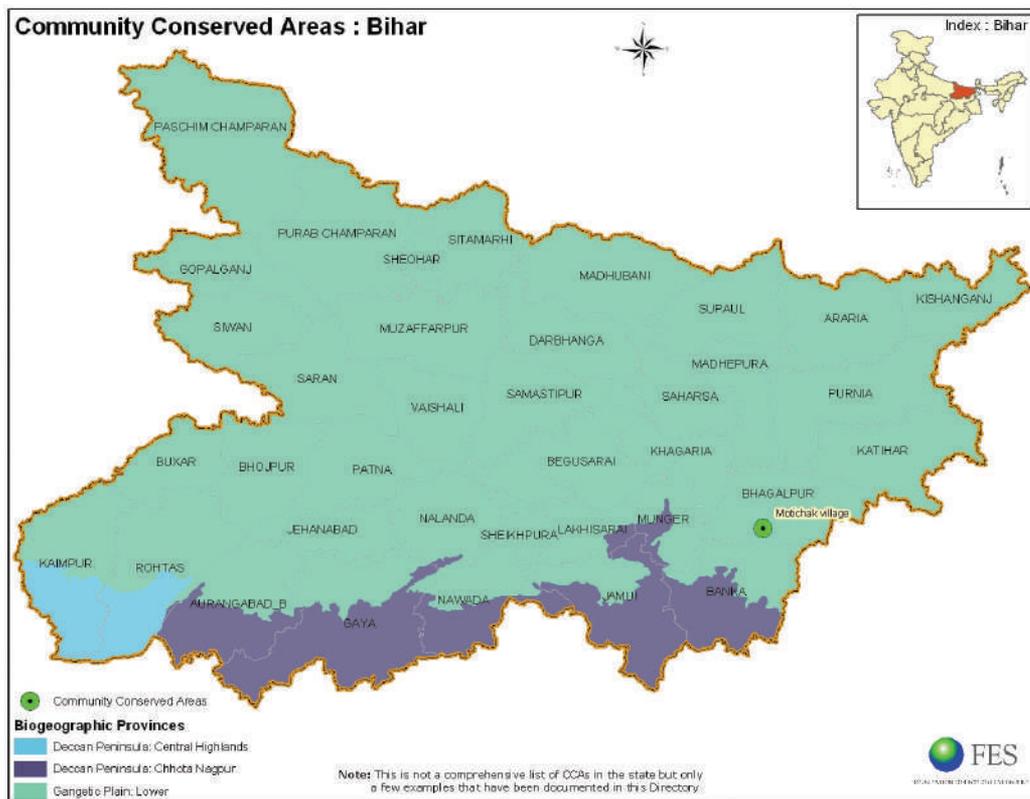
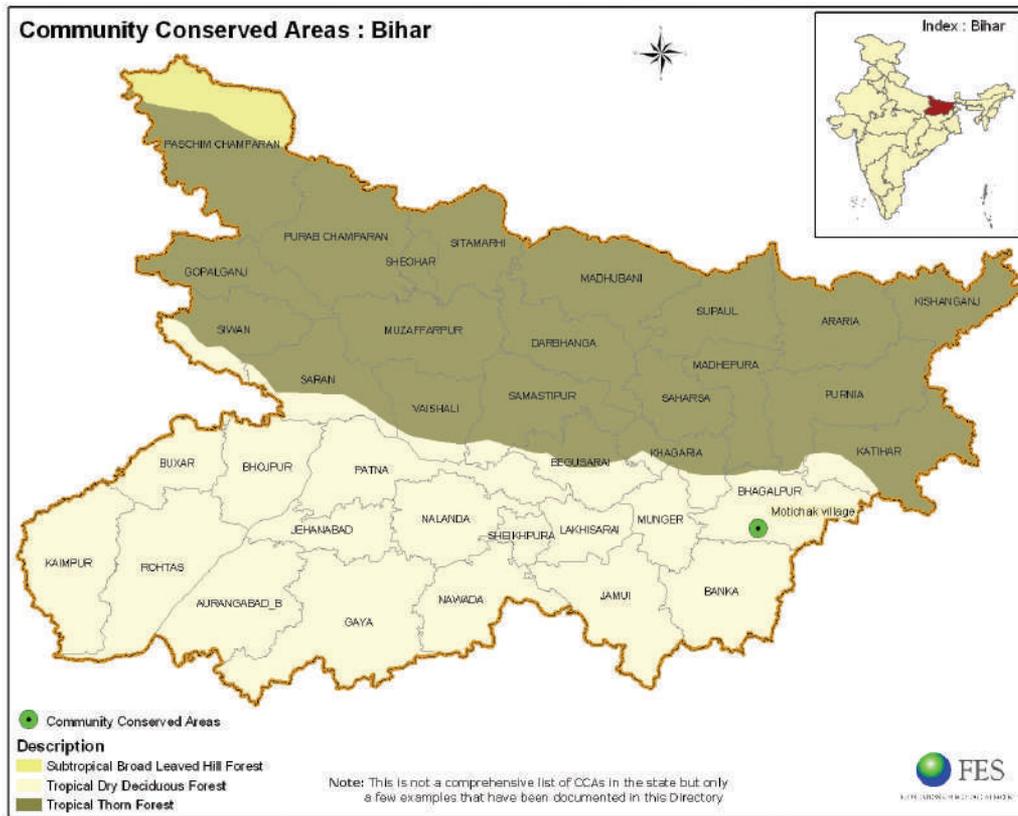
Endnotes

¹ North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP) is a Joint Project of International Fund for Agriculture (IFAD) and the Government of India, Ministry of Development of North Eastern Region, North East Council, Shillong, Meghalaya. For more details on the programme, see www.necorps.org.



Bihar







Bihar - an introduction

Location and biogeography

Bihar is located in the eastern part of the country. It is an entirely land-locked state, although the outlet to the sea through the port of Kolkata is not far away. Bihar lies mid-way between the humid West Bengal in the east and the sub humid Uttar Pradesh in the west which provides it with a transitional position in respect of climate, economy and culture. It is bounded by Nepal in the north and by Jharkhand in the south. The Bihar plains are divided into two unequal halves by the river Ganga that flows through the middle from west to east. The total geographical area of the state is 94,164sq km.

Bihar lies in the tropical to sub tropical region. Rainfall here is the most significant factor in determining the nature of vegetation. Bihar has a monsoon climate with an average annual rainfall of 1200 mm. Northern Bihar is almost entirely a level tract, while the south is wooded and hilly. North Bihar is extremely fertile. The Himalayan Mountains in the north have a significant bearing on the distribution of monsoon rainfall in Bihar. Bihar is watered by numerous rivers like Ganga, Kosi, Gandak, Burhi Gandak, Kamla-Balan, Baghmatai, Kareh, Mahananda, Adhwara, among others. Steatite, Pyrites, Quartzite, Crude Mica and Limestone are among the major minerals found in the state.

The topography of Bihar can be easily described as a fertile alluvial plain occupying the Gangetic Valley. The plain extends from the foothills of the Himalayas in the north to a few miles south of the River Ganga. Four distinct regions can be recognized in the state, which are: The North Ganga plains, the alluvial plains of North West, the South Bihar plains and the alluvial filling south of Ganga.

Biodiversity

The sub Himalayan foothills of Someshwar and Dun ranges in Champaran constitute a belt of moist deciduous forests. These also consist of scrub, grass and reeds. Here the rainfall is above 1,600 mm which promotes luxuriant sal forests. The hot and dry summer contributes to the deciduous nature of forests. The most important trees are sal, shisham, toona, khair, and semal. This type of forest also occurs in Saharasa and Purnia districts. Rich farmland and lush orchards extend throughout the state.

The notified forest area in the state is about 6473sq km or 6.87%. Of this protected forest is 692.89sq km (10.70%), reserve forest is 5778.89sq km (89.20%) and the rest is non classified forest. The Gangetic dolphin, leopard, tiger, wild buffalo, four horned antelope, Indian elephant, swamp deer, hog deer and gaur are some of the important mammals in the state.

Socio-economic profile

The population of state of Bihar according to 2001 census is 82,998,509. Till 1991 Census, the composite state of Bihar was the second most populous state in the country (containing slightly more than 10 percent of the country's population), next only to Uttar Pradesh. However, after bifurcation of the state of Bihar and creation of the new state of Jharkhand, the rank of Bihar among the states of India has slipped down to third.

Bihar has a very small tribal population spread largely in the bordering areas of Jharkhand. The State has a total of 23 scheduled castes as per 2001 census. The major tribes in Bihar are Santhal, Kharwar, Tharu and Dhangad. The most notable among the schedule castes are bhumij, chamar (Mochi), dhobi, dom, dusadh, musahar, nat and pasi. The major dialects of Hindi in the state are: Bhojpuri, Magahi and Maithili. The main occupation of the people is agriculture. Cattle-rearing is practiced by settled cultivators. The principal food grain crops are rice, wheat, maize and pulses. Main cash crops are sugarcane, oilseeds, tobacco, jute and potato. 90% of farmers in Bihar grow rice. Major industries include cotton spinning mills, sugar mills, jute mills, rice mills, woolen weaving, tussar silk production and leather industries.

The state of Bihar is densely populated by agrarian communities exerting ever-growing demands for agricultural lands. Their needs of fuel wood have been mainly responsible for depletion of plant cover forest and turning of vast tract of land into waste land. Reclamation of wastelands and wetlands for human uses has left animal life vulnerable or declining with no end in the sight. There are 1450 saw mills as legal against 3900 saw mills running illegally in Bihar.

Natural calamities like recurring floods and rivers changing their courses have heavy impacts on animals, human life and property, and wildlife habitat. Rivers are highly polluted as industries flout pollution control norms which have severely endangered the floral and faunal biodiversity and the traditional agriculture practices in their vicinity. Poaching, mismanagement of aquatic resources, pollution, deforestation and lax management of forest areas are the major issues in Bihar state related to environment.

Conservation

As part of conservation initiative state forest department manages 12 wildlife sanctuaries, 1 national park (Valmiki National park), 2 tiger reserves (Palamau Tiger Reserve and Valmiki Tiger Reserve), 1 closed area (Gogabil Pakshi Vihar) and 1 botanical garden. International Bird Conservation Network (IBCN) facilitated by the Bombay Natural History Society (BNHS) and Birdlife International has identified 11 Important Bird Areas (IBAs) in the state¹. Additionally, 11 sites are proposed to be identified as Ramsar sites as per Ramsar Convention².

NEAC (National Environmental Awareness Campaign) by the government seems to have generated an interest in and support to the NGOs in the state. Many individuals like. R.K.Sinha (popularly known as the Dolphin Man), B.K. Sinha, NGOs like BNHS, SACON (Salim Ali Centre for Ornithology and Natural History), Mandar Nature Club (MNC), The UNESCO Club of Darbhanga and Society for Conservation of Flora & Fauna are contributing significantly to various environmental issues in the state. Army from Danapur cantonment and Paharpur camp are also contributing through conserving bird habitats and afforestation drives.

Bihar state is blessed with rich traditions and heritage being the land of Buddha, Mahavir, Ashoka and other Magadh emperors who had been the great conservationists of biodiversity. Till today many of these conservation traditions and rituals which connect humans to nature exist and are practiced widely throughout the state. Some efforts by the local communities at conservation have also been reported. Some such examples are mentioned below but details are not available for most any except Motichak village in Bhagalpur district.

These efforts towards participatory biodiversity conservation in the state include:

S. no.	Name of the area	Location (District)	Kind Of effort	Area
1.	Gonda and Rahama villages	North Karnapura	Forest protection	Not available
2.	22 villages and Hazaribaug	Hazaribaug	Forest protection	Not available
3.	Uishiya Village	West Singbhum	Forest protection	> 5,000 acres
4.	Sacred Groves of Palamau Tiger Reserve	Daltonganj	Sacred groves protection	Not available
5	Motichak	Bhagalpur	Protection of greater and lesser adjutant storks	Entire village area

This information is compiled by Saili S. Palande based on Bihar profile <http://gov.bih.nic.in/Profile/default.htm> and Mishra, A. Draft Report Biodiversity Strategy and Action Plan for Bihar, in the document TPCG and Kalpavriksh. *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan*. Prepared by the NBSAP Technical and Policy Core Group. (Pune, Kalpavriksh, 2005).

Endnotes

¹ Source: M.Z. Islam and A.R. Rahmani. *Important Bird Areas of India: Priorities of Conservation-IBCN*, BNHS, UK: Bird Life International, 2004.

² M.Z.Islam and A.R. Rahmani. *Potential Ramsar Sites in India*. IBCN:BNHS and Birdlife International, 2006.



CCA/Bihar/CS1/Bhagalpur/Motichak/Adjutant stork breeding site

Motichak, Bhagalpur

Background

At the beginning of the twentieth century, the greater adjutant storks were found in huge numbers, in much of South and South-East Asia from Pakistan through northern India, Nepal and Bangladesh to Myanmar, Thailand, Laos, Vietnam and Cambodia. Over the last hundred years, a massive decline has taken place and their breeding population has confined to only two places in the world one in Assam in India and the other in Cambodia. However its foraging population survives mainly in the flood plains of Brahmaputra, Ganga and Kosi region. Some reports of breeding populations of the greater adjutant had come from Uttar Pradesh in the year 1865-1868 and from Orissa in 1889-1890 but were not authenticated as mentioned in the Red Data Book¹.



Colony of greater adjutant storks at Motichak village Photo: Arvind Mishra

IUCN (the World Conservation Union) has categorized this species as endangered in the year 2002. Its total world population has been estimated to be 700-800. 80% of the breeding population of this species is found in Assam in India and rest in Cambodia. The authors of this case study have identified the first ever nesting of greater adjutant in Bihar as the third breeding range of this species in the world.²

In India nine species of storks are found. Among these, the white stork, oriental stork and black storks are migratory and the greater adjutant, lesser adjutant, black necked stork, Asian openbill or openbilled stork, woolly necked stork or white necked stork, and painted stork are resident.

Out of these nine species of storks, seven are seen around Bhagalpur district of Bihar. The members of Mandar Nature Club (MNC) based in Bhagalpur have found the breeding sites of four species of these storks in the area i.e. the Asian openbill, black necked stork, lesser adjutant and the greater adjutant. While the greater adjutant has the status of endangered category, the lesser adjutant is categorized as vulnerable by the IUCN under the list of threatened birds of Asia. In Bhagalpur both these species are seen breeding on the same trees. Black necked stork and painted stork have been categorized by IUCN as nearly threatened species.

Towards community conservation

Both the greater adjutant and the lesser adjutant are known to breed close to human habitation. Lesser adjutant have been seen breeding on semal, peepal, banyan and mango trees in the state. In the newly discovered breeding site both of these species seem to be preferring semal trees located in Motichak village of Bhagalpur district. Locally the storks are called as *garud*³ and the greater adjutant as *bada garud* or *hargilla* because they have a large neck pouch. The *garud* have a great mythological importance among the Hindus in India as they are known to be the careers of lord Vishnu.

Villagers in Motichak village have been traditionally protecting the birds from the nomadic hunter gatherer tribe, Banpar, locally called the Gulgulwas. There have been reports of the local villagers snatching the catapult from the banpars and driving them away from the nesting site of these birds. The villagers had been doing this without the knowledge of the threatened status of these birds.

Once the breeding site was discovered by the MNC members, the villagers were skeptical about their intentions behind visiting the site. Over a period of time an environment of trust and friendship



developed between the villagers and the MNC members. Through the bird watchers the villagers became aware about the threatened status of the adjutant species and their zeal to protect these birds increased. Villagers are now sentimentally attached with the trees on which the birds nest. Once when a chick of a lesser adjutant died after falling from the tree, even the women and children came to its rescue. The next morning all women, children and the youth were sad as the chick did not survive.

Threats to the Greater adjutant

Some of the main threats being faced by these birds include the following:

1. Habitat destruction
2. Hunting by local nomadic, hunter, gatherer tribe called the Banpars, who collect the eggs and chicks of the birds and hunt them for food and trade.
3. Extensive use of the anti-inflammatory medicine Diclofenac for veterinary purposes (also the reason for the forced, near extinction of vulture population in India). Greater adjutant often feed on carcasses of dead livestock and are likely to be decimated like the vultures if Diclofenac is not banned in the state.
4. Lack of awareness about their threatened status.

Conclusion

More extensive surveys are required at micro levels to find out the exact status of both foraging and breeding populations of these birds in the state. This species needs to be listed under schedule I of Wild Life (Protection) Act (under which the threatened species in India are listed and protected).

The forest department needs to take a greater interest in conserving this species along with the local people. High level of awareness is required to be generated among the rural people about the status of these birds. Plantation of semal trees close to their nesting sites needs to be encouraged.

This case study has been contributed by Arvind Mishra, the State Coordinator of Bihar and Jharkhand for Indian Bird Conservation Network (IBCN) who is also the member State Board for Wildlife, Govt. of Bihar and member editorial board, Newsletter for Birdwatchers along with his team of Mandar Nature Club (MNC), Bhagalpur, Jainandan Mandal, D.N. Choudhary, Sunil Agrawal, Tapan Kumar Pan and Tapan Kumar Ghosh. This case study was contributed in January 2007.

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Greater adjutant stork nesting
Photo: Arvind Mishra

Endnotes

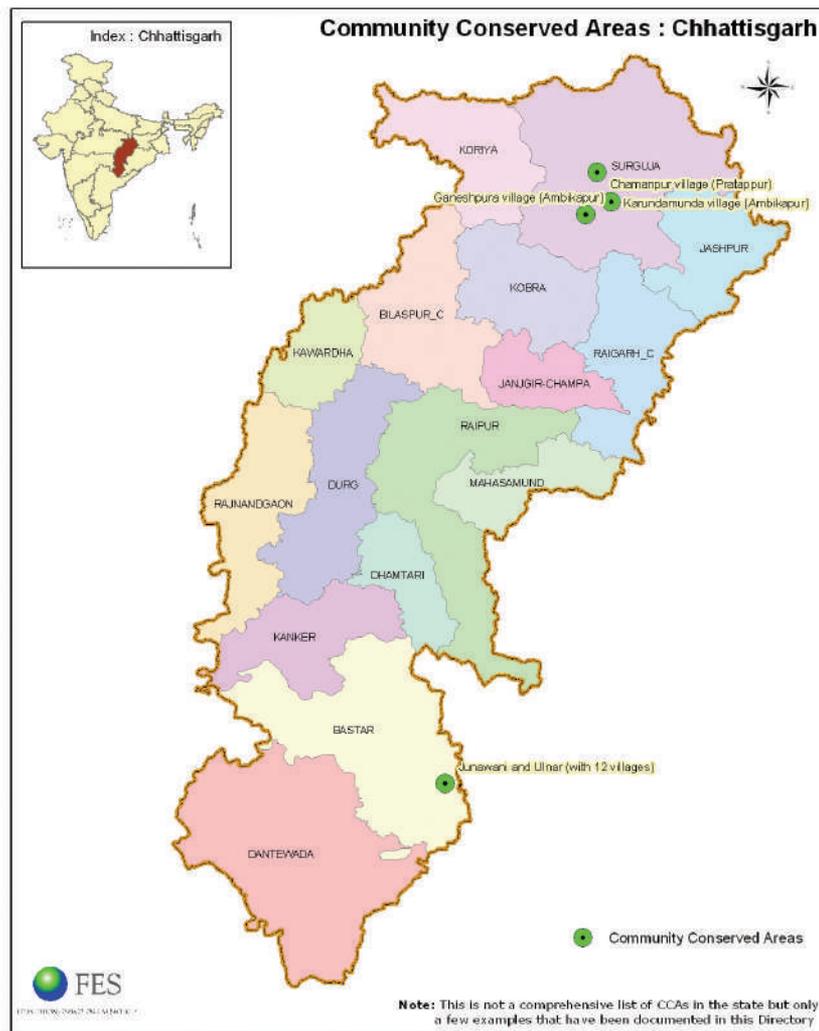
¹ A database on the endangered species of flora and fauna.

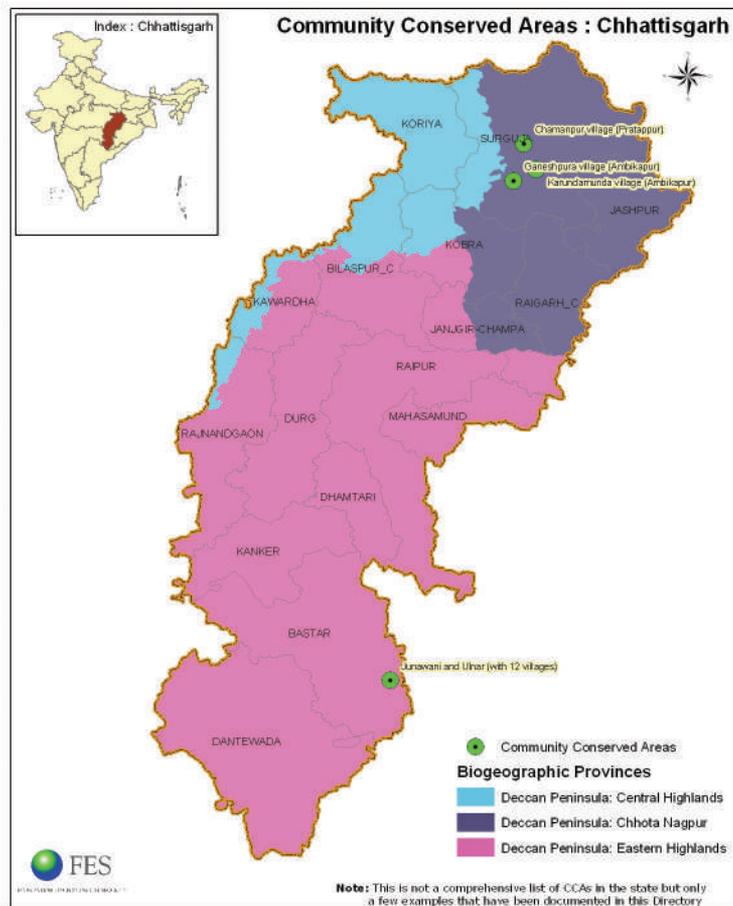
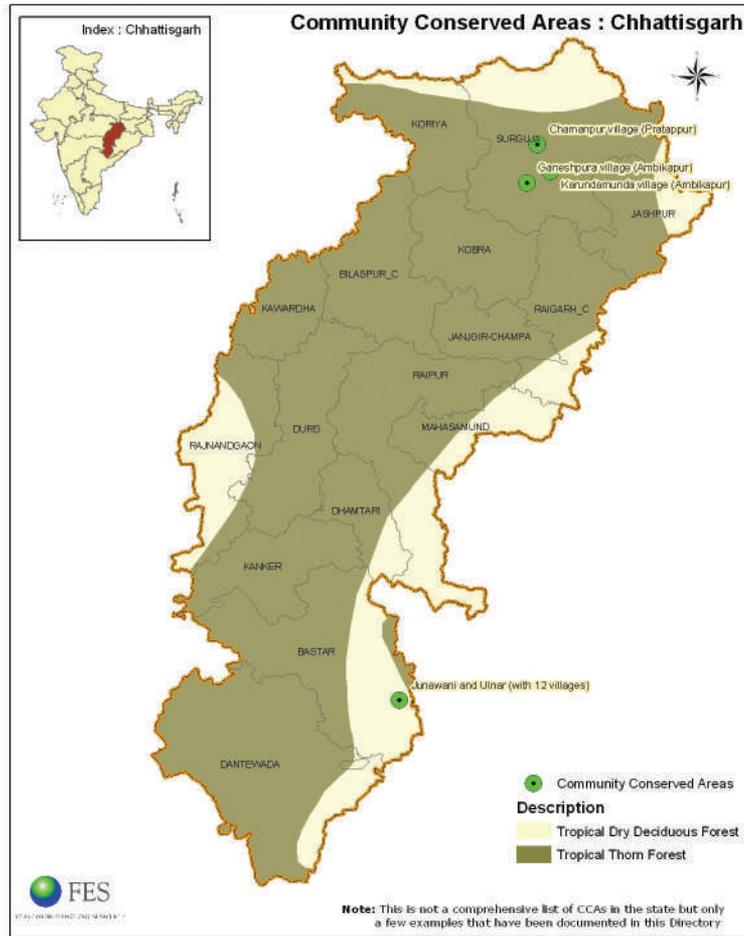
² A. Mishra, J. Nandan, Mandal and T. K. Gosh, 'Breeding of Lesser Adjutant from an unexplored area of Kosi region of N. Bihar'. *Newsletter for Birdwatchers*, Vol. 44, No.6, Nov– Dec 2004.

A. Mishra, J. Nandan, Mandal and T. K. Gosh, 'First ever reporting of the breeding population of lesser adjutant in Bihar'. *Mistnet*, Vol. 7, No.1, Jan-Mar, 2006.

³ In this area all the storks in general are referred to as *garud*, connected to the Hindu mythological epic of Ramayan in which *garud* the bird helped lord Ram in his war of goodness over evil.

Chhattisgarh







Conservation, local practices, and innovation: Natural resource management in Chhattisgarh

Archana Prasad

Author's note

In this chapter, I look at community conservation practices in the context of a crisis in natural resource management in the newly formed Chhattisgarh State. Epitomised by the century's worst drought,¹ this crisis is a reflection of the mismanagement of land, water and forest resources. Neo-Gandhian and radical left-oriented activists in the region see the centralised control of resources as the main culprit for the present environmental crisis. Many contend that traditional patterns of resource use and conservation must be restored if the aim of sustainable development is to be achieved.²

While this critique of modern conservation practices is valid, it ignores the feudal context in which traditional conservation systems were embedded. Community conservation in the Chhattisgarh context cannot be seen merely in terms of oral traditions and prevailing terms of use, but should be seen mostly in terms of the local community's ability to utilise their resources sustainably so as to reap the benefits of that particular resource over extended periods of time. This requires the adaptation of local skills and knowledge of prevalent situations and the development of new and innovative decentralised systems of resource management through a confluence of local, 'indigenous' and scientific knowledge.

If such programmes are to be effectively implemented, the term 'community' should be redefined in a way that it can include the creation of new collective identities. These identities are not representative of the 'traditional culture or identity' of the local people, but are based on a process of social engineering that attempts to establish relationships of social equity. This equity has to be seen in terms of both access to productive resources as well as the distribution of benefits—a principle not followed by a majority of local institutions currently. It is therefore not possible to see conservation practices as isolated from their vision of society, economy and polity as a whole. I argue that social and economic transformations are integral to community conservation initiatives in the context of the interventions of the Chhattisgarh Mukti Morcha, Ekta Parishad, the People's Science Movement and the efforts of an empowered women's group. The efforts of these groups and movements show that new social identities form the basis of community conservation efforts with a view to ensuring that the marginalised sections of the population benefit the most from it.

1. Background

1.1. Geographic profile

The state of Chhattisgarh was formed on 1 November 2000 through an Act of Parliament entitled 'Reorganisation of Madhya Pradesh Act'. It is situated in the east of Madhya Pradesh 17° to 23°7' degree North latitude and 80°04' to 83°38' East longitude. The total area of the state is 1.35 lakh sq km.

The region is primarily drained by the Mahanadi River. The average annual rainfall is 60 inches. Chhattisgarh consists of three natural regions, rich in minerals, forest produce and fertile alluvial plains. The first natural formation is the plateau of Baghelkhand that joins the Jharkhand plateau to the north. Contiguous to the Gondwana region, it stretches from Sarguja District in the north to the northern parts of Bilaspur District. The region is



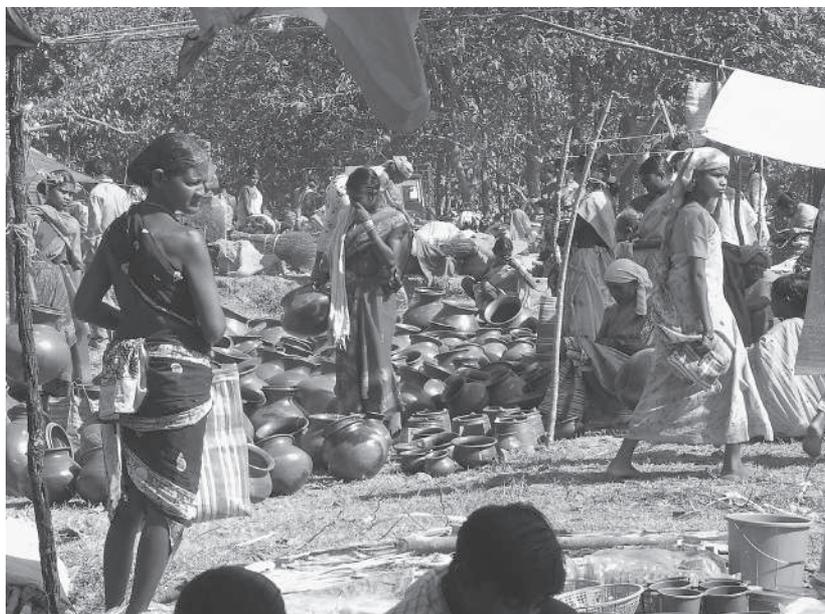
A typical forest landscape in Chhattisgarh
Photo: Madhu Ramnath

drained primarily by the Son river, which separates Chhattisgarh from the rest of Madhya Pradesh. The area is rich in Kosa silk, Chappa in Bilaspur being the main centre of trade. Large industrial concerns in the Sarguja area are engaged in mining of coal, bauxite and limestone. The area is rich in forests, especially mixed forests of sal, mahua, amla, shisham, semul, rohini and palas. The Kodaku, the Pahadi Korba and the Nagesia are among the tribal groups dependent on seasonal gathering and cultivation in the region. Around a third of the population migrates to cities in other states for wage labour after the harvesting season is over.

The second ecological zone consists of the Chhattisgarh Plains in southern Bilaspur, Raipur, Durg, Rajnandgaon and Raigarh districts. This area forms the Mahanadi basin and was known as the 'rice bowl of central India'. The region was particularly rich in indigenous varieties of rice and water-harvesting methods. The region is rich in iron ore, bauxite, limestone and asbestos, and is also known for Kosa silk. The region is mostly inhabited by Gonds, Kamars and cultivators like the Kumbis and Kurmis. A large part of the Bilaspur and Raipur districts that falls in this region was directly administered by the British till Independence.

The third ecological zone in the region is the Bastar (Dandkaranya) plateau that begins from Kanker and ends in the Dantewara region in the southernmost part of Bastar district. This region shares a border with the East Godavari region of Andhra Pradesh and is drained primarily by the Indravati River. Its main natural wealth consists of forests and minerals. While there is a thin strip of teak along the Indravati valley and the Keshkal hills, the rest of the forests are of mixed sal types. Bastar is well-known for minor forest produce such as imli, amla, chironji, mahua, harra, etc. and also for minerals like mica, manganese, iron ore, bauxite and limestone. Like the northern part of the state, this region is also considered a proto-type of the composite tribal culture of Madhya Bharat. It houses Abhujmarh, the abode of the Maria Gonds, and also has a considerable Kamar and Gond population. It was also one of the oldest Gond feudal states of the region and because of this, its history has acquired significance for all scholars of central India.

1.2. Socio-economic profiles in the context of development



A tribal market for pots Photo: Madhu Ramnath

The state's population (2001 census) is 20.83 million people, of which nearly 80 per cent live in rural areas, and the rest in urban areas. 31.8 per cent of the population is composed of Scheduled Tribes (ST), and another 11.6 per cent Scheduled Castes (SC). An overwhelming majority (about 95 per cent) is Hindu, with Muslims and Christians forming about 2 per cent each, and other religions very tiny minorities.³

Despite rich and diverse natural and human resources, Chhattisgarh has not been able to develop to its full potential because relations between the region (now a newly formed state) and the rest of Madhya Pradesh have always been based

on systems of unequal exchange. This is evident in the patterns of industrialisation. Industries like BALCO, Bhilai Steel Plant, Bharat Aluminium, many cement factories, the sleeper repair factory of the Indian Railways and several paper mills were opened in the region during the late 1960s and mid-1970s. Most of these were ancillary industries and hardly produced any finished goods. Chhattisgarh thus recovered the cost of primary produce and labour without generating additional employment or income. This meant that the poorest of the poor were either forced into daily-wage employment or had to migrate in search of jobs outside the region.

Chhattisgarh was considered the rice bowl of the country and rice was the staple food of its people. The production of paddy is mainly concentrated in Raipur and Bilaspur divisions, with Raigarh and Durg having the highest yields in the plains of the Mahanadi basin. As far as the landholding patterns of the region are concerned, production is concentrated in the hands of

big landholders. According to the Indira Gandhi Krishi Vishwa Vidyalaya, only 9 per cent of farmers controlled 70 per cent of all cultivable land in 1987, while the small and marginal farmers had titles to only 20 per cent, despite constituting 65 per cent of the peasantry in the region.

Since primary occupations in the region were agriculture- and forest-based, most of the rural landless were only able to get part-time seasonal employment within the Chhattisgarh region. Large numbers migrated to other parts of the country. Given this situation, poverty, unemployment and migration are some of the main problems of Chhattisgarh development. According to Hari Thakur, 2135 people committed suicide in 1994–5, of whom 80 per cent were reported to have killed themselves because of unemployment and poverty.⁴ These were among the factors that led to the voicing of demands for separate statehood for the Chhattisgarh region.



Women making leaf cups Photo: Madhu Ramnath

While some of the above factors were important elements that contributed to the poverty of Chhattisgarh, long-standing mismanagement of natural resources also played a significant role in the underdevelopment of the region. Despite its rich endowment of land, water and forest resources, Chhattisgarh has been facing its worst droughts of the century (e.g. in 2000-1). In Raipur district alone, 1467 of 2,215 villages have been declared as drought-affected, whereas 24 of 42 tehsils face hunger and destitution in Bilaspur. The 2001 village *panchayat* records state that 400,000 people migrated out of the state even before Diwali and that close to 50 per cent of crops had dried up and failed.⁵

Increasing soil erosion and water depletion are evident even in government reservoirs, where water levels have been reduced to a third of their capacities. Changes in cropping patterns, forest degradation and the marginalisation of small water harvesting initiatives have resulted in degeneration of the natural resources base of the state.

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The figures of the Madhya Pradesh Human Development Report are revealing and show that most of the districts of the region are starved of stable irrigation facilities. Almost half the landholdings, even in primarily paddy-growing regions like Durg and Raipur, are unirrigated and depend on rains for agriculture. In other forested tribal areas and hilly tracts like Bastar and Sarguja, the level of forest degradation is shown by sharp increases in the area in open forest tracts and the corresponding decline in dense forest area even in a short period between 1993 and 1997.⁶ Given this situation, the state has been forced to recognise the importance of people's participation in natural resource management.

2. A history of administrative control over land and resources

2.1. Communities, conservation and the political system



Toddy in the forest Photo: Madhu Ramnath

Chhattisgarh region was ruled by a diversity of political systems before it became an integral part of Madhya Pradesh after the reorganisation of states in the 1950s. The Bhosale Raja of Nagpur dominated the region since the early 18th century and was followed by British rule since the early 19th century. The region was the ancient seat of the Raj Gond dynasties that comprised some of the most ancient feudatory *zamindaris*. The *zamindaris* of Bastar, Sarguja, Raigarh Kawardha, Korea and Pandaria were important centres and survived till the post-Independence abolition of the system. The diversity of political systems had a great impact on the fate of traditional conservation

systems. Since conservation itself involves degrees of political control, the space available for community control over local resources differed. Recent studies on the nature of the *zamindaris* have shown that the prevalence of feudal loyalties accorded some protection to local resource use systems. Communities were charged with taxes in the form of produce and labour,⁷ in return for

which they were accorded rights of movement and management in the forest areas they inhabited. This meant that conservation practices were in most cases dictated by patterns of subsistence that could be defined not only in economic but also in social and cultural terms. For instance, there was a ban on felling mahua and sal trees for timber as their non-timber forest produce formed an integral part of tribal life in the area. We also find that these trees formed an important part of the sacred groves and sacred spaces of the area.

Box 1

Sacred Groves and Trees in Chhattisgarh⁸

Many anthropological studies give an account of the tradition of sacred groves in Chhattisgarh. Villages in Bastar, for instance, have three kinds of groves, matagudi, devgudi and gaondevi, the first two managed by families, and the last one belonging to the village as a whole. The Chhotanagpur part of the state shows the predominance of sarana or jahera kind of groves. Generally, the area occupied by the sarana is less than an acre. Practices range from absolutely no extraction of resources to once-a-year extraction to minimal use of non-timber forest produce.

Chhattisgarh's sacred groves are said to contain rich biodiversity, which however remains largely undocumented. Trees that are typically part of such groves include saj, sal, mahua, pipal, tendu, sag, and semur.

Certain species of trees like banyan, bel, khadsingi, mahua, mango, palas, peepal, and umbar are culturally and traditionally considered to be sacred and are not cut by local communities.

Tribal habitations were however, quite mobile and the settlement of tribals and poor peasants in interior forest tracts was a phenomenon observed only in the late 18th and early 19th centuries. Before that tribal and pastoral people moved between the plains and the highlands and followed an agro-pastoral mode of livelihood. It was the settlement of caste Hindu cultivators in the mid-17th century that stopped the seasonal migration of tribal people into the plains and their marginalisation process gained momentum. This was mainly because the Maratha regime was only interested in extracting maximum revenue from these lands and therefore facilitated the settlement of these cultivators. As a result of this tribal people were pushed further and further into the forests and their survival became more and more precarious because the seasonal balance of their subsistence systems was disturbed. In this situation the local control over resources did not necessarily mean that people dependent on the forest eco-system were able to meet their subsistence needs properly.⁹ This trend was further accentuated in colonial times. Areas that were directly annexed by the British witnessed drastic modifications of local resource use patterns. The formation of the forest department in 1865 and the reservation of forests that began in 1878 resulted in a great loss of subsistence resources in tribal and poor peasant societies. It also resulted in forceful exploitation of tribal forest dwellers as labourers, often followed by the migration of tribals from the state-owned forests into *zamindari* forests.

The British then attempted to shift control over the forests of the *zamindari* areas through their Residents to the *rajas*. This created a lot of political and social tension in the forested *zamindaris* because forest-dwellers expected that *rajas* and *zamindars* would grant them more rights than the alien British rulers. This is evident from the fact that many more protests are recorded in *zamindari* areas than in the state-owned territories of the erstwhile Central Provinces. Some of the more significant of these protests were the Bastar Maria rebellion of 1910 and the Sarguja Nagesia rebellion of 1929. Most of these rebellions were for reduction in taxes on land settlements, forest rights and against the operation of the banias (money-lenders) and other outsiders. In many cases tribal leaders thought that the *zamindars* and *rajas* were not able to protect the rights of the people on their own resources and had therefore violated their customary duties towards them.



Local people celebrating a festive occasion Photo: Madhu Ramnath

After the abolition of the *zamindaris* in the 1950s, feudal states became a part of independent India. British systems of conservation and control over resources were followed throughout the country. Customary rights that had been retrieved through the rebellions of the pre-Independence era were once

again violated, leading to widespread protests in the erstwhile feudatory states. However the post-Independence era also witnessed a different trend of rebellion in that the question of rights was integrally linked to the redistribution and improvement of land. These rebellions were different because the confrontation was not only with the landholder but also with the state machinery of independent India. In Chhattisgarh a good example of this trend is the movement started by a forgotten freedom fighter, Sukhlal Nage. As a leader of the tribals, Nage inspired the landless tribals of Koremuda in Siwaha of present-day Dhamtari district to reclaim 1,881 acres of cultivable wasteland for traditional cooperative farming in the 1950s. Two years after successfully farming the area, the movement was broken by police action, and Nage himself was killed in custody.¹⁰ Similar protests for customary forest and land rights were witnessed in Bastar in 1966. Organisations like the Bharat Jan Andolan, Ekta Parishad, Chhattisgarh Mukti Morcha and others have fought for customary rights of local inhabitants (some of these cases are considered in greater detail later). These movements were to influence community conservation trends in later years.

Pressures on traditional systems also led to changes in traditional patterns of conservation. By the mid-1980s and early 1990s, community participation became a buzzword in the officialdom of the state of Madhya Pradesh, and was accompanied by the passing of the rules of Joint Forest Management, the setting up of Rajiv Gandhi Watershed and Drinking Water Missions, enactment of the Panchayat Raj Act and the formation of district governments,¹¹ aimed at rectifying resource degradation through the involvement of people and attempting to reverse the trend of centralised resource control. While many of these initiatives have provided opportunities for movements to experiment with community conservation, they have also resulted in an effort to appease popular demands for genuine decentralisation.

These measures are, however, proving too late and too little for two reasons. First, the nature and scale of resource degradation is such that a single community or NGO cannot harness the investment and technical expertise required for restoration. Second, prolonged centralised management systems have led to the marginalisation of local and regional institutions that can have a positive impact on resource utilisation and control. The interface between natural resource management regimes and structures of governance has assumed great importance today. The foregoing discussions show how the use of official mechanisms for community conservation has to be accompanied by aggressive mobilisation and social engineering if local needs are to be met in an equitable manner.

Box 2

Appropriation of Natural Resources¹²

Chhattisgarh has had a long history of land appropriation by Maratha invaders, the British and the non-tribal communities from other parts of the country. Exploitation of forests started in the 19th century and from the 1860s onwards the British Government started exploiting commercially valuable sal forests through leases to various private companies. Reservation of forests began in 1891 when the erstwhile Central Province (of which Chhattisgarh was a part) came under direct British administration. Reservation included three major categories of forests: reserved forests (no rights of local people allowed), Protected Forests (some access allowed to the people), and Nistari Forests (meant for meeting bonafide domestic needs of the people). Non-Timber Forest Produce (NTFP), on which a majority of the population was dependent (for personal use and sale) was made a state subject with leases given to powerful contractors, reducing local people to mere collectors who had no option but to sell to these contractors. This led to the breakdown of traditional systems of NTFP trade, e.g., with local artisans and the Banjara (migratory) community. The new forest policy with more area under reservation, NTFP policy and imposition of grazing fee led to a major rebellion in 1910. This was perhaps the last time a popular action was led by the majhis (traditional system of local leadership) and the representatives of the traditional tribal regime. Thanks to this and a series of other rebellions, the subsequent forest policies in Bastar were not as intrusive as in rest of the country. However, these forests were too valuable to leave unexploited, particularly during the two World Wars.

The situation did not improve after independence, with India's commercial /industrial needs replacing colonial needs as major policy determinants (Gadgil and Guha 1992). In addition, in the 1960s local biodiversity and livelihoods were severely impacted by the replacement of indigenous forests with monocultures of commercially important exotic species, encouraged by agencies such as the World Bank. Between 1956 and 1981, 1,25,483 ha of forest land in Bastar was transferred to development projects, accounting for one third of the total forest loss in the district.¹³ Prior to that, in 1949 the Nistar forests were converted to Protected Forests.

This led to further complexities for the local tribals, as without proper land surveys and clear statement of jurisdiction over these forests, many long-term cultivators are today considered encroachers. Encroachments are a serious problem, carried out both by the landless in the absence of any other alternatives, and by the politically powerful for financial gains (in the period 1976–80, 32.5 sq km out of 11,600 sq. km. of forests in Jagdalpur District were under encroachment).

Bastar has been shrouded with scams involving a nexus of politicians, forest contractors and government officials (often exposed by sensitive government officials and social activists). The most well-known of these is the Malik Makbuja scam, which involved misuse of rights given to peasants to cut trees on their own lands. The scheme was exploited by the nexus by encouraging peasants to cut the maximum number of trees at abysmally low prices. Timber was also extracted from the government forests using Malik Makbuja as a front. MP Protection of Scheduled Tribes (Interest in Trees) Act, 1956, was aimed at ensuring that the tribals are not cheated under this scheme; however, this was not of much use and was subverted by timber merchants and the powers-that-be. In 1992, thanks to the efforts of movements like Ekta Parishad, the Supreme Court banned all felling in Bastar. Whether this has really benefited the tribals and the biodiversity of Bastar is yet to be seen.

Box 3

People's Protected Areas¹⁴



The People's Protected Area (PPA) Initiative, launched by the State forest department in 2002, is expected to be implemented by the people with the philosophy of achieving sustainable livelihood through biodiversity conservation following the ecosystem approach. The FD expects this programme to be different from the existing ecocodevelopment programme and Joint Forest Management (JFM). They see ecocodevelopment as an exclusionary process aimed at providing alternative sources of livelihoods, thus alienating the communities from their resources. JFM is seen more as a FD programme in which local people participate. PPA is supposed to derive legal support from the Indian Forest Act, 1927, though it is not very clear from the documents how this is so. So far 32 PPAs have been established, extending over 500,000 ha and covering more than 300 villages. The Dugli-Jabarra PPA in Dhamtari Division includes 15 villages with a population of 5,742.

The total catchment area under the project is 37,774 ha of sal and miscellaneous forests. While 20,269 ha is reserved for conservation, 17,505 ha have been allocated to meet people's nistar needs. Various initiatives taken up to enhance livelihood options and improve biological diversity include forest protection through village forest protection committees, developing nurseries and plantations of suitable indigenous species, reducing grazing pressures in sensitive areas, non-destructive harvesting of medicinal plants, raw material processing, value addition, effective marketing, etc.

3. Origins of community conservation initiatives

Chhattisgarh serves as a good example of people's participation in the management of their resources, but in a non-conventional sense. When examined in a purely scholarly context, it may appear that Chhattisgarh has no community conservation practices at all, because the state is a land of migrants who have continuously influenced and developed each other's resource use patterns and knowledge base. Erratic movements of people from hilly regions to the plains were indicative of this, and were often conditioned by political conflict (see Prasad 1999).

The Gonds can be considered the first migrants into Chhattisgarh. They fled from the kingdom of Deogarh (present-day Chhindwara district, MP) and arrived in the rice bowl of Madhya Bharat in the early Maratha period in approximately the early 14th century when the Gonds and the Gowalees had their kingdom in the area. Farmer communities like the Kurmis, Lodhis and Kumbis were settled in the area by successive Maratha regimes to exploit the optimal revenue potential

of the region. The continuous influx of people into the area led to changes in practices of resource use at frequent intervals.

It is thus difficult to define local practices of communities specific to any area of the state before the late 18th century. For example, early Maratha records clearly indicate that many of the Gond people (of which the Marias form an integral part) of Chhattisgarh practised rice cultivation in the plains and had bullocks in the period before 1747. It was also indicated that many of them may have given up the plough for gathering of forest produce and doing shifting cultivation on forested tracts after military invasions drove them to settle in highland forested areas. The projection of any of these practices as either ancient or eco-friendly may thus be out of place. Each of these community practices needs to be evaluated separately from the prism of regeneration and preservation of local habitats.

In this context, we explore four different community initiatives that involve (i) the preservation of agricultural diversity, (ii) watershed management, (iii) community mobilization for forest rights, and (iv) forest conservation. The first three case studies are based on people's movements and social engineering as critical precepts in community efforts, but are, interestingly, quite distinct in the philosophies that drive them. It must be noted that these are not typical NGO or CBO organisational forms. Rather, they are forms of social and political mobilisation in the struggle for people's rights. These struggles are combined with ideas of change and any success that they get in their campaign and constructive work is a result of their organisational base at the level of the village or even hamlet. People who identify themselves as part of these movements are also part of the 'community' because they belong there. In this sense these movements are CBOs, but with a perspective that encompasses a vision not only for the community but the entire society. Their efforts at the regeneration of resources are born out of this vision and are part of their larger community-based work. Further communities are seen not as static entities but as evolving, and these mass movements try to influence the nature of this transformation by organising the most marginalised section of the people. The fourth case study is a remarkable story of a woman's efforts to empower other women and derive benefits for the entire village community.

Box 4

Local Forest Management Practices¹⁵

In Bastar cosmology, villages were founded on the basis of land given to the founding member by the Earth, which had therefore to be propitiated at all agricultural festivals. The Earth includes the spirits of the river, the forest and the mountain, to each of whom separate offerings are made. Although the appropriation and reservation of forests by the forest department meant that forests were officially taken out of village boundaries, they often continued to be part of the village for ritual purposes. There has continued to be a strong tradition of managing the forests within one's village boundaries till quite recently, involving a system of charging residents of other villages a small fee—known variously as *devsari*, dand, man or saribodi—in exchange for the use of one's forest. In some villages in north Bastar, the fee was charged according to the amount of timber taken, and usually took the form of some liquor or meat. Some villages charged only for good timber and not for dry or fallen wood, and others only if the wood was stolen. Similarly, in some villages, they expected man for grazing, while others allowed grazing free. In south Bastar, villages which used the forest of another village made collective contributions to the Earth of that village at festival times. This was not necessarily a system of forest protection as it is understood today, but managed to regulate excessive felling and enabled a supervisory eye on what was happening. Inevitably, there are cases where it did not work. The residents of Chitrakote, for example, complained that while paying this fee or offering, other villages had cleaned out their forests, and now they in turn had to pay another village to use its forests. However, by and large, it seems to have been fairly successful. In some cases, villagers contributed to engaging watchmen. Two examples are available from the villages surrounding the Ulnar and Junawani forests (see the Chhattisgarh case studies).



Fallow land Photo: Madhu Ramnath

Often different kinds of management systems are layered upon each other—‘traditional’, NGO-initiated and forest department-initiated. ‘Traditionally’ villages in Kanker (formerly North Bastar) would cut timber from each other’s forests in return for Rs 2–4 as *devsari*. Around 1985–6, under the influence of Parivartan (Ekta Parishad), the village of Salebhata and the neighbouring villages of Peedapal, Mandri and Kingapati in Kanker all began protecting their own nistari forests. Since protection began, no timber cutting from each other’s forests was allowed, and the giving of *devsari* stopped. Protection took the form of all-male patrols. Internally timber was supplied on application. Subsequently, a government FPC was formed in Salebhata and they were given a patch of protected forest to protect, which is somewhat further away from the village, beyond the nistari jungle. In practice, however, the village was already protecting both the nistari and protected forests. While Salebhata got nothing for its protection, Mandri village got funds to build a stop-dam, well and pond, as well as wages for plantation work. The effect of such differential funding for something that both villages were doing anyway, and its consequences for ‘social capital’ and trust between the villages, should be fairly obvious. In those cases where women were active in protection, the setting up of a formal VSS invariably transfers responsibility and authority to males in the village. For instance, in Belgaon, Korkotti, Bade Khauli and some other villages in Kanker, Mahila Mandals (women’s groups) formed by Parivartan started protecting their forests a couple of years ago. The main obstacle was men from their own and neighbouring villages, who were trying to steal wood. In 1999, a formal VSS under JFM was started in Belgaon and a man was appointed as chair. Conversations with the Mahila Mandal in December 1999 revealed strong resentment against this formal committee and its chair. At the initial meeting, everyone was invited and their signatures were taken but they were told nothing. The VSS had received money to trade in tamarind and urea, but no one except a few office-bearers knew what was going on. The women’s major complaint was that the Patel or the headman took money on behalf of the VSS for allowing people from other villages to cut trees from their forest, kept it for himself and did not tell them about it. When they tried to stop offenders, they would be told that money had already been paid, and could do nothing.

Where villagers have been organised enough, they have been able to resist the imposition of a formal scheme. For example, in Chanagaon (Nagari, Raipur district), the villagers have been mobilised by the Bharat Jan Andolan and are fully aware of their rights to manage their forests under the Panchayat (Extension to Scheduled Areas) Act (PESA). About 25–30 years ago, when the nistari forests were converted into protected forests and the FD started exploiting the forests, the earlier practice of asking the headman for timber ceased and everyone cut freely. Once the village became organised through the Bharat Jan Andolan (1994–5), they resumed their earlier system. An FD proposal to start a JFM programme was rejected on the grounds that the 30 per cent being offered by the FD was too low, and that the JFM rules made no provision for timber for domestic use.

To summarise, all over this belt, ‘traditional’ forest management rested on the recognition of village boundaries in forests and the need to make offerings to the forest gods for the use of the forest. In many places, the villagers trace deforestation to FD felling in coupes. Apart from (falsely) blaming villages for deforestation, even within the reversed and so-called participatory framework of JFM, there has been no effort to institutionalize existing cultural systems of management. In some cases, VSSs have been superimposed on existing community management systems. With the coming of forest department sanctions and money, villagers’ own contributions have ceased, as well as the control which flowed from this. Equally problematic is the neglect of traditional boundaries in apportioning forest land for protection. For example, part of Darbha’s forests have been given to Chindawara village to protect.

3.1. Natural wealth, local people and the Chhattisgarh Mukti Morcha Movement

3.1.1. Niyogi and early efforts at conservation

The Chhattisgarh Mukti Morcha began work in the late 1980s by organising the workers of the mines of Durg district and the employees of the Bhilai Steel Plant (Bhilai, Chhattisgarh). In an essay titled ‘Hamara Paryavaran’, Shankar Guha Niyogi, the founder of CMM and an eminent trade unionist with strong leftist leanings, highlighted the need for recognising the importance of development and conservation as two parts of the same coin:

“Nowadays people are making environment an obsession and using environmental conservation as an excuse to oppose industry-based development ... But the truth is that we will have to protect our

nature, we will also have to protect our earth. Forests, trees, plants, clean drinking water, pure air, animals, birds, humans—all these constitute our world. We will have to use our compassionate reasoning to develop flexible programmes on the basis of which the balance between nature and science can be maintained.”¹⁶

Niyogi believed this was only possible if people were organised to better understand the value of their own resources. Open access to resources to meet their basic needs was critical. The CMM believed that people’s traditional knowledge base and participatory local planning could form the basis of eco-friendly and sustainable development. The CMM analysis was that the indifference of the local population towards the trees that grew in their area resulted from the lack of control and stake of the local people in the management of their plantations. In this context, Niyogi noted that 60 per cent of the trees in official plantations were destroyed because of the lack of local community participation. He also held that the nexus between forest department and the contractors was very strong. Contracts for the felling of wood were granted in the name of afforestation. Other malpractices recorded by the CMM were the false reporting of the plants that were meant to exist on government lands and the non-reporting of deaths of saplings that occurred because of neglect.



Climbing a sal tree for resin Photo: Madhu Ramnath

Having noted the indifference of local people to their own environment, Niyogi and the CMM began a campaign in Daundi and Rajhara for the revival of people’s knowledge systems, called *Apne Jangal Ko Pehchano, Apne Parivar Ko Pehchano* (know your forest, know your family) in the late 1980s. Through this programme the CMM initiated a process of introducing people to different plant species growing in their own area, by dividing them into indigenous species, economically useful ones and those that needed to be regenerated or protected. Their campaign concentrated on afforestation through the organisation of local communities, believing that enhancing and utilising local knowledge was the best form of conservation. Their resultant plans were a mix of local and regional needs. Their studies had revealed that 15 per cent of the total area under government plantations was covered with bamboos and shrubs and 35 per cent with trees of local species, while 25 per cent had economically valuable species. The campaign labelled every tree, displaying information of its variety, uses and the means of sustainable use. In the process, local people were re-acquainted with their own environment and recognised the importance of making rules to protect their forests. The campaign was conducted mostly in wastelands and depended on locally collected funds. This helped in mobilising the local community to begin looking at the possibility of managing their own resources.¹⁷

Taking off from the *Apne Jangal Ko Pehchano* programme, the CMM began intervening in other forms of resource management, and facilitated the setting up of 12 hand-pumps and tubewells at Dalli Rajhara. CMM activists noted that the Gonds had good knowledge of drainage systems and built their dwellings along natural waterbodies. The CMM opposed the pollution of these water bodies by protesting against the setting up of the Dalli crushing plant and made a plan for alternative resource use by helping the people mobilise resources by actively helping people build on their own knowledge base.

3.1.2. The protection of agricultural diversity: The next phase

Niyogi’s philosophy and the CMM’s early efforts showed that successful people’s participation in sustainable natural resource use was based on protests against the abuse of natural resources by government and big industry and the simultaneous development of alternative systems that revived and built upon people’s knowledge bases. This strategy gained prominence with the extension of CMM’s work in natural resource management in the early 1990s. The formation of Rupantar, an NGO whose leadership was composed of members of the CMM, helped by creating mechanisms for the documentation of local knowledge, especially in the field of agricultural and forest diversity. The main focus of both Rupantar and the CMM was on advocacy and documentation of indigenous rice varieties in the region.

CMM activists working in the area noticed that paddy yields had been declining in recent years with increased use of chemical fertilisers and HYV seeds (like IR36) that were promoted by the Manila-based International Rice Research Institute. These seeds required transplantation and consequently led to the marginalisation of traditional rice cultivation practices.¹⁸

Gond and other tribal peasantry suffered most. These communities were adept at growing different varieties of paddy by broadcasting. In lowlands under the *biyasi* broadcasting method, farmers kept the seeds ready for sowing just before the onset of the June rains. After the seeds germinated (a little over five weeks) and water had reached the height of the seedlings, the fields were ploughed (around July-August) and guarded till ready for harvesting.¹⁹

Under the *penda* system of cultivation, the Marias of Abhujmarh converted strips of forest into cultivable land by burning just before the rains.²⁰ They then spread the ashes on the ground and waited for the rains to come before they broadcast paddy seeds. The Marias shifted their fields every two or three years, returning to the same field only after the forest had regenerated (a gap of 13–14 years). Grigson and Bloomfield's early studies of shifting cultivation reveal that it was a rainfed system, having little or no water harvesting principles and completely dependent on the one crop that it grew. According to Bloomfield, it could barely feed more than 2 persons in a family in the Baiga area. In the Maria highlands too this would be the case. It appears that this is not a very old system but has evolved out of the marginalisation of tribals into forested areas in this region, and is a more precarious and adapted form of the seasonal agro-pastoral system of survival in this region. The history of the tribal survival patterns shows that there is nothing known as an ancient system of survival—they are all evolving structures, and in some cases the tribals benefit and in the other cases not. Clearly in the case of shifting cultivation they did not, as they were not able to meet even their bare needs.

Nagesia communities grew paddy along with other crops in the *bahra* or the lowest portions of the uplands that retained moisture throughout the year. They propagated the rice seed only on these lands and nowhere else. In the midland (*chanwar*), paddy could only be grown once the monsoons came, but did not have the capacity of retaining moisture throughout the year. Less water-demanding crops could be grown in these areas.²¹ In the uplands or *danh* lands, paddy could not be grown at all. William Ekka (1986) points out that these were all good lands with ownership restricted to a limited elite, leading to a differentiation between those Nagesia who could grow paddy and those who could not. Nagesia who could not grow paddy, preferred *bari* or garden lands where vegetables could be grown and *khair* or sandy lands below the hills where kodon or kutki that required lesser amount of water could be grown throughout the year. These diverse systems were harbingers of agricultural diversity.

During his tenure as the Director of the Madhya Pradesh Rice Research Institute, Dr. Richharia documented 20,000 indigenous varieties of rice. He also demonstrated methods by which indigenous techniques could be improved to increase yields from local rice varieties by cloning. He said that this was possible by making changes in the local *biyasi* system, if the farmers were taught how to split the tillers of the rice at a vegetative phase even in the broadcasting method. These tillers could then be transplanted in the spaces between the older transplants, increasing the productivity of rice by as much as 10 to 15 per cent per hectare. Seeds propagated by this method were less prone to pests and required minimum threshing. Productivity could be increased to one and a half times the normal, especially when accompanied by composting.²²

The CMM and Rupantar experimented with his techniques with the participation of smallholding farmers of some *panchayats* in the Durg and Dhamtari districts. The CMM published a pamphlet based on the work of Dr. Richharia, to inform farmers of the advantages of clone propagation.

While the work of the CMM is concentrated in southern Rajhara and Dondi Panchayat areas of southern Durg, Rupantar concentrates on the adjoining Nagri Siwaha region of present-day Dhamtari district.

The CMM, which has been contesting the elections as a political party since the 1980s, has some of the *panchayats* under its control. It uses this formal structure to implement Dr. Richharia's ideas on indigenous rice cultivation and to create traditional structures for watershed management. In the Dondi, Mohalla, Chikla Kasa, Kusum Kasa and Purur *panchayats* of the Dondi Block, they advocate the repair of traditional water harvesting structures and equitable distribution of access and benefits. Through the *panchayats*, the CMM also continues to fight for the rights of the small farmers.



Community elders Photo: Madhu Ramnath

Rupantar set its sights on setting up seed banks for indigenous rice varieties. It first collected and propagated 270 varieties of indigenous rice species in the Nagri-Siwaha Blocks in 1992–3. It then transplanted these varieties in plant-cum-seed multiplication centres in the Nagri-Siwaha area.²³ Emphasis was placed on varieties that required little water in a region that has frequent monsoon failures. The work of seed multiplication is being implemented through women's self-help groups (SHGs) to encourage self-reliance.

3.1.3. Constraints and opportunities for the initiative

The practical experience of the CMM and Rupantar is very new and needs to be followed up systematically if the long-term impact of their efforts is to be known. Their attempts highlight the fact that community control over their own resources can only benefit people if it encompasses the synthesis between new and old knowledge systems. The use of Constitutional institutions to promote the conservation of biodiversity also requires social engineering and political mobilisation, something that Niyogi attempted to do in his lifetime.

3.2. Community watershed interventions and the Chhattisgarh Bharat Gyan Vigyan Samiti (BGVS)

3.2.1. From literacy to watersheds: The initial phase

The Chhattisgarh Bharat Gyan Vigyan Samiti, as part of its aim to use modern science for development of the disadvantaged, has taken up implementation of the Rajiv Gandhi Watershed Mission in five areas of the Bilaspur Division. This was with the purpose of improving agricultural productivity of about 12,00,000 ha of land, creating employment and recharging ground water levels. Their Mission Document stated that participatory watershed management approaches would be followed, whereby the local people would be made direct or indirect stakeholders in implementation (through NGOs and CBOs).²⁴

The BGVS sought to make small farmers, landless labourers and women leading actors in implementation. This was done through a series of dialogues about the importance of watershed regeneration and management, agricultural production, and other matters of importance to the villagers. Participatory mapping was also used as an effective tool.²⁵

Two specific examples will illustrate the approach used.²⁶

Community involvement at Jagdalli village

Situated on the foothills of a high ridge, Jagdalli commands a watershed area of 26 sq km. The people's watershed management initiatives in the form of earthen structures on the ridge and in their fields were often destroyed by the monsoons for lack of protective vegetation. Gond peasants survived on the low-yielding and drought-resistant kodon and kutki crops.

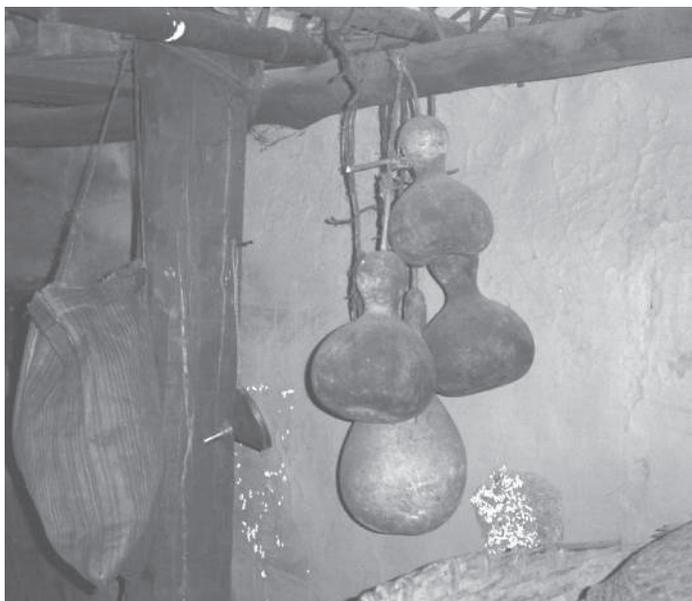
Unlike the official machinery, the BGVS wanted to ensure that the watershed committees would benefit the poorest of the poor. Keeping this in mind, the BGVS volunteers encouraged villagers to categorise people according to landholdings, and facilitated proportional representation in the committees. Since the largest proportion of the population consisted of landless labourers and small farmers, they formed a majority in the committee. Women began forming self-help groups and also found representation in the watershed committees.

The committees went from house to house to assess water requirements for both irrigation and personal needs. With participation of the villagers, the committees mapped distribution patterns of water collection. The committees helped to resolve inter- and intra-village conflicts by creating rules for water use (See Case Studies).

Community involvement in Chamanpur

In the preliminary phase, the entire watershed area comprising 29 villages was surveyed with local villagers. Existing water harvesting structures were mapped and detailed surveys conducted prior to construction of new structures. User groups were formed, each group representing an area fed by a single water harvesting structure. Each user group was represented in the watershed committee of the village. Since most of the area was earlier forested and comprised of the Kodaku, Korba and Gond tribals, the committees also have a majority tribal representation.

Local land classification systems divided the watershed into three land use categories: *bahra* or lowlands, where rice could be grown and which remained moist throughout the year; *chawar* or midlands, which had seasonal water shortages and where both rice and wheat could be grown



Traditional gourd and seed conservation Photo: Madhu Ramnath

seasonally; and *darh* or highlands, where only trees and some vegetables could be grown. The interventions were carried out keeping the different needs of these lands in mind.

In Bairupura, Kodaku farmers were encouraged to practice communal agriculture, even though individuals held ownership titles. Tribals worked on each other's lands and gave a portion of their produce to the village treasury. This accumulated produce was stored for times of trouble. As another institutional innovation, the village treasury also acted as a bank or moneylender. Since the borrowers were also beneficiaries from the treasury, the villagers could enjoy the same benefits as others, as long as they repaid their loans in easy instalments.²⁷ (see case studies).

3.2.2. Impacts of community interventions on habitat restoration and resource development

In Jagdalli, irrigated and total cultivable land increased by 20 per cent between 1996–7 and 2000. This was accompanied by an increase in productivity by 20 per cent for previously irrigated lands and 100 per cent for unirrigated lands. Changes were more dramatic in Chamanpur, where the 35 acres of irrigated land in the pre-Mission era increased to 40 acres in the first year of the watershed, to 100 acres by the third year and to 235 acres in the fourth year (the end of 2000). Rates of migration were reduced drastically, as 7 million persondays of employment were generated by BVGS activities in four years.

These developments would not have been possible without successful recharging of groundwater levels and sustainable water conservation practices. Wells have started retaining water in summer, and in Chamanpur the natural *nala* (stream) has been regenerated. In a neighbouring village, Bhidupani, a pond that had no water for the last thirty years was now regenerated with potable water.

Project activities have thus naturally had an impact on the vegetation of the region. In Jagdalli, the once-bare ridge has regenerated naturally. Outside Chamanpur village, 25 hectares of sal forest has regenerated. Locally useful and traditional species like tendu, amla, behra and harra were also grown as a part of the watershed mission.

3.2.3. Constraints and opportunities faced by the initiative

The basic challenge of implementation lay in making the programme different from government-run watershed programmes. Among the main problems faced, was the delay in transfer of funds from the government departments. Despite this, work progressed because the community was mobilised and oriented towards the project. This is in sharp contrast to government-run watershed programmes, where work stops when funds stop.

Activists and the villagers identify a second problem in conflicts that arose between watershed committees and *gram panchayats*, especially where the *sarpanch* represented a dominant caste and where dalit and tribal peoples were left out of decision-making processes. Chamanpur initially faced this situation, but once a majority of the people started supporting the project, the *panchayats* themselves became sensitised and more supportive of the programme.

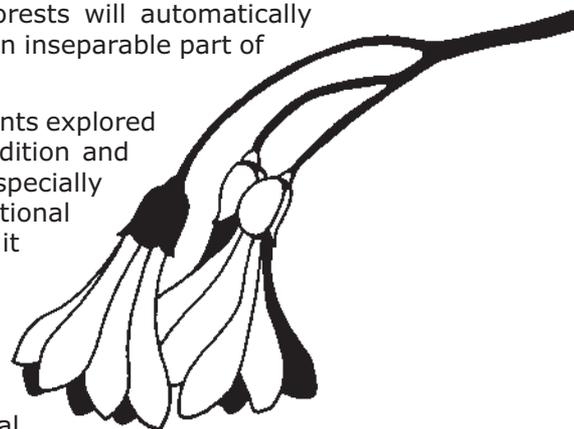
3.3. Protest and conservation: Ekta Parishad and the question of rights

3.3.1. From rights to conservation

The Ekta Parishad, established in 1990 under the leadership of P.V. Rajagopal, considers itself

a social movement with Gandhian perspectives. The Parishad firmly believes that the village community has an inalienable right to forest and land resources, and that if villages are reorganised on traditional patterns, the conservation of wildlife, land and forests will automatically occur. It sees the struggle for the establishment of local rights as an inseparable part of community conservation efforts.

The Ekta Parishad is in sharp contrast with the other two movements explored in this chapter, mainly because of elements of re-creation of tradition and anti-modernism as essential parts of their ideology. This is especially emphasised in the context of the exclusion of traditional rights in national parks and sanctuaries. As a senior activist from Chhattisgarh put it in conversation with the author: "Vested interests have created unreal contradictions between human rights and wildlife rights, and between tribals and tigers. The real contradiction is between two worldviews: a tribal view based on survival, life, regeneration and conservation, and a modern view based on exploitation, consumption, surplus and profit. It is imperative to accept the tribal view to save the forests and this world."



This view is reflected by many of the people who are involved with the Parishad. For example, a Baiga in the Majhura village of the Achanakmar Sanctuary told me on a recent trip that the traditional taboos and rules of conservation were only applicable with limited population pressures and interference by conventional conservation systems. Whole traditional systems went awry as biotic pressures on forests increased and lands available for the collection of forest produce became more and more restricted.

3.3.2. Institutional mechanisms in community conservation in the Achanakmar Wildlife Sanctuary²⁸

In Achanakmar WLS, in the Lormi Block of Bilaspur district, the Parishad has worked in 42 villages within the sanctuary and its buffer zone. They have attempted to re-create traditional structures of the Baiga tribe. Under this structure, villages have a *gram sabha* consisting of all the villagers, who elect one male and one female *mukhiya* in each village. Most of these villages traditionally do not have *gram sabhas*—*mukhiyas* are the customary heads of Baiga society as it has evolved over time. The Parishad has facilitated this traditional system of governance and insisted on elections every year. The *mukhiyas* are employed by the Parishad and are in charge of building the movement in their villages. They keep in touch with *mukhiyas* in neighbouring villages, exchanging information and holding regular meetings with them.

The *mukhiyas* enforce community rules for resource use as and when required. The rules are informal and depend on prevailing situations. In the Achanakmar area, people of Parishad-dominated villages do not entertain cutting or burning of any trees within their areas of influence. Some rules involving specific resources are also implemented: for instance, the branches of the amla trees are not to be cut and its fruits can only be picked in a particular season.

3.3.3. Constraints and opportunities faced by the initiative

Inter-village organisations of *panchayats* consisting of all the *mukhiyas* of villages in the area, usually organised on a specific issue, are common. Five villages near Bijra (in the proposed buffer zone of the sanctuary) held a jungle *panchayat* around the end of December 1999 in order to discuss situations arising from the plantation of trees by the forest department on farmlands. The forest department had declared these out of bounds for cultivation, but the villagers continued to cultivate these tracts at the instigation of the Parishad. Thus the people decided that they would uproot all such trees and refuse to move from the lands of their birth. This decision followed from the Parishad's organisation of protest against the relocation of villages from the sanctuary, reportedly now proposed to become a national park.

The Baiga rehabilitation programme run by the Parishad has so far rehabilitated two villages, Sarsoha and Ekta ki Purti, from within the confines of the sanctuary. The villagers originally lived within the confines of the sanctuary but the Ekta Parishad decided to resettle them as a mark of protest against the regulations imposed on people by the forest department. The organisation began work involving land reforms and forest protection by ensuring that rules set by *gram sabhas* and the *mukhiyas* are followed. In this way Ekta Parishad and its partner organizations attempt to combine constructive work with the fight for rights.

The major challenge to this initiative lies in ensuring organisational sustainability among village communities and institutions once external interventions by the Parishad stops.

3.4. The Karaundamuda Village Forest Committee

Karaundamuda village in Sarguja District is an example of community-led regeneration and protection of forests (See Case Studies).²⁹ In the 1980s, forests had started to be cut by contractors from outside. The women of the village then came forward, forming a village forest protection committee (VFPC) and symbolically tying *rakhis* to the trees.³⁰ Certain rules were made for protection:

- Both men and women were required to police the forests.
- Villagers were banned from cutting any trees or their branches in the first year.
- Punishments were accorded to offenders, the nature and size of the offence determining the type of punishment. For instance, someone caught cutting green wood for fuel was fined Rs 100, which went to a Village Development Fund run by the Committee.
- At one time, only two cattle per household were allowed to graze in the forest during the daytime.³¹ Surplus grass from the forest areas was cut and sold to those who owned more than two heads of cattle.

The women decided against selling regenerated seeds and seedlings in favour of permitting natural regeneration of the forests. They also decided to plant traditional resource-use species like tendu, amla, mahua, and sanjha.³²

Within two years, the system of regulated extraction resulted in increased income from forest-based produce, which was in turn used to install a tubewell for the use of villagers. In 1994 the VFPC received legal recognition as a *van suraksha samiti* (VSS) from the forest department under the Joint Forest Management programme. In this process, it suffered one setback: a forest guard replaced Rajmanbai (who was instrumental in initiating the effort) as the secretary of the committee. Due to the rules of the JFM programme, women members of the VSS were no longer in control of funds.³³ This was partly a result of the committee's involvement with Sangata, an NGO; the NGO however also helped with improved livelihood prospects.

Karaundamuda received the forest department's award for being the best VSS in the district. The initiative was then replicated in Ganeshpura, a neighbouring village, in 1997 with active participation of the women of Karaundamuda on a 220-hectare afforestation programme. A number of livelihood programmes have been started in both villages. The greatest challenge faced by this initiative is to identify a means of restoring their powers in the forest protection committee.

4. Major issues

4.1 Prospects ahead: An overview of constraints and opportunities for community conservation

Broadly speaking, efforts at community conservation in Chhattisgarh have been part of broader social and political movements against dominant systems of resource use. Many of these movements have attempted to incorporate egalitarian, democratic and ecologically viable methods of resource use of the local society. For these movements, true decentralised control over resources is one of the main precepts of community conservation, as is observed in case of the BGVS, CMM and the Ekta Parishad. In the case of Karaundamuda, however, structures of local conservation were incorporated into the dominant political system. Local people evolve their own systems of management (which evolve with time), especially in order to cope with the larger problems they are confronted with. The entire focus of the BGVS work on watershed was on upgrading the local systems.

The second broad characteristic of these initiatives is that the fight for community conservation is also closely associated with a vision of the future. This perception also conditions the relationship between these movements and the State.

The Ekta Parishad, for example, attempts to re-create the radical Gandhian dream of *gram swaraj* and believes that sustainable resource use and regeneration can only take place if tribal sovereignty is established over forests. In a sense, they attempt to create a model based on traditional beliefs and practices that is biased against modern scientific practices. Such an effort is not hazard-free as the challenges faced in the management of natural resources are not only

local but also regional, as forests, rivers and watersheds form ecological boundaries. A study of community-led watershed interventions in the region shows that ecologically viable water exploitation accompanied by regeneration of natural vegetation in the area is not only possible but can be spread over a number of *gram panchayats*.

Ecological boundaries do not necessarily conform to socio-political ones. The Chamanpur Milli watershed strategy in Sarguja and Bilaspur shows that conservation units where a majority of people benefit can only be formed successfully if the interventions are designed to follow principles of social justice within the limits of natural boundaries and catchment areas. Experience shows that *panchayats* or other formal structures like the VSS under JFM can only form such units if they have experienced some amount of social engineering prior to the conservation effort.



Leaf cups used to eat out of *Photo: Madhu Ramnath*

In the case of the CMM and BGVS a broad anti-capitalist vision marks attempts at community conservation that is mostly concentrated on mobilising disadvantaged sections of society. The aim is to use government programmes and institutions and build upon them through social mobilisation and the quest for using modern science for the benefit of the people. Thus these movements are looking for ways of combining local knowledge and science. However their success has been very limited in this respect and at best they have only been able to solve the immediate problems of their area. Thus the challenge before them is to realise their dream of equitable distribution of resources along with

the establishment of peoples livelihoods in a sustainable manner by using and developing these strategies further. Only in that case will we have a system of community conservation that is able to meet the imperatives of resource use and regeneration in a desirable way.

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⁸ Sources: K.C. Malhotra, Y. Gokhale, S. Chatterjee, and S. Srivastava. Overview of Sacred Groves in India (forthcoming); D.V. Gode (ed.), 'Central India Biodiversity Strategy and Action Plan (Vidarbha and Bastar)', Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests, Vidarbha Nature Conservation Society,

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¹¹ District Collectors and the CEOs of Zilla Parishads can sanction projects upto Rs 1 crore without prior approval of the state government. They also have the power to make and implement District Development Plans.

¹² Source: N. Sunder, *Is Devolution Democratisation?* (New Delhi, 2000).

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²⁵ BGVS, *A Handbook for Land Literacy, Participatory Resource Mapping for Self Reliant Panchayats* (New Delhi, Bharat Gyan Vigyan Samiti, 1994).

²⁶ The material for this sub-section is based on fieldwork by the author in 2000 in Jagdalli village, Jajgir district, and Chamanpur village, Sarguja district. Meetings were held with women's groups, villagers and interviews with the secretary of the watershed committee and the local BGVS volunteers. Additional material is from an interview with Tribhuvan Singh, President, Gyan Vigyan Samiti, Sarguja district, 28 December 2000.

²⁷ Sarguja BGVS. 2000. *Dagar*. A newsletter of the Pratappur Milli Watershed. Ambikapur.

²⁸ This sub-section is based on a field visit to Achanakmar, Lormi Block, Bilaspur District, 30 December 2000. The co-ordinator of the Parishad's work in Lormi, Rashmi Dwivedi, also shared some of this information with me.

²⁹ The material for this section is based on a meeting with the Karaundamuda Women's Protection Committee in Ganeshpura, Sarguja district, 29 December 2000.

³⁰ Rakhi is a festival marked by women tying bands or thread (*rakhis*) on the wrists of their brothers, and the latter pledging to protect and support them.

³¹ Sangata. Annual Report, 1999-2000. (Ambikapur, Sarguja, 2001).

³² From a meeting with Bhupen Singh, the director-cum-secretary of Sangata, in Ganeshpura, 29 December 2000.

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Junawani and Ulnar villages, Bastar

Background

The villages of Ulnar and Junawani situated in Bastar district of Chhattisgarh follow a traditional system of forest protection. In Bastar cosmology, villages were founded on the basis of land given to the founding members by the Earth, which has therefore to be propitiated at all agricultural festivals. It is believed that the Earth includes the spirits of the river, the forest and the mountain, to each of whom separate offerings are made.

The appropriation and reservation of forests by the forest department (FD) in the 1950s¹ meant that the forests were officially taken out of village boundaries. However, these forests often continued to be part of the village for ritualistic purposes. There has continued to be a strong tradition of managing the forests within the traditional village boundaries till quite recently, involving a system of charging residents of other villages a small fee (known variously as *devsari*, *dand*, *man* or *saribodi*) in exchange for use of one's forest resources. In some villages in north Bastar, the fee was charged according to the amount of timber taken, and it usually took the form of some liquor or meat. Some villages charged only for good timber and not for dry or fallen wood, and other villages charged only if the wood was stolen. Similarly, in some villages, they expected *man* for grazing, while others allowed grazing free. In south Bastar, villages that used the forest of another village made collective contributions to the Earth of that village at festival times by way of offerings. This was not necessarily a system of forest protection as it is understood today, but it managed to regulate excessive felling and enabled a supervisory eye on what was happening. Invariably there were cases where this system did not work. The residents of Chitrakote, for example, complained that while paying this fee or offering, other villages had cleaned out their forests, and now they in turn had to pay another village to use its forests. However, by and large, in terms of forest protection it seems to have been fairly successful.



Two examples where this traditional system has worked till not so long ago are Ulnar and Junawani villages. Ulnar is a large village in central Bastar, comprising seven hamlets. In addition it is the head village of 12 villages: Bajawand, Peethapur, Nalpawand, Sargipal, Dasapal, Devda, Masigaon, Peelapadar-Karitgon, Talnar, Baniagaon, Belgaon and Tarapur.² Ulnar had a *nistari*³ sal forest of about 6000 acres (according to one villager) that was distributed among the villages with Ulnar keeping the largest share.

Towards community conservation

The system had an exchange system for forest use. In return for the use of the forest, the other villages each contributed some money, rice and a goat (as *saribodi*) to the Earth festival in December and to the Chornia Mandai, another festival, in April. Each village had their own jungle (forest) *sarpanch* or headman and also engaged watchmen to look after their forests. On the last day of the Chornia Mandai festival, a meeting would be conducted whereby all the jungle *sarpanches* met. They would discuss the state of the forests and protection efforts, and warn villages that engaged in excessive tree felling.

In 1937 this system of traditional forest protection was discovered by the Chief Forest Officer in charge of Bastar while he was on tour. Subsequently, a formal working plan was drawn out, according to which the forest was divided into 7 or 8 felling series. Each felling series was assigned to a set of villages, which were then responsible for its management and the payment of the watchers. The felling series were further divided into forty coupes, one of which was opened every year for tree felling, the produce being distributed among the relevant villages. Certain trees, such as mahua, tamarind, harra, mango and trees forming the sacred grove around the local deity's shrine, were not to be cut.

In addition to the contributions at festival time, the *sarpanches* collected 1.5–2 kg of paddy per rupee of land revenue, which was stored in a central depot that was utilized towards paying the watchman, buying uniforms, axes, the construction and repair of the grain depot, etc. The watchmen



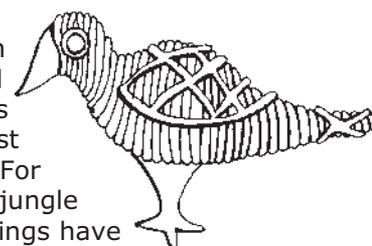
were paid 30–60 kg paddy per year and exempted from *corvee* (crop tax). Apart from meeting at festivals, the jungle *sarpanches* met weekly (called the council by the then British Administration) at the bazaar (market place) in Bajawand. The council had to be approved and confirmed by the administration, which also had powers to revise the council's judgment if necessary. The council was vested with powers to impose a fine (upto Rs 25) for offences connected with illicit felling or excessive removal of timber, fuel, grass, and non-timber forest products (NTFP). The money went into 'the furtherance of the Ulnar forest conservancy'.

Although this official systematization of the unofficial system seems to have been disbanded around 1952, following the nationalization of the *nistari* forests and their conversion into protected forests (PF),⁴ it has carried on informally in some form or the other.

In the neighbouring village of Junawani, the villagers have been protecting their forests since at least the 1930s, when they contributed approximately 10–15 kg of paddy per household to hire three watchmen. Additional money (e.g., for festivals) was raised by selling wood to neighbouring villages which lacked forests of their own. Villages which used the Junawani forests on a regular basis contributed grain for the watchmen, 100–150 kg of paddy and one pig at festival time (first sowing). Timber for house construction or for a funeral was given on application to the jungle *sarpanch* who would consult with the other villagers. Those who took wood without permission were fined, or would have their tools and bullock carts confiscated and auctioned at the first sowing. The position of the jungle *sarpanch* would rotate.

Opportunities and constraints

The forest department has recently started forest protection committee (FPCs) in some of the villages (including Bajawand and Ulnar) under the government-sponsored JFM programme. This has apparently led to some tension and distrust between the forest department's nominee for jungle *sarpanch* and other residents. For example, earlier if someone wanted timber to build a house, the jungle *sarpanch* had the powers to assign trees on his own, but now meetings have to be called for everything because of the breakdown in trust. Villagers are charged a fee of Rs 2000–3000 depending on what they cut, but the handling of this money is not always transparent. Despite all these problems, it still seems to be a fairly effective system. For instance, in 1999, Ulnar fined Tarapur Rs 5000 and a goat for stealing 30 logs of sal from Ulnar's portion of the forest.



In Junawani, villagers claimed that while the other villages continued to use the Junawani forest, they have now stopped contributing towards it. The villagers justify so by saying that "We don't say anything since people have become educated and tell us that it is not our jungle but belongs to the government." The turning point came in 1983–84, when villagers from Devda tried to steal timber at night, and beat up the Junawani villagers who tried to stop them. The dispute is still in the court. Junawani then stopped asking any of the other villages for contributions, and forest protection by the villagers became lax.

Around 1995–6, the forest department staff held a meeting at Junawani and villagers were told about the FD's plans to create a 50 ha plantation which would be handed over to the village after five years. This plantation took over some of the encroachments on lands under the jurisdiction of the revenue department of the state government. This land was being used to grow pulses and oilseeds to supplement paddy. Since a trench was dug around it, further encroachment has been stopped. A watchman was appointed to look after the plantation and paid from the VFC (village forest committee) funds. However, instead of planting mahua, tamarind, cashew (*Anacardium occidentale*) and so on, as was promised to the villagers, the FD has planted mahua, bamboo sp., eucalyptus sp. and acacia (*Acacia melanoxylon*). Once the FD money began to come in, villagers stopped contributing towards the payment of the watchman. According to them, their sense of ownership dipped even further, and they felt that if the FD was giving money, it would ultimately cut the forests.

On the other hand, protection seems to have improved over the past decade, despite all disputes and the lessening of enthusiasm of Junawani villagers. The presence of the FD as a third party has helped when offenders challenged the authority of the guards.

Conclusion

Traditionally these villages have unanimously followed the rules of forest protection bound by rituals and with due respect to the village body that decides those. However there is a reduction in enthusiasm along with internal village disputes over timber smuggling. Despite these constraints, this case study highlights the importance of community management as well as authoritative legislation for forest protection. This case indicates that despite the emphasis by NGOs on complete community management, it is important not to forget that the presence of the state as the ultimate authority has been internalized by villagers over a century or more. Therefore, if used imaginatively, situations like this can become a perfect example of how the government can enhance traditional conservation practices towards forest conservation rather than subverting them.

This case study has been compiled from Sundar, Nandini. 2000. *Is Devolution Democratisation?* New Delhi, Institute of Economic Growth.

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Endnotes

- ¹ See state chapter on Chhattisgarh in this volume for more details.
- ² The information on the Ulnar *nistari* jungle is based on conversations with villagers in Talnar and Ulnar (1999), in Peethapur (1996).
- ³ Patches of forests assigned to village communities for fulfillment of their customary rights, under the Land Revenue Code of the Central Provinces.
- ⁴ Category of forests declared under Indian Forests Act, 1927.





Chamanpur village, Sarguja

Background

Chamanpur village lies in the Pratappur taluka of Sarguja district in Bilaspur Division of Chhattisgarh. The total area of the village is 220 hectares. Chamanpur is one of the 29 villages that has been taken up for the implementation of the Rajiv Gandhi Watershed Mission of the government. The Chhattisgarh BGVS (Bharat Gyan Vigyan Samiti) is an organization which aims at the use of modern science as a mechanism for the development of the disadvantaged. In 1994 the government started the Rajiv Gandhi Watershed Mission in five areas of Bilaspur Division, aiming at improvement of agricultural productivity of some 12,00,000 ha of land, creating employment and recharging ground water levels. The BGVS was entrusted with the implementation of the Mission in five areas, including Chamanpur village. The BGVS decided to use this program for social engineering by involving local people, particularly small farmers, landless labourers and women, as leading implementers. Following a series of bad experiences with government water harvesting programs, people in the area had become accustomed to growing drought-resistant crops like kodon and kutki. Some communities like the Kodaku tribals switched from cultivation to collection of forest produce and daily wage labour for survival. The BVGS thus felt it necessary to initiate dialogues with villagers about water use and management.¹ For the organization, watershed management emerged as an entry point for equitable and sustainable village development.

Chamanpur village is situated on the highlands of the Korba-Korea region, an economically backward but resource-rich area in the earlier days. Most of the area is either cultivable wasteland with sandy soil or forest area. The common tree species in forest lands are sal, tendu, harra, behara and amla, and shifting cultivation is a common feature. According to local villagers, soil erosion and run-off of water from the soil surface has had a negative impact on soil fertility. The low productivity of lands has also led to deforestation and unsustainable use of forest resources in the region.

Tribes such as Korba, Gond and Kodaku form the majority of the population in the region. The inhabitants do not own any private land individually, but do own some of it communally. Most of them have stopped their earlier agricultural practices and are now working on other people's lands as wage labourers. For this they migrate seasonally to the plains. Out-migration (along with food and livelihood security) was one of the biggest challenges at the beginning of the watershed program.

Towards community conservation

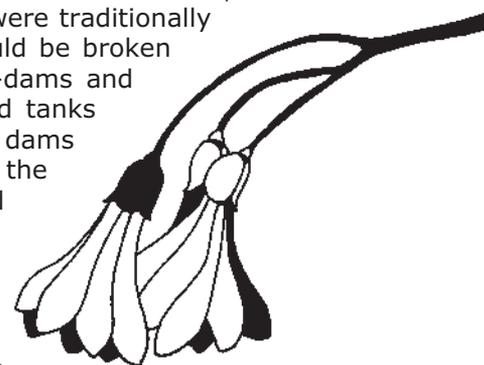
In 1994–5, community conservation of water in Chamanpur began, based on both indigenous as well as scientific knowledge. The villagers had good knowledge of the land classification as well as the drainage patterns of the area. They also had a clear idea about the problems of the traditional water harvesting systems. The most effective method to ensure that the entire process of planning was participatory was the initiation of participatory resource mapping exercises. A *kalajatha* (cultural troupe) preceded the mapping exercises and initiated dialogue with the villagers. BGVS volunteers went from plot to plot and mapped the resources of the area in collaboration with the villagers. During this process they gained an understanding of drainage patterns, patterns of production and soil conservation. This was to form the basis of further planning.²

Chamanpur belongs to a watershed comprising a radius of 129 sq km. In the village 235 ha of agriculture land and 25 ha of forest land had been conserved by the year 2000.

According to the local land classification, the watershed region was divided into three land use categories: 1) *bahra* or lowlands, where rice could grow and which remained moist throughout the year, 2) *chawar* or the midlands, which had seasonal water shortages and where both rice and wheat could grow seasonally, and 3) *darh* or the highlands, where only trees and some vegetables could grow. The challenge was to ensure that the water remained inside the *chawar* throughout the year so that the irrigated area could increase and an attempt could be made to grow two crops a year. A system had therefore to be innovated to channel the excess overflow of water from the *bahra* into the *chawar* and *darh* lands, so that the moisture in the *bahra* lands was maintained throughout the year. This land classification has played a crucial part in the creation of the system of water harvesting.



Chhattisgarh was earlier known for its traditional water harvesting ponds and check-dams, which were rebuilt by the people every year. The semi-permanent structures were traditionally at regular intervals on the ridge-line where the speed of the water could be broken and slowed down. The conservation of water took place through stop-dams and check-dams and the foothills of the ridge housed traditional ponds and tanks made by the villagers. However, according to the villagers these check dams would get destroyed because of the speed at which the water flowed down the ridge-lines. Under the watershed programme, this system was modified slightly by creating permanent harvesting structures: ponds, check-dams and stop-dams, based on the drainage maps prepared along with the villagers.



In this context, the first year saw the construction of boulder checks on the ridge. The traditional structures were improved slightly to make them more durable in two ways. First, the boulder checks were made of stone and mud instead of just mud; second, they were now made on the intersection of two drainage points in addition to the higher slopes, in order that enough moisture would get accumulated in the soil. Contour trenches were also dug to collect excess water and stop soil erosion. Thereafter the work moved to the transition zone or the zone between the highland and the *bahra* land. There already existed two old ponds in this zone. These were repaired and stop-dams and earthen dams were built to recharge the groundwater level. These structures were spread over 32–35 hectares and were linked with the natural *nala* that was used by the villagers to finally drain the excess water from the rice field. This work was completed by the second year and the work on the agricultural fields started by the middle of this period. Transition bunds and checks linked the existing ponds to each other. New structures were also made to link the lowlands with the midlands and highlands. This meant that the excess water could be drained into the *chawar* and the *darh* lands. The points of transition between the lowlands and midlands were identified along with village elders, based on their years of experience.³

Institutionally, each of the water harvesting structure has a user group. The group consists of the person on whose land the water harvesting structure stands. It also comprises all those landed and landless people who use the water from a particular water harvesting structure. Each user group is represented in the Watershed Committee of the village and the secretaries of the committee are part of a federation that represents the entire watershed at the district level.

Since most of the area was earlier forested and inhabited by the Kodaku, Korba and Gond tribals, the committees also have a majority tribal representation. It was decided when the programme began that the villagers would contribute 10 per cent of the labour as a local contribution into the watershed works.⁴

The members of the committee are elected by all households of the village through the user groups that represent all households. Each user group elects their own representatives in the committee. This committee represents the entire village in the district-level watershed committee meetings. It determines how much water is to be allocated to each household and solves inter- and intra-village disputes.

The members of the watershed committees, all villagers and the BGVS activists initially prepared a water use map of the entire village. Accordingly they decided how much water each family would be allocated for their *nistari* (customary) and agricultural use. If some people are found to be using excess water or disturbing other people's water supply, they are penalised by the watershed committee and the matter may even be brought before the *gram panchayat*.

Impacts of community effort

There were dramatic changes in Chamanpur as a result of water conservation, where only 35 acres of irrigated land in the pre-Mission era increased to 40 acres in the first year of the watershed, 100 acres by the third year and 235 acres in the fourth year (the end of 2000). The highest increase in productivity was for wheat grown on *chawar* lands, increasing from 120 to 1500 quintals in four years. It was now possible to grow paddy for 4–5 months longer than earlier. Rates of migration were reduced drastically as a high number of person days of employment were generated by BGVS activities in four years.⁵

These developments would not have been possible without successful recharging of groundwater levels and sustainable water conservation practices. In the Chamanpur watershed, the natural *nala* of the village has been regenerated and the village was not much affected by the drought of 2001. The watershed has resulted in the re-invention of some traditions. Kodaku farmers have begun to practice collective farming. They work on each other's land and also lend money and grain to each

other during lean periods. Together, they also conserve resources and decide on the ways in which agricultural inputs would be used. For example they decide how much forest should be closed for regeneration, how much water should be released in the fields, etc.

Outside Chamanpur village, 25 hectares of sal forest have been regenerated. Locally useful and traditional species like tendu, amla, behara and harra have also been planted as a part of the watershed mission.

Constraints and opportunities faced by the initiative

Among the main problems faced while implementing the programme were the timely transfers of funds, as is the case with all government programmes. In the Chamanpur watershed more than Rs 14 lakhs that were to be transferred as the last instalment were long overdue at the end of the project period. Despite this limitation, work progressed because the community was mobilised and oriented towards the project. This is in sharp contrast to government-run watershed programs where work stops when funds do.

Conflicts arose between watershed committees and *gram panchayats*, especially where the *sarpanch* represented a dominant caste and Dalit and tribal people were left out of decision-making processes. Chamanpur initially faced this situation, but once the majority of people started supporting the project, the *panchayats* themselves became sensitized and more supportive of the programme.⁶

The downside of the story is the fact that the cropping pattern has undergone a change since the increase in availability of water. High-yielding varieties of crop are being promoted because of the agricultural policy of the government that offers higher rates for hybrid varieties as compared to indigenous varieties. The biggest challenge for the villagers lies in the use of water conservation for regeneration of local wild species and crops. Instead of getting swayed by high-yielding varieties, BGVS needs to realise this and facilitate the preservation and regeneration of indigenous varieties of rice as well as minor millets like kodon, kutki and other millets.

Conclusion

This case study reflects on the effective combination of the scientific method and the traditional method of water conservation. Despite its constraints, the methods have been applied to a certain extent for the benefit of the tribal people. The key attribute that has led to effective project implementation is the high spirit and focus of the tribal people, coupled with government legislation towards the watershed programme. The consequence of the programme has been the protection of the forests on the watershed.

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² BGVS, *A Handbook for Land Literacy, Participatory Resource Mapping for Self Reliant Panchayats* (New Delhi, BGVS, 1994), pp. 9-12.

³ (As above)

⁴ Description of the watershed is based on field work in Chamanpur village, Pratappur block, Sarguja district, conducted on 28-29 December 2000.

⁵ Village meeting in Jagdalli (26 December 2000) and interview with Tribhuvan Singh (28 December 2000).

⁶ BGVS, *Dagar*. A newsletter of the Pratappur Milli Watershed, May 2000. (Ambikapur: BGVS), p. 3.



CCA/Chhattisgarh/CS3/Sarguja/Ganeshpura/Watershed development

Ganeshpura village, Sarguja

Background

Ganeshpura village lies in the Ambikapur taluka of Sarguja district in the Bilaspur Division of Chhattisgarh. The conservation of 220 ha of sal forests by the women of Ganeshpura is an offshoot of the effort of women of Karundamuda village¹ in the same taluka.

Towards community conservation

In 1995, an NGO called Sangta came in contact with Ganeshpura. Sangta had also recently got involved with Karundamuda village, where women facing severe fuelwood shortage had started protecting and regenerating about 100 ha of reserved forest (RF). Realising that the women in Ganeshpura were facing similar problems as in Karundamuda, Sangta advised Ganeshpura women to approach Karundamuda women for advice and support towards forest protection. The women of Karundamuda responded positively and facilitated the process of conservation and forest protection in the village.

Ganeshpura is also now under JFM like Karundamuda and facing similar kinds of constraints.

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¹ See Chhattisgarh case study on Karundamuda.





Karundamuda village, Sarguja

Background

Karundamuda village is located about 25 km outside Ambikapur, in Ambikapur taluka of Sarguja District. The total area under community conservation is 100 ha of sal forest. The village has 100 households.

One of the villagers of Karundamuda, Rajmanbai, recalls that the village had a dense reserved forest (RF) near the roads till the early 1980s. Thereafter the rate of the degradation of the forests began to increase at an alarming rate. She recalls that contractors would come to the village, cut trees and take them to the timber depot in Badrinarai located at a distance of 10 km from the village. In addition to this, resettled Bengali refugees from East Bengal would frequent the village at night to steal wood and cut trees. Due to indiscriminate logging and felling, 100 hectares of sal forests were destroyed, leading to a shortage of fuelwood for the villagers. The women of the village now needed to procure fuelwood for their personal consumption from the forest depot. Along with this, the villagers were facing a threat of increasing theft and crime from those who were involved in cutting timber. In this context the women of Karundamuda decided to protect their forests through the formation of the VFPC (village forest protection committee) in 1990-1. This committee effectively managed to regenerate the forests and was subsequently included in the government-sponsored JFM (Joint Forest Management) scheme in 1994.¹



Towards community conservation

The women who initiated the conservation efforts of the sal tract understood that regeneration required the closure of forests to all felling activities. In order to achieve this they consulted with the village elders and laid down rules by which the forest tract would be effectively protected.

The women formed a VFPC with the objective of regulation, management and administration of their forest. The members of this committee consist of a woman from every family, one of whom is elected as a secretary. The committee also carries out certain functions as a savings group. Rajmanbai took the initiative of committee formation into her own hands and went to the *panchayats* and the village elders. Having thought over the matter, the villagers, though skeptical initially, decided to support the venture on an experimental basis. Thereafter Rajmanbai called a meeting of 40 women in the village and asked them to choose the secretary of the committee. Rajmanbai was elected as the first secretary.

The first step that the women took was protection of the forests against all kinds of illegal extraction. The women patrolled the forest in groups to prevent any timber theft or tree cutting during the day. At night they commissioned the men and the youth of the village to guard the forest. Apart from this they also sat with the representatives of each family on the first Saturday of every month and determined the *nistari* (customary) rights of each family. After the first germination of the sal seeds, the women decided to leave the seeds in the forests instead of collecting them for sale. Sale of sal seeds is otherwise a major source of income for the women. The villagers were banned from cutting any trees or their branches in the first year. In order to make the villagers conscious of their duties towards the forest, the women followed a custom of tying a *rakhi* (a thread indicating that they have vowed to protect the tree) to the trees.

Along with protection and natural regeneration, the villagers also decided to plant traditional species like tendu (*Diospyros melanoxylon*), amla (*Embelica officinalis*), mahua (*Madhuca indica*), sanjha (*Terminalia alata*), etc. around their village. The forest, which was along the main road and within the traditional boundary of the village, was also protected and allowed to regenerate.² Simultaneously grazing was also regulated with only two cattle per household allowed to graze in the forest during the daytime.³ Surplus grass from the forest was cut and sold to those who owned more than two cattle.

The VFPC meetings are held on a weekly basis in order to review the protection measures. During the meeting the punishments for offences are finalized, depending on the nature and volume of the offence. The VFPC brings the cases to the *gram sabha*, where the issue is discussed and



punishments are issued. For example if someone is caught cutting green wood for fuel they would have to pay a fine of Rs 100, which is redirected to the village development fund that is operated by this committee.

Impacts of community conservation

Within two years the system of regulated extraction had resulted in a more dense forest. This led to an increase in the income from non-timber forest produce. Rajmanbai notes that this was not the case earlier, when only the contractors and the rich had access to timber and hence income from the forests. Apart from putting in labour in afforestation programs, the women also sell forest produce. They sell amla, fuelwood and tendu leaves in the local market that is 6 km away from the village.

The women's group also decided to create some community assets from the income generated in the village fund. They, therefore, used the funds to install a tubewell for the use of villagers two years after forest protection had started. Simultaneously women also started realizing some income for their labour. For example, for pruning the trees the women get Rs 30 per day, and for sowing and watering they get another Rs 30 per day. This payment is made by the VSS that collects the funds from the village and also operates the village development fund.

The success of Karundamuda prompted the villagers of the neighbouring village of Ganeshpura to venture into protection of 200 ha of forest area.



Opportunities and constraints

The interface of the forest protection committee with the forest department (FD) poses a major constraint in the empowerment of VFPC. Whereas the protection was started spontaneously, the interference of the FD has reduced the power of the committee to intervene on the basis of its own experience. In 1994 the VFPC received administrative recognition from the FD under JFM. In the process, the committee suffered one setback: the forest guard replaced Rajmanbai as the secretary of the committee. Further the decisions of the VSS were now influenced by the rules and regulations of the JFM. This meant that the women VSS members were no longer in control of funds and could not make their own rules as freely as before.

In 1995 this village came into contact with an NGO called Sangata that brought about many changes in this area. The first change was that the VFPC of Karundamuda received an award from the FD for being the best of its kind in the district. The second was that the experience of Karundamuda was replicated in Ganeshpura, a nearby village in 1997. After being persuaded by Sangata to correspond with the women of Karundamuda, the women of Ganeshpura approached Karundamuda. Karundamuda women motivated and organized Ganeshpura villagers by working with them on the 220 ha afforestation programme. Finally, with the intervention of Sangata, more systematic efforts began on finding sustainable and long-term livelihood options. The first measure was the formation of SHGs (self-help groups). Through the working of these groups the women were taught how to operate bank accounts as well as manage their own money. Today there are 4 SHGs in these two villages. They are regularly provided training in running nurseries and bee-keeping and even have a project for the propagation of mulberry silkworms from the Madhya Pradesh Sericulture Project (MPSP). Most of these projects are given to the self-help groups under government schemes. Sangata creates the interface between the government and these groups and also arranges their training. Thus their link with the outside world has provided them with some livelihood support.

However, due to the control being taken over by the FD from Karundamuda forest committee and the forest guard becoming the secretary, their own leadership has been curbed and their decision-making powers interfered with. This is mainly because this committee is now subject to the rules of JFM programme that has given the control over surplus, technology and produce to the state FD.⁴

Conclusion

This case study exhibits a very successful initiative of the people towards forest protection that is coupled with effective regulations for the same. However, with its inclusion under the JFM there seems to be a dilution in the power of the VFPC and its ability to resolve issues from the people's perspective. The biggest challenge therefore lies in being able to maintain Ganeshpura

and Karundamuda as community-conserved and managed forests, with effective support from outside agencies as and when needed, rather than as an imposition of an alien system.

This case study has been contributed by Archana Prasad, who is a Reader at the Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia, New Delhi.

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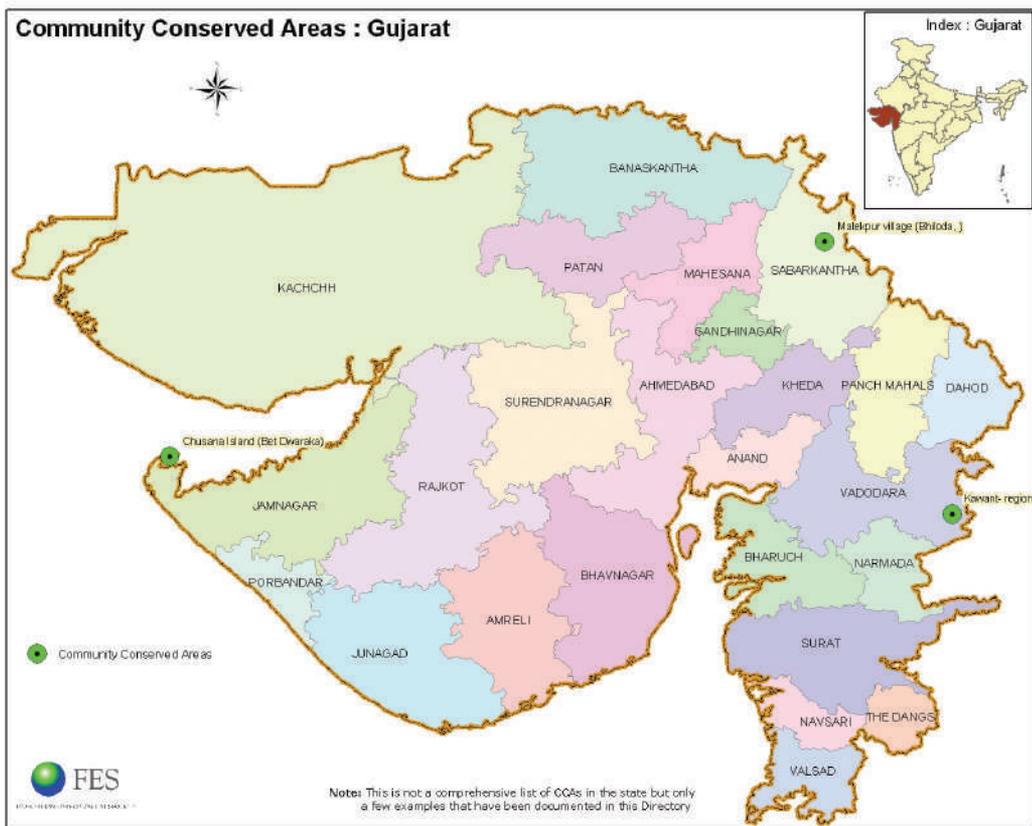
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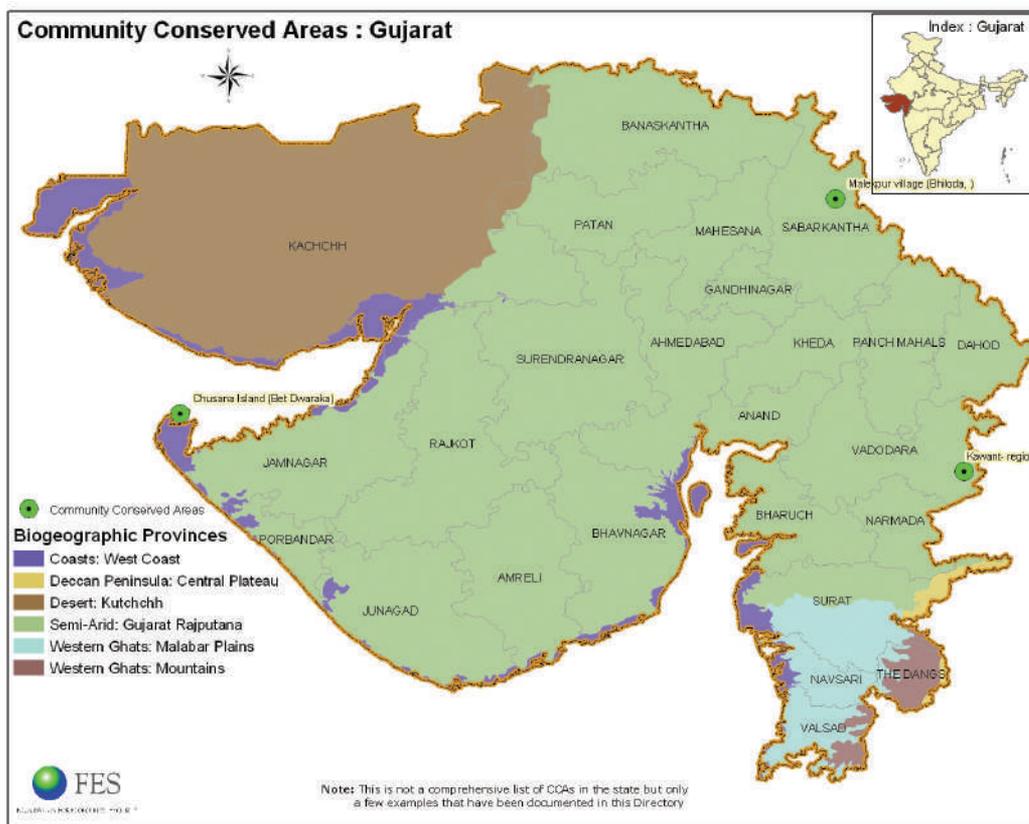
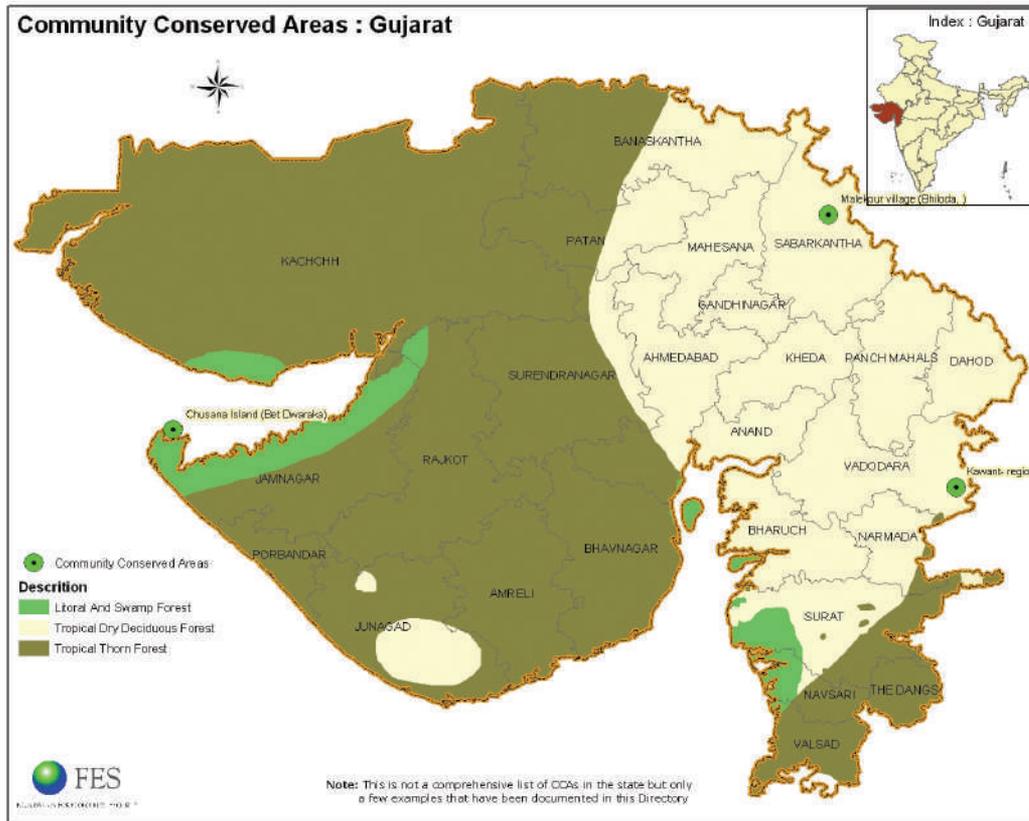
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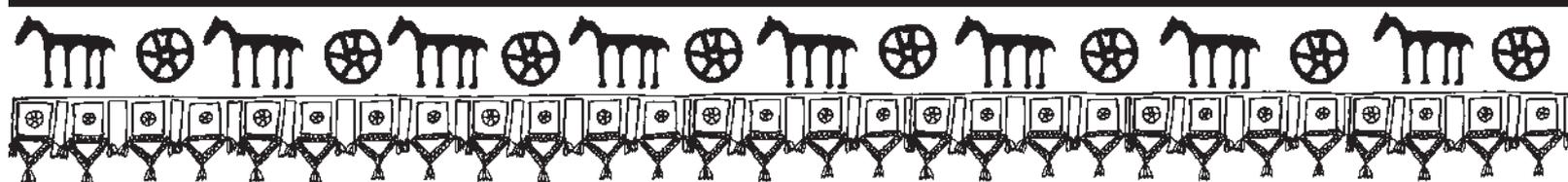
- ¹ The material for this section is based on a meeting with the Karundamuda Women's Protection Committee in Ganeshpura, Sarguja district, on 29 December 2000.
- ² Meeting with Bhupen Singh, the director-cum-secretary of Sangata in Ganeshpura, on 29 December 2000.
- ³ Annual Report of Sangata, 1999-2000.
- ⁴ *Joint Forest Management Update*, 1998 Delhi, (Society for Promotion of Wasteland Development, 1998).



Gujarat







Community conserved biodiversity areas in Gujarat

Prahlad C., Subhash Mali, Ramesh Patel and Srinivas Mudrakartha

1. Introduction

The state of Gujarat is situated on the west coast of India between 20° 06' N to 24° 42' N latitude and 68° 10' E to 74° 28' E longitude. It is bounded by the Arabian Sea on the west and the states of Rajasthan on the north and north-east, Madhya Pradesh on the east and Maharashtra on the south and south-east. The state shares an international boundary with Pakistan at the north-western fringe. The two deserts, one in the north of Kachchh and the other between Kachchh and mainland Gujarat, are saline wastes.

The state has a long coastline of about 1600 km, the longest in the country. Gujarat has a geographical area of 1.96 lakh sq km and accounts for 6.19 per cent of the total area of the country. As per the 2001 census, its population is 5.06 crore (50.6 million). The decadal growth rate for the decade 1991–2001 has increased in comparison to 1981–91 to 22.48 per cent from 21.19 percent.

The climate of the state is tropical; however, this is considerably moderated due to the long coastline. The temperature ranges between 1°C and 46 °C.

1.1 Forest cover of Gujarat

Forest cover has seen some positive changes since the last decade; as shown in Tables 1 and 2.

Table 1: Forest cover change in the period 1991–2001 in Gujarat State¹

Sr. No	Assessment year	Data period	Forest cover (sq km)	Changes	Cumulative change
1	1991	1987-89	11,907	-	-
2	1993	1989-91	12,044	(+) 137	(+) 137
3	1995	1991-93	12,320	(+) 276	(+) 413
4	1997	1993-95	12,578	(+) 258	(+) 671
5	1999	1995-97	12,965	(+) 387	(+) 1058
6	2001	1997-99	15,152	(+) 2187	(+) 3245

Table 2: Status of Forest Cover (2001)²

Status of forest cover	Area in sq km
Dense Forest	8,673
Open Forest	6,479
Total	15,152 (7.7% of total geographical area)
Scrub	2408
Total Area	17,560

Since time immemorial, people have managed their natural resources, be it forest, wildlife, grass plots, livestock, wasteland, agriculture or fishing. Such efforts, when resulting in conservation, are recognised as community conserved areas (CCAs). These CCAs have come to be recognised as traditional systems of management that preserved people's indigenous knowledge and practices, ensuring continued availability of natural resources to the later generations as well.

Unlike the current policing approach to administration, people involved in CCAs strongly believe in and practice self-imposed rules and structures within the framework of sustainability. At the same time development is changing their lifestyle, outlook and attitude, and their traditional knowledge is undergoing change. Keeping pace with the change and yet conserving their system may help to keep the environment in balance.

The present study attempts to document CCA examples from different ecological regions in Gujarat, including in forests, agriculture, coastal areas, grasslands and wastelands. It also discusses the changing scenario of administration, economic conditions, competition for natural resources, development, and legal and political matters that are regulating and influencing CCA practices.

2. Community initiatives

2.1 Sacred groves (North Gujarat)

2.1.1 Introduction

The forest belt all along the eastern boundary of the state—spread across eight districts, viz., Dangs, Valsad, Surat, Bharuch, Vadodara, Panchmahals, Sabarkantha and Banaskantha—is predominantly inhabited by tribal communities. According to the 2001 population census, the tribal population is 14.8% of the total population of the state.³ Even in the midst of increasing urbanisation, these forest inhabitants retain their own ethno-culture—their ancestral and social traditions, laws, norms, beliefs and rituals.

One of the key 'traditional' factors that aid sustainable management of the environment is the tribals' deep respect for sacred groves. These are small patches of vegetation that have traditionally been protected by local communities by labelling them as the abode of gods and goddesses.⁴ Such traditional practices play a key role in the survival and harmonious conservation of rich, biodiverse natural resources. No one is permitted to cut any tree or other plant, kill animals, or cause harm to any form of life in this conserved area.

But changes in lifestyle as well as related market forces and human-induced development seem to have adversely affected people's faith in sacred groves and associated traditions. In this regard, sacred groves act as an indicator of the virgin environment, as well as an indicator of the continuing ethical values that exist in these tribes.

So far, there has been no systematic study carried out in Gujarat on sacred groves. This is an attempt towards making a beginning in that direction. The case studies profiled below are from the foothills of the Aravalli hill range in northern part of Gujarat (Banaskantha district) where the tribal culture is unique but shares some common features with those in the adjoining state of Rajasthan. Not all of them can be called CCAs but nevertheless are efforts by common people towards conservation.

Box 1

Some examples of conservation because of sacred sentiments in Banaskantha District of Gujarat

Balaram Mahadev Mandir

The site is on the way from Palanpur to Ambaji. Buses ply between these two places. Covering about 4 ha, the temple and surrounding forest, is an important place of worship and beckons many devotees. The place is one of the thrust areas of the State Government to promote tourism. Gujarat Tourism and Development Corporation (GTDC) is already operating a guest-house; a private resort has already come up. Total area under the conservation is about 4 ha. The temple is situated on the banks of the river *Banas* that was once perennial but has now become seasonal. This area is owned by the Balaram Mahadev Mandir Trust, and the trust looks after the management of the temple and the surrounding forests. The Trust has imposed a set of rules and norms, such as prohibition on cutting of trees.

There is a cultural value attached to this site. The devotee community contributes voluntarily for the development of the site. Some people provide service in various forms, such as in maintenance and participation in temple functions and providing a voluntary watch on the conserved area.

The forests support a variety of flora and fauna. Some of the important species are arjun,

kanaj, karanj, onkhlo, umbaro, *Oclandra sp.*, aduso, kanthera, khajoor, jamun, kevda, neem, bilva, sandal, amla, etc.

The site is also a host to a variety of species. Many medicinal plants are found to exist in this area, such as chitrak or chitaro, wild jasmine, adathoda, bhangra, brahmi, musli, negod, etc.

At the same time some religious activities and picnicking disturb the site. Every year a *mela* (fete) is held during the month of Shravan (in monsoon) that receives more than 30,000 visitors. On the 10th day of Shravan, clay idols of the deity are immersed in the river, along with flowers, fruits and plastic carry-bags into the river, thus releasing a lot of solid waste. The waste not only affects the quality of water and the waterbody, but also the environment. The disposal of waste poses a serious problem to the temple authority every year. In addition, picnickers leave behind plastic bags, food and waste that degrade the environment further. Activities such as playing of music or vehicular movement disturb the serene atmosphere. Often, the behaviour of the visitors is tantamount to disrespect of the traditional norms and beliefs of the local population.

Sometimes threats to the site come in unforeseen circumstances, for example, a local newspaper published an article revealing the medicinal value of the bark of a locally found tree, *arjun* in curing heart ailments. This led to people coming here and collecting its bark. Some villages also resorted to collecting the bark and selling it at Rs 25/kg, affecting the growth of the trees. Another problem for the grove appears to be the rapid spread of *Prosopis*, a weed which is fast filling up the riverbanks.

Kedarnath Mandir, Balundra

The temple is situated on the top of a hillock and is 5–6 kms away from the village and covers approximately 2 hectares. The temple's surroundings have a natural perennial water source and support a variety of arid vegetation. The vegetation in the area includes vad, pipal, umbaro, kanaji, asopalav, naleri, khakra and kadaya.

The legal status of the area is not clear. There is a conflict over ownership between the local community and the forest department. These forests have been traditionally conserved for many generations. An informal village committee is mainly responsible for management of the site. A village elder from the Patel community heads the committee. Informal and self-imposed rules exist within the community. The community contributes labour and money, especially during annual gathering and religious ceremonies.

The villagers recognise that the existence of water source and the vegetation are mutually supportive. They are therefore happy to preserve the sacred grove which also provides them with a peaceful ambience and a source of water.

However, temple does experience a seasonal pressure during the mela in February-March every year. About 5,000 people visit the place during the months of July and August. A road was constructed up to the foothills in 1995-6. Another issue that has a bearing on the preservation of the sacred grove is the continued conflict over ownership between the forest department and the village.

Jodhasar

Jodhasar is on the way from Balaram to Ambaji, 4 km away from the main road. The total demarcated area for each of the sacred groves is approximately 10 sq m. There are three such plots in the village. A mud wall with some stones forms the outer boundary. The sites (three) support various tree species, viz., khakra, pipal, khajoor, kanther, gandabaval, ber, desi acasia, Opuntia, dav, dudhi, neem, and mango.

The local people take care of neem, mango and Butea seedlings under stone mulching. Every year they plant seedlings but the survival rate is low. People visit the site whenever they feel inclined to worship. Occasionally, a few visitors visit the site on their way to Ambaji. The forest department is not involved in conserving the site. The village community plans to build a temple here in future. Presently, the villagers get employment in pond construction from the Irrigation Department under the drought relief programme.

One of these groves, the Mahadev Mandir is an important religious point for villagers. The species found here are khakra, kanther, gandabaval, pipal, khajoor, etc. The site is free from grazing due to the height of the trees and lack of ground cover. A small number of artificially

regenerated seedlings are under stone mulch.

Legally the land belongs to the *panchayat* and has been traditionally conserved for a very long time. No formal village institution exists to manage the groves but village elders and key persons are informally taking care of the site. As per the self-imposed rules local people do not graze their cattle here. Many dhav and khakhra trees, known for their economic returns, are found here but people do not extract these.⁵

2.1.2 Key issues of sacred groves

In our studies, it is found that the sacred groves in remote areas are generally untouched and are more valued. Villagers very rarely visit these sites, unlike sites which are close to the main road. A remote place like Jodhasar has seasonal visitors, whereas Balaram and Padaliya (which are close to the main road) have a large number of visitors.

In the tribal areas, most of the trees are important, particularly as valuable sources of minor forest produce. The species composition and density varies with the remoteness and presence of tribal settlements. Natural regeneration in the sacred groves in remote areas is generally found to be better than in other areas. However, the pressure of grazing is common. In the well-managed sacred groves, the management committee or the locals procure the seedlings from outside, though with great difficulty, as people always cannot pay much attention due to their routine work.

Only temples managed by trustees or formal management committees have succeeded in having ownership records, while the rest do not have any records, leading to protracted conflict situations.

In our study, modernisation, mining and tourism practices are observed to be causing adverse impacts. A proper balancing of these activities with the conservation of sites is the need of the hour. Occurrence of drought is common (once every three years) and during this period livelihood comes under stress. The result is that people are not in a position to confer due care on maintenance of the site. Promoting MFP will help build livelihood security to a certain extent. Enhancement of livelihood options locally will go a long way towards checking migration, which also means better care of the sacred groves.

Finally, proper identification, documentation, networking and coordination among interested groups need to be given a fillip. Identification and recording of the flora and fauna and their role in supporting livelihood systems, both historically and in the present context, need to be taken up.

2.2. Grasslands



Banni grasslands with steppe eagles, Kachchh
Photo: Jugal Tiwari

Grasslands in Gujarat are spread over a total area of approximately 1,40,276.94 ha, and can be found in the districts of Ahmedabad, Banaskantha, Gandhinagar, Rajkot, Surendranagar, Bhavnagar, Kheda, Mehasana, Sabarkantha and Surat.

The grasslands in the state can be divided into three convenient zones: Saurashtra accounts for 71,925.81 ha, the central zone for 10,741.60 ha, and Kachchh for 57,609.53 ha.

The grasslands of Gujarat consist of shrub or tree savannah type, which not only support livestock but also diverse, rare and endangered wildlife species such as the lion, wild ass, bustard, chinkara, black buck, blue bull, leopard, four-horned antelope and lesser florican.

Gujarat has an average of 722.59 acres of community land per village, ranking fifth in the country. 32% of total community land is grazing land, which is high compared to the country average of 22 per cent; in this respect Gujarat ranks third after Rajasthan and Maharashtra.

Gauchar (grazing land) is a common type of common pool resource existing in the state since the reign of princes as well as during the British period. However, the size of the *gauchar* was fixed at 16 ha/100 cattle by a government order aimed at preventing alienation of common land for industrial development. They were managed by the *gram panchayats* after the formation of Gujarat state and implementation of the Panchayati Raj Act.

Box 2**Important grassland species of Gujarat**

Grasses: *Sehima nervosum*, *Chrysopogon fulvus*, *Cymbopogon jwarancusa*, *Heteropogon contortus*, *Sporobolus marginatus*, *Dactyloctenium indicum*, *Cenchrus ciliaris*, *Dicanthium annulatum*, *Cynodon dactylon*, *Apluda mutica*, *Cymbopogon martinii*, etc.

Herbs: *Cassia tora*, *Crotalaria sp.*, *Sesbania sp.*, *Digera muricata*, *Indigofera sp.*, *Leucas aspera*, *Ttridax procumbens*, *Cyperus rotundus*, *Desmodium diffusum*, *Barleria cristata*, *Striga asiatica*, *Xanthium stromarium*, etc.

Shrubs: *Calotropis procera*, *Capparis deciduas*, *Cassia auriculata*, *Helicteres isora*, etc.

Trees: *Acacia nilotica*, *Ferronia limonia*, *Hardwickia binata*, *Butea monosperma*, *Zizyphus sp.*, *Wrightia tinctoria*, *Bauhinia racemosa*, etc.

The state's grasslands are under pressure due to unscientific grazing practices, invasion of weeds, industrialisation, poor efforts at regeneration and improving productivity, poor quality of livestock, inadequate means of livelihoods, encroachment, salinity, and general land degradation.

2.2.1 The Banni grasslands

The Banni area is a flat pasture land within the Great Rann of Kachchh and is situated in the northern region of Bhuj taluka, between north latitudes 23° 19' and 23° 52' and east longitudes of 68° 56' to 70° 32'. The temperature reaches up to 50° C in the hottest months (May and June) and down to 5° C in the coldest months (January and February). The southwest monsoon brings very little rain (annual average of 300 mm per year) and is ill distributed in the Banni area. Droughts are quite common and severe. The whole year's rainfall often falls within a short spell of 10 days or less. Sometimes, half the annual average rainfall occurs within a few hours. No arable farming can be practiced here. The Banni grassland, with about 40 varieties of grasses, is considered one of Asia's finest expanses of grass. It used to attract cattle breeders from all over Gujarat, parts of Rajasthan, and Bombay in Maharashtra. There is an old practice of bringing salvage (i.e., dry animals) from Bombay to Banni for grazing, and then taking them back to Bombay when they are due for delivery.

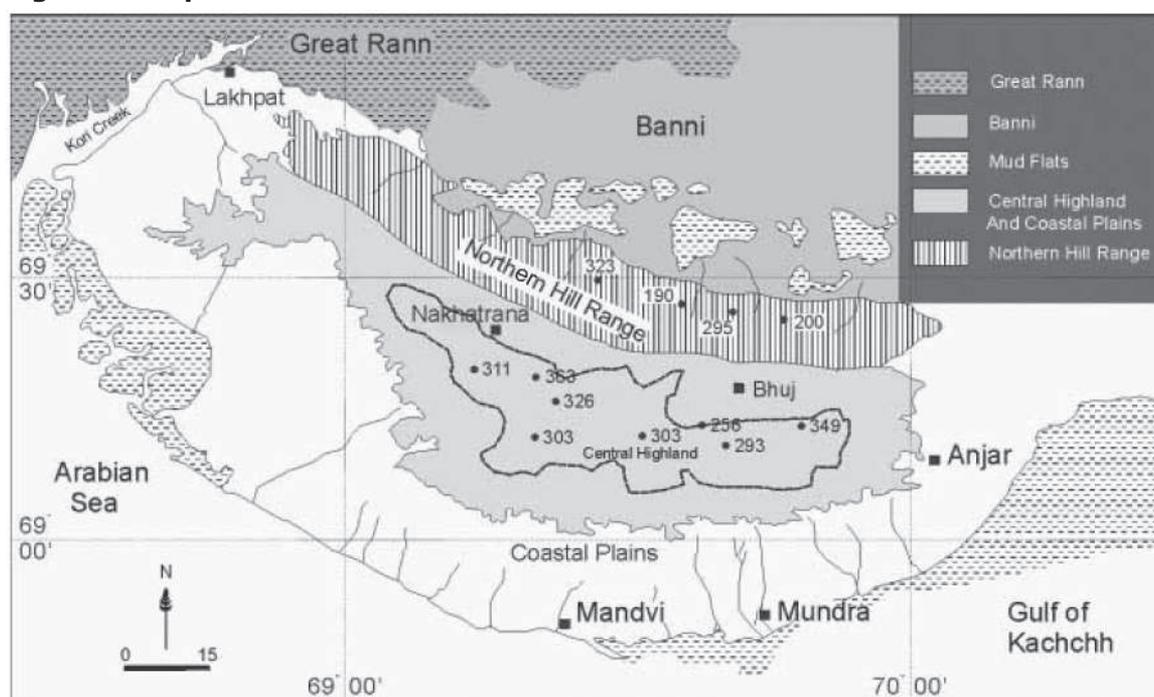
The total Banni area is 3847 sq km. People from all over the state as well as the neighbouring state of Maharashtra leave their livestock with the traditional herders of the Banni for grazing purposes. The Banni accounts for nearly 45 per cent of the permanent grasses. The grasses include species of *Sporobolus*, *Chloris*, *Dichanthium*, *Cenchrus*, *Dectylectynium*, *Desmostachya*, *Chrysopogon*, *Echinocloa*, and herbs like species of *Cressa*, *Indigofera*, *Digera*, *Corchorus*, etc.



Donars grasslands of of Abdasa, Kachchh
Photo: Jugal Tiwari



Cranes returning to roost in Kachchh
Photo: Jugal Tiwari

Figure 1: Map of the Banni area⁶

2.2.2 Weed menace

According to the satellite imagery of IRS-IA (1998), the Banni grassland is being wiped out at a rate of 4188 ha/year by the invasion of *gandabaval*. In other words, the species is invading at the rate of half a hectare per hour.⁷ Due to this, Banni's rich flora like *piludi*, *khijado*, *deshi baval* and rare birds like *houbara bustard* have disappeared or almost vanished.

The forest department says that the Nawab of Jamnagar first carried out the aerial broadcasting in Gujarat during 1948–50. *Prosopis* is considered by some to be one of the best cattle feeds, if processed properly, and has no adverse effect on cattle health. However, a majority of people find this species very unfavourable, for several reasons such as, it leads to decline of water table, fallen leaves and pods render surface water non potable, is unsuitable as green manure as it does not have enough nitrogen content, it is also believed to be very harmful for cows although buffaloes can survive on it well. Some people believe that it is one of the major reasons behind the reducing population of the indigenous *Kankrej* breeds of cows.

The revenue department is short-staffed and the staff generally lack experience in eradicating *gandabaval*. The villagers may take care of the land if it is allotted in their names. The role of the forest department in this direction should be a strategised action plan to support villagers' livelihood by enhancing income-generating activities, provide training and permit charcoal-making and marketing of the same. The setting up of a particle board industry and other options to make use of the wood will encourage the people to take interest in controlling this tree.

According to a study conducted by Gujarat Forest Development Corporation (GFDC) and Gujarat Institute of Desert Ecology (GUIDE), the livestock-based economy generated about Rs 1,538 per household a month from production of milk only (milk products not included), while the *gandabaval*-based economy generated about Rs 73.80 per household from sale of honey, gum and charcoal in the Banni. Hence, reclaiming and conserving the grassland is important as it supports the dairy industry that is more profitable than the others besides being the most sustainable industry here.

The case studies recorded here are selected from the Banni area considering its fragility and sensitivity in terms of livelihoods and ecological importance. Recognising the difficulties associated with grasslands management, the MoEF supported Gujarat Ecology Commission⁸ (GEC's) project on Banni Grassland Restoration project in 1995–6 under the Border Area Development Programme. The GEC and GUIDE joined hands to introduce a programme of fodder generation on small plots of 100 ha per village. GUIDE hoped that by creating an alternate source of fodder, pressure on common grazing lands would decrease.

The programmes have been largely successful so far. Grass grown on the plots is stored in fodder banks in preparation for drought years. Management of the plots is left entirely to the village to promote self-sufficiency. The productivity has increased from 400kg/ha to 846 kg/ha. Additionally,

23 species of grass are found, compared to 13 species before the plot was protected.⁹ The success of the programs is further reflected in the eagerness of villages to participate: while villages were initially reluctant to initiate a management programme for fodder generation, 17 villages have now asked for GUIDE's help in starting their own plots.

In addition to the above mentioned projects, at many sites, communities have regenerated grasslands and other 'wastelands', or managed them for sustainable resource use in such a way that the ecosystem has been conserved. Interesting examples of this are Jaljevdi and Hirava villages bordering the Gir Wildlife Sanctuary in Amreli district, and Layyeri village of Nakhatrana taluka in Kachchh.

Box 3

Examples of management of grass plots and grasslands¹⁰

Bhirandiyara grass plot

Bhirandiyara grass plot is located approximately 50–60 km from Bhuj. The total area of the plot is about 100 ha. This area is a part of Asia's finest grassland or Banni lands. The grassland is however, now invaded by *prosopis*, and the salinity in this area is increasing. Legally this land is under the revenue department. A formal committee of 7–8 members was set up in 1996 to look after the 100 ha grassland and received financial and technical support from GEC and GUIDE. The activities and rules of the committee include, clearing gandabaval to raise grasses; to look after the 100 ha grassland, raising, protecting and using the grassland, among others. GEC bears the salary of the guard. All the villagers are eligible to collect the grass, either by paying Rs 2 per kg without labour or collecting free by rendering their services to cut the grass.

The plot has been cleaned and kept free from gandabaval, which has increased the grass production. The total production of grass during 1999 was 8 tons and this was distributed free to the villagers. The villagers are motivated by the success and have planned to dig staggered trenches on the site for moisture conservation. Emergence of a leadership and awareness are among the striking impacts of the community participation.

Dhordo grass plot

Dhordo grass plot is approximately 80 km from Bhuj. In 1996, about 200 ha of grassland was given to the villagers on an experimental basis by the government to develop and manage. Legally, this land belongs to the revenue department. The management of the plot is looked after by the village formal committee, GEC and GUIDE.

One of the major problems is the spread of *Prosopis* which was planted here by the forest department in 1958. Additionally, the grassland has to be protected from illegal harvesters. The committee prefers to fence the area so that the major cost of protection and supervision can be reduced. Presently the committee is incurring an expense of Rs 32,000, at the rate of Rs. 2,000 per month to 4 guards during the 4-month grass production season. On the other hand the grass quality and quantity produced in the conserved plot is good, and the invasion of *Prosopis juliflora* has now been controlled. The cooperative system helped the people to prepare a common well to overcome drought. The total production of grass in 1997 was 3547 kg/ha—84 kg/ha on degraded and grazed land, and 216 kg/ha in the *Prosopis*-invaded area. This has been distributed among the villagers.

Sadiyo grass plot

Sadiyo grass plot is located approximately 75–80 km from Bhuj and covers about 100 ha and legally is under the revenue department. With the help of the GEC and GUIDE a village committee was formed in 1996, which received technical and financial support from GEC and GUIDE. The management committee has assigned the labour to different committee members. The villagers are taking care of cleaning, levelling, weeding and cutting, as well as distribution of grasses. The plot is not fenced, so protection is a problem. The committee appoints guards to watch the plot. According to the villagers the removal of gandabaval helps in the growth of grasses, its palatability and nutrition status, and checks the present domination of non-palatable grasses over palatable grasses. The villagers get the grass from grass plots and, as an alternate nutrient, livestock are also given cotton seed and agricultural residue purchased from village contributions and returns from the plot.

Layyeri, Bhuj

Layyeri village of Nakhatrana taluka is dominated by the Jat community. Livestock management

is a major component of the livelihood pattern of the villages. Over a period, their experience over unmet demands and degrading resources of grasslands brought about a realisation of the importance of the grasses, and soon the village community took to conserving the grassland. As a result, a formal committee came into existence to look after the grasslands. A registered village committee with the help of Sahajeevan, a local NGO, is taking care of about 200 acres of grass plot since the last several years. The committee involves 10 executive bodies of which 5 are women. Sahajeevan provides technical and financial inputs while the committee carries out management, planning and distribution of the responsibility of carrying out the protection activities and also the distribution of the grass to the villagers. The collected grass is used when there is scarcity, so currently they are storing the grass in the village godown. The villagers contributed Rs10 every month and they have a sizeable savings in their account. The Rs 2 lakh present in the savings bank will be used to acquire grass in case of extreme scarcity. Additionally, villagers benefit from the increased milk production and turning *gandabaval* into charcoal.

2.3. Mangroves

The state of Gujarat has the longest coastline (1600 km) among Indian states and supports a variety of marine flora and fauna. The area under mangrove cover along the Gujarat coast is the second largest in India, next only to the Sunderbans. These mangrove formations are isolated and discontinuous, and are found from Kandla and Navalakhi in the north to Jodia, Jamnagar, Sikka, Alaya and Okha along the coasts of the Gulf of Kachchh. Many islands such as Pirotan, Bhaider and Dhani also have good mangrove forests. As many as seven mangrove species are reported from Gujarat. The mangroves of Kachchh are in general of the open scrubby type with low wooded species of *Avicenna* and *Rhizophora*. In Dwaraka and Poshitra mostly a single species, *Avicennia marina*, is seen.

The southern coast of the state supports negligible mangrove area, while Kachchh and Jamnagar regions possess dominant and luxuriant mangroves vegetation. In this chapter we cover case studies from the south coast and Jamnagar regions.

Box 4

Conservation of mangrove forests because of sacred sentiments in Jamnagar

Chusana Island

Chusana island, locally called Pir, is 30 km from Bet Dwaraka in Jamnagar District of Gujarat. This island houses mangrove species like *Avicenna marina*, *Avicenna officinalis*, *Avicenna alba* and *Salvadora*, and provides a breeding ground for many birds. The island was included in the Kachchh Marine Sanctuary in 1980.

The villagers of Bet Dwarka belong to the Badela, Sanghar and Vadher communities and have been informally protecting the ecosystem for religious and socio-cultural reasons for generations. All kinds of biomass collection, including even dried twigs and branches, are socially not allowed in the island. The religious sentiments of the people have helped to save this mangrove vegetation for over 300 years. This site is used as a safe breeding ground by many birds.

2.4 Community tree plantation

Another interesting concept that involves common people in nature regeneration in Gujarat is called the creation of *vriksha mandirs* by Swadhyaya Parivar.

The trees are cultivated and managed, as a mark of devotion and dedication to nature and God, by the members of the Parivar, who constitute at least 80 per cent of the participating village/villages in the respective area. The objective of the concept is to inculcate a feeling of unity among human beings through contributing labour for tree protection and worship.

The cultivation is done on leased government wasteland or on the land purchased by the Swadhyaya Parivar. The entire operations including harvesting and marketing of the produce are carried out by them. The profit is either distributed amongst the families of the Parivar or used for running educational institutes. The *vriksha mandirs* in Gujarat were started in 1980 with the very first one at Rajkot in 1979. The next one was in Veraval in 1980. Currently in the state there are 19

units of 4–28 ha spread across 11 districts of Gujarat.¹¹ These are managed by the formal village groups and Madhavi Rakshan Samithi (MRS) in different villages. For the protection of the Vriksh Mandirs, one or two local managers, on rotation, are assigned to be present in the plot everyday. At least 300 such local managers are in the field everyday. Devotees come to the Vriksha Mandir in the months of *Margsheersha* and *Shravan* to offer pooja (pray).

2.5 Community participation in forest resource management¹²

Since the early 1980s, efforts have been made to involve local communities in the protection, regeneration and development of forests in the state of Gujarat. In the mid-80s, when Phase I of the social forestry programme under the World Bank scheme started, emphasis was laid on involving local people. These efforts were, however, restricted to mere planting and raising trees. Around this time, scarcity was declared in many parts of Gujarat, due to continuous drought from 1985 to 1987. The situation was turning from bad to worse, as the needs of the people with respect to fuelwood, fodder and small timber could not be met. A beginning was made in some of the villages of south Gujarat in 1987, to address the regeneration issue. Starting with three to four villages and a few hectares, the joint forest management (JFM) scheme today encompasses more than 1300 villages and covers over 1,75,000 hectares in Gujarat. The JFM resolution was based on the National Forest Policy 1988 and the guidelines issued by the Government of India in 1990. Pertinent to note here is the fact that JFM activities in Gujarat preceded the resolution of the Government of Gujarat.

Table 3: Extent of joint forest management programme in Gujarat (March 2002)¹³

Sr. no.	Name of forest division	No. of JFM committees	Forest area brought under JFM (ha)
01	Rajpipla (East)	138	10,165.00
02	Rajpipla (West)	149	12,116.00
03	Vyara	109	15,295.10
04	Valsad (N)	52	8,671.56
05	Valsad (S)	57	10,329.00
06	Baria	192	34,831.40
07	Godhra	121	20,808.75
08	Chhotaudepur	255	48,356.35
09	Sabarkantha	96	8,592.31
10	Sabarkantha(S)	122	9,292.88
11	Banaskantha	35	2,548.08
12	Gandhinagar	10	536.20
	TOTAL	1340	1,75,083.97

2.6. Community interest in animal care

Chabutara for feeding birds

Chabutara (a platform) is an institution that focuses on feeding birds, particularly in seasons when food becomes scarce. Such an idea emphasises the sensitivity we need to have for the rights of other non-human living beings to co-exist with us, even in a drought year. This practice is managed in some villages by nature-loving individuals, while in others it is managed by communities. The tradition of feeding birds is very old and found among most cultures around the world. However, it has continued as a living tradition only in some regions. Most bird-feeding platforms in Gujarat are found in the North. Different norms have evolved among local communities for pooling grain and feeding the birds. A *chabutara* is a small 10–12 ft high platform constructed with bricks with an open pan on top where grains are kept. The design and architecture of a *chabutara* may vary from village to village. Traditionally, whenever someone commits an unlawful action like stealing cattle or cutting trees from the village commons

(*gauchaar*) and forest, they are asked to give a certain amount of grain as a penalty. Sometimes people also donate grains once their wishes (*manyata*) have been fulfilled. Sometimes a small share of the grains that was sold to grain merchants is kept for the birds.

3. Key issues and recommendations

The success of conservation and sustainable use of resources is a function of formal recognition and legal support. Developing a positive administrative outlook with a synchronised scientific approach along with community knowledge and its use will be a more viable strategy to attend to the multiple objects of conservation. Taking into account the success of these age-old traditional and indigenous systems of management, an urgent need is to review the existing Wildlife (Protection) Act, 1972, and declare these sites as 'Community Conserved Areas', on par with the other category of protected areas. There should be sufficient legal space for these communities from planning to implementation. If so, the recognition will definitely open a new era of conservation with the use of traditional knowledge.

Hence, supporting the community requires special attention and special plans to strengthen their capacities and capabilities for sustained results. The ground reality is that communities are ready to go to any extent (except financial involvement) to take part in conservation activities supporting their livelihoods. It is also important that the flow of money in conserving these areas should be prioritised in such a way that it should be restricted to the community. It should be mandatory for the revenue to be reused for management and improving the productivity of the site.

Apart from these comprehensive guidelines at macro level, there are some immediate issues to be addressed, particularly in some of our study areas of community interventions, due to their multiple functions.

The significance of the conservation of some of the CCAs of Gujarat enlisted here is that they have a greater role in promotion of the existing Protected Area Network. In case of sacred groves, areas of Jessore WLS and Banni areas support directly and indirectly many other adjacent protected areas of Kachchh and Saurashtra respectively. The sloth bear and panther are key species of Jessore WLS. The Great Indian bustard, flamingo, migratory birds and many indigenous cattle breeds are significant species of the Banni and its surrounding area. Hence, the species richness and uniqueness of these areas require a comprehensive management strategy and action plan.

The sacred groves listed here in this study are from the area of Jessore WLS, one of the three WLS of Gujarat known for the existence of typical sloth bear habitat.

In this way, sacred grove conservation in this area has a broader perspective to reduce the stress on surrounding wilderness. For proper management of integrated planning and management, the issues given below are hurdles that need to be tackled.

3.1. Suggestions for supporting sacred groves

Habitat destruction is a serious concern caused by overgrazing, mining and quarrying, lopping of wooded trees, invasion of *Prosopis juliflora* and hunting of a few birds like red spurfowl, Indian peafowl, bulbul, etc.

It is observed that people have taken some interest in regenerating sacred groves. However, the rate is very low. The forest department should supply suitable species as required. In most of the cases the sacred groves' management committees or locals procure the seedlings from outside with great difficulty. This actually reduces the interest of the villagers, as they cannot pay much attention due to their routine work.

Most of the sites are affected by soil erosion. This is resulting in depletion of groundwater. Thus the sacred water, a culturally important component of the environs, is missing. The soil and moisture conservation (SMC) efforts will definitely benefit these sites to address the community needs and to perform ecological functions. Even the sacred groves managed by trusts are also not being given due care towards SMC. Where geological conditions favour, SMC (soil and moisture conservation works) should be promoted.

In terms of legal status, the sacred groves in the sanctuary area are either situated on lands governed by the forest department or the revenue department, or are owned by private individuals. In some places the *gram panchayat* is the owner of a sacred grove. Only temples managed by trustees or formal management committees have ownership records while the rest have no records. The forest department should take lead in identification, documentation and recording, and in

networking and coordinating with interested groups. Simultaneously, mass awareness should also be stepped up to give a fillip to the conservation of these sites.

Cement constructions are gradually coming up in some sacred groves. Sacred groves are slowly turning into man-made landscapes with the construction of cement domes, temples, seating arrangements, etc. Due to this, the trees in the vicinity are disappearing. This development should be checked at this stage. The reasons for this development are the influences of modern lifestyle and exposure to other areas. Balaram Mahadev Mandir is an example of the state government's thrust areas to promote tourism. Gujarat Tourism Development Corporation (GTDC) is already operating its guesthouse and a private resort has also come up.

In some cases it has been observed that village development schemes through *panchayat* funds are coming up. Villagers are unaware of the expenditure incurred in such schemes and modern infrastructure is created without people's involvement. The community participation is a must from planning to implementation.

At present, there is no working plan to explain either the management strategies or people's involvement in maintenance and development of these sites. The forest department should take keen interest in promoting conservation of these sites. Thus, special management plans (working plans) including creation of a separate sacred-grove circle within the forest department could help.

3.2 Suggestions for supporting grasslands

State grasslands are neglected by the government due to scarcity of water and salinity. However the government was not ready to hand over the Banni area to the forest department¹⁴. The forest department is managing the area since 1952 but actual ownership is with the revenue department. Availability of rich minerals in the area has ensured that the state government has not notified these as protected, since after notification the Government would have had to approach the Union government for prior approval to denotify it for non-forestry activities. The villagers' long-standing demand is the allocation of land in their name, which has also not happened. It is therefore vital to settle ownership disputes at the state level for efficient community based management of the Bannis.

Spread of *prosopis juliflora* as a weed is one of the major problems in these grasslands. Forest department, which has to some extent encourage this, is of the opinion that no other species is effective to halt the desertification. They are now planning to introduce *Acacia senegal*, *P. cineraria* and *Sueda nudiflora*, which are also saline resistant, as alternate species in this area. The experience of the villagers indicates that there is potential to grow some of the local species like mango, neem, piludi, etc. here. It is also a fact that tree species, viz., neem, pipal, vad, mango, ber and *Acacia nilotica* are found in the surrounding areas as alternates to *Prosopis juliflora*. There is therefore a need to:

Conduct research on identifying the suitable bio-control methods

- Identify and promote the best alternate and optimal economic returns from the weed
- Permit villagers to make and sell coal from *Prosopis*
- Set up particle industries/leaf processing units
- Encourage planting of native species
- Provide incentives and awards to local people involved in weed control

Industrial development near or within the vicinity of common land is a great threat to common access. Due to industrial expansion, the villagers have lost much of the common land and in many areas milk production has gone down affecting the rural economy.

Encroachment of grazing lands is another serious problem. As per details available on 47 villages from Narmada and Bharuch districts, the protected area under JFM are more than 2000 ha and community plantation is 751.5 ha, whereas the encroachment here is 732 ha (63 per cent) and 100 ha (24 per cent) on *gauchaar* and revenue land respectively. Encroachment is overtaking protection, particularly on *gauchaar* land, which is a real constraint for community access. Encroachment of common land and its frequent regularisation by political forces have been responsible for de-communisation of common lands. There is a significant reduction in village common lands available for community purposes. The dependence on common property land resources (CPLR) is increasing, especially from the small and marginal landholders and landless. Unless a solution is found at micro level, the problem will not be solved. Usually in case of encroachment the *panchayat* and

the *talathi* side with encroachers. The role of *panchayat* is individual specific. Thus the strategy should be to:

- Sensitise *panchayat* members about encroachment issues
- Change the land-use policy in favour of village commons and their functions
- Carry out proper urban and industrial planning



Gulf of Kachchh coast, Kachchh Photo: Jugal Tiwari

It is vital to encourage people's participation in promotion of joint grassland management activities. Initiating JFM activity in this area is favourable but management strategies should be different from the normal JFM guidelines so that the easy access, benefit sharing and institutional process is given due care. In one way the institutionalisation may reduce the common access and conflicts. In particular, the following steps are needed:

- Promote proper soil moisture conservation activities.
- Identify genetically superior salt resistant palatable grass species and multiplying.
- Mandatory assignments to enrich the quality of the private grassplots.
- Promote stall feeding

Another point is to emphasise the need for a grazing policy. There is no grazing policy as such, either at state level or at central level. It is equally known that there is no grassland sanctuary or park in India, though the Banni and some high-altitude pastures have the potential for this. Hence formulation of a grassland policy is urgently required.

This is a unique opportunity to declare PAs in grasslands so to boost the terrestrial ecosystem component which are already existing for key animals, plant and marine species. The grasslands of Saurashtra and Kachchh play an important role in wildlife management. To elaborate, the grasslands of the Saurashtra, Surendranagar and Kachchh regions form a triangular corridor in a sense, although not strictly according to definition. Proper management of these grasslands would reduce the escalating pressure and conflict between the livestock, wildlife and humans.

Banni being an important grassland and wetland site has a potential to be declared as a PA. The Chari Dhundh is an important wetland of considerable international significance. This area was proposed and has been accepted by the government of India for declaration as a Ramsar site. Thus this area along with adjoining areas of the Banni should be declared as Banni Wildlife Sanctuary, with participatory management principles.

Banni will be the last chance of survival for cattle from Kachchh, Rajasthan, Banaskantha and adjoining areas, which flock to the grassland during the worst of droughts.¹⁵ The Banni people are predominantly pastoralists who keep large herds of buffaloes, cows, sheep, goats and camels. The Banni buffalo is considered one of the promising native breeds of India. Many Maldharis (the cattle breeders of Banni) have been forced by environmental stress to migrate to other parts of Kachchh or Gujarat. This in turn results in over-exploitation of mangroves for fodder and fuel by local communities and cattle herders, which further reduces the natural regeneration by natural as well as man-made factors. These cover reductions result in water inflow leading to increased salinity, violent sea action, frequent cyclones, etc. This ultimately results in diversion of mangrove lands for other uses like salt pans, industries etc., which thus become unable to perform their ecological functions in the long term.

To tackle these issues, the following is needed:

- The Banni women have contributed much to Indian culture and art. Their embroidery is considered to be among the best in the country. Promotion of this art definitely has the potential to support the livelihood options of the area.
- Discouraging the migration of people and cattle from this area. This is required for greater socio-economic and ecological benefits.

- Promotion of NTFP collection and use through capacity-building

3.3 Joint forest management



Camel grazers in Banni grasslands Photo: Jugal Tiwari

The JFM programme has found wide acceptance and is evolving in the state according to the local conditions to suit the variations therein. However, this initiative that involves active participation of people has thrown up a number of issues that need to be addressed. It is understood that there are no uniform solutions. Yet, in keeping with local socio-economic, political, agricultural, traditional and forest conditions, the issues need to be addressed adequately. Such issues are listed below.

3.3.1. Institutional management unit

The Gujarat JFM resolution identifies *panchayats* as possible management units, but not a single *panchayat* has come forward to implement the same. There had been instances to indicate impracticability of standard units. It was observed in a study that while the government resolution (GR) required participation of all the hamlets of the village, only one hamlet was interested in piece of forest that was to be protected. In another case a large chunk of forests that is traditionally used by a number of villages got assigned to one particular village by virtue of it being in the revenue boundary of that village, leading to a conflict. The 73rd amendments to the Constitution in 1996 has recommended the *gram sabha* (village assembly) as the decision making unit at the village level, this needs to be implemented with respect to forest management.

Organisational format and institutional set-up: The issue of organisational format is most prevalent in JFM in Gujarat. When the programme was launched, it was natural to be dependent on the system that already existed. So, the forest protection committees (FPCs) in Gujarat were registered under the Gujarat Cooperative Societies Act, 1961. It came very naturally in Gujarat because of the history of cooperative ventures. This had some positive aspects. An FPC became an independent legal body. Being registered with the registrar of societies, it is a legal entity and not an extension of any other institution.

A cooperative society is based on membership and shares. The people who cannot pay membership cannot avail of the benefits. In a sense this is logical. But when we talk of a common property resource (CPR) then the question arises: how can only a few persons from the village community decide to cordon off a CPR and share the resource?

Furthermore, there are lots of instances wherein membership increased after a period of time—i.e., when the people who could not really afford to take part in the venture without being sure of the benefits, become members because otherwise they would lose out on the resource completely. In one village, membership is now closed for non-members because results are visible, and these people thus get nothing of a resource they were traditionally using. In some cases, membership fee has increased so much that it is difficult for people to shell out the money even at the cost of not having any access to this resource. It is just that they cannot pay—e.g., the current membership fees of the Malekpur village co-operative society is in excess of Rs. 3000.

Relationship with panchayats: *Panchayats* are recognised democratically elected institutions representing villages. It will be pertinent to look at the relation between the village-level organisations (VLOs) proposed under JFM and the *panchayats* with reference to recent legislation assigning specific role to *panchayats/gram sabhas* in forest management.

Powers to VLOs: There have been suggestions that VLOs be empowered to deal with village offenders to be able to protect the forest effectively. *Nyay panchayats* do have powers to deal with certain offences. It has to be examined legally as to how VLOs can be authorised in this regard.

3.3.2. Technical

Viability: Viability of JFM as an economic pursuit has often been assumed. It may be desirable to examine the assumption and address lacunae, if any.

Micro plan vs. working plans: With the understanding that preparation of a Working Plan is an elaborate exercise with provisions for approval from the state and national governments, government resolutions for JFM should invariably include the process of village-level micro-plan preparation. Further the Working Plans must provide flexibility to incorporate the provisions of works of micro-plans, as this will facilitate the flow of benefits to local people in the short and medium run. It is also imperative that in JFM areas, the working plan should be prepared on the basis of micro-plans and not otherwise. Such an approach would also be in conformity with the new forest policy, which deals with conservation and meeting the needs of the local people in a sustainable manner. The concept of creating JFM working circles would facilitate this process.

Production options: Ecological sustainability and economic viability, including the need for a continuous flow of benefits to sustain enthusiasm of the FPC members in the face of high discount rates, are the technological challenge that may require serious silvicultural interventions. The inputs in this direction have been lacking. The present practice of trying to incorporate species into the plantation programmes yielding different NTFP may not be sufficient to address the concern.

Developmental inputs: The pioneering efforts that have largely been quoted for successful JFM rely largely on inputs to increase employment opportunities, improve agriculture and provide for village needs to varying extents. Developmental and other entry point activities are essential ingredients for a successful JFM programme. Appropriate institutional arrangements to provide for the entry point activities need to be strengthened. However, the present token provisions are too few to enthuse the local people.

3.3.3. Intra-/Inter-village issues

Benefit sharing: When the *adhikar patra* (record of rights) for JFM is given to a village, it mentions an amount of forest that is understood to be under the programme. No plot, however, is actually demarcated in the forests. The *adhikar patra* does not normally cover the whole of forestland. But people protect the whole of the forest land and expect that the share will come from the entire plot. This is going to create a problem because over-expectations that have been built will crash and lead to mistrust of the government. It is a gap between what is written vis-à-vis the understanding that people have.

Currently, when issues do crop up, decisions are taken by particular forest officers. So in future too it would be left entirely to their wishes/decisions and they may or may not feel that it is the right of people to get a share from the entire forest area.

Marketing of NTFPs: The JFM programme is no doubt oriented towards the subsistence needs of local communities, but once the produce of forests increases through proper protection there is every likelihood of production increasing beyond what can be consumed within the village itself; hence the importance of marketing. Moreover many NTFPs have traditionally been used by the gatherers to generate cash incomes. However, old restrictions imposed in the past on their processing and sale are still in place. The poor have no right to process these items and sell them freely in the market.

As the commercial importance of NTFPs increased in the past, the state government nationalised almost all important NTFPs during the 1960s and 70s. In theory, this right was acquired ostensibly to protect the interests of the poor against exploitation by private traders and middlemen. In practice, such rights were sub-let to private traders and industry. Thus, a hierarchy of objectives developed: industry and other large end-users had the first charge on the product at low and subsidised rates; revenue was maximised subject to the first objective, which implied that there was no consistent policy to encourage value addition at lower levels and the interests of the poor and tribals were relegated to the last level or completely ignored.

There is an immediate need for the Gujarat Forest Department and the people's institutions (JFM groups) to enter into an agreement so that clarity on matters such as roles and responsibilities and benefit sharing of both intermediary as well as final harvested products is made. This will also provide a *locus standii* for the communities so that they will continue to take part in the regeneration of the forests more enthusiastically; The Gujarat Forest Department had circulated a draft agreement in 1994–5. Several important amendments to the same have been suggested by the primary and secondary stakeholders for consideration by the department. The final document of the agreement is still awaited.

The responsibility of protection, increased production, and judicious and sustained use of forests should lie with the village-level institutions coming under the precincts of JFM initiated by Gujarat Forest Department. Unlike *panchayats*, powers to the FPC are not given under any law; the state government resolutions recommend FPC as mere functional groups. These FPCs would therefore find it difficult to manage resources on a long-term basis. Their relationships with the statutory

village *panchayats* will need to be sharply defined or an act passed in the state legislative assembly providing statutory rights to the JFM groups.

To further strengthen and scale up JFM in the state, the forest department should provide financial support to the community-based organisations/NGOs for carrying out various awareness generation and capacity-building activities, in addition to protection of forest areas.

3.4 Scope and potential of religious agencies in biodiversity conservation

Religion is a long-term politics and plays a key role in communicating with both the rural and urban masses. The biodiversity conservation aspect is nothing new to any religion in any part of India. But under the present circumstances people are not realising the crux of religion. In this context realising the significance of biodiversity from the religious point of view is urgently required. Some religious bodies and leaders have already taken bold step in this regard. Some of the religious institutions are enjoying the benefit of land lease and managing *gaushahlas* (cattle yards), wastelands, and grasslands. Some are already doing well in watershed activities. However, using science and religion for identification of latent areas of intervention would be advantageous.

Table 4: Sacred Groves: District-wise study areas in Banaskantha District¹⁶

Taluka	Village	Area	Nearest place (km)
Danta	Rinchadi, Jetvas	1 acre	Ambaji (5.1)
Danta	Chokibar	NA	Ambaji (34)
Danta	Kundel	2 acres	Palanpur (40)
Danta	Jodhsar	NA	Palanpur (55)
Danta	Kheraniumbari	4 acres	Ambaji (30)
Danta	Rupavasa	0.5 bighas	Palanpur (56)
Danta	Pipalavali Vav	NA	Palanpur (51)
Danta	Taleti	NA	Palanpur (51)
Danta	Padaliya	1 acre	Ambaji (15)
Danta	Chauri	2 acres	Palanpur (50)
Danta	Dabhachitra	1.5 acres	Ambaji (22)
Danta	Khermal	2 acres	Ambaji (35)
Danta	Viramveri	1 acre	ambaji (20)
Danta	Kanabia vas	1 bigha ¹⁷	Palanpur (50)
Danta	Pataliya	1 acres	Palanpur (42)
Palanpur	Khemrajiya	NA	Palanpur (25)
Palanpur	Khapra	2 bighas	Palanpur (15)
Palanpur	Khuniya(Amirgad)	1 acre	Palanpur (20)
Palanpur	Sarotra	2 acres	Palanpur (32)
Palanpur	Chitrasani	NA	Palanpur (15)
Palanpur	Balundra	NA	Palanpur (30)
Palanpur	Pedagara	5 acres	Palanpur (20)
Palanpur	Ghanta	NA	Palanpur (33)
Palanpur	Gawra	NA	Palanpur (39)
Palanpur	Isawani	1 acre	Palanpur (38)

Palanpur	Ukarada	NA	Palanpur (20)
Palanpur	Khara	2.5 acres	Palanpur (40)
Palanpur	Dharmata	2.5 acres	Balaram (2)
Palanpur	Surela	2.5 acres	Palanpur (30)
Palanpur	Khunia	NA	NA
Palanpur	Dungarpuri	NA	NA
Palanpur	Bajotiya	NA	NA

Table 5: Newly Identified Sacred Groves in Balaram-Ambaji and Jessore Sanctuary¹⁸

Sr.No.	Sacred Grove	Village/Taluka
1	Kalomagro (Mataji)	Khadhorumri/Danta
2	Maneknath	Vekdi/Danta
3	Mahadev	Khermal/Danta
4	Guru maharaj ni dhuni	Kherani Umri/Danta
5	Hanuman Temple	KhadhorUmri/Danta
6	Virbapji	Hadad/Danta
7	Bhakhorbapji (Virbapji)	Motapipodra/Danta
8	Chamundamata	Kunvarsi/Danta
9	Salfiyobhakhor	Bhadrmal/Danta
10	Vagod	Khari/Danta
11	Zer	Kundol/Danta
12	Sembali Mahadev	Vasi/Danta
13	Sitlamata	Ghareda/Danta
14	Ramapir	Dipdi/Danta
15	Rokdiya Hanuman	Machkoda/Danta
16	Chamunda mata	Bhilachal/Danta
17	Kunteswar	Karza/Palanpur
18	Rameswar Mahadev	Rajpuriya/Palanpur
19	Vav Mahadev	Khara/Palanpur
20	Mansarovar	Jethi/Palanpur
21	Ashapuri	Piplavalivav/Palanpur
22	Rakhpal	Harivav/Palanpur
23	Kalkamata	Deri(Vavdhara)/Palanpur
24	Amleshwar	Ranol
25	Hanuman Temple	Hariyavada
26	Sitlamata	Hariyavada
27	Maha kalimata	Hariyavada

The original version of this paper was prepared as a sub-thematic review for India's National Biodiversity Strategy and Action Plan process (see <http://www.kalpavriksh.org/f1/f1.1>), and was updated and modified for this publication in 2006.

Endnotes

¹ Source: Gujarat Forest Department website, http://gujaratforest.gov.in/forests/for_cover.htm

² Source: Report of Forest Survey of India (2001).

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⁸ Gujarat Ecology Commission (GEC) was established by the Government of Gujarat in 1992 with the following mandate. To provide an organization that plans and works for restoration of ecologically degraded areas. To arouse ecological consciousness among the people of Gujarat and to develop a conservation ethos in the state. To undertake on its own or with the support of other agencies, restoration of disturbed eco-systems of the State, with special emphasis on degraded lands. To create institutions and organizations necessary for achieving the objectives of GEC. To act as the State's single umbrella for accreditation of various NGOs eligible for funding for activities aimed at ecological restoration of degraded eco-systems, and allocation of funds to various non-government agencies for ecological restoration programs.

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¹³ Source: Srinivas Mudrakartha (ed.), *Joint Forest Management in Gujarat, A Status Report*, Compiled & Presented by: Sujit G. Kumar (Ahmedabad, VIKSAT, June 2002).

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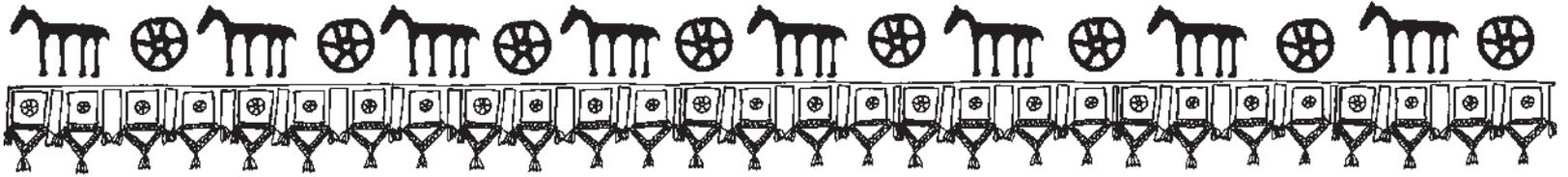
¹⁵ Shyam Parekh, *Gandabaval Set to Gobble Up Banni Grassland*. (As above)

¹⁶ Gujarat Forest Department, *Gujarat State Biodiversity Conservation Strategy and Action Plan*.

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¹⁸ P.G. Vijaya Sherry Chand, *Honey Bee*, 6(2): 15 (1995), p. 31; Lyes Ferroukhi and Jitendra H. Suthar, *Honey Bee*, 5(2): 5-7 (1994), p. 34; *Honey Bee*, 10 (3): 10-11 (1999), p. 37.





Malekpur, Sabarkantha

Background

Malekpur in Bhiloda *taluka* of Gujarat is one of the oldest joint forest management (JFM) villages in the area. This case study focuses on the ecological, economic, sustainability, equity and efficiency impacts of community participation in forest resource management (officially recognised as JFM) in the village, and also the institutional changes facilitated in the area towards community-based forest management and its scaling-up.

The Jhanjharmata Vruksh Utpadan Sahkari Mandli Ltd (JVUSM) was set up by the people of Malekpur village of Bhiloda *taluka*. Established in the year in 1984–5. Today it has a total membership of 205, of which 170 are males and 35 females. The Dungri Garasia community of the village have been protecting a total forest area of 163 hectares.

Towards community conservation

Until the early 1960s, the forest was under the direct supervision of the Vijaynagar *jagirdar* and the villagers had little to do with the forest. They had no rights over it. Dry wood, leaves, fruits and flowers in the forest were free for them, even though permission of the *jagirdar* was a must. The threat of severe punishment for culprits resulted in the preservation of greenery in the region. After 1960, the degradation of the forest began with the abolition of the *jagirdari* system. Most of the trees were illegally cut by the *jagirdars*. For the tribal people, especially those in the lower income group, the forest became a quick money-making source. It also led to large-scale timber smuggling and sale of forest products, and soon the forests of the village were completely wiped out. This had an impact on the overall economy of the area.

The Jhanjharmata *mandli* of Malekpur was one among the first few cooperatives to get registered in 1986 (Registration no. Agri./2715 dated 12.8.1986) with the initiative of Shri. Siddhrajibhai Solanki, a professor at Gujarat Vidyapith, and VIKSAT (a NGO working in the villages of Bhiloda Taluka on issues related to enhancing people's participation in natural resource management). Initially 60 households (of the total 110 households) came forward to become members of the cooperative. After the registration, the cooperative applied to the forest department (FD) for the lease of the forest land. However, after two years, in 1988, the Ministry of Environment and Forests, Government of India rejected this application under Forest Conservation Act, 1980.

During this period, the focus was on development of private land within the village through various programmes like Vikas Bagh—small plots of horticultural and forestry species (in 800 sq m) to meet the primary needs of the tribal families for fuel, fodder and fruits. A fodder plan was drawn out to get green fodder of pioneer *jowar* during the summer. 50% of the programme cost was met by financial assistance from the Tribal Area Sub-Plan (TASP), Khedbrahma, and the remainder was met by the people in the form of labour. A bio-gas programme was initiated with financial assistance from the Himmatnagar centre of the Gujarat Agro-Industries Cooperation Limited.

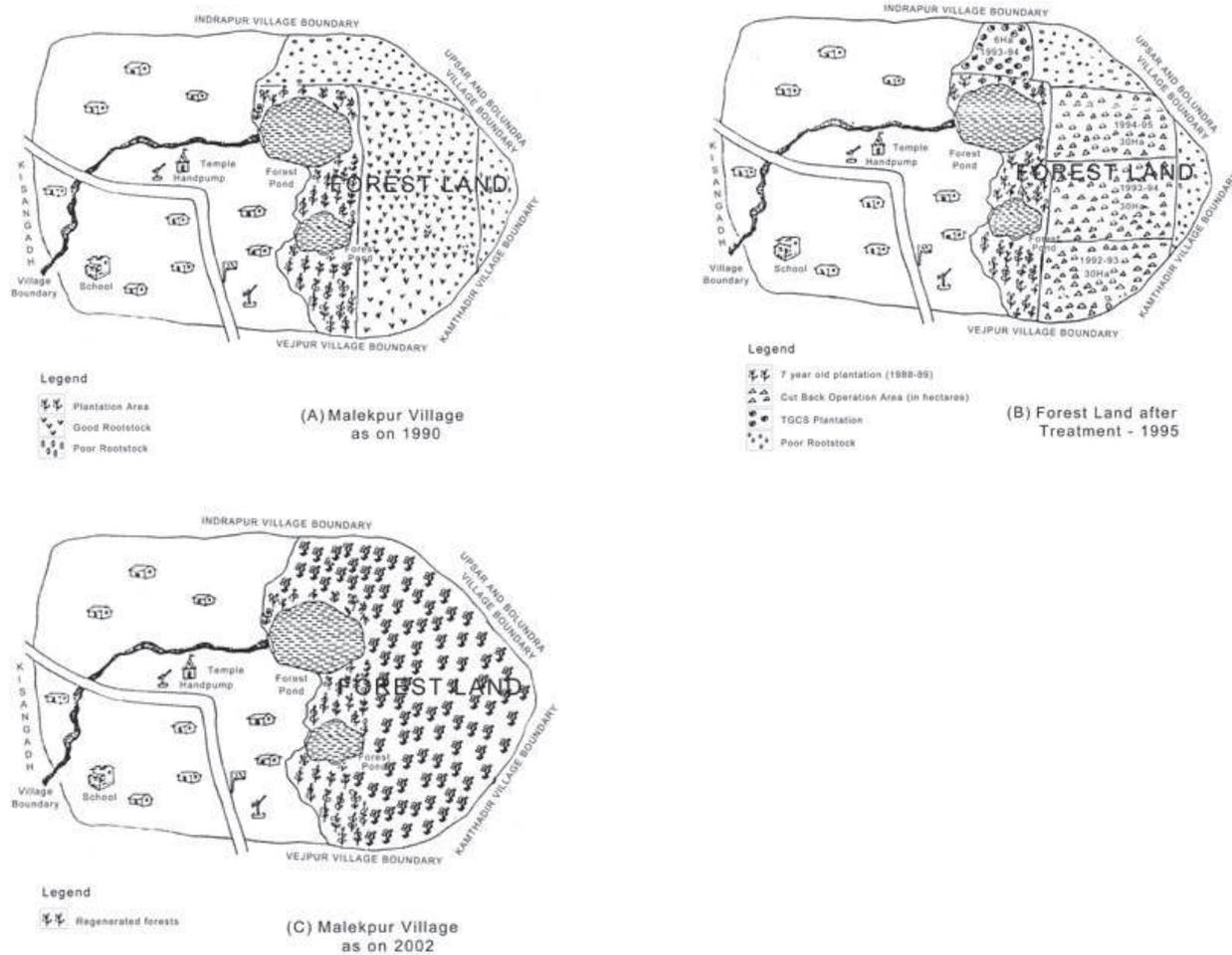
The protection efforts and rules for punishment were refined from time to time. As per one of the provisions of Gujarat JFM order, the cooperative which undertakes afforestation work on its own or with the financial assistance from non-state government agencies would be entitled to 80% of the share of the final harvest. The JVUSM has resolved to avail of this provision and are not keen to get any assistance from the forest department. While the pros and cons of this provision are being debated, the FD has shown less enthusiasm towards JVUSM. Now the provision has been changed and in all cases the cooperative is still in dilemma as the final agreement between the JVUSM and the FD remains unsigned.

Activities carried out by JVUSM: Out of 167 ha forest area, 45 ha was totally barren, on which the FD carried out plantation. The remaining 122 ha of land had the potential for regeneration due to the presence of root stock. The cooperative initiated protection of forest in 1986; the area was closed for open grazing and free cutting to facilitate regeneration. Today, the forests of Malekpur have regenerated.



Due to protection activities the people have also started getting benefits in terms of increased fuel-wood supply, *timru*-leaf collection, and fodder-grass collection. Malekpur village has helped in promoting JFM concept in other villages.

Figure 1: Regeneration of forests in Malekpur over time



Impacts of Forest Management in the Village

Ecological and Economic Impacts

A study on vegetation dynamics carried out in the village forests showed growth of 35 species, the most dominant being teak, a valuable timber species. The six other major species were khakhra, neem, timru, dhaman, garmala and umbiya.

The ecological changes could be perceived from the increase in production of *timru* and collection of other gums from the forest. Collection of timru leaves has also seen a major increase in the past several years.

The other ecological changes were a check on soil erosion, increase in ground water recharge, increase in humus and soil fertility and standing biomass. Further, these ecological processes have also improved habitat conditions, which now attract a variety of small mammals, birds, and insects. The changing status of ecological conditions has shown an indirect positive influence on agricultural productivity and animal husbandry, which is a significant source of livelihood for the local tribals.

The protecting individuals have a deep concern for biodiversity, more so because they use a range of forest produce from a large number of species. Edible flowers, fruits, leaves, roots etc. form a part of their diet. Some edible items are also sold in the market to meet cash needs. Leaves of forest species (*Butea monosperma*) are used to make leaf plates. Medicinal plants such as safed musli are also used by the local people. Timru leaves and mahua are important sources of income. To these tribal people, the NTFPs are a lifeline; they are usually collected for consumption, home use and for sale. This vital link is reflected in the traditions and customs of tribal groups. In

Malekpur, turnover from mahua and timru leaves grew six- and eightfold respectively. Similarly, the production of fodder grass and fuelwood has been on the increase. This success can be attributed to efficient protection by people, resulting in vigorous forest regeneration.

Box 1

Annual fuelwood collection mechanisms

In the initial years only dry and fallen twigs were permitted to be collected, but the problems faced by the villagers in the availability of fuelwood forced the members to rethink this issue and they evolved a plan to address it. The villagers made a general survey of the village forest and, according to the density of the trees, they demarcated the forests into five different zones. It was decided that the villagers will carry out cut-back and pruning activities in these patches. One patch is selected every year and the materials harvested are distributed among the members. Thus, as per the plan, the cutback and pruning activities were carried out in the respective patches once in every five years. This has helped the villagers to gather more fuelwood from the forest area. Members of the executive committee helped to supervise the whole process and saw to it that the bigger trees were not cut in the process and only the branches and other smaller twigs were harvested. Again the villagers formed themselves into different groups and only one or two members from each group are allowed to carry the axe into the forest area and carry out the actual harvesting, while the other members of the group help in gathering and transporting the material out of the forest area. This process is carried out every year and it is thus assured that all households of the village get equal access to fuelwood. In the past two years the villagers have been able to harvest 4000 *manns* (1 *mann* = 20 kg) of fuelwood from the JFM forest area. One portion of the fuelwood collected by each of the groups is deposited with the cooperative, which then auctions the share to the highest bidder (usually within the village). This helps the cooperative to earn some income and cover some of their administrative costs.

Equity in participation and resource allocation

Equity became one of the major concerns after the initial few years of taking up protection. As open grazing and entry into the forests for grass and firewood collection were stopped, women started facing problems in meeting their firewood and fodder demands. To address this, the co-operative society allotted a portion of the forest patch for collection of firewood and fodder. Further, as the benefits from the forests started flowing in, the issue was to distribute them equitably among the members. The *panchayati raj* institution ensures that all the members participate in grass collection and cut-back operations on the dates specified for them and the product is shared on the basis of the shareholding. It was ensured that the poor and landless families and especially women have a voice not only in protection and management but also in decision making and benefit sharing.

Box 2

Fodder grass sharing mechanisms

The village committee evolved a unique system to regulate the harvest of fodder grass from the JFM areas. Open grazing is banned and the grass is allowed to grow till the month of January /February. Once the grass is ready for harvest, a meeting of the executive committee is called and a date for the harvest of the grass is decided. The information is passed around in the village. Subsequently the villagers form themselves into different groups (mostly comprising close relatives). Generally 12 different groups are formed, each group having 10 members. The executive committee members then conduct a general survey of the forest of the village to get a measure of the potential harvest possible and the growth of the grass across the various patches of the forest. Then the total forest area is divided into 12 different patches. The denser the growth of the grass, the smaller the area demarcated. Once the patches are identified, a lottery system is adopted to allocate the 12 patches to the 12 groups. Each group appoints its own leader, who helps to monitor the grass-harvesting procedure. Only one member from each household can participate in the actual cutting of the grass. Thus during the harvesting process, each member cuts the grass according to the time allotted (generally 2–3 hours) and once the grass is harvested, other members from the household can come to help to gather and prepare bundles of the grass harvested. Thus care is taken that the fodder harvested from the forest is distributed equitably among the different households. The whole fodder harvesting

process lasts for 10–12 days depending upon the amount of grass. Every evening when the 12 groups collect the grass, one portion of the share is deposited in the account of the cooperative. Thus everyday the cooperative gets a share of 40–50 bundles of grass. This grass is then sold to the highest bidder (generally to farmers within the village). In this way the cooperative also earns almost Rs 2000–3000 every year.

Conclusions

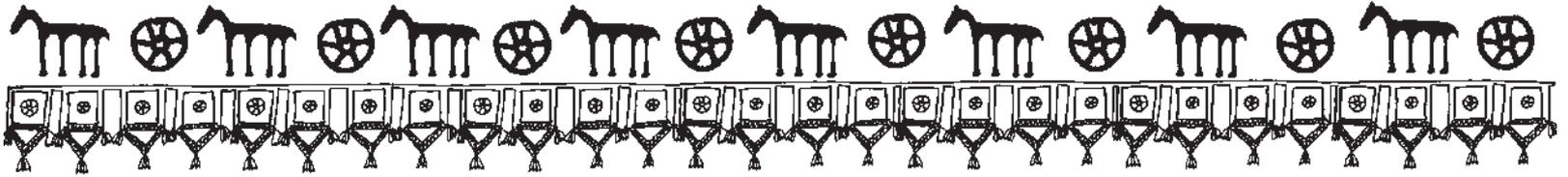
Certain changes in rights and privileges over forests, policies and laws pertaining to NTFPs, working plans, silvicultural arrangements, etc. are desirable in JFM. The field officials are willing to entrust protection to the communities, but hesitate in involving them in management and control of government forests, thus reducing JFM to 'I manage, you participate', an attitude that needs to be changed.

This case study has been provided by VIKSAT, in 2001

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Kawant, Naswadi, Pavijetpur and Chhota Udaipur region, Vadodara

Background

The Kawant region is located at 21°55' to 22°27' North latitude and 73°40' to 74°03' East longitude in Vadodara District of Gujarat. The nearest road-head/rail-head is Vadodara, which is roughly 60 to 120 km away from the stretches of forests preserved by communities. The area is inhabited by many communities, which include mainly the tribal communities belonging to Rathwa, Nayak, Bariya, Kolcha koli and Bhil. The non-tribal communities are very few, mainly a few shopkeepers. This region covers an area of 2400 sq km, of which 98 villages are conserving forests falling within their traditional boundaries. These conserved stretches of forests range between 20 ha to 125 ha in area. All the conserved forests are Reserved Forests under the Indian Forest Act, 1927. A few of the villages of Pavi Jetpur taluka and their conserved forests are located near Ratanmahal Bear Sanctuary.

The 1960s and 70s witnessed massive deforestation in Gujarat. The reasons for this destruction were many, with the main one being clear-felling of forests by the forest department. Kawant, Naswadi, Pavi Jetpur and Chhota Udaipur regions also faced rapid forest destruction during this period. Within a short span of time, the available forests for the forest-dependent tribal communities in this region were drastically reduced. Slowly the pressure on forests from the people mounted, and whatever was left of the forests was finished by the 1980s. The immediate sufferers were tribal communities living in forest areas. As Shankarbai Rathwa, an elder tribal of Mundamor village says, 'On one occasion we did not even have two long logs to carry dead bodies and had to pull out the logs from the hutments to burn dead bodies. This was a shock and we realized that if we did not do something then we will have to see unknown but dire situations.'

As a response to general degradation the forest department also started tree plantation programmes in the 70s. The planted forests were clear felled on a regular basis to earn revenue for the Department. The communities were silent witnesses to the plantation drives carried out by the forest department. For years, the department plantation drives have been stories of failed plantations, corruption and wastage of forest resources. Villagers were keenly observing these drives and analysing reasons for their failures.

In the meanwhile, throughout the entire tribal belt of the region, apart from facing day-to-day hardships, tribal communities were facing a unique but serious problem of half-burnt dead bodies. This led to social upheaval, and villagers began to look for ways of solving the problem.

Towards community conservation

Establishment of forest protection activities

Having witnessed the forest department plantation drives and analysed them, the villagers strongly felt that plantations were not the solution to their problem. They also knew that the seemingly barren hills and forest stretches were blossoming every year in the monsoon. They realized that the forests of their village still had enough root stock, and if the natural sprouting of each year is protected from grazing and immediate consumption, then it would be possible to regenerate the forests like in the past. But this simple realization was not easy to implement. Everyone in the community had faced the difficulties equally, but even then it was not easy to reach a consensus on the solution.

In most villages, when some villagers initiated conversations about protecting forests for future use, the sceptics within the community would strongly oppose the idea. One of the major points of contention was the fact that the forests were legally owned by the government. After a few years of simultaneous discussions within many villages, a few villages like Usela and Patadia overcame the impasse around 1983 and took a courageous initiative to protect naturally grown monsoon forests. Initially, the villagers received cooperation from the forest department. The villagers evolved rules of use, protection and community penal provisions for breach of rules. They arranged for day-and-night surveillance of forests by teams from within the village. This entire movement was strongly supported and encouraged by a local social worker, Shri Harivallabh Bhai Parikh. He appreciated the people's initiative, sensed its potential and backed the community momentum. Shri Parikh also



inspired many other neighbouring villagers to join this conservation movement.

As the forests of Patadia and Usela villages, which started protection activities first, began to regenerate, this message reached beyond the neighbouring villages to faraway villages and across the area. Slowly a movement picked up in about 90 villages.

The major stumbling blocks that the villagers were faced with were the fact that the forest department owned the forests and that some villagers were questioned about their right to protect the forests. Additionally, some disgruntled elements within the villages often joined hands with some forest staff and made it difficult for the protecting villagers. Dealing with the strong timber mafia and lack of support from the forest department often led to frustration. In some villages, however, villagers did receive cooperation from the forest officials.

Establishment of the joint forest management programme

The informal community initiative had inherent weaknesses, particularly the fact that the villagers had no sustained assistance and guidance in hours of need. In 1992, the state government of Gujarat adopted the joint forest management (JFM) programme. The programme, as elsewhere in the country, was aimed at regeneration of degraded forests with the help of local people, while sharing any benefits from these forests with the local people. People of the area, with the help of NGOs, started to institutionalise their forest protection efforts under JFM. However, JFM did not succeed in this region, mainly because of faulty implementation. Many villages were stuck with the process of registration of their cooperatives, as the forest department did not help them in the process. At state level or at local level there was no pressure to force the forest department to implement the JFM policy in its true letter and spirit. The NGOs involved were also working to help implement the programme more as a project rather than as a long-term process of participatory forest management. Many of these NGOs lost interest in the programme once the funds were exhausted with the department.

Overall, the rights envisaged under the JFM program over the conserved forests were not visible to the villagers. The communities were not sure that they would ultimately get at least 50 per cent of the benefits that would accrue once the regenerated timber was harvested as envisaged under JFM. In many villages where people seized wood from the smugglers the department refused to grant 50 per cent partnership over such material. At many places, when the regular pruning of the forests was done, the products were not shared with the villagers. Even the wood fallen in rain and storm was not allowed to be shared with communities. Getting nearly nothing from the forests, not even to meet their daily requirements, after years of protection was again frustrating and discouraging for the villagers.

Despite opposition from the villagers, the forest department undertook plantations in the forests being protected by the local villagers. This was the final straw that made villagers extremely apprehensive and distrustful of the forest department. At the community level, the disgruntled elements that were against conservation became stronger. Now they could claim with confidence that government cannot and shall not part with forest resources. At many places, the local forest department personnel joined hands with such disgruntled elements and encouraged them to frustrate community conservation forces.

Ultimately, there was a slowdown in conservation efforts, and the momentum was on the decline. A few villages witnessed severe setbacks and the regrown forests once again turned barren. In many villages, however, the momentum was not affected by negative feedback and they continued to preserve their forests.

Current status

Arch Vahini, an NGO, has been closely associated with livelihood and development issues of tribal communities in the tribal pockets of Vadodara, Narmada and Dharampur districts of Gujarat. When some members of the NGO witnessed this decline in the momentum towards forest protection, they decided to intervene. Their objective was to stop further decline of the conservation initiative and to revitalise the community initiative where it had gone down. Arch Vahini started its work by studying and understanding the existing efforts of conservation. Subsequently, they began their work on community-based conservation and management of forests.

Arch Vahini's experience in last few years shows that there is an increasing shift in the attitude of tribal people in this area. There have been many demands for *vantalavdis* (forest tanks) from the villages, particularly for wildlife in regenerating forests. There seems to be a sense of belonging and concern and responsibility towards the forests that they have been protecting and the wildlife within them.

After 2–3 years of sustained interactions with the villagers, the villagers are assured of critical inputs when required. Consequently the local meetings are yielding higher results. There is a new enthusiasm among some villagers towards forest protection. However, there are still many doubts and impediments because of past disappointments and frustrations. There is a lot that still needs to be achieved but Arch Vahini is hopeful.

Opportunities and constraints

Like in the past, Arch Vahini is also facing constraints because of the forest department. The government has initiated a well-intentioned scheme called the Forest Development Authority (FDA). Under this scheme all the funds meant for forest development within a district come directly to the FDA. The FDA has the authority to disburse the funds directly to the village institutions for management and development of forests. Although the intention is good, here again the implementation is faulty. The FDA is mandated to establish new local institutions rather than accepting the ones that the village communities have established and that have been working towards forest conservation. This is unfortunate as people's enterprises/efforts carried out on a massive scale are not only not recognised but are systematically undermined. The forest department, instead of recognising and authorising the local people's endeavour, is bypassing and creating parallel trusts and legal arrangements. This would dampen local inhabitants' motivation and initiative.

Impacts of community effort

Despite all this, the strong will, determination and hard labour of people has won, at least in relation to forest regeneration. Once again the forests are live and the hills are green. Forest regeneration has been good and local communities have benefited from the regenerating forests. Immediately in the first year of conservation, they could get fodder for cattle and dead and fallen wood as fuel. After 5-6 years of preservation they could get wood for agricultural implements and for home repair. They could now also collect minor forest produce.

The quality of the regenerated forest differed depending on the quality of protection accorded to it by the concerned villagers. Villagers recount the return of many varieties of birds along with hares, jackals, macaques, hyenas and different kinds of reptiles. Peacocks, now in plenty in these forests, were according to the local people never found in this region earlier. Similarly mammals like nilgai and reptiles like pythons have also been reportedly seen for the first time now in many villages.

Conclusions

To conclude, it is regretful that the state mishandled the gigantic community initiative. If the community efforts had been recognized legally and nurtured with care, then the region would definitely have become a hotspot of community-initiated forestry. The JFM Vadodara model would have been inspirational not only for tribals of the state but across the country. Nevertheless, for the people it is not a lost opportunity, as they are bouncing back and would continue their efforts to strive for rights over forests, including rights over timber.

This case study has been contributed by Rajesh Mishra, Arch Vahini in 2007.

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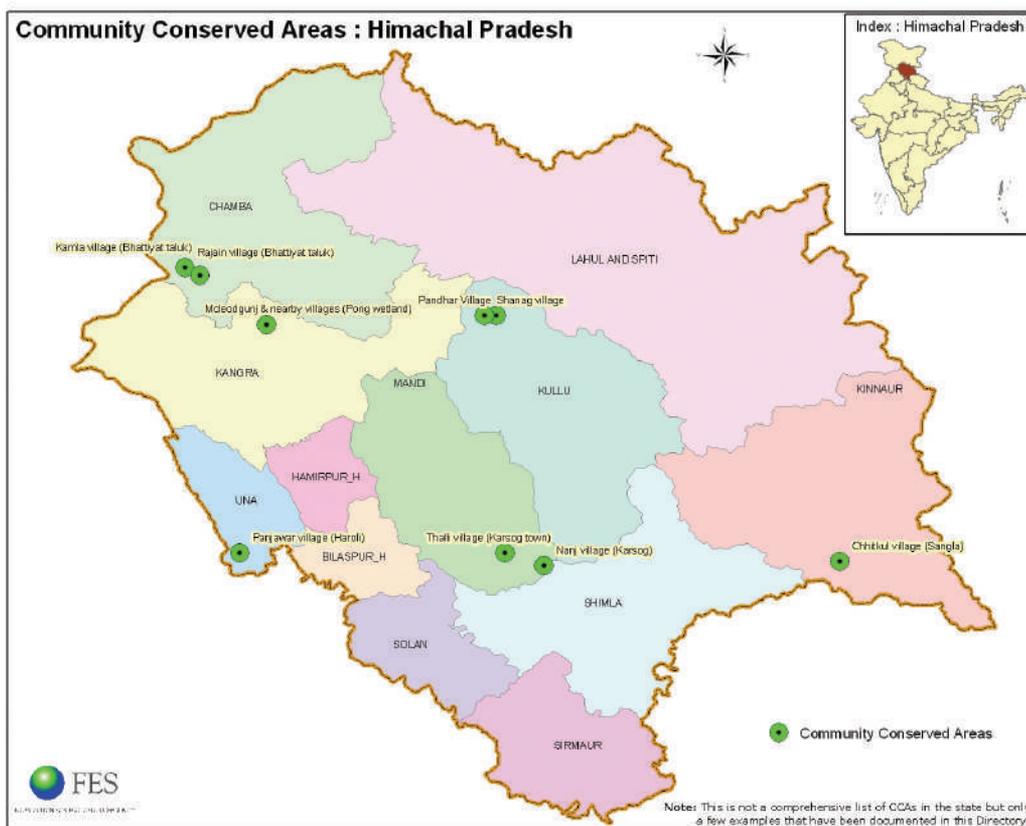
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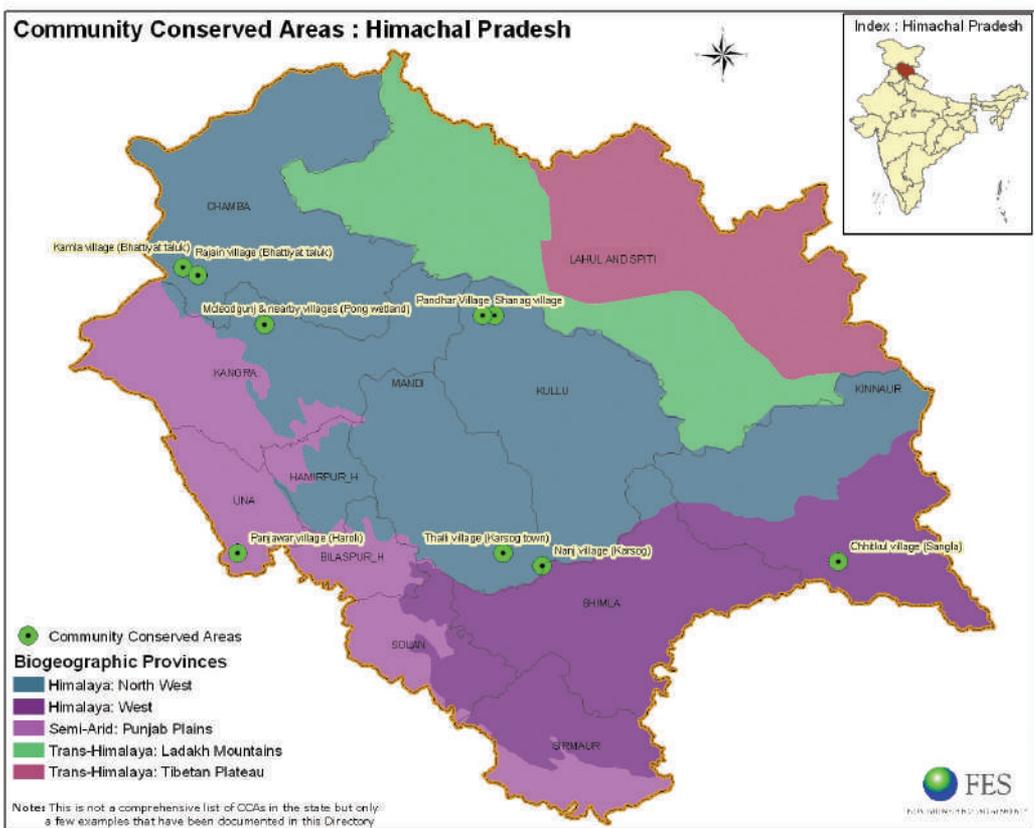
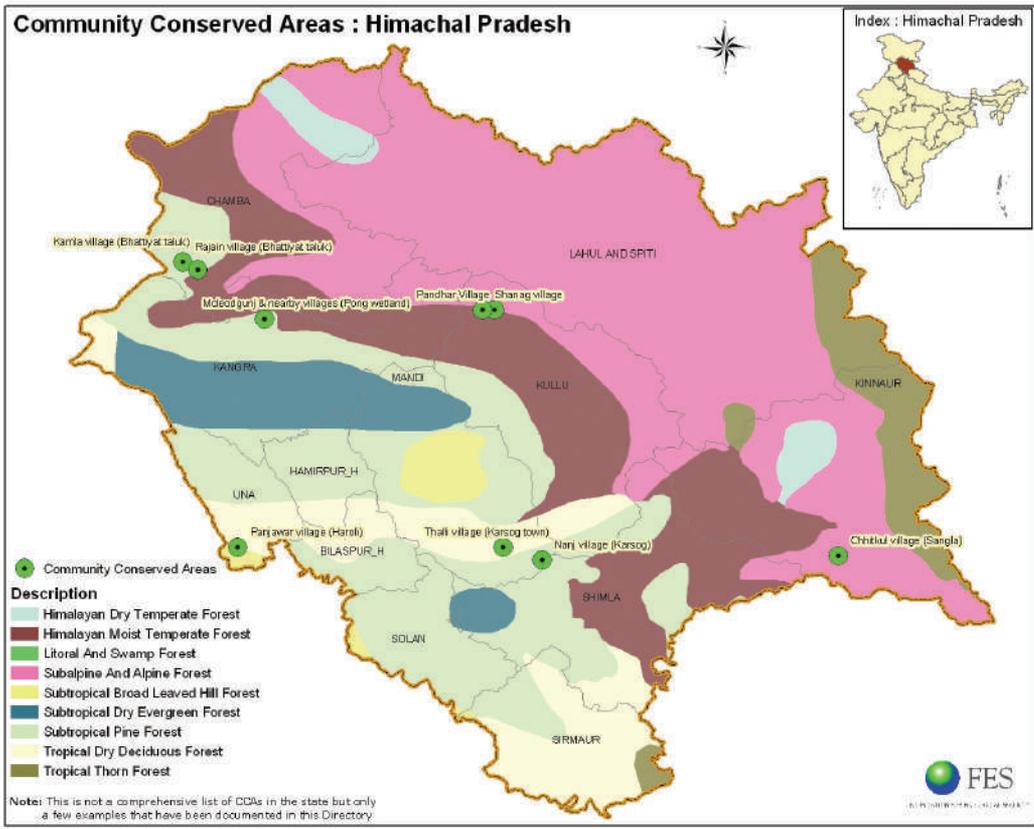
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Himachal Pradesh







Community conserved areas in Himachal Pradesh: Myths and reality

Virinder Sharma

Author's note

The reconstruction of rural social ecology is not a simple matter. A 'landholding elite' was a far less significant factor in the landscape of the Himachal Pradesh region of the western Himalayas than, say, the Kathmandu region of the Nepal Himalayas. The rulers of local hill kingdoms rarely if ever restricted their subjects' access to the common resources of the mountain forests. The history of forest exploitation in the South Asian subcontinent emerged in the early 1980s as the leading aspect of its embryonic environmental history studies. For a decade analysis centred on the extraction of timber by the colonial and post-colonial state and its commercial allies, and social conflicts which resulted from that systems' challenge to the traditional rights of village communities. The imperial system has been seen largely in terms of timber cutting and commercially oriented silviculture and village-level resistance has been seen primarily as a defence of grazing and timber rights.

However, these discussions have tended to be shaped by the colonial system's own frame of reference: they have been silent on a wide variety of community conservation systems and practices/areas, which have been vital to both the diversity of natural areas and the subsistence systems of the people of the forest. In sum, fragmentary evidence suggests several conclusions. One is that in areas of mixed settled farming and forest gathering the colonial state, in its attempts to regulate natural resources, penetrated the rhythms of daily life to a very limited extent.

In a democratic state a popularly elected government is undeniably the authority upon which the control of 'common property' ultimately rests. Unlike in the case of an absolutist system, therefore, control in a democracy should originate in the first instance at the local level, not be granted from above. As things stand at present, the struggle seems to be more in the nature of subordinate institutions attempting to wrest a greater say in local issues from the tight-fisted upper echelons of power. The paradox is evident. Under the *rajās* and for much of the colonial period, 'common property' as we understand it today may not have existed, but the appropriation of natural resources could only be carried out through the mediation and participation of the common herders and farmers. In independent India the idea of 'common property' is much stronger but access to and control over the management of its resources by local bodies is probably far more limited than it has ever been before.

1. Background

1.1. Importance of conservation in Himachal Pradesh

The Himachal region comprises some of the country's richest ecosystems. This is due to extreme altitudinal variations and concurrent ranges in temperature and precipitation, which combine to create a diverse ecosystem of habitats and species.

Mountain areas in general and the Himalayas specifically are considered storehouses of endemic and endangered species.

Conservation concern has so far been focused on lowland tropical rain forests. Mountain wildlands are, however, equally important storehouses of biological wealth, as the lowlands have been hugely altered by communal agriculture, industry and urban settlement.

1.2. Ecological profile

Himachal Pradesh can be broadly divided into three major vegetation zones. Table 1 indicates the predominant vegetation zones in the state.



Table 1: Vegetation zones in Himachal Pradesh

Zone	Elevation	No. of grasses and legumes
A. Sub-tropical zone (foothills, valleys, and mid hills)	<1000m to 2100 m	33
B. Humid/sub temperature zone (high hills)	2100-3200m	38
C. Dry temperate and alpine zone	> 3200m	26

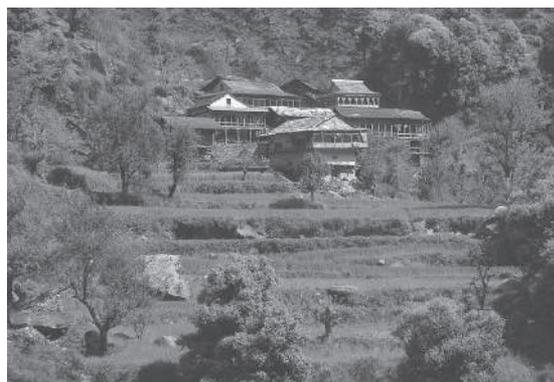
The state encompasses a wide variety of natural and artificial water systems. These lakes or wetlands are spread across the various ecological zones, from the sub-tropical to trans-Himalayan regions, ranging from 400 to 5000 m in altitude.

Natural wetlands mainly comprise lakes and ponds, whereas human-made wetlands are reservoirs, constructed for irrigation or hydroelectricity generation.

1.3. Socio-economic profile

The Paharis or hill people are known for their simplicity. Although beset by developmental changes today, one can still appreciate the traditional hospitality of the *paharis* (hill people). Diverse ethnic groups, which have developed their own culture based on available natural resources, also characterise Himachal, giving rise to a cultural diversity on par with levels of biodiversity found in the region. Regulated interactions between the mountain people and their environment helped maintain the richness of species, communities and genetic material, in both local farming systems and wildlife.¹ This has resulted in detailed indigenous knowledge systems of resource strategising, exemplified by diverse farming systems, the use of minor forest products and the richness of cultivars and land races of mountain crops. People of the cold desert zone (Kinnaur, Lahaul, Spiti, Chamba and Pangi) generally earn a living by rearing sheep and selling forest produce. The people of the higher hills depend mainly on agriculture and animal husbandry, supplemented by income from the sale of gucchi and banaksha. Residents of the foothills cultivate opium in addition to traditional crops, while the people in the lower valleys depend mainly on daily labour and agriculture. Fruit trade (in apple, kiwi, pomegranate, papaya, guava, etc.) in the markets of Amritsar, Lahore, Peshawar and Delhi also forms an important source of income. Wool is spun to prepare hand-woven shawls called *dohru* or *pattu* as protection for cold winters. The hides of sheep are used to prepare bags for storage of foodgrains. Prior to the 1930s, people lived in joint families in small and scattered villages. The more the members of a family, the more prosperous it was considered. The wealth of a farmer continues to be measured by his possession of animals. A majority of the population is still dependent on agriculture. In earlier days, favoured crops were maize, paddy, barley, lesser millets like koda, bathu, ogea, phapra, kangni or foxtail millet, china, and pulses like moong or mash, masar or masoor, and kulatih or horse gram.

Increasing populations have intensified pressures on forests, which have been felled indiscriminately in the recent past. With increasing literacy and the subsequent search for government jobs, few people choose to continue with traditional livelihoods. In many instances, only old people are left in villages and they find it increasingly difficult to rear cattle.



A typical village in Himachal Pradesh Photo: Ashish Kothari

2. A brief history of administrative control over land and resources

Discussions on the human use of ecological resources in pre-colonial times must be very tentative, since no systematic study has yet been carried in this mountain region. Much therefore must be speculation, based in part on the survival, long into the colonial era, of earlier adaptation and extraction systems. The social dimension largely concerns the customary law of common property systems and collective patterns of use of non-timber resources. In Himachal Pradesh a key distinction must be made between settled farming systems and tribal hunter-gatherer systems. Over an era approaching two thousand years, Hindu farmer castes gradually expanded their settlements and terraced agriculture up the alluvial soils of the region's many river valleys. Hill peasants practised mixed cropping systems on terraces, primarily for local use but to a limited degree for monetary regional markets as well. In principle, ownership of all lands, including arable lands, lay with the hill *rajās*, but in practice the peasants generally inherited the use of their terraces down generations, and landholding was distributed relatively equitably, with far less presence of a landholding elite as compared to many parts of lowland India.

A brief review of history seems to suggest that the 'customary' management of the natural resources by the so-called 'village community' was not an undisputed fact in the region. Nor were the colonial rulers, from the very beginning, keen on obtaining complete and exclusive control over the resources of all non-arable areas. Many of the officials, in fact, felt that 'by including the forests in *mauza* (local term for habitation) boundaries and "partially assigning" them to the landholders of the *mauza*, the village officials and village communities would be induced and compelled to look after the forests and pay the *rakhas* or watchmen'.² This hesitation of the British to stake a larger claim is explained by the fact that forest conservation initially had lower priority than the extension of cultivation.

Attitudes towards land (as property and as a means of livelihood) changed over time. So did the interpretations of its 'ownership'. Initially, much seems to have rested upon the British administrators' perception of the nature of land rights and what they regarded as the 'traditional' land ownership structure. In areas of Himachal that came under direct colonial rule, the government proclaimed itself the inheritor of the privileges and authority of the traditional rulers who had been dispossessed. In order to justify the unprecedented powers that they now began to claim, the British administrators probably exaggerated the powers that the pre-colonial *rajās* had enjoyed. By this manipulation the new rulers were able to lay claim to greater authority than the earlier rulers had ever been able to actually assert, even if their powers were theoretically extensive and normally acknowledged by the peasantry.

This was of much significance for the region because the Himachal hill states ultimately came to be viewed rather differently from the other agrarian areas of the north Indian plains. To be fair to the early revenue settlement officers, they may have been justified in taking such a position. They were inclined to compare the political structure of the princely states of Himachal with that which prevailed in Europe under feudalism. This seems to have formed the basis of their subsequent understanding regarding the respective claims that the ruler and his subjects had on the land and its produce. The early British administrators in Himachal had to face several difficult questions. Who owned the village 'wastes'? Was there a 'village community'? What were the rights of the cultivators on uncultivated land around their farms?

British administrators certainly encouraged amongst the peasants of a village the emergence of a co-proprietorship in the smaller 'wastes'. But there was a hidden set of implications in this. By giving the shape of a property to the *de facto* control of peasants over the village 'wastes', the British, it seems, sought to establish for themselves an exclusive and absolute control over the resources of the larger non-arable areas and forests. A clear-cut demarcation of 'ownership' carried out in these terms undoubtedly gave to the agriculturists a more definite authority over their immediate environs. It simultaneously allowed the colonial rulers to put forward a proprietary claim of a corresponding nature on the larger expanse of uncultivated area. This seemed to carry with it the implicit understanding that the domains of the state and the peasant had been differentiated in so far as the use of natural resources was concerned. Theoretically his subjects did not seriously dispute the claim of the *raja* over such resources in earlier times. In reality, however, he was probably unable to even procure them without the latter's mediation. The rulers and the ruled did not operate in mutually exclusive proprietary fields.

Having virtually prompted the emergence of a clearer sense of property in the village wastes amongst the peasantry, the British administration seems to have moved in the direction of creating clearer notions of individual 'proprietorship'. Undeniably the emphasis here has been on the changing relationship between the peasants and the state over the question of the village

'wastes'. This is because the latter category of land has become the focus of attention amongst environmentalists and is today the source of much contention. The debate on 'common property resources' in its present form has its origins in the uncertainty that prevailed for long over the control and management of these 'wastes'. One need hardly clarify that the term 'waste' is, in fact, itself a misnomer: these were the most important pieces of land from which 'resources' could be exploited and there were few other such areas around the village which were of such immense utility! Yet it might be somewhat of an exaggeration to argue, as many scholars have done, that the 'village community' and not the state was the undisputed master of this land in pre-colonial times. The right to make use of the resources of wastelands was very closely tied to the peasants' obligations towards the state. The one was incomplete without the other and both were the products of a particular historical stage.

To make the analysis more complicated, the western Himalayas were administratively complex: large areas outside the British districts were left as intact 'Princely Hill States'. These States tended to maintain older forms of discretionary management more nearly intact until they were administratively absorbed into independent India in 1947. But most of them, under diplomatic pressure from the British, gradually adopted approximations of the British forest management system. The effect of this on management of non-timber products is even more uncertain than for the districts of British India, but some indication can be gained from the Forest Rules, which the Chamba and Bashahr states adopted by 1900. These rules stated that Reserved Forests would be under the direct control of a British Forest Conservator appointed by the *raja*, whereas Unreserved Forests were under the *raja's* control. In the Reserved Forests the villagers had rights only to building timber, fodder grass and fuelwood. In the *raja's* forests, villagers had rights to the collection and sale of dry and fallen timber and inferior trees for fuel, grass, wild animals, birds, honey, wax, fruit and flowers, taking care that such collection is effected in such a manner as not to injure the forest. In sum, both British India and the Princely States under Western hegemony experienced a trend toward managed forest ecosystems, with an accommodation between European and traditional systems of use.

In his revenue settlement report on Kangra, Lyall wrote, 'The *Raja* was not, like a feudal king, lord paramount over inferior lords of manors, but rather as it were, manorial lord of his whole country. Each principality was a single estate.' This basic position seems to have been recorded in all the later land revenue documents of this period, which are too numerous to be all mentioned here. As a result virtually all the works based upon these records have unquestioningly adopted a similar line. Admittedly, many of the rights that the *rajās* came to exercise were very much like those enjoyed by actual proprietors.

This naturally would have far-reaching implications for the idea of 'common property resources'. But it does not mean that the *rajās* had always been able to assert these rights. The increasing British presence in the area must have had its impact.

The reinterpretation of the political economy of the hill states by the British, keeping their own interests in the forefront, was responsible for bringing about very important changes. It also provided the *rajās* with the justification and means of accessing natural resources directly instead of through peasants and pastoralists.

Quite evidently, the notion of property prior to the coming of the British was very different from what it subsequently came to mean. If this was the case with regard to 'valuable' agricultural land, the idea of a 'common property resource' in the 'wastes' and the forests can hardly be perceived as a straightforward matter. To a considerable extent the rights of peasants to 'common property resources' were in the nature of 'users', not 'owners'. These rights were, moreover, linked to their position both as members of a village community and as proprietors of agricultural land. Their unequal position in the latter situation, in particular, may have led to resulting inequalities in their access to resources.

About the village 'wastes' and other adjoining uncultivated land, some confusion still prevails. It is often suggested that prior to the colonial intervention in the hills, village communities owned and regulated the use of wastes and forests as 'common property resources'. In this context it has been argued that the British administrators encouraged and brought about a change from a collective to individual use of forest resources. It has, therefore, been suggested that during



the early years of British rule the cohesion of India's village communities was destroyed and along with them their control over 'common property resources'.

It is these assumptions that finally bring us to the question of whether there ever existed an idea of 'common property resources' (or community conserved areas). To begin with, were uncultivated wastes near villages 'owned' or 'managed' by village communities in pre-colonial times? This may certainly have been the case in many other parts of India, but Himachal was, probably, not one of them. Consider some of the 10th- and 11th-century land grants made by the *rajās* of Chamba to certain individuals: the conferred rights included '... grass, grazing and pasture-land, with fallow land ingress and egress together with gardens and resting places...' There are references to officials being specifically instructed to not cut the grantee's pasture or seize his wood, fuel, grass, chaff, etc. Individual beneficiaries of these grants, therefore, almost exclusively utilised the 'waste' adjoining the cultivated land. There is no mention whatsoever of either the 'village community' or of its control over 'common property'. The transfer of rights seems to have taken place straight from the state to the individual. It comes as no surprise therefore, to find that British officials who attempted to understand the nature of rights in village 'wasteland' during the early years of British rule often arrived at conflicting conclusions.

In principle the claim of the *raja* to the ownership of the 'wastes' was normally never challenged. There were many occasions on which he very clearly asserted it. This claim, nevertheless, co-existed with certain rights of the peasantry, which were close to being proprietary, albeit in a manner that was not entirely in conformity with modern market rationality.

By making some broad divisions we may be able to better appreciate the individuals and institutions that were involved.

There was, to begin with, the interaction between the ruler and the village communities wherever such communities existed. At the next administrative or territorial level were the different villages. Finally, within the village, of course, were the claims made by individual peasants on the wastes of their respective villages. In so far as different villages were concerned, the recognition of an essential distinction between cultivated and uncultivated areas was initially intended to be more 'an internal frontier between cultivated and uncultivated land than as a boundary with the neighbouring villages'.³ It was perhaps only with increasing pressure on village wastes that it became necessary to demarcate the territories of villages.

2.1. The pre-colonial setting

Around 2000 BC, it appears that extensive forest cover, interspersed with grasslands, dominated this region of the Shivalik and outer Himalayan tracts. Grasslands were sustained by natural factors like isolation, slope, aspect, landslips, natural fires and erosion.⁴ Human settlements and agricultural activities were at a minimum, concentrated mostly along fertile river valleys. Hill regions were divided into small states ruled by local *rajās*. Arable land was under the control of settlers, while all pastures and forests were under the *raja's* dominion, and maintained mostly in the form of hunting reserves. Lands were gifted by the *rajās* to their courtiers or in exchange for military services to the state. Local grazing rights were granted to the villagers.

The *raja's* proprietary claims did not readily translate into unrestricted control. Nor would he have had any use of such control before the appearance of a market with global colonial dimensions. An important distinction needs to be made at this point between the ownership of land on the one hand and the resources it possessed on the other. When during the pre-British period the state claimed ownership of all unenclosed waste, the cultivators had 'rights of use' (*bartan*) on it. Amongst the most common of these was the right to pasture their livestock, to cut grass and tree leaves for fodder, and to obtain dry fuelwood for everyday use. Not only were these activities important for the village economy, they were also, ultimately, factors that contributed to the income of the state in the form of both agricultural and non-agricultural taxes. Some other benefits that the peasants enjoyed with the permission of the local officials were to cut wood for house construction, for making farm implements, for marriages and funerals, etc. Barnes⁵ drew up a list of such rights and by the late 19th century these had been widely recognised even by British administrators.

The co-proprietorship in wasteland resources by the landowners did not erase the original distinction between the ownership of land and the utilization of its resources. But the order of things was somewhat altered. Even while the *khewatdars* (agricultural landowners) of a village became co-proprietors of the wastelands the State remained '... the proprietor of forest or wild-growing trees in wasteland'.⁶ In forests—that is, in wasteland more or less covered with wild trees or bush—the state and the landholders therefore had separate properties, neither of which were free, for the property of the state in the trees was subject to the right of the state to preserve trees.

It would be proper to refer to natural resources that were appropriated (by peasants and pastoralists alike) from the vast expanse of forests and non-arable land that lay beyond the economic sphere of agricultural areas. The inability of the pre-colonial timber market to penetrate into many distantly located areas made timber extraction the least of the mountain peasant's concerns. Even if such a market had developed on a wide scale—as was the case in later British times—it is unlikely that they would have been successfully able to stake a proprietary right over timber. There is equally little to suggest that the peasantry, even under colonialism, ever came to regard timber in the forests as a 'common property resource'. With regard to the other natural produce of non-agricultural land, there were no restrictions on appropriation. But this did not mean that the state did not come into the picture. On the contrary it could, and did, impose a wide range of cesses on resources obtained from these lands. Such appropriation, in fact, contributed to state income and was an important means by which the state's proprietary right over uncultivated areas was converted into tangible wealth. Free access to, and the procurement of, such resources by the inhabitants did not inevitably signify a 'common proprietary' claim. Here the consent of the *raja* was implicit because the resources thus obtained were liable to whatever kind of taxation the state may have periodically thought proper.

This administrative pattern was not affected during the Mughal, Sikh or short Gorkha rule in these hill states, because the local *rajās* continued to exercise their influence throughout (1600–1800 AD) The Sikhs extracted revenue from the *rajās* and used timber for urban and military expansion in the nearby plains, while the Gorkhas plundered the hill states for money, leaving many deserted villages. Before the arrival of the British, the hill *rajās* exercised control over the forest lands and regulated hunting. The common person was prohibited by ritual, religious and other means from hunting. *Rajās* established game reserves, enforced a closed season and restricted hunting, on the basis of social hierarchy, to his courtiers and the military elite. The British government stepped into this system of managing 'minor forest produce' and for the most part does not seem to have altered it in any significant manner.

2.2. British forest administration

The Gorkhas were ejected in 1815 and the Sikhs in 1849 by the British, who then took control of Mandi, Kulu, Lahaul and Kangra and supervised the Shimla hill states. The Revenue Department followed, and the district administration was asked to survey arable land, demarcate forest and regulate rights on arable, forest and pasture land. The Barnes settlement for Kangra District in 1862 instigated the transfer of ownership of arable land and pastures to villagers against tax collection, and delineated large grazing tracts as village commons. British revenue officials moved into lower Himachal and began surveys of the forest wealth of the outer Himalayas. From then on, their primary interest lay in the commercial and revenue potential of a few species of timber trees, plus a few other species such as bamboo which could be marketed on a large scale. But forty years later, at the time of the founding of the colonial Forest Service, it was already conventional to relegate all other botanical resources to the category of 'Minor Forest Products'. Minor, that is, in monetary terms, though by no means minor in the range and diversity of biological species or their human uses for rural subsistence and some trade.

With the setting up of the Forest Service in 1865, forest policy was pronounced in order to demarcate *sal* and *deodar* forests, which were to be used in the expansion of the North Western Railway. The Forest Act (1878)⁷ was formulated after experimenting with and revising the policy framed in 1855, which had recognised the fact that protection of soil and water resources, especially in the headwater areas of hill forests, was crucial to a sustained yield of *deodar*. Forests were categorised as Reserved when under the forest department (no local rights), Protected (with some local rights); Un-classed and Private (with villages or people).



Reserved Forests were to be managed primarily to protect the natural forest or to produce commercial timber. Protected Forests were intended to provide for local resource needs. Thus, for non-timber forest products, the Reserved Forests should in principle preserve the under-storey in all its variety, while in the Protected Forests the District Forest Officers and their Rangers would ideally monitor the availability of minor products, encourage their optimal growth, regulate their harvest and sale, and collect duties for the government. *Shamlat* lands or village commons were controlled by the villagers alone.

In the Punjab hills the arduous, time-consuming effort of reviewing actual patterns of forest use, codifying them and thereby implicitly establishing a social philosophy was finally settled in the last years of the 1800s, in a series of Forest Settlements for each administrative jurisdiction. In order to

establish administrative uniformity and expedite the otherwise endless work, officers came to adopt similar lists of villager's rights in the forest, but with significant variations from one jurisdiction to another. These lists reveal a social and economic ideology which attempted to allow villagers to maintain both material subsistence and religious ritual. At the same time the regulations were designed to severely and systematically restrict the harvest of forest products for sale or monetary profit.

Continued traffic in plumage and skins saw the replacement of the 1887 Act by the Wild Birds and Animals Protection Act of 1912. This provided for a ban on sale of scheduled fauna in the closed season as well as the creation of sanctuaries and shooting by permit only. Basically this helped in the preservation of game and restricted hunting access. The 1912 Act covered only areas under British rule at that time. (Kangra, Kulu, Mandi, Sirmaur, Lahaul Spiti) and the other hill states had independent rules. The latter were next to be governed by the 1924 Shikar Rules as far as hunting was concerned. By 1920 unanimous opinion was shifted from game to wildlife, from sport to camera, and from preservation to conservation.



Ibex males, Spiti Photos: Yash Veer Bhatnagar & Charu Mishra

The Punjab Wild Birds and Wild Animals Protection Act of 1933 provided for stringent regulations and drew up four schedules of fauna in the hill states. A ban was imposed on hunting, snaring and netting, although single-barrel guns were allowed for crop protection, and protected areas were set up.

2.3. Impact of the freedom struggle on resource use

In 1921 the non-cooperation campaign led by Mahatma Gandhi caught up with the hill people, who finally gave vent to their discontent against restrictive forest laws, mainly by burning the forests. The Whyndham Commission, appointed in 1922, recommended the transfer of new Reserve Forests from the jurisdiction of the forest department to the revenue department, as common village lands. However a new Forest Act, adopted in 1927, gave more powers to the forest department in the management of both Reserve Forests and Protected Forests.

2.4. The post-independence period

With independence the resettlement of refugees (as a result of partition) required additional land in the fertile river valleys. The First Five-Year Plan (1951–6) placed most emphasis on industry, urbanization and power generation. The Revenue and Agriculture Departments were most active, and their activities led to increased conversions of forested land. Private forests could no longer act as a buffer zone for the Reserve Forests, as these were already depleted or cultivated. Colonial forest management, which had been aimed at maximum timber harvest for the requirements of the railway, the wars and the expanding infrastructure of the Empire, changed little by way of the administrative set-up in post-Independence Himachal.

By 1950, Indian Board for Wildlife, National Parks Act and various region-/state-specific wildlife protection acts were formulated. Inadequate wildlife staff, a strictly commercial approach to forestry, the expanding road network and access to crop protection guns led to another phase of indiscriminate hunting in the 1960–80 period. The Wild Life Protection Act of 1972 reviewed the whole position and was followed by a total shooting ban in Himachal Pradesh from 1983–4, and the creation of more wildlife sanctuaries and national parks.

Summing up these events, it appears that the period from around 1800 to 1870 was a phase of forest exploitation and indiscriminate hunting, led largely by the British and military explorers. The period 1870 to 1900 saw regulated hunting and forestry by the British with the exclusion of local people. The period 1900 to 1920 saw the preservation of game for elite hunting and protection forestry, while the period 1920–1947 saw the British conservation phase. The post-independence period saw commercial forestry and Indian elite hunting up to 1960, after which indiscriminate hunting took over. A real conservation phase began only in the 1980s.

3. Origins of community conservation

A heavy dependence on nature is usually complimented by the development of local systems prudent in the use of scarce resources. The landscape of Himachal is dotted with several examples

of such systems, where local populations have devised mechanisms centred around sustainable use and an opposition to commercial/external pressure. While sustainability as an objective of such initiatives needs to be reviewed, we need to look critically at these efforts from the point of view of equity and perceptions of communities towards nature and conservation.

In the following sections, I explore the mechanisms behind four such systems, three of which are essentially community-driven (sacred elements, herb collection and rotational grazing) and one initiated by government intervention (Forest Cooperative Societies, first established in Himachal in 1935).

3.1. Some elements in community conservation

3.1.1. Sacred elements and conservation



Several plant and animal species (such as the peepal and khejadi trees, the Indian peafowl and Hanuman langur) are revered in traditional belief systems. Instances of communities protecting sacred tanks attached to temples, declaring sacred pools along certain stretches of rivers or protecting entire groves of trees abound in Himachal Pradesh. The Upper Beas region has maintained several sacred sites. Most villages in Kullu and Seraj have ancient temples dedicated to local gods and goddesses (*devtas* and *devis*). Some temples were within the villages, while others were sited on prominent locations in the forest. The gods' homes were constructed of stone and *deodar* timber, most of them in similar style to human homes. Largely part of folk tradition, such systems appear to have been maintained in cohesive, relatively homogeneous communities by fears of the wrath of supernatural powers following violation.

A quick reconnaissance of the two sub-divisions of Shimla District revealed that all the villages have a village deity (*gram devta*) and one to many trees dedicated to the deity. In most villages, a single individual of either deodar or some other species was found. If only a single tree is considered sacred, felling is not permitted even for repairs/construction of the temple. If more than one tree is sacred, felling may be permitted with acquiescence of the village deity, but only for use in the temple. Our study in the Shimla District revealed that all sacred groves are located in 'mixed forests', as such providing greater economic services (fuel wood, fodder, etc.) and ecological services (prevention of soil erosion, maintenance of diverse habitat for different species, nutrient cycling, moisture retention etc.) than pure-stand forests. Sacred groves are the only remnants of tree vegetation in many parts of Himachal Pradesh and they serve critical functions as sources of fuel, litter, fodder, etc. They are also richer in number of plant species than other stages of succession, and contain some plant species that are totally absent from their surroundings.

Sacred elements linked village life with the outside world. One of the means by which a *raja* could legitimise his claim to territory was by making gifts to the village *devtas*: by the late 1800s, a seventh of all cultivated land in Kullu was granted as temple endowments.

The following common features characterize sacred groves in Himachal:

- All forms of vegetation in the grove are under protection of the deity of that grove.
- Boundaries are definite even if surrounded by forests.
- They are situated some distance away from human settlements.

Our analysis shows that religion played by far the more dominant role in the establishment of sacred groves as compared to ecological considerations. While economic considerations had little to do with maintaining sacred groves in the past, today people have realised their economic potential.

3.1.2. Institutional mechanisms in sacred conservation systems

Sacred groves are situated on rent-free land and functioning is supported by one or more *pujaris* (priests),⁸ a manager (*kardar*), an oracle or shaman, interpreters (*chelas*), and several musicians. All these positions are hereditary. Taxes are extracted by the *raja*, through the manager; and include items of produce as well as forest products for use in sacred festivals. For meeting the expenses of *dhup deep*, the first grains produced at harvest and the first *ghee* from cows is offered by villagers to the local deity.

Some pastures seem to be vested with local deities: one respondent (Jaichand of Grahani village, Manikaran) claims to pay royalty to Ashpuri Devi of Sharan as the pasture that he grazes (Lahulibhati) belongs to her.

Despite a rigid caste society, lower castes are free to approach the *devta* for justice if they feel slighted, abused or maltreated by the upper castes. The *devta's* verdict, once announced, was binding on all concerned.

Interventions are sought for the general well-being of the village community, for the benefit of good crops, healthy cattle, warding off disease and to fight evil spirits that weaken the village as a whole. These interventions are controlled by a form of 'spirit possession' called *Khel*. The chosen human is called the *devaan* through most of Shimla, while further east, in the Rampur area, he is referred to as the *for* or *mali*.

Frequently, a line of ants moving out of old temple sites has indicated a new site by marking a limiting square at the new site. Similarly, sites repeatedly urinated or defecated upon by cows often enough to be noticed have been considered as new temple sites. In some cases, digging that yielded a *pindi* (image) or *mohara* (mental mask) have also been deified as sacred sites. Cows are also believed to allow their milk to be drunk by snakes at several sacred sites.

3.2. Indigenous systems in herb extraction

Local people have been collecting herbs in this region for several generations. Though primarily used in traditional medicinal systems in the past, in the last decade a larger commercial market for these herbs has steadily developed.

Methods of recognition of these herbs as well as knowledge about collection procedures have been passed on from generation to generation among the local people. In our study, we discovered several local management practices that appear to have been designed to ensure sustainability of herb collection. Some of these are discussed below.

There are two classes of herb collectors. One is the group that collects the herbs available only in alpine meadows above the tree line, while a second group collects herbs that are found at lower altitudes. Herbs in the alpine meadows are difficult to reach, and often involve strenuous climbs; only men (generally between the ages of 15 and 45) form part of this group. At lower altitudes, entire families are involved in collection. Herbs collected in these two distinct zones are listed separately (see Case Studies).



High-altitude meadows Photo: Ashish Kothari

Among the high-altitude collectors are two groups. One, the Fuwals, are seasonal graziers. Their primary aim in reaching the alpine pastures is to graze livestock during the summer months. Fuwals generally stay in the alpine pastures for up to three months (June to August) and collect herbs during their stay. The presence of Fuwals is important, as they are usually the first to travel to the meadows, marking access pathways as they travel. A second group comprises local people who visit the high-altitude pastures specifically to collect medicinal herbs. This second group is more significant to herb extraction in the region: their number has increased in recent years with increasing demand while the number of Fuwals has decreased.

Local herb collectors show a keen awareness of the regeneration capacity of various herbs. They follow a system of rotational closure. Herb collectors are aware that if the same area is exploited every year, there is insufficient regeneration and collection efforts prove to be drastically inefficient as the returns for time invested are very low. Fallow periods between collection used to stretch for between three to four years in the past, but areas are now accessed in alternate years.

First-time herb collectors are taught how to identify and collect herbs by more experienced collectors, since the collectors generally travel in groups. For most medicinal herbs, the root is the valuable part. Aware of the fact that root removal affects regeneration, collectors make sure that a small bit of the root is left behind. Collectors are able to tell root depths of the various herbs.

None of the herb collectors interviewed recollects the quantity of herbs having decreased over time due to extraction efforts. The number of collectors has however increased. No quarrels were reported between any of the collectors, and they feel that there are enough herbs for all collectors: resource scarcity has not yet become an issue.

The increase in market rates of these herbs has prompted some collectors to contract outsiders as wage labour for collection. Local collectors are of the opinion that outsiders are either unaware of, or simply not bothered about, sustainable collection techniques and tend to plough up the whole area instead of patiently collecting single plants. Local people resent their entry and have stopped them from entering the area, as they are not perceived to be right-holders.

3.3. Indigenous systems in grazing management

3.3.1. Rotation of grazing

Graziers in Himachal report a system of rotation between pastures every alternate year. Herds from Pashi village, for instance, graze for about 15–20 days in four different pastures, which are used in rotation from among a total of six pastures (Khanersu, Shilliluagadi, Rathithati, Bhkhalkada, Vaich and Kasal in Jiwa valley). Similarly, one herd from Shainsher (village Tung, Bajahara, Talahra, Jangla) cyclically uses the pastures available between Khandhar and Paniharn in the Khandadhar sub-valley of the Jiwa valley. Herds from Plaich and Pekhari, interviewed in Dhela, take different routes on their return journey every year.

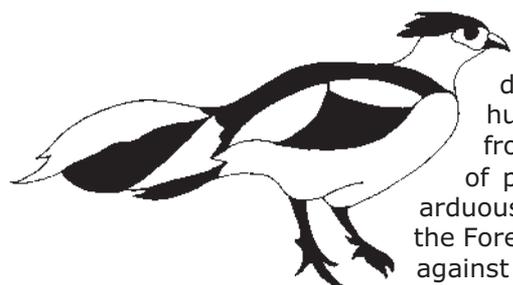
The graziers invariably described grazing of livestock in the upper Sainj and Jiwa valleys as a right, with some mentioning that it was *Kagjati* (legal) and recorded with the *patwari* (land records official). Opinion was divided as to whether this right was vested with the family or the village. However, access regimes seem to be worked out neatly and there is little confusion over who should graze in which location. Livestock are taken to pastures locally referred to as *thatch*. Each *panchayat* has the rights of grazing cattle on a particular *thatch*. Since pastures are grazed by rotation, there is good regeneration of nutritious grasses every year.

3.3.2. Grazing and wildlife interactions

In responding to suggestions that livestock herds might be disturbing wildlife habitat in forests during spring migrations,⁹ most graziers replied in the negative. Herders claim that there is relatively little grazing in forests, as the graziers are in a hurry to reach their respective pastures in the alpine meadows. A few graziers acknowledged that some nests might get destroyed but all pointed out that their spring migrations take place after the second half of May, by which time the young of pheasants and other animals are big enough to get out of the way. Some mentioned that there are nests of some small birds in the alpine pastures as well, but they are invariably out of reach of the sheeps and goats.

In the Jiwa valley, graziers reported the presence of a tall shrub, *maasnu*,¹⁰ as the reason for very little grazing on the upward spring migration. This shrub, present throughout the valley in the forest, especially between Kundar and Apgain (Himalayan monal country par excellence), is injurious to livestock in its earlier vegetative phase, and graziers have to take extra precautions to prevent sheep and goats from browsing on its young shoots. However, once fully grown, this species is highly nutritious and is therefore grazed heavily on the return journey. This information was collected on the second trek undertaken by us in the area and therefore could not be validated with graziers in the Sainj and Tirthan valleys. However, if incidence of *maasnu* influences grazing in the forested zones, the high concentration of pheasants, especially himalayan monal and western tragopan in the Jiwa valley could be an indicator that the sparse monal population in the other valleys may be due to the overlap of grazing and the breeding season of monal.

Most graziers admitted that the possibility of transmission of diseases from domestic livestock to wildlife exists, but most pointed out that possibilities were remote, as wildlife rarely grazes on the same pastures as domestic livestock. Interestingly, the Rakti herds were inoculated at the graziers' own initiative, by government vets in Khanag village, Ani.



Hunting of wildlife by the graziers was a sensitive issue during discussions. All those interviewed maintained that they never hunted wild animals for food, as there was enough meat available from injured goats and sheep. Hunting was resorted to only in case of predators poaching on domestic stock.¹¹ Graziers lamented the arduous and lengthy procedure for filing of claims for compensation from the Forest Department, which they claimed was Rs 150 per animal killed, against the market price of Rs 900–1500 per animal.

3.3.3. Grazing and biodiversity conservation: Shall the twain meet?

Research on the impact of grazing by domestic livestock on the natural ecosystem has attracted a lot of attention in the last two decades. There is a growing body of knowledge on the ecological impact of grazing. More specifically, in the context of conservation, issues of grazing have been hotly debated between scientists, social scientists and policy-makers. Total closure of core conservation area from biotic interference is held as an article of faith by many conservationists, making grazing one of the more contentious and tricky issues in the implementation of conservation strategies.

On the basis of data and information detailed in the case studies (see Case Studies), a few arguments are put forward here with respect to traditional grazing management systems in Himachal. Impacts of grazing have so far been discussed only in ambiguous terms, with few specific instances being mentioned in the literature. Amongst other 'problem areas' with grazing, the transmission of diseases, weed infestations, regeneration suppression, possibilities of graziers carrying guns, disturbance during the breeding season of select wildlife species and destruction of the preferred habitat of musk deer have been identified. None of these, however, have been followed up with concrete evidence. This is not to say that these phenomena are absent, but evidence needs to be presented of their impacts at the landscape level. There has been no study encompassing the entire spectrum of biodiversity with respect to grazing. Evidence from the Nanda Devi Biosphere Reserve suggests that the populations and species diversity of certain smaller organisms like mosses, lichens and liverworts have gone down alarmingly in the decade after grazing was stopped. Sabharwal (1999),¹² quoting from data collected in the neighbouring Bara Bhangal area with similar ecological characteristics but higher grazing incidence, argues that grazing does not seem to have adverse impact on species diversity at the level of the overall landscape. And if the conservation value of the musk deer and Western tragopan is the same as that of a soil-loving liverwort, then regulated grazing might have to be considered seriously.

The IIPA (1990)¹³ report makes the point that since grazing has been going on in the area for at least a century, the ecosystem has 'arguably become adapted to it'. The report further goes on to state: '... therefore, there seems to be no urgency to stop all grazing.' The stoppage of all grazing activities would be detrimental to the very objectives of biodiversity conservation.

With the incidence of grazing more than a century old, the ecological composition of the forest and alpine zones has a definite anthropogenic character. Abrupt changes in grazing intensity might lead to a loss of biodiversity, and without conclusive evidence to the contrary, no such change should be recommended. Moreover, as local knowledge suggests, species composition of grazed areas shifts in favour of shrubs when grazing is stopped; therefore, a matrix of grazed and non-grazed areas could actually enhance biodiversity.¹⁴



Wolves often attack livestock herds
Photo: Yash Veer Bhatnagar & Charu Mishra

3.4. Forest co-operative societies: The Kangra village forest scheme

The conditions of forests of the outer Himalayas was discussed in a forest conference in 1935 where it was realized that indiscriminate felling, lopping, grazing and browsing had taken a heavy toll of forest and soil cover and had resulted in accelerated erosion in the foothills. A resolution, proposed by H.M. Grover and seconded by A.P.F. Hamilton and unanimously passed, stated: '... the conference is firmly of opinion that the state of the undemarcated forests is so deplorable that the recent policy for their management must be changed. The practicability of forming village forests should be examined, and government may kindly be asked to appoint a committee to decide what particular steps should be taken in each district of the outer Himalayas.'

In pursuance of this resolution, the Punjab Government appointed a commission of inquiry, referred to as the Garbett Commission, on 28 September 1937. The terms of reference of this commission were to identify:

- Difficulties are experienced by those who live in and near forests as a result of the existing system of forest administration;
- The means of eliciting their interest in the conservation of the forests; and
- The means of encouraging and securing their cooperation in activities of the forest department

The Commission observed that 79.6 per cent of forests in Kangra District were not only burdened with heavy rights of the users, but were also fast deteriorating. The Commission recommended '... that effort(s) be made to teach the villagers that whatever profit may accrue from the management of the *shamlat* and the reserves shall be to their benefit, provided only that they agree to management according to simple working plans, approved by Government which will involve closures where closures are demonstrably necessary. In order that the people may have qualified representatives, *Panchayats* must be formed to whom the details of the forest management of the area in which the village is situated will be explained. For this purpose a working scheme of management for each village must be prepared. The scheme will envisage management of not only the *shamlat*, but also of the Protected and Reserved Forests in which the village have rights in such a way as to secure the maximum crop of forest produce for the benefit of the villagers.'

The Punjab government accepted these recommendations in August 1938 and requested the forest department to draw up a more detailed scheme. It was in pursuance of this decision that the idea of managing the waste and forest lands in association with villagers originated. It was decided that Cooperative Forest Societies be constituted throughout Kangra District and further that all the Reserved, Demarcated and Undemarcated Protected Forests, Unclassed forests, Ban Mauti and Shamlats—and for that matter even lands under private ownership, which the owners may wish to entrust to the society for management—were to form a common economic unit of management. In an effort to tackle the menace of erosion, an Anti-erosion Forest Circle was created in 1938 and the work of the Kangra Village Forest Scheme was entrusted to that circle.

With the *mauza* as the basic economic unit, Cooperative Forest Societies (CFS) were launched by the then Conservator of Forests, Eastern Circle, on 18 August 1938. On 1 April 1939, a new Forest Division, called the Kangra Village Forest Division, under the charge of an Imperial Forest Service Officer, H.S. Deans, was created to implement the scheme.

The scheme was initially sanctioned for five years in 1940 with an annual grant-in-aid of Rs 50,000. The scheme was periodically extended up to 1973. Formation of CFSs continued up to 1953 when 72 CFS covering an area of 59,848 acres were formed. Subsequently the management of two CFSs was terminated on account of mismanagement and mutual squabbles amongst members, with the number of CFSs reduced to 70¹⁵ with an area of 58,236 acres (23,556ha). The grant-in-aid to the societies was raised to Rs 90,000 in 1955 with the condition that the additional amount of Rs 40,000 would be spent on extending this scheme to the Hamirpur tehsil. Funds were later withdrawn and no new CFS was formed in view of observations made by the then chief minister of Punjab, B.S. Sachar, that CFSs were not broad-based enough and the income of forests were being diverted to favoured groups of people.

Table 2: Details of different categories of land under CFS

Administrative category	Extent (acres)	%
Reserved Forests	1,590	2.7
Demarcated Protected Forests	17,640	30.00
Undemarcated Protected Forests	27,548	49.30
Unclassed Forests	9,312	14.10
Ban Maufi Forests	178	0.40
Shamlat	235	1.40
Private Waste Lands	1,070	1.80
TOTAL	58,236	100.00

3.4.1. Weaknesses and strengths of the CFS scheme

Weaknesses

- There has been a lack of political will to continue the scheme.
- Officers of the forest department have little control over the working of CFSs, their roles being mainly technical and advisory in nature.
- Forest officers, *rakhas* and other employees of CFSs were poorly paid, leading to several instances where the *rakhas* were themselves guilty of offences. The salaries of these employees varied between Rs 10 to Rs 500 per month.

- *Rakhas* were mostly illiterate and without exception untrained in management of forests. They lacked missionary zeal. There was no trained forest staff in the societies and forest management suffered at the hands of the untrained and illiterate staff.
- There was lack of coordination between stakeholders — the Forest Department, CFSs, the State Cooperative Department and the villagers.
- Villagers including CFS members indulged in illicit encroachments and felling. No severe action was taken against them. The damage reports against them were compounded for petty amounts.
- No action was taken against CFSs that did not carry out prescriptions according to Working Plans. The recommendations of Forest Officers were rarely given any weightage.
- There was often conflict between the members of *Panchayats* and CFSs.
- Infighting among the members of CFSs was a problem.
- The bye-laws, which were framed to suit the then social and economic conditions, became dated and were never amended.
- Village communities had access to a one-fourth share of the gross income from sale of trees (called *zamindari* share) that was to be divided among the community in the following ratio: landowners 8 annas, *lambardar* 3 annas; *patwari* 2 annas, and *rakha* 3 annas. The share of the *patwari* was stopped in 1946 and that of the *lambardar* was also stopped in 1976, creating much discontent.
- With the introduction of the Himachal Pradesh Village Land Vesting and Utilization Act, 1974, ownership of *shamlat* lands was transferred to the State. Communities gradually lost interest in CFSs.

Strengths

- The CFS scheme has been instrumental in winning the interest of local people where benefits have flowed to the community.
- CFSs are quite sound legally and have definite/notified area for management.
- CFSs can raise funds from other sources like contributions, acceptance of deposits, etc. It is on this account that some societies have done very well in achieving the objectives of the formation of CFSs.

3.4.2. Revival of cooperative forest societies: Some recommendations

Given the unsatisfactory performance of most CFSs established in the past and the inherent shortcomings of the scheme, general opinion favours closure of the scheme. However, keeping in view the National Forest Policy and a State Government Order dated 12 May 1993 on Participatory JFM for planning, protection, afforestation and judicious use for the ecodevelopment of barren, degraded state land and protected forests, CFS schemes could be continued in an amended form, more comparable to the Village Development Committee formed under the above order.

4. Conclusions

The future of community conservation in Himachal is dependent on the following integrated approaches.

4.1. Inter-sectoral coordination

The dichotomy of conservation and development policies needs to be addressed through more holistic approaches. This would require considerable change, as the present institutional mechanisms are oriented towards sectoral working at the policy and the field level. A variety of approaches and strategies have to be worked out for this purpose, which could include incentives and disincentives to agencies/organisations directly or indirectly affecting the conservation of natural resources.

4.2. Participatory monitoring protocols

Simple and participatory monitoring methods are required to be developed for field testing. Our perception of the full dimension of biodiversity remains very vague, but with time we may expect species estimates to be made with increasing confidence and precision. There is a need to develop sampling methods and protocols that allow reliable comparisons between sites without a complete inventory being taken.¹⁶ The use of both formal documentation and non-formal indigenous knowledge bases can provide vital information on the sustainable conservation management systems.

4.3. Outstanding individuals/communities

The process of change always creates a set of outstanding individuals/communities (in terms of local innovation) who are able set the trend among people to deal with changed circumstances. Much benefit could be derived from giving recognition to innovative farmers, indigenous communities and institutions that have a stake in conservation.

4.4. Benefit-sharing mechanisms

An effective conservation policy based on better understandings of biological resources and their uses would require new mechanisms of cooperation among local communities, government agencies and non-governmental organizations. Economic benefits have to be assigned to natural resources. New benefit-sharing mechanisms have to be evolved so that unsustainable resource use is minimized.

4.5. Greater public awareness

An informed public is biodiversity's most effective custodian. Publications in the form of field guides and educational material, and their dissemination through modern and traditional methods would help.

Virinder Sharma is with the State Council for Science, Technology and Environment, Himachal Pradesh, currently working at the UK Department of International Development. Much of the introductory text of this chapter has largely been adapted from a paper by Chetan Singh, prepared for the State Council for Science, Technology and Environment, in 2000.

Endnotes

- ¹ R. Gurung, *Indigenous Knowledge Systems and Biodiversity Management*. Proceedings of ICIMOD Seminar held in Nepal, April 1994.
- ² Barnes, 'Final Report on settlement of Kangra District', (Lahore, Govt. Press, 1862).
- ³ Barnes, 'Final Report' (As above)
- ⁴ R.D. Whyte, 'The Grasslands and Fodder Resources of India', Scientific Monograph 22, Indian Council of Agricultural Research, New Delhi (1957).
- ⁵ Barnes, 'Final Report'. (As above).
- ⁶ Barnes, 'Final Report'. (As above).
- ⁷ This legislation also, in fact, legitimised British hunting (ably assisted by the hill state *rajās* in their respective regions), as *shikar* was codified and their version of sport encouraged royal hunting trips.
- ⁸ Temple priests. Some are brahmins but most are *kanets*.
- ⁹ These migrations coincide with the breeding season of himalayan monal, koklass pheasant, western tragopan, goral, mainland serow, and himalayan musk deer.
- ¹⁰ Scientific name not known.
- ¹¹ Even this was usually not required as the guard dogs accompanying the herd usually raised an alarm, thus foiling attempts by predators.
- ¹² V.K. Sabharwal, *Pastoral politics: Shepherds, Bureaucrats and Conservation in Western Himalayas* (Delhi, Oxford University Press, 1999).
- ¹³ S. Shekhar, A. Kothari and P. Pande, *Directory of National Parks and Sanctuaries in Himachal Pradesh* (Delhi Environmental Studies Division, IIPA, 1990)
- ¹⁴ *Editorial note*: In 1999, the Great Himalayan National Park entered into a final notification phase, and all grazing rights were terminated. However grazing appears to have continued, though in lesser numbers, till as late as 2004 or 2005. The impacts on the Park's ecosystem, or its wildlife, are not yet known.
- ¹⁵ Twenty are in Dharamshala, 15 in Palampur, 9 in Dehra and the remaining 26 in the Nurpur Forest Division. Of the 70 CFSs, 35 are paying and the remaining 35 are non-paying forest societies.
- ¹⁶ World Conservation Monitoring Centre (WCMC), *Global Biodiversity: Status of the Earth's Living Resources* (London, Chapman and Hall, 1992).





Kamla village, Chamba

Background

Village Kamla is located in the Bhatiyat taluka in Chamba district of Himachal Pradesh.

The village can be approached by bus from Dharamshala (75 km) and Chamba (115 km).

Located in the western Himalayan region, the topography is mountainous and of mixed Shivalik-Himalayan formation. The area experiences a sub-tropical climate with an annual rainfall of 1500 mm. The forest ecosystem has south-facing slopes of the Dhauladhar range. The forest is regenerating with a mixed species composition. Major species found here are beul, khirik or toon, mulberry or shahtoot, aam, amrud, aadu, naakha (a variety of pear), kachnar, sisso and tuni. Legally, the area under community conservation is a Demarcated Protected Forest.

The main communities residing in the village are Rajputs, Brahmins, Mehras, Julahas, Gaddis (migratory pastoralists) and Tarkhans. Chamars, Doomnas, Kumhars, Jogis, Charajs and Mashkus are the main scheduled caste communities. The total human population is 900 living in 109 households. Agriculture and service are the main occupations. The livestock population is 450. The villagers depend on the forest for fodder, fuelwood and other biomass needs.

Towards community conservation

The conservation initiative began in 1983 when the forest department decided to grow pine on the degraded south-facing slopes in the region. The people opposed the move and wanted to demonstrate to the FD that a broad-leaved forest can be raised on these slopes. Inputs were taken from a local NGO, Himalaya Bachao Samiti, for this purpose. All the villagers, men and women of all castes, under the management of Gram Utthan Sabha of Kamla village took charge of 5 ha patch of forest and defined rules and regulations for its protection:

1. No grazing allowed in the forest.
2. Grass collection permitted only after a date decided by the committee (in October November).
3. Fuelwood collection allowed only for household consumption and not for sale.
4. Land has been divided temporarily among the households for grass collection.

Earlier, there was a full-time guard to look after the forest, paid for by voluntary contributions by the villagers in cash and kind. This practice was subsequently discontinued as it was no longer required.

Most decisions in the village are taken in the general body meeting (consisting of both men and women), which takes place roughly four times a year. The executive committee consists of 9 people, elected in an open process. Women as well as lower castes can be a part of the executive committee. Conflicts are resolved within the village itself in the traditional system of conflict resolution. Some more active individuals in the village have subsequently registered an NGO for working on the issues of village development and forest management.

Impacts of community effort

There has been remarkable regeneration and growth of planted species—all broad-leaved—without added pressure on the other adjacent forests. The protected forest is now dense and close-canopied. Besides increase in vegetation cover, an increase in tree and shrub diversity and consequent increase in bird diversity has been noticed. Local species of grasses have regenerated and some which had disappeared have resurfaced.

The community has benefited by the increase in fodder production, prevention of soil erosion and now enjoys moral authority over forest department. According to the forest department the initiative has decreased the conflict between the farmers and rhesus macaque monkeys over crop damage caused by these primates. Now there appears to be a much higher availability of food and fruits in the forest.



Opportunities and constraints

In 1999, the villagers opted for inclusion in the *sanjha van yojana* (joint forest management) scheme introduced by the Himachal Pradesh Forest Department with the objective of getting access to government funds for forest conservation. However, the villagers opposed the scheme when they realized that the micro-plan under the project was drafted by the forest department without any involvement of the local people. Thus the micro-plan included activities contradictory to the needs of the local people. No activities have been taken up by the forest department under JFM due to the opposition of villagers and paucity of funds. The villagers are now demanding that their conserved forest be recognized as a village forest under section 8 of the Indian Forest Act 1927.

This case study was compiled based on the CCA Directory questionnaire answered by Akshay, Himalaya Bachao Samiti, Chamba, Himachal Pradesh, in April 2000.

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Rajain village, Chamba

Background

This community-conserved area is located in the Bhatiyat taluka of Chamba district in Himachal Pradesh, about 75 km from Dharamsala and 115 km from Chamba town. The nearest bus stop is at a distance of 4 km and the closest railway station is in Pathankot, which is 75 km away from the village.

The landscape is mountainous, of mixed Shivalik-Himalayan formation with sub-tropical forests. This region has south-facing slopes of the Dhauladhar range. The forest is regenerating with mixed species like ban, pine, champa, kachnar, sisso and tuni. Rhesus macaques are found here in plenty. The legal status of the community-conserved area is Demarcated Protected Forest.

The main communities here are *rajputs*, *brahmins* and *sippys* (scheduled caste), making for a total population of 155. Agriculture and service are the main sources of income. The villagers also own livestock. The livestock population is 300. Forest dependence is mainly for fuelwood. The villagers have legal rights to grazing and fodder, fuelwood and biomass collection from the forest.

Towards community conservation

Conservation efforts here began in 1991, when the villagers experienced extreme scarcity of fodder for their livestock. With inputs from a local NGO, Himalaya Bachao Samiti (HBS), the entire community, inclusive of all castes, both men and women, decided that grazing would be stopped in the selected 10 ha of forest. Initially, there was interference from neighbouring village, but the conflict was resolved with the help of HBS.

A *van sudhar sabha* was formed with the following rules and regulations:

1. No free grazing
2. No fuelwood collection
3. Collective grass collection at a specified time, usually October-November

Land was temporarily divided between households for grass collection. A full-time guard was paid for by voluntary contributions in both cash and kind by the villagers.

The *van sudhar sabha* has an executive committee of 13 people, elected in an open process. Most decisions are however taken in the general body meeting (men and women), which takes place roughly twice a year. Women are not allowed to become members of the executive. Any conflicts are dealt with as per the traditional system of management. All expenses are met through voluntary contributions.

Impacts of community effort

Since the protection started, there has been an increase in fodder production. Soil erosion, which was a serious problem before the protection, has also stopped. An increase in vegetation cover has been observed with increase in tree and shrub diversity. Bird diversity has also increased; local species of grasses have regenerated and some have even resurfaced.

Opportunities and constraints

The relationship between the community and the forest department is hostile due to lack of legal support for the initiative under the forest laws. The community demands recognition as a Village Forest under the Indian Forest Act, 1927.

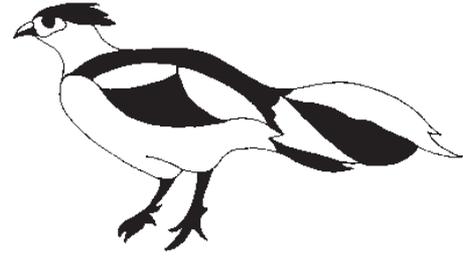


This case study has been compiled based on a questionnaire answered by Vishal Sharma, Himalaya Bachao Samiti, Chamba, on 5 April 2000. We are extremely grateful for useful comments and contributions from Satya Prasanna Bambam on the first draft.

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Mcleodganj and nearby villages, Dharamsala

Background

Dharamsala district in Himachal Pradesh has been a bird-watchers' delight since a long time now. Getting off at the Mcleodganj bus stand, the bird enthusiasts travel to nearby villages like Haripur, Dehra Gopipur and Nagarota Surivan near Pathankot. The Pong dam,¹ one of the biggest wetlands of Asia, attracts avian visitors by the thousands every year from as far as Russia, Siberia, Central Asia, Tibet and Ladakh.

Rare terns like the gull-bellied tern and little tern breed here. The Pong also attracts waders like lapwings and plovers. Twenty per cent of the bar-headed geese that breed on the Tibetan plateau winter at Pong. The Pong is also a refuge for threatened species like the sarus crane, woolly-necked stork, painted stork, red-necked falcon, black-bellied tern, white-tailed eagle, red-headed vulture and white-rumped vulture. Kangra Bird Club, formed by a few bird enthusiasts, has recorded about 480 species of birds in Kangra District and 370 species at Pong wetland itself.

According to one of the members of Kangra Bird Club, these birds have been a way of life in Kangra. The villagers of the Kangra valley live in perfect amity with the birds and normally do not disturb the birds whilst going along with their daily work. The villagers do not mind even if the birds feed on their maize fields. According to Lajja Devi of Haripur village, even when sometimes flocks of 100 bar-headed geese raid their fields, villagers refrain from harming or killing them; instead they accept the losses considering that the birds have come to their village after travelling long distances. Besides plentiful food and shelter on little islands on the lake, the winged visitors also get ample peace and quiet.

Opportunities and constraints

But all this may not last long according to Dr. H.S. Mehta, Joint Director of the Zoological Survey of India at Solan. Pressures of livelihood have increased, which has been causing a conflict between the fishermen and the birds. Birds feed on prawns, mahseer and shrimps, all of which are also commercially very important for the local fishermen.

This information has been put together from a newspaper clipping 'What's good for the Geese' by Manraj Grewal, Dharamsala, in the *Sunday Express*, 20 October 2002.

Endnotes

¹ The Pong reservoir came up in 1974. It has a length of 46 kms and a width of 15 kms.





Chhitkul village, Kinnaur

Background

In the western Himalayas, 10 hectares of forest and 30 hectares of alpine pastures have been under the protection of the Chhitkul village community for over five decades. This village is situated in the Sangla taluka of Kinnaur district in Himachal Pradesh. The nearest town from Chhitkul is Shimla, and state transport buses ply to the village.

Lying in the western Himalayan region, the landscape is typically mountainous with temperate forests and alpine meadows. The very diverse plant community here includes species like *bhojpatra* or birch and *kail*. Some of the significant fauna of the region includes brown bear, musk deer, Himalayan yellow-throated marten, Western tragopan and Himalayan monal.

Legally, this community-protected area is also a part of Rakchham Chhitkul Wildlife Sanctuary. This sanctuary along with Govind Pashu Vihar Sanctuary in the neighbouring hill state of Uttaranchal and forms a viable habitat for the snow leopard.

Rajputs and lohars (the latter are scheduled castes) are the main communities residing in the village. The total human population is about 600. Their main occupation is agriculture and service. The cattle population is 300 and sheep/goats are 1500 in number. The villagers depend on the forest for fuelwood and biomass extraction (60 per cent of the requirement of the 90 households is met from the forest. Medicinal plants that are extracted from the forest form an additional source of income for the villagers. 90 cattle and 500 sheep graze in the forest for six months a year and in the alpine pastures for a few weeks.

Towards community conservation

The beginnings of the initiative can be traced back to 1960 when the village community started facing severe shortages of fuelwood. The reason was illegal felling carried out by the neighbouring village, Rakchham. The entire village of Chhitkul decided to protect the forest and the surrounding alpine pastures. Initially they faced conflict with Rakchham village. The traditional village council (called *maith* committee) took the responsibility of managing the designated area under protection.

Some of rules followed by the *maith* include:

1. Quantitative restrictions were laid on fuelwood collected from the forest for personal consumption. Only one headload per household per day was allowed.
2. Fuelwood collection for sale was not allowed.
3. The right to collect medicinal plants from the alpine pastures is auctioned by the community every 4–5 years to local contractors. (In 1998, it was auctioned for Rs 4 lakh.) Seasonality of extraction was to be prescribed by the *maith* committee.
4. No extraction of any kind was allowed in the intervening years.

For regulating the extraction of medicinal plants, a committee is appointed by the villagers before the extraction of medicinal plants, to ascertain the regeneration since the last auction, the amount available for extraction and the minimum bidding amount. The same committee is also made responsible to monitor the extraction process. The money from the auction of medicinal plants is then used for village development works. The status after the declaration of the sanctuary in 1999 is not known.

The village council includes everybody in the village—all men, women and children. The council meets every month to discuss relevant issues. Attendance is compulsory. The village leader is elected every two years. The post is rotated between different families. Re-election is not possible for several terms. Lower castes participate fully and also assume leadership positions. Conflicts are dealt within the community itself in the traditional system of resolving conflicts.



Impacts of community effort

The community has successfully managed to regulate its consumption within the framework of rules laid down by the *maith*. The success of this protection is largely due to the careful and flexible management strategies following customary rules and regulations. Some of the benefits of protection are availability of fuelwood, local empowerment, a greater equity among the village members and equal opportunity to all castes. In addition, the village generates revenue from the sale of the forest produce, which has been used for village development.

Opportunities and constraints

In 1999, the area was declared as a wildlife sanctuary. Although the Wildlife Act does not permit most of the activities carried out by the villagers, all rights of the 90 households to fuelwood, fodder, grazing, timber, medicinal plants and biomass have been allowed. However, subsequent to declaration of the sanctuary, timber allotment for house construction has been stopped. This has led to a hostile relationship of the local community with the wildlife authorities.

This case study has been compiled based on the CCA directory questionnaire answered by Satya Prakash Bambam, who was at the time of writing this case study working with Navrachna based in Palampur. The questionnaire was filled on 13 November 2000.

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Padhar Village, Kullu

Background

Padhar village is located about 3 km away from Manali town in Manali taluka of Kullu district, Himachal Pradesh. This Middle Himalayan region is at an altitude of 1850 m and experiences heavy snowfall with sub-zero temperature in the winter months.

A steeply sloping conifer forest surrounds the village with tree species like deodar, khanor, akhrot, bhojpatra or birch, rakhal, rai or spruce, tosh and chir. The legal status of the forest is Demarcated Protected Forest. The Manali Sanctuary falls within 10 km of the conserved area.

The main communities residing in Padhar are the rajputs (higher caste) and the lohars (scheduled castes). The total population of the village is 250, living in 40 households. Horticulture, tourism and service are the main areas of income generation. The total livestock population numbers 52. All the requirements of biomass and about 30 per cent requirement of leaf fodder is met from the forest. The forest has been divided among adjoining villages during the forest settlement done by the government. The rights of all 40 households have been legally codified, thus eliminating any possibilities of conflict amongst neighbours.

Towards community conservation

In the early 1980s large-scale logging operations were carried out by the forest department in these forests. This was followed by felling of trees for making boxes for transporting apple in the late 80s and later by illegal felling by the timber mafia. In 1995, the region experienced a massive flood that wreaked havoc in the village and destroyed much of the villagers' property. This was the starting point of the community conservation initiative. The villagers realized that the impact of floods was high because of the degrading forests and decided to protect the forest in order to prevent floods. Women of the *mahila mandal* (women's organization) took the lead and together with the *yuvak mandal* (youth club) started forest protection. Slowly, these two institutions evolved into the *gaon* (village) committee. The village committee meets quarterly with the active participation of all castes.

Some of the rules followed by villagers include:

1. Complete ban on grazing in the forest
2. Rotational closure for grass
3. Ban on extraction of fuel wood and timber

In order to enforce the rules, the villagers voluntarily patrol the forests. All conflicts are handled according to the traditional system and offenders are fined. Plantations have also been undertaken in some parts with monetary contributions from within the village.

Impacts of community effort

The 10 ha of forest taken under protection has successfully regenerated and there has been no soil erosion or flash floods in the region. The villagers themselves have benefited from the initiative. They now feel more empowered to solve their own problems. They also have a much better availability of natural resources.

Opportunities and constraints

Some of the constraints faced by the community because of the conservation initiative are:

1. Women have to move longer distances for collection of fuelwood..
2. Although there is a restriction on grazing, the number of livestock has not reduced, leading to some conflicts.



This case study has been compiled based on the CCA directory questionnaire answered by Satya Prakash Bambam, who was at the time of writing this case study working with Navrachna based in Palampur. The questionnaire was filled on 13 November 2000.

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Shanag village, Kullu

Background

Shanag village is located 3 km from Manali town in Manali taluka of Kullu district in Himachal Pradesh. Buses are available from Manali to reach the village.

The landscape, with an altitude of 2000 m, is typical of the Middle Himalayas. Temperatures drop to sub-zero levels during winter, accompanied by heavy snowfall. The ecosystem can be described as a steeply sloping conifer forest with species like deodar, khangar, akhrot, bhojpatra or birch, rakhal, rai or spruce and tosh. The region is rich in fauna like the brown bear, Himalayan black bear, leopard, barking deer, musk deer, Himalayan monal, Koklass pheasant, kalij pheasant and the Western tragopan. The Manali Sanctuary lies within 10 km of the community-conserved area. The legal status of the land is demarcated protected forest.

The total population of the village is 600, with two main communities; rajputs and dagis (scheduled caste). The primary occupations are horticulture and tourism-related. Some villagers also derive income from jobs. The total livestock population is 680. The forest is mainly used for grazing by 200 cattle (for 6 months), 400 sheep/goats (for 6 months) and 150 migratory buffaloes (for 4 months). All the requirements of fuelwood, timber, biomass and 30 per cent of the requirement of leaf fodder for the 121 households is also met from the forest. The villagers have legal rights (codified during forest settlement) to biomass, fodder, fuelwood and timber in the forest.

Towards community conservation

In the early 80s, large-scale logging operations were carried out in the forest by the Forest Department. This was followed by tree felling for making boxes for transporting apples in the late 80s, and later by illegal felling by the timber mafia. In 1995, there was a considerable reduction in snowfall in the region. Snowfall is considered to be good for the apple crop. This coincided with the environmental propaganda of the state linking snowfall to better forest cover and the realisation by the villagers that forest cover is good for the tourist trade. These factors persuaded the local community to protect its forest. Yet another reason was to stop the illegal felling of trees that was the major cause of destruction of the forest.

The *gaon* (village) committee took charge of 200 ha of forest for protection and formulated the following rules and regulations:

1. Closure for rotational grazing.
2. Quantitative restrictions on grass-fodder extraction which was now restricted to one bundle per household per day after the designated opening of the forest.
3. No hunting permitted in the forest.
4. No sale of fuelwood and fodder allowed.
5. Voluntary monitoring and enforcement responsibilities taken up by the villagers.
6. Taxes are imposed on migratory graziers.

The rule-breakers are fined. Initially, the scheduled castes were not allowed to participate in decision making. However, access was equalized later for the scheduled castes after negotiations within the village. This happened due to mediation by the woman *pradhan* of the *panchayat*, Vidya Devi. The *gaon* committee has a seven-member executive committee, which meets quarterly. Disputes and conflicts are resolved in the traditional manner within the community itself. *Panchayat* support has been critical in resolving internal conflict and increasing inter-caste equity. The government is indifferent to the conservation efforts of the people. All finances required for the effort are met through voluntary contributions.

Impacts of community effort

The villagers have benefited from the conservation because of the increased access to resources



and the sense of empowerment that they feel from successfully managing the forest. Since the protection started, there has also been a marked increase in wildlife populations in the forest. The villagers feel that the forest department should support the initiative by recognizing its decisions.

This case study has been compiled based on the CCA directory questionnaire answered by Satya Prakash Bambam, who was at the time of writing this case study working with Navrachna based in Palampur. The questionnaire was filled on 13 November 2000.

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Nanj village, Mandi

Background

Nanj village is situated 100 km from Shimla, in the Karsog taluka of Mandi district, Himachal Pradesh. Since 1992, the villagers of Nanj have succeeded in protecting about 70 ha of adjoining forest. This village lies in the Middle Himalayan region where the forest includes species like daru haridra, deodar, khirik or toon, pine, simbal, amla, kambal and sisoo. The fauna includes leopard, barking deer, jungle fowl and Rhesus macaque. The legal status of the land is Demarcated Protected Forest. The main communities residing in Nanj are rajputs, brahmins and gujjars (Muslim). The scheduled caste comprise kolis and chamars. The total population of the village is 700. Agriculture and service are the primary occupations. The villagers depend on the forest to fulfil their fodder and biomass needs. Although the village owns significant livestock with 500 cattle, 60 buffaloes, 50 sheep and 40 goats, grazing is restricted in the forest.

Towards community conservation

The *mahila mandal* of the village took the initiative for conservation in this village in 1992. One of the reasons was that the women had to walk about 15 km for fodder and in those areas they were harassed by local villagers because of competition for fodder. Nanj has traditionally been known for a fertile and irrigated plateau of land. However forest degradation, resulting in excessive soil loss, has rendered this land infertile over a period of time. The women decided to take steps to alleviate the fodder scarcity and closed the forest for free grazing. Some of the rules laid down by them were:

1. Complete ban on free grazing in the protected forest.
2. Fodder collection to be done on days decided in the village general meeting. Collection to be done by all families together.
3. No individual collection of fodder.
4. Only one bundle of grass allowed per family per day.

All castes participate in the protection under the management of the *mahila mandal*. The *mahila mandal* has an 11-member elected committee which meets once a month.

Impacts of community effort

Very successful regeneration has taken place with many of the native species returning. The community has benefited by overcoming fodder scarcity in the village.

Opportunities and constraints

Although there is information that due to protection given to one area resource pressures were diverted to the adjacent forest area, there are no further details available on this.

This case study was compiled based on the CCA Directory questionnaire answered by Akshay Jasrotia, Himalaya Bachao Samiti, Chamba, in April, 2001.

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Thalli Village, Mandi

Background

Thalli village is located at a distance of 45 km from Shimla town in the Karsog Taluka of Mandi district, Himachal Pradesh.

The landscape can be described as a typically Middle Himalayan mountainous region with forests having species like khair, Poplar or safeda, deodar, daru haridra, kakkad, khirik or toon, simbal, amla and sissoo. Amongst the fauna, jungle fowl and the Rhesus macaque are found here. The legal status of these forests is demarcated protected forest.

The dominant communities of the village are the rajputs, brahmins and banias. Besides these communities, the scheduled castes like kolis and chamars also live here. The total human population is 450. The main sources of income are agriculture, service and wage labor. The community depends on the forest for grass fodder, fuelwood, biomass and for material required for fencing. The total livestock population is 240 cows, 40 buffaloes, 30 sheep, 100 goats and 25 mules and horses. The villagers have legal rights for all households to fodder, grazing, fuelwood, timber, biomass and medicinal plants in the forest.

Towards community conservation

The conservation initiative began in 1993 after a violent conflict between the women of Thalli and the neighbouring village of Shakra over fodder. This incident and the fact that the women had to walk several kilometres for fodder, where they were also harassed by local villagers, motivated the *mahila mandal* (women's organization) to work towards overcoming fodder scarcity. They began by closing the forest for grazing. Women took up protection of about 35 ha of forest.

For the protection of forests, some rules were established, which include:

1. Complete closure for grazing in the designated area.
2. Fodder to be collected only on specified days decided in a village general meeting.
3. Fodder to be collected in groups only and only one bundle of grass to be taken per family per day.

All disputes are dealt with within the community as per the traditional system of conflict resolution. There exists a general representative body for forest management, which meets irregularly, mostly when decisions about distribution and allocation of fodder have to be taken. The women are still very active in the protection and management of the forest

Impacts of community effort

The protection of the forest has ensured that fodder scarcity does not exist in the village any longer. Closure to grazing for almost ten years has resulted in spectacular regeneration with many species returning to the area.

Opportunities and constraints

Due to the protection offered to the forest, the villagers have shifted the resource pressure to adjacent forests.

The Government of Himachal Pradesh decided to include Thalli village in the joint forest management scheme (JFM). As part of the micro-plans, construction of several *bawdis* (traditional water-harvesting structures) was proposed. However the villagers and the forest department got into a dispute over the constitution of the JFM committee. This has led to JFM here being a totally non-participatory process. This has created hostility between the people and the FD.



This case study was compiled based on a questionnaire answered by Akshay Jasrotia, Himalaya Bachao Samiti, Chamba, on 20 April 2000. We are extremely grateful to Satya Prasanna Bambam for his helpful contribution and comments on the first draft.

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Panjawar village, Una

Background

Panjawar is situated in the Haroli taluka of Una district in Himachal Pradesh. Una town is about 20 km from Panjawar and buses and trains ply regularly from here to Panjawar.

The landscape can be described as typically Shivalik with a sub-tropical mixed forest. Species like *khair*, *pansara* and *sisoo* are found here. Amongst the fauna there are leopards, jackals, barking deer, Indian wild boars, wild fowl and nilgai.

The upper-caste communities in the village are the rajputs, brahmins, batis, jats and Muslims. The scheduled caste communities are the julahas, chamars, lohars and telis. The total human population is 5400. Agriculture, services and wage labour are the main occupations. The total livestock population is 1000 cows, 4000 buffaloes and 100 goats.

The forests are privately owned by some of the upper-caste people in the village. The villagers depend upon these forests to meet their fuelwood needs. Income is generated by the owners of the forest from the sale of *khair* trees every ten years and sale of *bhabbar* (grass for making ropes) and fodder grass every year to contractors.

Towards community conservation

The 250 ha of protected forest were private forests until 1892, when a government programme decided to club private forests into co-operatives in Kangra district for the purpose of checking soil erosion. It took 47 years before it was officially brought under the government program and registered as a Soil Conservation Co-operative in 1939. A Soil Conservation Co-operative Society was formed consisting of the upper-caste community who owned the forests. The executive committee was formed, consisting of 5 members who met twice a month. Some of the rules followed by them included:

1. Seasonal closure for grass production
2. Enumeration of trees for felling
3. Rotational closure within the forest
4. Complete ban on grazing
5. Control of forest fires

A full-time guard for the forest is appointed to catch any offenders. The lower castes (80 per cent of the village population) are allowed to take fuelwood for household use but have no participation or share in the income from forests. *Ban* workers (traditional rope-makers) are especially affected as they are not allowed to take *bhabbar*, which is auctioned to contractors.

Impacts of community effort

Protected forests support many species of wild animals, particularly leopards. This cooperative has been useful for the members of the cooperative as it has led to improved management of the forests, economies of scale in sale of forest products and reduction in transaction costs. For the poor in the village, these forests provide a regular supply of fuelwood.

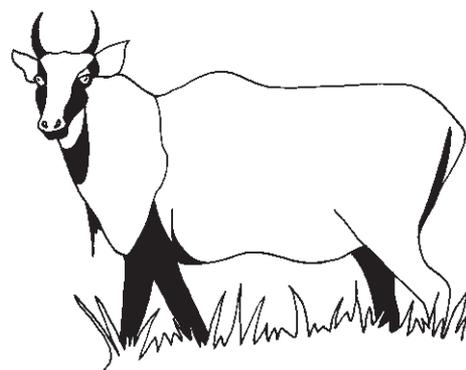
This case study has been compiled based on a questionnaire answered by Akshay Jasrotia, Himalaya Bacho Samiti, Chamba, on 1 January 2001. We are extremely grateful to Satya Prasanna Bambam for helpful contributions and comments on the first draft.



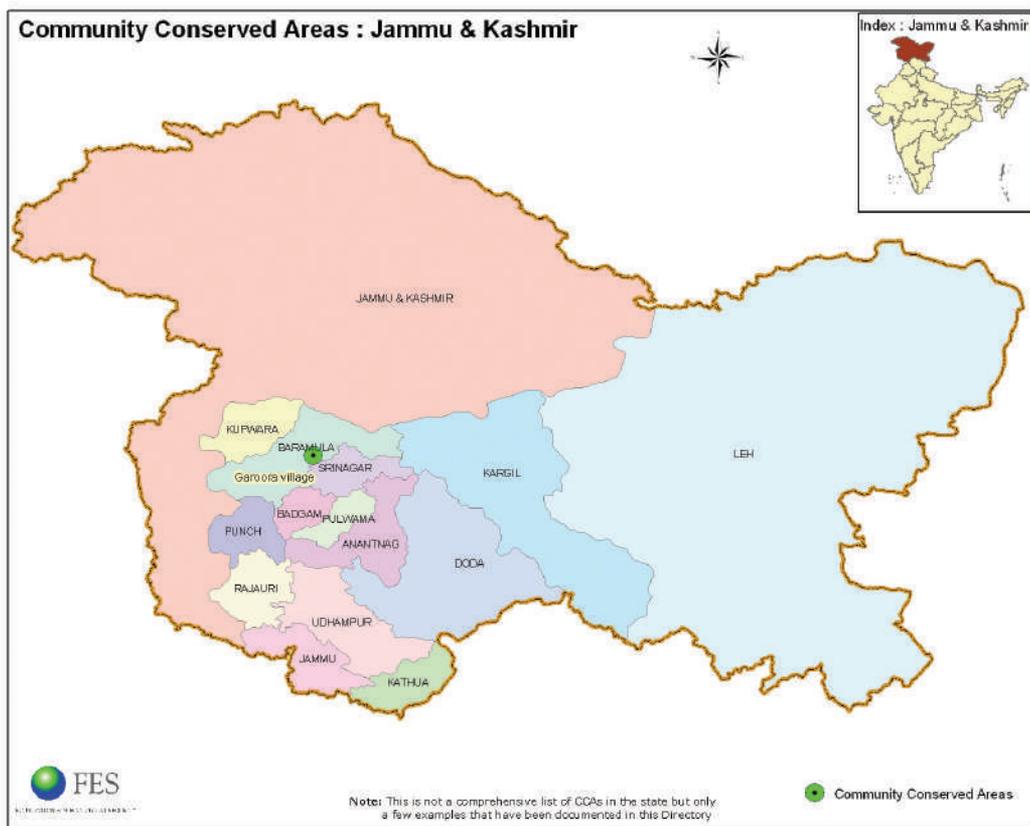
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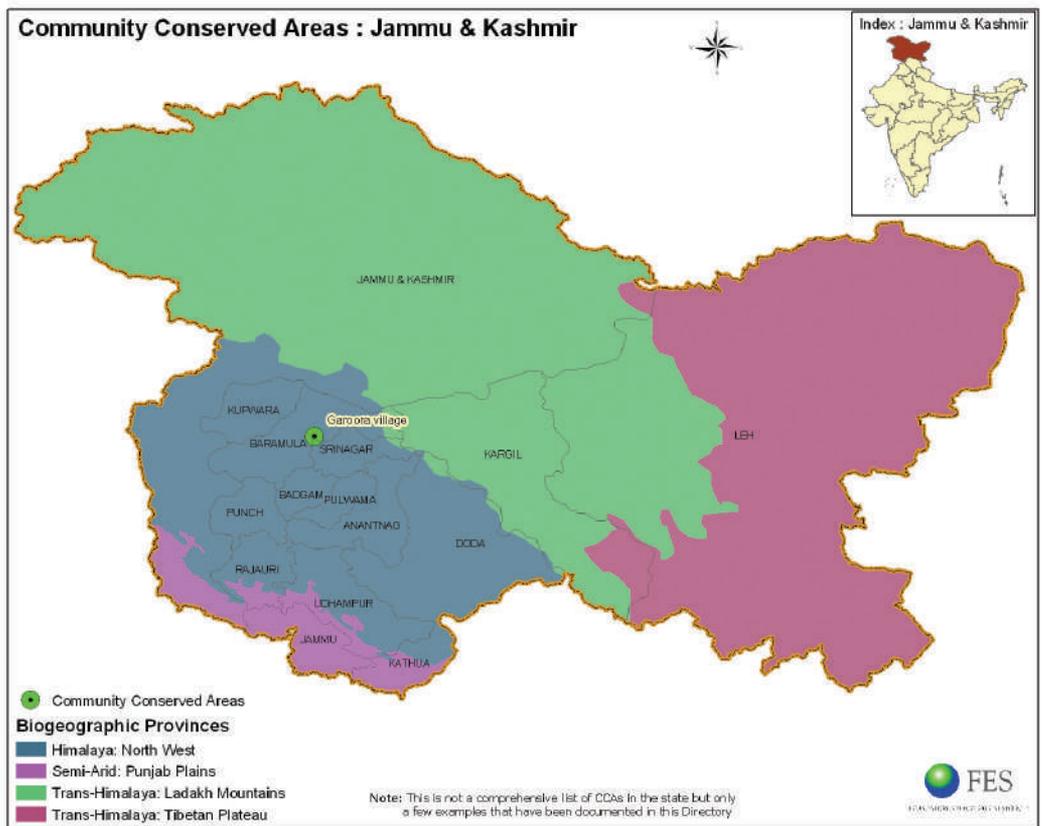
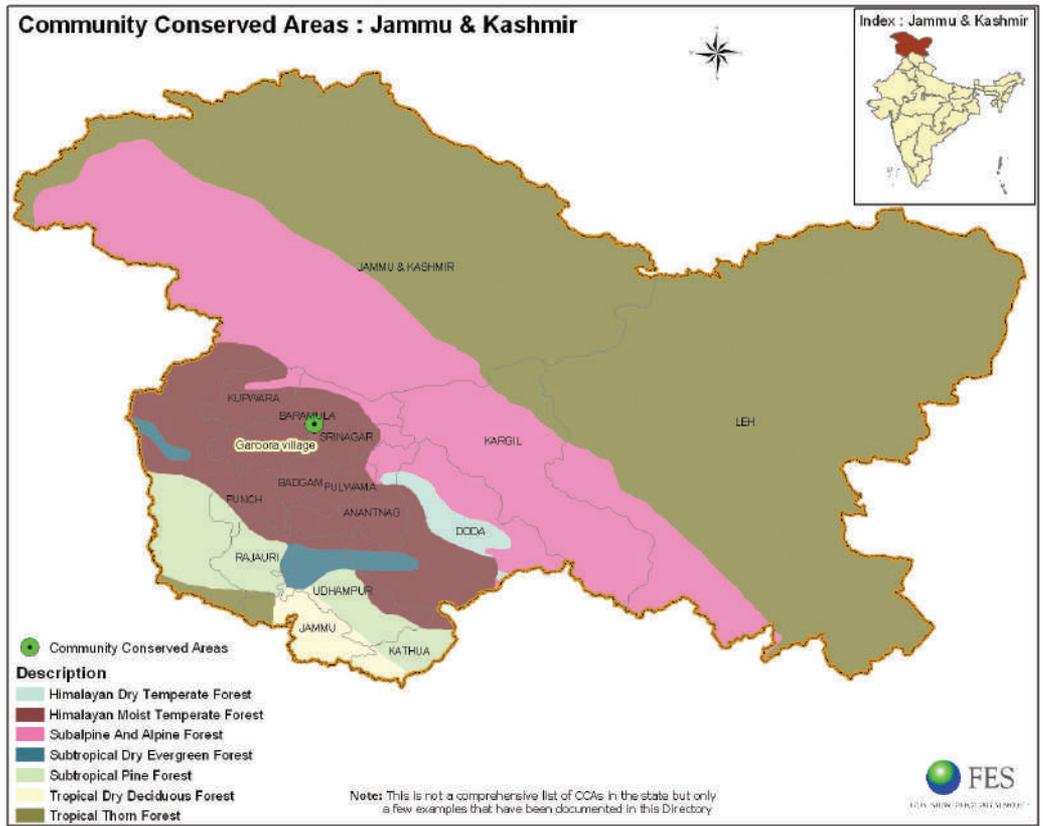
Inderjit Singh, Secretary
Soil Conservation Society, Panjawar
Village Panjawar, Tehsil Haroli,
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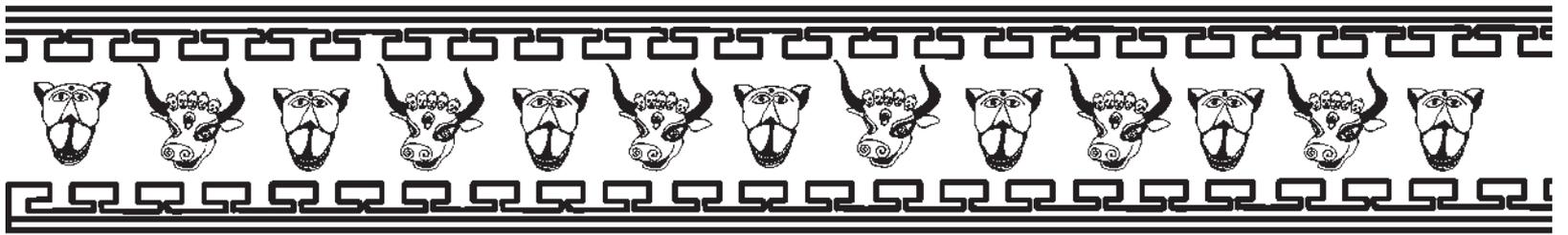
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Jammu and Kashmir







Jammu and Kashmir - an introduction

Editor's note: This chapter is a combination of an introductory section on the state of Jammu and Kashmir in general, and then a more detailed section on conservation scenario, state history and current status of CCAs in Changthang region of Ladakh. Details on the current status of CCAs in the entire state of Jammu and Kashmir could not be compiled. Endnotes occur after the Ladakh section.

Location and biogeography

Jammu and Kashmir state constitutes the northern-most extremity of India. Situated between 32.17 ° and 36.58 ° north latitude and 73.26 ° and 80.30° east longitude, the total area of the state is 2,22,236sq km including 78114sq km under the occupation of Pakistan and 42,685 sq kms under that of China. The state is bounded by Pakistan, Afghanistan and China from the west to the east. It is connected to the rest of the country through a 30 km long boundary with Punjab and 300 km long boundary with Himachal Pradesh. There is a sharp rise of altitude from 1000 feet to 28250 feet above the sea level within the state's four degrees of latitude.

The Jammu and Kashmir region consists of four great mountain ranges of Himalayas: Karakoram, Ladakh, Zaskar and Pirpanjal. The state is divided into 5 physiographic regions i.e. Trans-Himalayas, Greater Himalayas, Lesser Himalayas, Shivaliks and Plains, which have been further divided into 9 land forms:

1) Glaciers, 2) Hills and plateaus of Trans-Himalayas, 3) Hills of Greater Himalayas, 4) Hills of Lesser Himalayas, 5) Hills of Shivaliks, 6) Narrow valleys, 7) Broad valleys, 8) Piedmont plains and 9) Alluvial plains.

The annual rainfall varies from region to region with 92.6 mm in Leh, 650.5 mm in Srinagar and 1115.9 mm in Jammu. The climate varies from tropical in Jammu plains to semi-arctic cold in Ladakh with Kashmir and Jammu mountainous tracts having temperate climatic conditions. Major portions of Jammu and Kashmir state consist of the western Himalayas, which besides containing many lofty mountain ranges with varying heights of 3000 to 6000 metres and above, also abound in rivers, lakes, passes, glaciers, plateaus and plains. Indus, Ravi, Jhelum and Chenab are the important rivers in the state.

The vegetation of Jammu region varies from sub-tropical to temperate alpine type; that of Kashmir is moist temperate and moist alpine whereas that of Ladakh is of cold desert type having unique diversity of plants and animals not seen elsewhere in the state.

Box 1: Forest types of Jammu and Kashmir

Category of forests	Percentage (of the total forest) area
Himalayan moist temperate	44%
Alpine forests	28%
Himalayan dry temperate forests	7%
Sub-tropical dry deciduous forests	4%
Sub-tropical evergreen forests	3%
Sub-tropical pine forests	14%
Total forest area	21,267 or 9.57% of the total geographical area

Source: Forest Survey of India, 2003.

Over 1,600 sq. km. area is under various kinds of water bodies and some of it notified as protected under various categories. Whereas all water bodies in the valley are fresh water, and of small to medium size, those in the Ladakh region are large and brackish in character. Major wetlands which support unique elements of aquatic flora and fauna are Dal lake, Wular lake, Naranbagh, Anchar lake, Nagin lake, Mansbal lake, Mirgund lake, Shallabugh lake, Haigam lake, Hokersar (in Kashmir), Surinsar, Mansar (in Jammu) Pangong Tso, Tsomoriri and Tso kar (in Ladakh).



Limber Wildlife Sanctuary Photo: Rahul Kaul

Biodiversity

J&K has over 75 species of mammals of which 34 species are regarded as globally threatened (as per the IUCN categories). J&K has over 350 species of birds of which 10 are threatened. The state mammal fauna includes ibex, blue sheep, red fox, snow leopard, Himalayan tahr, Himalayan mouse hare, Himalayan palm civet, marmot, Tibetan wild ass or kiang, musk deer, markhor, brown bear, Himalayan black bear, leopard, yak, Kashmir red deer or hangul, Tibetan antelope and Tibetan gazelle.

A total of 3,054 species of plants have been recorded from Kashmir Himalaya, 880 species from Ladakh and 506 species from Jammu region.

Socio-economic profile

The human population of the state according to 2001 census is 10,143,700. Livestock population (1992) is 87.07 lakhs. Major languages spoken are Urdu, Kashmiri, Hindi, Dogri, Pahari, Ladakhi.

The natives of Jammu are both Hindus and Muslim by religion while Srinagar valley comprises of predominantly Muslim population with small population of Hindus. The people of Ladakh province are predominantly Buddhists and Muslims. Dogras, chibhalis, gujjars, bakker-wals, gaddis, kashmiris, hanjis, mons, drokpas, Changpas, amchis, balti are the local ethnic groups. The scheduled caste population in the state is 7.6% of the total population while scheduled tribes make up about 10.9% of the total population.

The people of Jammu region are mainly farmers and traders. The Kashmiri Muslims have traditionally been farmers, craftsmen, artisans and traders including those of the boatmen community, locally called *hanjis*. People in Ladakh are of Tibetan origin and are mainly cultivators, farmers and pastoralists. The educated class is also engaged in professions like medicine, engineering, teaching, government jobs and others. Tourism is also an important means of livelihood in Kashmir as well as Ladakh.

Administrative profile

The three regions of Jammu, Kashmir and Ladakh were brought together under a single state in 1846. The state has two capitals according to season: in summer (May-October) - Srinagar and in winters (November-April), Jammu. The state consists of 14 districts, 59 tehsils, 119 blocks, 3 municipalities, 54 towns and notified area committees, 6477 inhabited villages and 281 uninhabited villages.

J&K enjoys a special status on account of Article 370 of the Indian Constitution. It has its own constitution and various provisions of the acts, laws and regulations enforced by Government of India are implemented in the state only after they are ratified by the State Legislature. The state also has a mandate of making its own laws. For example the State has its own Forest Protection Act, Wildlife Protection Act, etc.

Conservation

To protect the existing flora & fauna and their habitats, the state of Jammu and Kashmir has established a network of 3 national parks (one each in the region of Jammu, Kashmir and Ladakh) 15 wildlife sanctuaries (6 in Jammu, 7 in Kashmir and 2 in Ladakh), 13 wildlife reserves (4 in Jammu, 6 in Kashmir and 3 in Ladakh) and 12 wetland reserves (5 in Jammu, 6 in Kashmir and 1 in Ladakh) constituting an area of 15781sq km which is about 7% of the total geographical area in the state. There are 15 conservation reserves in the state.

The total area planted up to 1999 by forest department under afforestation schemes is 0.38 million ha. Joint forest management (JFM) is being implemented in the state and currently there are 1895 JFM committees in State established by joint efforts of the forest dept and villagers. These committees are conserving an area of 79,546 ha.

With a high number of water bodies present, the diversity of wetland flora and fauna in the state is high. In order to ensure their conservation, 4 Ramsar sites have been identified: Hokersar Wetland, Wular Lake, Tsomoriri and Surinsar-Mansar Lakes. Wular is the largest freshwater lake in India with extensive marshes of emergent and floating vegetation. Tsomoriri in Ladakh represents the only breeding ground outside China for endangered blacknecked crane and barheaded geese. The wetland is considered sacred by local Buddhist communities and the water of the lake is not used by them. 9 more sites are further proposed to be Ramsar sites¹. Additionally, the state is home to 21 sites identified as Important Bird Areas (IBAs) by Indian Bird Conservation Network (IBCN).²

Major factors contributing towards degradation of natural resource and life support systems are intensive agriculture with over-exploitation of soils, construction of roads and hydroelectric projects, timber felling, overgrazing, illegal trade in animal and plant products, increased urbanization and industrialization. It is estimated that about 80 plant taxa and about 70 animal taxa have already reached the endangered category and many more are in the vulnerable status category.

General information about the state has been compiled by Saili S. Palande of Kalpavriksh, based on the following document: Directorate of Environment and Remote Sensing, Srinagar. 2003. *Jammu and Kashmir State Biodiversity Strategy and Action Plan*. Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests (Government of India). Other sources for specific information are mentioned in the text.



Dachigam Wildlife Sanctuary *Photo: Rahul Kaul*

Ladakh³ : Community Conservation in the High Himalayan Changthang plains, Ladakh

Alka Sabharwal

1. Introduction

The Changthang plains in India are a biologically and culturally unique Himalayan ecosystem, containing some of the world's highest altitude pasturelands. They support a population of nomadic pastoralists involved in producing one of the finest wool in the world. Nestled in the southeast part of the Ladakh, at an elevation of 4,500m, these plains are spread over an area of 20,000sq km. These plains are contiguous to the greater Changthang plains in Western Tibet which are similarly known to support a fascinating diversity of alpine fauna and flora.

Human habitat in this fragile environment has existed for ages in close consonance with the ecosystem. Since the past few decades the ecology of the Changthang plains in India has been increasingly threatened by large scale changes which have occurred in the region, particularly after an Indo-Chinese war in 1962. One critical habitat directly affected by this is the local pasturelands. The various political-economic shifts in the region have shown an increased pressure/ demand on these pasturelands.

The local population who successfully survived on nomadic pastoralism now find it difficult to continue with their age old livelihood. Their local institutional arrangements governing pasture-land management have undergone profound transformations in these last few decades. The regulatory mechanisms which ensured that different pastures were grazed in different seasons have shown a decline. The social institutions which supported the sustainable resource management practices have also undergone significant changes with a direct impact on their resource use.

There are studies which have linked the depletion of wildlife with increase in local livestock population⁴. The conflict over the habitat shared by the wild herbivores and the livestock is also blamed to have been caused by a policy change in the wildlife conservation in the early 70s. Similarly the unplanned tourism management and an exclusion of the local population in deriving tourism benefits have seemingly created conditions for environmental degradation and are also proving to be a threat to the local access and control over their resources.

The following sections will discuss the traditional pasture -land management systems and the various changes that have affected them in the last few decades and how this contextualizes the various constraints and opportunities for community based conservation activities in the region.

1.1 Ecological profile

The unique physical characteristics of Changthang plains include very low rainfall, sub freezing temperatures, extended winters, high wind speed and intense solar radiation, turning the area into a 'high altitude cold desert'. The valley floors are dotted with streams, marshes and some oligotropic lakes. It is primarily around these water sources that human and other forms of life have survived. The wetlands in the Changthang plains are important breeding grounds of the bar-headed geese in India and one of the only breeding grounds of the globally threatened black-necked crane. These plains also support some of the country's most endangered species of mammals such as the kiang or Tibetan ass, snow leopard, Eurasian lynx, blue sheep, and Tibetan argali.



Tibetan wild ass in Changthang Wildlife Sanctuary
Photo: Sujatha Padmanabhan

wild

1.2 Socio-economic profile

As per the census of 2001, Ladakh had a population of 233,000⁵ and the population estimated

in Changthang region was around 13,044. These plains are inhabited by a nomadic community of Changpa herders who are highly dependent on livestock for their basic food, income and social exchange. They specialize in rearing high altitude breeds of sheep, goats, yaks and horses particularly suited to the Changthang ecosystem. The Rupshu region of Changthang comprises of the two settlements of Korzog and Samad; this has 268 households of herders with a population of 1439 who own nearly 67,881 head of livestock, of which 90% are sheep and goats, and 10% are yaks and horses⁶.



Agro-pastoralism is one of the mainstays for most villagers in Ladakh Photo: Sujatha Padmanabhan

Trade exchanges related to livestock and livestock products represent the major sources of livelihood for the Changpa herders. Traditionally, livestock produce like wool and meat were bartered in large quantities for cultivated produce from neighbouring agricultural communities in Lahaul, Spiti and Zaskar. The Changpa herders also form the only group of pastoralists in India who produced and traded world famous *cashmere* (pashmina) wool. Traditionally the wool was sold to Kashmiri traders through middle men who traveled to the Changthang plains for its procurement.⁷

2. Changes in traditional resource access and control

An assured access and control over the resources is fundamental for a livelihood to sustain. The Changpa herders have experienced several shifts in their customary rights of gaining access and control over the Changthang pasturelands. These shifts are important to highlight since they have a profound effect on their present day pasture-land management strategies.

2.1 Pre- and post-1947

Historically the Rupshu pasturelands in Changthang plains were part of the Ladakh kingdom. The present inhabitants in Rupshu claim that their territorial boundaries are defined through markers on the ground by their ascendants and are respected by their neighbouring communities. As in the legend narrated by Tsering Dorjee, the erstwhile ruler of Rupshu:

*"Tsering Tashi Namgyal, a forefather of Tsering Dorjee migrated from Tibet many generations back. He was one of the heirs of jingeer lineage of Kham located in south east province of Tibet. He left his house following a political dispute. On reaching the Rupshu region of Changthang which was part of the Stok kingdom, the then king of Stok appointed him as Rupshu Gowa after a test of his strength. This was the time Rupshu territories were defined extending from Lankpo- Na Mt. Kailash in north, Chumur in east and Yagang in west and Sarchu in south"*⁸

The traditional *gowa* was considered to be responsible for ensuring protection of these territories through regulating pasture allocations and use. The local herders also paid customary levies to the king of Stok for using the pasturelands and also tended to a number of the king's livestock.

In 1947, when Ladakh became an integral part of the Republic of India, the king of Ladakh and the traditional *gowa* lost much of their power. These pasturelands were demarcated as the government land in the official records. According to the local herders, these political changes in the ownership and regulation of their pasturelands never brought any alteration to their traditional access and control and they had continued to pay their annual levies to the king of Stok through their traditional *gowa*.

2.2 The Indo-China war of 1962

The 1962 war brought a first threat to the territorial rights of the Changpa herders. The Changthang plains in India are located on the international borders between India and China and this strategic location makes them susceptible to any change in the political climate between the two countries. After the 1962 war between India and China, both the countries decided to formalize their international borders and as a consequence the Rupshu herders were restricted to access their winter pastures lying in Tibet. The war also had an impact on their summer pastures-

lands located on the Indian side of the borders, with a sizeable influx of refugees from Tibet and a large scale army deployment crowding their already shrunken pasturelands.

The lost winter pastures played a vital role in the overall livelihood security of Changpas and despite the ban, a few herders continued to access certain parts of their winter pastures through smuggling over borders, though was constantly discouraged by the strict border security. The Tibetan refugees, who fled to India after Chinese occupation of Tibet, were cordially accommodated on the summer pasturelands by the Rupshu herders given the social alliances and religious affinities with them. The Indian army deployments were detested, but left with no legal safeguards to negotiate their rights over the pasturelands with 'outsiders', the army occupation of their pasturelands was unwillingly accommodated despite their shrinking resource base.

2.3 Changes in the political economy of Ladakh

The transformations occurring in the pasture-land management, primarily as a consequence of the war, were further exacerbated by the various political and economic transitions occurred in the Changthang plains, including a new government interest in the region and the integration of Changthang into Ladakh politics. After the war a flow of development resources were offered to the region by the government in the form of road building, health and education facilities, drought relief, hay and fodder production, winter shelters for livestock, crossbred species of livestock, subsidized food supplies, and government jobs etc. Similarly the significant changes in the Ladakh politics (emergence of Ladakh Autonomous Hill Development Council in 1995 demanding a separate union territory status from the state of Jammu and Kashmir) also made Changthang to play an important role given a perpetual interest by the central government in the region.⁹ These politically driven changes have had an adverse bearing on the customary pasture-land management strategies since Changpas remained no longer the sole custodians of the Changthang resources and share them with various other stakeholders who have overlapping and sometimes conflicting interests in the local resources.

2.4 Changthang Wildlife Sanctuary (WLS) and tourism

The wildlife and wetland conservation efforts have added a new dimension to the traditional resource use in Changthang. Unlike the rest of the country, there are no reserve forests in Ladakh and the Protected Areas provide the only legal mechanism for conservation. In 1987, around 20% comprising of 4000sq.km. of the Changthang plains was declared a wildlife sanctuary under section 17 of the Jammu and Kashmir Wildlife Protection Act, 1978. The Sanctuary included the entire catchments of the Indus river from Hanle to Pangong Tso up to the Chinese border. Recently, in December of 2002, Tso Moriri, was also declared a Ramsar World Heritage site¹⁰ emphasizing its global biodiversity value.

Followed by the conservation initiatives, the Changthang region was also opened to tourism in 1994 with its three high altitude lakes as prime tourist attractions. The unplanned tourist activities, which are insensitive to the local environment, have shown its adverse impact in the form of pasture degradation and contamination of the water sources through its camping and trekking activities.

The exclusion of the local herders in the planning process of the conservation initiatives has created a condition of mutual mistrust between the wildlife department and the herders. The conservation activities are perceived to restrict the local resource consumption activities like fencing by the wildlife department and are seen as an attack on their customary territorial rights. Similarly the indiscriminate camping and grazing by the trekking animals is often objected by the herders but in vain as their power to negotiate is constantly challenged by the tour operators in the absence of any legal title to their pasture-land.

All together these processes have challenged the local customary rights over the Changthang pastures and have left the Changpa herders vulnerable to the loss of access and control over their survival resources. Combined with a decline in available pastures and increased political-economic interference, the aspirations of the local herders to maintain their pastoral livelihoods are seriously affected. The number of herders who are continuing with their traditional pastoral activities is steadily declining, which has a direct bearing on their customary claims over their pasturelands, defined through local allocations and regular use.

3. Local pasture-land management

The Changpa herders have evolved their pasture-land management over generations and this has sustained their survival in this desert through an optimal resource use. Their management practices are a sum total of their collective ownership, utilization strategies and regulatory mechanisms characterized by institutional arrangements criss-crossing the Changpa's social and political life.

Following is a brief documentation of these strategies and practices which the local herders have been using to competently manage their pasturelands. These strategies have weakened in the last few decades with Changthang plains experiencing an amalgamation of war, political and economic changes.

3.1 Common ownership of resources

The collective ownership has proven to be a prudent way to manage the sparsely productive Changthang plains in terms of efficiency, equity and resource sustainability. This collective use is efficiently managed and sustained through regulatory mechanisms which helped to keep a check on an overuse of the resources and also avoid conflicts.

3.2 Pasture-land management strategies

3.2.1 Nomadism

Nomadism is fundamental to a sustainable pasture-land management, especially in the high altitude regions like Changthang with marked seasonality. These seasonal migrations provide spatial separation between the pastures used in different seasons and ensure a regular supply of fodder for the livestock throughout the year. The time-partitioning and the extensive 'distribution' of livestock over a very large area to feed on fresh grasses, have helped to keep a check on overgrazing and supported a healthy replenishment of the precious grasses for the next season. For the Changpa herders their regular nomadic movements also reinforced their territorial rights, in the absence of any visible borders separating different pasturelands in the Changthang plains.

3.2.2 Livestock Management

The key to successful survival as pastoral nomads in the harsh environment has been a highly skillful and efficient management of their varied livestock which the Changpas have evolved.

a. Herd size: Herd size is an important aspect of pastoral production since it has to be optimal to fulfill the needs of a certain human population and also required to be in strict balance with the limited grazing resources. The Changpa herders are of the opinion that overstocking is an inappropriate dependence on the pastures and cannot survive. Therefore they do not have traditional regulatory mechanisms to



Herds of livestock belonging to the nomadic Changpas near Pangong Lake, Changthang Photo: Sujatha Padmanabhan

control herd size and every herder is free to realize full potential to grow the herd size within the 'given' resources. It is during the onset of winter months that every household needs to decide to reduce its herd size and community at large does not play a role in the process.

The number of livestock culled is dependent on many factors. The most important of them is the household's capability to rear a particular size of the herd and that entirely depends on the presence of competent household members available for herd rearing. The second important factor is the condition of winter grasses and third is the household's need for cash or meat in a particular year. These factors vary every year and from one household to another. Therefore amount of livestock culling fluctuates every year as also the overall livestock population in the community.

- b. Herd composition:** A mixed herd composition was always beneficial for the local herders, as different livestock chose different types of grasses and a herder could optimize within the less productive and variable fodder resources of Changthang plains. Yaks are primarily dependent on caragana, a shrub, whereas goats and sheep did not prefer this grass species and graze mainly on bol, shyot, longma, nyalo, gyapshen, burtze, which are less coarse grasses. A mixed herd also produces most goods to fulfill a range of survival needs of their nomadic lifestyle from food, clothing, shelter and transport.
- c. Rotational grazing:** The livestock is segregated on the basis of kind, age and gender for grazing on different pastures. This practice has helped to distribute the grazing pressure on a widespread area and also provided suitable grasses for the particular livestock. These mechanisms drew successfully on varied micro environments found in the Changthang plains. Different pastures and locations hold different species of fodder plants depending on terrain, topography, availability of water, soil conditions and slope aspects. The manpower assigned to perform herding duties for different types of grazing is also specialized and different age groups/genders in the family perform specific herding duties. For example younger children may assist the main family tent in tending to the grazing of sheep and goat whereas the young single members may live alone in higher pastures and look after yaks and horses. This segregation of herds and herding duties is considered an important pasture-land management strategy. Like the marshy meadows hold certain grass species whereas the slopes or rocky terrain contain others. The herders have particularly assigned manpower to perform these practices and it was considered an important pasture-land management strategy, especially in winter months when grasses are scanty. Mostly a single member of the household would perform this duty and pitch his/her tent with the herd much away from the main encampment.

3.3 Regulatory institutions

Many regulatory institutions, both explicitly defined and culturally implicit, have developed in the Changpa society to govern their pastureland management strategies.

The pasturelands are a dynamic and variable common resource and its management and distribution amongst the members of the community entails a consideration of a multitude of factors. Local patterns of resource use can vary widely from year to year given natural variability in climate, precipitation and forage growth. Therefore the migratory schedules and pasture allocations to households are always decided mutually from season to season. The community has to arrive at these decisions through negotiations which is possible only due to age old institutional arrangements that the Changpas have evolved and which are binding to all members of the community.

3.3.1. Political institutions

- a. The *gowa*:** The *gowa*, an elected political head acts as a custodian of all the rules and regulations laid down and his role is pivotal to ascertain the migration patterns and pasture-land management. Changpas have a tradition of community meetings held under the *gowa*'s authority for all community decisions including the use of the pasturelands.

The *gowa*'s prime responsibility in this context is to organize and coordinate these community meetings for migratory decisions and pasture allocations and to see that they are held fairly and their decisions are just. It is also the responsibility of the *gowa* to ensure the compliance of the assigned pasture location, and migration dates. He is entrusted with the powers to assign fines and penalties for any noncompliance.

The *gowa* is very actively involved in overseeing the welfare of the community which for most part of the year is spread over a vast landscape. Since this occupies most of *gowa*'s time, his own livestock is taken care of by the community on a rotational basis. He is also supported by three personnel to carry out these duties:

Gyatpo: responsible to solve disputes in the absence of *gowa* but the final decision in complex matters is reserved with the *gowa*.

Kootwal: assigned to decide *chitpa* or fines on any deviation or breach.

Lorapa: Responsible to report defaulters.

- b. The community meetings:** To deal with quantitative and qualitative local conditions of pastures due to seasonal and annual climatic variations, the local herders have negotiated their access

rights frequently amongst themselves through community meetings. They organize 4 major community meetings (around every equinox and solstice) in a year for internal agreements over their yearly migrations. The meetings attended by everyone, discuss the seasonal changes and specific indicators like melting or freezing of water bodies, snow condition on the mountain tops, arrival and departures of the migratory birds etc. to assess the condition of available pastures for the forthcoming seasons. This is translated into the time schedules for migration and to fix the carrying capacity of the pastures.

Pasture allocation amongst the households of the community is also decided jointly in these meetings depending upon the herd sizes, manpower available to a household and the rotational social or religious duties a household is engaged in a particular season. The meetings are also overseen by the head monk of the Gompa who grants the moral seal of approval to the negotiations. This is significant since religion is an important aspect of Changpa life and the religious validation of rules and regulations for pasture-land management is instrumental in their application.

- c. Fine or *chitpa*:** To ensure compliance to the ordained migration schedule and the assigned pastures, the community has a code of rules which discourage deviation. It being mandatory for all the families to shift from one pasture to another on the assigned dates, failing to do so results in penalties in the form of heads of livestock or community labor. These rules are relaxed only under exceptional cases like childbirth. There are not many instances when these penal rules need to be exercised because the effectiveness of the collective management of pastures has always encouraged compliance.

3.3.2. Family Institutions

The family household is the economic unit of the Changpa society. As an independent viable economic unit a household needs to possess a certain minimum livestock and working hands. The family development cycle of the Changpas aligns effectively with their scarce resources.

- a Inheritance through primogeniture:** The inheritance of family assets amongst Changpas has followed a practice of primogeniture where the eldest child be it a son or a daughter (or the eldest two sons in case of a fraternal polyandrous situation) inherits the family possessions and major portion of the family livestock on marriage and becomes the main household. The rest of family becomes a satellite family unit with limited social and economic functions. Since a certain critical mass of herd size is essential for viability this ensured that instead of a family unit dividing into many non viable smaller units, each with pressure to increase its herd to a viable size, a family just progressed into another main household. This mechanism helped limit the number of main households and thus major herds in the community. This was a significant tool for managing the distribution of pasture resources in the community.
- b. Polyandrous household units:** Traditionally, Changpa herders have lived in fraternal polyandrous units regarded as appropriate social custom for survival of the community in the limited resource base of Changthang. These family units would provide the manpower essential to perform a number of pastoral tasks besides tending the livestock such as the trade expeditions to neighbouring agricultural communities, salt expeditions, social or religious duties. The presence of two men in the family could distribute the diverse activities and make the family unit economically more viable in comparison to a smaller monogamous unit with less livestock. This custom combined with inheritance through primogeniture has been instrumental in limiting the population and restricting the number of households dependent on the pasturelands as also the total number of livestock in Changthang to manageable proportions.
- c. Monastic life:** Another important custom is the donation of at least one child from the satellite household to the monastery for religious training as a monk. Monks usually lead celibate lives in monastery without marrying and starting a family. Besides performing a social and religious function this custom performs an important economic function as being another instrument to limit the size of human population, the number of main households and hence the number of livestock in the community.

The above strategies and practices to manage and use the pasturelands demonstrate the competence of traditional wisdom to use the natural resources. The political and economic changes in Changthang plains, which have negatively affected these strategies, now pose a challenge to the viability of nomadic pastoralism as a livelihood and their role in sustainability of their ecosystem.

As an effect, there are emerging divergent pastoral livelihood practices and reduced pastoral/nomadic mobility which are the major constraints to the community conservation initiatives.

4. Opportunities and constraints

4.1 Constraints

4.1.1. Tenurial security

Government policies designate the Changthang plains as state owned without supplying well defined or well enforced policies regarding their access and use. While the Changthang pasturelands are constitutionally protected from privatization, the local herders cannot legally prevent "outsiders" from gaining access to their pastures. Being a strategic location on the international borders Changpas have already been affected by the assertion of territories by India and China. The extensive establishment of border security forces and the consequent restrictions of access to some of their pastures have challenged their traditional territorial ownership. This dilution of their tenurial security and customary rights of access and control over the pasturelands in Changthang is a main constraint to community conservation initiatives.

4.1.2 Changes in pastoral livelihood strategies

The years after the war have seen a slow breakdown of long-standing systems for management of pasturelands. The loss of access to winter pastures in Tibet coupled with insufficient government support to supplement winter fodder, has been a principal hurdle for local herders to sustain their traditional forms of pastoralism. The reducing viability of pastoral livelihood in Changthang is reflected in the potentially unsustainable changes occurring in their present day livelihoods and pastoral strategies.

a. Declining nomadism: After the shrinking of the winter pastures, most of the pastoral households tend to remain closer to their settlements or at locations where the access to social services and markets is more assured. This is true, especially for the poorer households with smaller herds which are more affected by livestock mortality during harsh winter conditions and are dependent on the external supplements for their pastoral survival.

Then there are herders who only move in winter months. Most of these herders supplement their pastoral incomes by engaging in other jobs in summers and cannot tend to their livestock all year round.

There are many herders who have migrated to Leh for economic reasons but their livestock remain on the pastures either tended by relatives or hired labour who are often not so keen to move extensively and prefer to remain close to the roads or the settlements.

This marked decline in the pastoral mobility have led to altered distribution of grazing pressure and have an adverse impact on the pastoral environment.

Leasing winter pastures in close proximity, from the neighbouring communities have also reduced pastoral mobility and the remote pasture locations remain under-utilized and get appropriated by other herding communities. For instance the Korzog herders had stopped occupying their traditional pastures located close to Sarchu in the years after the war (on the borders between the states of Jammu and Kashmir (Ladakh) and Himachal Pradesh), which are now occupied by Gaddi herders from Himachal Pradesh.

b. Changes in livestock-herd size and herd composition

Herd size: According to the local herders their herd sizes have significantly dropped after losing their precious winter pastures to China. At present the maximum herd size per household does not exceed 300 as compared to a 1000 in earlier times¹¹.

Beside access to appropriate pasture resources, an important factor to owning large herds is the availability of competent family members within a household to take care of the various pastoral pursuits. With a decline in polyandrous units, not every household is able to rear a large herd.

There is also a growing variation of herd sizes owned by different households across the community. There are households which find themselves incapable to grow their herds to economically viable numbers in the presence of declining social support and regulatory institutions. The smaller herd sizes have reduced the economic viability of the pastoral livelihoods, and the Changpas' involvement in pastoral practices and management of the pasturelands has proportionately decreased.

Herd composition: Traditionally, the local herders preferred to own a large number of sheep as it was a natural choice attributed to the hardy nature of the animal to withstand harsh winter conditions of Changthang. Sheep wool could be used and woven into their clothes and rugs or it could be bartered with agricultural communities for survival goods like barley grain. On the contrary goats were less favoured as the *pashmina* hair is delicate and could not be woven on

their basic looms and needed to be traded outside their traditional trading villages only for cash. Moreover as compared to sheep the young goats are more vulnerable in winters and need extra tending to and feeding.

With a shift in the geo-political situation of the Changthang plains, the traditional barter exchange of sheep wool with the neighbouring villages has declined considerably whereas the *pashmina* trade has increased through the government support and market access. In order to boost the trade, the government has initiated various livestock improvement programmes and introduced an All Changthang Pashmina Growers Cooperative society Ltd. in the region. Recently a multi crore project for mechanized *pashmina* de-hairing has also been proposed for the region with assistance from the United Nations Development Programme (UNDP).

Due to this government policy to support for the development of *pashmina* production, many herders are lured by the *pashmina* trade and have taken up goat rearing in a proactive manner. Intense goat grazing is divergent to the traditional livestock management practices and entails a new dimension to the pastoral livelihoods in Changthang. Its economic benefits are still awaited by the herders since *pashmina* is a high stakes trade and involves a number of middle men thinning the flow of profit to the herders. However the ecological impact of increased goat rearing is already under observation with a few studies blaming intense goat grazing to be responsible for extinction of certain wild ungulates like tibetan gazelle from the region¹².

4.1.3. Disappearing regulatory institutions

The authority of the *gowa*, the customary institution that ensured compliance with decisions regarding resource use, has weakened in the last few years. The herders tend to question the authority and wisdom of the *gowa* for facilitating a judicious use of the pasture resources. There may be various reasons to the decline of a competent use of the pastures given the drastic changes which Changthang has experienced but according to the local herders, the *gowa* is expected to perform despite all odds. On the other hand, the democratically elected *gowa* has to represent the community to the local government in Leh, the deployed armed forces and fulfill the administrative functions in the block office at Nyoma. The *gowa* is therefore frequently traveling and this also affords him less time to perform his traditional role to regulate pasture use and ensure compliance to pasture allocations.

All this has resulted in a downgrading of his role and the social status accorded to his position. To be an elected *gowa* is no longer a sought after community role. As a result in the Samad community, herders now gamble to choose a *gowa* and the tenure of his duty is reduced to one year in comparison to the earlier practice of three years.

Similarly, the polyandrous household units are on decline with a conversion to monogamous units and the number of children donated to monastic institutions is also decreasing with strong implications on the population size and sustainable resource management of the community.

Thus, a decline in economic viability of herding as a sole livelihood strategy, changing social institutions, reduced nomadic movements and changes in herd management have undermined the role of traditional regulatory institutions that ensured a sustainable care of the pasturelands. This has an adverse impact on the relationship between pastoral livelihoods and the local ecology.

a. Barter exchange: The essential barter exchange of pastoral goods with cultivated produce of barley has started to diminish because of the Changpa herders having not enough pastures to rear a viable size of livestock to make their month long trade journey to the agricultural communities worthwhile.

In response, the increased dependence on market and the Public Distribution System to fulfill their basic food needs, create an extra pressure to earn cash. Therefore the livelihood practices of Changpas have changed and pastoralism is no longer relied upon as the sole source of income and within that, there is a shifted focus towards increased goat rearing for cash returns.

b. Increased conflict: The principal sources of pressure related to changing livelihood dynamics, including rising levels of asset inequality in livestock holdings, population concentration around the settlements, reduced access to the pasture resources, have contributed greatly to the incidences of conflict amongst the local herders. These conflicts have profound consequences for the poorer households as they often are the first ones to drop out of the traditional livelihood activities, with serious concerns for the social cohesiveness of the community. Besides intra-community conflict, the disputes with other communities have also risen with shrunken pastures. When Samad herders started to spend more time on their pastures in Indian side (around the Regul Tso) as compared to the several months they spent at Skakyung pastures in Tibet, the other pastoral community who originally occupied these pastures on the Indian side in their absence resisted their presence, leading to one of the most prominent and lingering conflicts

within the Changpa community.

c. Human-wildlife conflict: Many conservationists have recently recorded dramatic decrease in wildlife numbers in Ladakh. There are a few studies on the ecology of the Changthang plains which have held overstocking responsible for the habitat degradation of the local wild herbivores. In one estimate approximately 1,40,000 domestic livestock is believed to be competing with an estimated 5000 wild ungulates in the Changthang region¹³. The paucity of knowledge on high altitude ecology, especially relating to pasturelands, makes it difficult to conclude that increase in number of livestock is the cause of the dwindling number of wild ungulates in the region as is incessantly mentioned in these studies.

The region has also experienced other changes like large scale army deployments, extensive road network and increasing tourism in the wildlife habitats in recent years besides the geoclimatic changes affecting wildlife habitats. Amongst a variety of factors which can affect the wildlife populations, the current data of livestock population in the region is one information easily available from government records and is simplistically used to draw a linear relation with wildlife numbers giving rise to the fallacy that increase in livestock population conflicts with the habitat of wild ungulates.

The absence of definitive historical information/data on the livestock and wildlife populations as well as the gaps in the census methodologies of the official livestock figures is partly responsible for the confusion.

Local herders see nothing extraordinary in the present livestock population in the historical context as even though number of independent households has seen some increase in Changthang, the average livestock holdings have decreased significantly.

After a wildlife hunting ban by the Jammu and Kashmir state government in 1978, the local herders believe that number of wolves have increased in their pasturelands increasing the livestock depredation rate. Similarly the herders also believe that this ban has increased the population of the kiangs — which were traditionally hunted by the Tibetan refugees — and are a cause of overgrazing of their reserve winter pastures. The Changpas have also repeatedly put in requests to the Ladakh Autonomous Hill Development Council to fence their winter pastures to safeguard them from kiangs. While the ecological studies state that following the growing integration of local economy with the better developed cash markets, the herders are less tolerant towards kiangs and it is increasingly seen as a competitor of their livestock¹⁴

Some studies have attributed dwindling numbers of nesting black-necked cranes to the intensive seasonal movement of the Changpas. According to the study the herders have begun establishing their tents too close to the nesting sites of the cranes and there are many incidences of eggs and chick predation by domestic dogs. The local herders deny the allegation and according to them, the *thung thung karma* (a local name for black-necked crane) always lay their eggs on islands in water and it is difficult for their dogs to reach them.

The Korzog herders recently protested a move by the state wildlife department to fence the shores of Tso Moriri at Peldo —a relatively new breeding ground of blacknecked cranes, claiming that such fence would restrict movement to their winter pastures. According to the wildlife department, the fencing is entirely meant to restrict the increasing tourist vehicular traffic and



Local people meet to discuss the settlement of rights process initiated in Changthang Wildlife Sanctuary in 2007 Photo: Ashish Kothari

tourist camping and not to stop the access of the local herders to the pastures. It is interesting to note that more than a kilometer long fencing does not restrict the access of the livestock and is also not effective in stopping the tourist vehicles from approaching close to the nesting sites.

4.1.4. Poaching

Species like Tibetan antelope were previously listed in Schedule II of the Jammu and Kashmir Wild Life (Protection) Act, which made trade or use of derivatives possible under license. On the 6th of May 2002, the Jammu and Kashmir Assembly placed the Tibetan antelope in Schedule I of the Act, giving it the highest level of protection and making any use of its derivatives punishable by law. The Tibetan antelope, an endangered

species also listed in the CITES Appendix I, making international trade illegal, is still hunted for its precious wool. The international border between China and India is a crucial trade route and it attracts herders to indulge in the practice. Many wildlife experts have expressed that the near

extinction of Tibetan antelopes in Indian Changthang is a result of extreme poaching.

4.1.5. Large-scale army deployment

Large scale deployments of security forces and their infrastructure in the form of underground barracks, metal roads, fences, live ammunition exercises and a number of army convoys after the 1962 war have had its ecological impact in the region. Confiscation of land resources for the army infrastructure where there is a heavy army deployment is detrimental factor to the local resource management practices and also to the wildlife. Army personnel are also known to have been involved in hunting wild life and endangered species of birds like black necked cranes in the past.

In a recent move, The Indo Tibetan Border Police (ITBP) established their post on the shores of Tso Moriri lake and in close proximity to the nesting sites of migratory birds like bar headed geese and brahmini ducks. This ITBP establishment has also been instrumental in increased vehicular activities since it is also a recreational site for army families based in Leh and is another factor disturbing the breeding grounds of the migratory birds. Since the Tso Moriri shores are not on the international borders the Korzog herders find no justification for an ITBP post in their midst.

There is no mechanism in which the army troops hold any consultation with the local herders to explain their strategic movements before establishing themselves in these pasturelands.

4.1.6. Insensitive state development programmes

The state development programmes in Changthang often neglect to support the herders in the areas critical to the security and sustainability of their pastoral livelihoods. Whether it is subsidized food supplies or health and education, these social services are designed and implemented without being sensitive to the lifestyle of the local herders. One of the major issue with these social provisions being that they are made available at fixed locations given a general unwillingness of government officials to walk up to the far flung campsites of the herders. With the crucial role of government provisions in local household economy, it is the herders who end up traveling often to their settlement at Korzog or Thugje to access these services. This has contributed to reduced nomadic movements and tendency among many small herders to remain close to the settlements which raises the pressure on resources like water and pastures around these settlements.

4.1.7. Insensitive tourism

Changthang was opened to tourism in the year 1994 and the number of tourists visiting the region is increasing every year from a couple of hundreds in 1996 to more than three thousand in the year 2000¹⁵.

In a recent participatory research initiative by WWF-India, in Changthang plains, it was found that the herders have following concerns *vis-a-vis* tourism:

- Inappropriate garbage disposal, polluting their wetlands and pastures. They cite the death of a yak after it ingested plastic garbage as an example.
- There is no defined road or trail, and tourist vehicles race around their pastures and trample precious grasses. The herders say grasses now smell of petrol and diesel and their livestock cannot eat them.
- Tourists arriving on foot come with pack horses. These horses overgraze their pasture sites.
- Tourists camping close to water sources and the cooking, washing and defecation by them leads to serious problems of pollution to their already meager water sources.
- Tour operators are uncooperative and do not even pay the small mandatory camping fee introduced by the local herders.
- Cultural traits picked up by the young generation through exposure to insensitive visitors are resented by locals.
- Tourists are intrusive, exploitative and patronizing.

4.2. Opportunities

At the broader level, the perseverance of traditional wisdom of Changpa community in order to harmoniously live in the Changthang ecosystem entirely depends on the future of their pastoral livelihoods. Various threats to their nomadic pastoralism through encroachments, insensitive government programmes or decline of traditional resource use practices can only worsen the land degradation and weaken pastoral livelihoods. Therefore there is a need to:

1. Revalidate the traditional pastoral systems and institutions that empower local herders and foster stewardship. In the absence of any other viable livelihoods in the Changthang plains, this is a timely step since important systemic forms still exist amongst their herding strategies to rebuild their resource management practices.
2. Provide a legal framework to grant and guarantee tenurial security of their pastures. Collective action is important for the Changpa herders who live in marginal environments and sustain the resource use through regulatory management systems. This basic element for the management of natural resources is through the collective action of communities, and so it is critical to get right the organizational arrangements, as well as securing rights over common resources.
3. Strengthen pastoral economy through policies that support livestock take off, marketing, value addition and risk management.
4. Use ecotourism to diversify the local economy and not as a prime livelihood opportunity. The local herders do not want tourists to encroach on their resources, as they believe that they are not able to optimize benefits from this enterprise and instead find themselves accumulating losses with uncontrolled resource degradation through pollution, grass trampling, social disruption, etc.
5. Promote trans-boundary harmony between India and China which results in trade and livelihood enhancement, and allows cross-border movement of livestock to relieve grazing pressure on the pasturelands.
6. Facilitate more effective communication channels among those who develop policy, development workers, researchers, local herders; this can be achieved through strengthening the networks and collaborative efforts among diverse stakeholder groups.
7. Enhance research programmes on the trans-Himalayan ecosystems. There are many problems with the available information on these ecosystems. Such information is scanty and is not enough to be able to facilitate a conservation strategy. The high costs and difficult physical conditions involved in such kind of research are also discouraging. The available knowledge base on the high altitude Himalayas has less relevance to the larger issues like biodiversity etc. and the existing studies largely ignore a holistic view towards these ecosystems. There is also inadequate coordination amongst the various researchers or institutions working on different facets of the high altitude areas. These and other gaps in the knowledge base regarding the trans-Himalayan ecosystems need to be filled.
8. There is an urgent need for inter-disciplinary research to be critically informed by local participation both in the study programmes as well as the resultant policy process. Holistic scientific analysis will help the conservation strategies to be more informed so that policies can be people friendly and effective rather than esoteric or theoretical.

The section on Ladakh has been written in 2002 and updated in 2008 by Alka Sabharwal, Independent Researcher.

Endnotes

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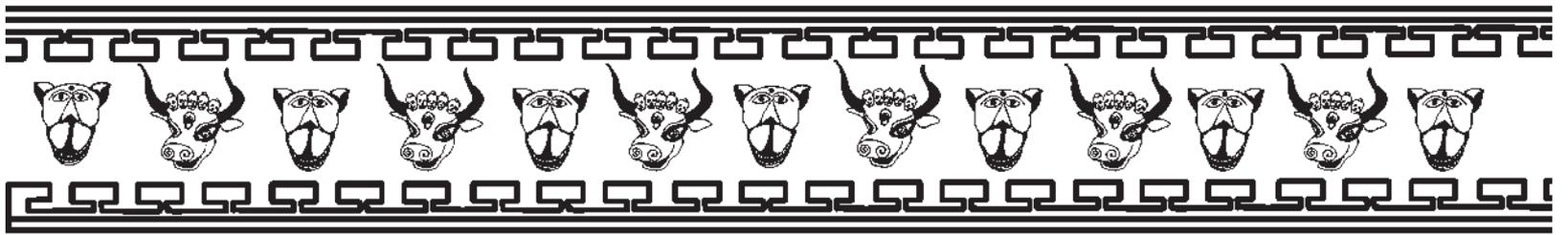
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Garooro, Baramula

Background

Forest officials in Jammu and Kashmir accept that there is an alarming decrease in Jammu and Kashmir's forest cover. Indiscriminate felling of trees, political patronage of forest leases and mushrooming of timber smugglers has brought Jammu and Kashmir close to losing most of its forests. Against such a disappointing background, Garooro village, located on the banks of Walur Lake (Asia's largest fresh water lake) is a shining sign of hope. The village has been able to regenerate its, once denuded forests, thanks to the wisdom of village elders.

Towards community conservation

Around the year 1990, villagers of Garooro gathered to discuss a serious problem that was threatening the existence of their village. Flash floods in the adjoining mountain stream were destroying the crops in the village. Minimum rain in the catchment area of the lake was enough to cause, these previously unheard of flash floods, which would wash away a whole year's crop. Villagers were considering a possibility of migrating to another site.

While a heated discussion was proceeding, an elder resident Lalla Lone reminded the villagers that the flash floods were a recent phenomenon, which never occurred in his childhood. He begged the villagers to go to the root of the problem and figure out why the flash floods were taking place now. On his suggestion and after further discussions the villagers realised that the main reason behind the flash floods were deforestation of the catchment forests.

Villagers then decided to enclose an area of 100 acres (40 ha) constituting the catchment of the stream. Grazing, fuelwood collection, and other extractions were strictly banned in this patch. This protected area was fenced by a barbed wire purchased by the villagers by pooling in resources. In addition, the state government employed forest guards were barred from entering the protected forest. They believed that dishonest forest guards will facilitate the entry of timber smugglers into this forest.

The 60, households in the village decided to contribute, Rs. 30 per month to pay two local boys, appointed as forest guards by the village.

Impacts of community conservation

As a result of a decade of strict protection, the forest regenerated fast. The thick Pine and Cedar forest supports a luxuriant undergrowth of various shrubs and herbs. Wild animals, such as, leopards, Himalayan black bear, jackals and foxes are now sighted frequently by the villagers. In fact, the leopard population has increased so much that the villagers do not any longer take cattle for grazing into the protected forest. The protected forest of Garooro is also now inhabited by a large number of birds.

The flash floods have stopped and the crop production has increased many-fold.

Opportunities and constraints

The protection effort seems to have impacted the women who depended on these forests for collection of fuelwood. How did they manage and where did the pressure of this effort get diverted is not clear from the available information.

On the other hand villagers feel that despite their best efforts at conservation, the state government and the forest department has not given it the deserved attention. Although they also agree that the indifference of the department has helped them organise themselves better and mobilise the required resources locally. This has also helped strengthen the sense of belonging towards the forests among the villagers. Today the villagers are very adamant that they do not want to hand over their protected forest to the government.

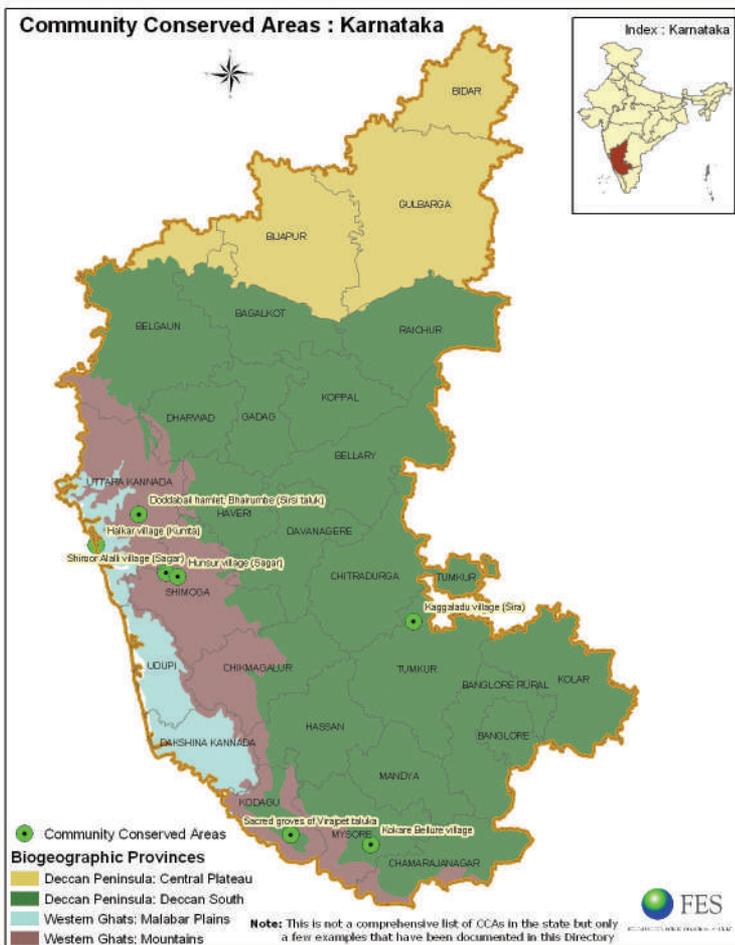
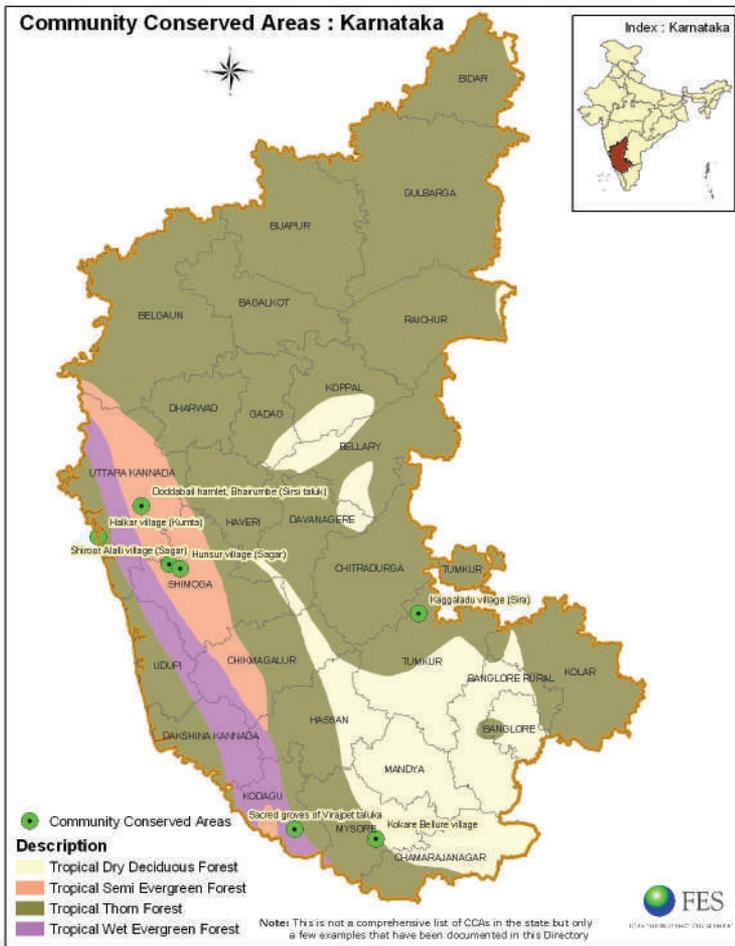


Conclusions

Lalla Lone, who was responsible for initiating the idea of protection of forests in the village claims proudly today "God helps those who help themselves". After seeing the lush green forests inhabiting many kinds of flora and fauna and high agricultural yields of the village, one can't agree with him more.

Information for this case study has been taken from: 'Villagers restore paradise in part', *Financial Express*, 17th September 2000. As printed in *CSE-India Green File 2000*.







Community conservation systems in parts of Karnataka

Yogesh Gokhale and M.D. Subash Chandran

Editor's note: The information below pertains mainly to Uttara Kannada, Shimoga, Dakshina Kannada, Udupi, Chikmagalur and Kodagu districts of Karnataka, although inferences have been drawn from other districts wherever information could be procured. Additionally, much of the focus is on forests and to a more limited extent on freshwater wetlands, with little information on coastal and marine areas or other non-forested ecosystems. These biases indicate only lapses in recording and reporting for want of time and resources, and are not intended to imply that there are no community conservation initiatives in other districts of the state, or in non-forested ecosystems.

1. Background

1.1. Geographic profile

Karnataka state is situated between 11° 40' and 18° 27' north latitudes and 74° 5' and 78° 33' east longitudes. It occupies an area of 1,91,791 sq km, with a forest area of 38,724 sq km.¹ Abundant rainfall (ranging from 2000 to 6000 mm a year) has promoted the growth of luxuriant tropical forests in Karnataka, which despite heavy pressures still cover almost 17 per cent of the state. Evergreen to semi-evergreen forests form natural climax vegetation in the western parts of the state, while deciduous forests as natural climax are observed merging with the drier forests of the Deccan Plateau in the east. The evergreen forests are richer in species, having 30–50 species of trees per hectare. The deciduous forests have been important sources of teak, rosewood and several other timbers.



Feeding mahaseer fish at the sacred stretch of river Shishila, in Shringeri
Photo: Vivek Gour Broome

A complex landscape of species-rich climax forests, secondary forests, pastures, fields and fallows, with corridors of rivers, streams, gorges and ridges, as also a long coastline and marine stretch, are responsible for the rich wildlife that has existed in the state.

Physiographically, Karnataka forms part of two well defined macro-regions of India: the Deccan Plateau and the coastal plains and islands². The state has four physiographic regions:

Northern Karnataka Plateau: This comprises the districts of Belgaum, Bidar, Bijapur and Gulbarga, and is largely composed of the Deccan Trap. It represents a monotonous, largely treeless extensive plateau landscape with a general elevation of 300–600 metres above mean sea level. This region is largely covered with rich black cotton soils.

Central Karnataka Plateau: This covers the districts of Bellary, Chikmagalur, Chitradurga, Dharwad, Raichur and Shimoga. The region represents the transitional surface between the Northern Karnataka Plateau of Deccan Trap and the Southern Karnataka Plateau with relatively higher surface. By and large, this region represents the area of the Tungabhadra basin. The general elevation varies between 450–700 metres.

Southern Karnataka Plateau: This covers the districts of Bangalore, Bangalore Rural, Hassan, Kodagu, Kolar, Mandya, Mysore and Tumkur. This region largely covers the area of the Cauvery river basin lying in Karnataka. It is bounded by 600 metres contour and is characterised by a higher degree of slope. In the west and south, it is enclosed by the ranges of Western Ghats and the northern part is an interrupted but clearly identifiable high plateau. The general elevation of the region varies from 600–900 metres.

Karnataka Coastal Region: This region extends between the Western Ghats, the edge of the Karnataka Plateau in the east and the Arabian Sea in the west, covering Dakshina Kannada and Uttara Kannada districts. The coastal region consists of two broad physical units, the plains and the Western Ghats. The coastal plains represent a narrow stretch of estuarine and marine plains. The abrupt rise at the eastern flanks forms the Western Ghats. The northern parts of the Ghats are of lower elevation (450–600 metres) as compared to the southern parts (900 to 1,500 metres). The Ghats have a difficult terrain full of rivers, creeks, waterfalls, peaks and hill ranges. The coastal belt with an average width of 50–80 km covers a distance of about 267 km from north to south.

1.2. Socio-economic profile

Across most of Karnataka's Western Ghats, which are not favourable for sheep and where cattle are of poor breed, many communities have had traditional associations with hunting and fishing for subsistence. Pre-colonial Uttara Kannada, for instance, was a haven for wildlife.

With a population of 52.85 million,³ Karnataka is predominantly rural and agrarian. About 66 per cent of its population lives in rural areas, while about 60 per cent of its workforce is engaged in agricultural and allied activities.⁴ The districts in the Western Ghats have been renowned since ancient times for spice gardens in which betelnut, pepper, cardamom, ginger and banana are grown. Rice, coconut, sugarcane, groundnut, vegetables, mango, cashewnut, tuber crops, ginger, etc. are other important crops. Karnataka accounts for 59 per cent of the country's coffee production and 47 per cent of its ragi production.

Karnataka has a diverse tribal population, comprising about 6.6 per cent of the total population of the state.⁵

The state has a coastline of about 320 km,⁶ providing one of the best fisheries along the west coast. Tides that enter the estuaries flood a good part of the coast. The estuaries are highly productive, but of late, enormous human pressures and interference with the natural ecology have reduced their productivity drastically. Agricultural systems⁷ practiced in the shallow portions of these estuaries date back hundreds of centuries. About 12,000 ha area of the state is under such cultivation.

The state is rich in mineral resources, especially granite, along with gold and high-grade iron.⁸

2. Administrative control of land and resources

2. 1. A brief history⁹

The present state of Karnataka has inherited systems of land and tenure from four different erstwhile administrative units: Bombay Presidency, Madras Presidency, Mysore Princely State and Kodagu Princely State.

In 1805, the British colonial government for the first time laid claim to the indigenous forests of the western coast (which was part of Bombay Presidency). Denuded coastal hills were set aside as minor forests to meet the biomass needs of villages and more intact forests were reserved for state use.¹⁰

Cleghorn¹¹ writes '... from this period up to 1822 a partial and somewhat ill-advised attempt at conservancy was made, but it thoroughly failed in its object; and all the restrictions which had been imposed during its existence were removed. This relaxation, or rather abandonment of law, however, in course of time led to results of still more disastrous nature, which threatened the speedy and complete destruction of the forests themselves.'

Wanting to free itself from the unprofitable task of policing treeless tracts, the forest department of the Bombay Presidency recommended the transfer of minor



forests to the revenue department in the early 20th century. A survey of coastal villages revealed, however, the existence of many patches of good tree growth under village protection. To prevent their destruction under the revenue department's management and based on the recommendation of the Forest Settlement Officer, in 1922 the Government of Bombay constituted the village forest *panchayats* (village forest councils) to be entrusted with the conservation of such forests.



Until almost the end of the 19th century, slash-and-burn agricultural areas and their fallows dominated by secondary deciduous forests were predominant in the low and medium elevations of the Western Ghats. The accumulation of combustible materials in these secondary forests during the dry months made them highly susceptible to fires. During the dry months, fires raged through the dry forest, but, '... no fires enter the evergreen forest, leaves, branches and fallen trees accumulate and gradually decay, forming ultimately a rich surface layer of vegetable mould.'¹²

Most of the Western Ghats, blessed with high annual rainfall, would historically have had evergreen to semi-evergreen forests. After the fires set by shifting cultivators, the fallows were enriched with timber trees such as teak, rosewood, heddi, matti, and nandi, as well as different species of bamboo.

These secondary forests also had many other species which strengthened the livelihood of people, such as myrobalan, canes, bamboos, wild date palm and soapnut. The myrobalans were in high demand for tanning and dyeing purposes and were even exported. The kunbi women of Supa made mats with phoenix leaves, which were in great demand. The kumri marattas of the Ankola forests were experts in making cane baskets, also commanding a good market. The fallows also abounded in grass and bamboo, which supported a wide variety of wildlife.

British foresters, arguing that shifting cultivators destroyed precious timber, brought restrictions on shifting cultivation. By the close of the 19th century, the practice was almost banned. Ironically, this minimised the fire factor, causing timber-rich secondary deciduous stands to gradually turn evergreen, reducing their timber value, much to the consternation of the British foresters. This prompted a saga in forestry involving clearing of natural forests to raise teak plantations, creating ecological impoverishment, drying of watersheds, and hardships to locals who depended heavily on biodiversity.

The Second World War saw the exploitation of the state's forests as sources of timber. Logging was intensified to meet requirements of railways, defence, public works and commercial sectors. The British East India Company's relentless exploitation of marine timbers like teak, poon and angeli caused considerable depletion of the state's coastal forests by the middle of the 19th century. The forest department was better organized by the 1870s, and attempts were made to harvest timber more systematically. Forest Working Plans began to make their appearance by the end of the 19th century. Though the plans claimed to be scientific, they were not founded on experiences from humid tropical forests.

The success of agriculture in Uttara Kannada depended heavily on substantial additions of leaf manure, more so in the betelnut-cum-spice gardens. Local communities also depended heavily on forests to meet firewood demands and on savannah lands for fodder. To meet the biomass needs of the local people the colonial government set aside degraded areas as minor forests. Although the government, in theory, did assign such minor forests for villages in Uttara Kannada, it was virtually impossible for the residents of one village to safeguard their minor forests from the pressures from nearby villages. Nor could they stop their own members from over-harvesting, leading to a tragedy of the opens due to the lack of an effective institutional structure other than the forest department itself.

In other parts of Karnataka, such as Dakshina Kannada district, Bellary and Udupi district, which were part of Madras Presidency, there was serious over-exploitation of timber, especially for the railways (for details, see the chapter on Tamil Nadu in this volume, in particular the description of forestry in the Madras Presidency).

Since Independence, the Government has granted heavy favours to forest-based industries while overlooking the needs of local communities. Even sacred forests were exploited for timber. Bamboo, widely acknowledged as the 'poor man's timber', was depleted through over-harvesting. Trees of subsistence importance to the locals such as mango, *Artocarpus*, *Myristica*, etc., and even rarer species were felled. Additionally, between 1947 and 1985, 12 per cent of Uttara Kannada's forests were released for various non-forestry purposes.

Village Forests (VFs) under the Indian Forest Act, 1927, were set up in the 1930s in several

villages in Uttara Kannada and Shimoga districts, although the basis on which these villages were chosen remains unclear. Subsequently, this arrangement was incorporated into the 1963 Karnataka Forest Act. Surprisingly though, already existing VFs were all de-recognised. Three village forest *panchayats* in Uttara Kannada contested this order in the High Court, and were granted permission to continue, which they do (for more details see Section 3.2).

2.2. Current forest tenure regimes in Karnataka¹³

Official records indicate that currently there are five legal categories of forests in Karnataka: reserved forests, protected forests, unclassified forests, village forests and private forests¹⁴ (see table below).

Table 1: Legal Categories of Forest in Karnataka¹⁵

	Type	Extent (sq km)
a.	Reserve forest	28,689.96
b.	Protected forests	3,930.72
c.	Village forests	124.20
d.	Unclassified forests	5,231.00
e.	Private forests	308.42
..	Total	38,284.30

On the ground, the situation is much more complex, with local people referring to a number of other categories as well, such as *soppinabettas*, *kumkis*, etc. These various categories of forests include situations where most legal and administrative control lies with the government, forests with joint rights and responsibilities, community-controlled and -managed forests, and privately controlled forests. This complexity is believed to have arisen from the fact that Karnataka has inherited systems of land and tenure from the four erstwhile administrative units mentioned in Section 2.1. Any information clarifying the exact legal status of the various categories of forests seems to be absent. Shrinidhi and Lele¹⁶ group this array of legal and administrative categories into five broad tenure regimes: largely state controlled, largely open-access, largely community controlled, largely privately controlled, and mixed regimes with equal role for the village community and the state.

State-controlled forests include national parks (NP), wildlife sanctuaries (WLS), reserved forests (RF), and Amrut Mahal Kaval. Of these regimes NPs are the strictest, in that people's rights—and all human activities, except tourism—are prohibited. WLS permit some activities, such as extraction of NTFP, fuelwood and fodder, at the discretion of the FD officials. Amrut Mahal Kaval are inherited from the erstwhile Mysore State, where forests-cum-grasslands were set aside to meet the fodder requirements of the royal cattle. In present times these Kaval lands act as a source of fodder to the local communities. Together these three regimes add up to 47 per cent of the total forests in the state. It is interesting to note that, while the forest-use activities of the local communities are severely restricted, several other activities such as mining, quarrying, etc. are allowed under the Karnataka Forest Act and Rules. Amongst the most blatant misuse of state powers was the continuation, till a court order stopped it, of mining in the ecologically sensitive Kudremukh National Park. Till 1983, when logging of green trees was banned, excessive extraction of timber had ecologically depleted most of the government-controlled forests in Karnataka. Bamboo stocks have been severely depleted because of unregulated extraction by private companies. Recently orders were issued permitting extraction of dead and fallen logs from inside NPs and WLSs.¹⁷ In addition, denotification of WLSs and NPs under pressure from different lobbies has also occasionally taken place.

Largely open-access regimes include protected forests (except in Uttara Kannada); district forests (a term used only in the Karnataka Forest Act 1963), minor forests of Uttara Kannada, *paisaris* of Kodagu and *gomaals* of Shimoga and Chikmagalur (the latter two being largely pasture lands but often with thick forest cover), and the Assessed Wastelands of Dakshina Kannada. These add up to 37 per cent of the total forest lands in the state. These areas have been set aside with the objective of meeting the subsistence requirements of the local people, such as fodder, fuelwood, leaf manure, etc. No efforts were made to work towards regulated use through establishment of local institutions. The situation of liberal rights and lack of assigned responsibility resulted in

these areas becoming open-access forests. Emergence of people's own institutions was probably discouraged by the fact that rules regarding these areas were still made by the state, without any consultation with the local users. Access given to villagers could be withdrawn at any time. Lands may even have been transferred from one agency to another without consulting or even informing the villagers. For example, pasturelands are often transferred from the revenue department to the forest department for plantation under social forestry without considering the grazing requirements of the locals; and Assessed Wastelands are leased out to private companies for resource extraction. Thus even though these regimes were established with the intention of meeting local people's needs, the community-use tenures remained highly insecure. The demarcation of these regimes on the ground or even in government records is very poor, often not even reflecting transfers from one regime to another.

Largely community-controlled and mixed-control regimes include *devarakadus*, *uruduve*, *panchayati mandu* and *devara mandu* of Kodagu, village forests of Chikmagalur, Shimoga and Uttara Kannada, social forestry plantations, and Joint Forest Planning and Management. The latter two have much more government control than the others, and exist on lands with differing legal regimes, such as RF (reserved forests), PF (protected forests) and MF (minor forests). Village Forests are the only community forest tenure recognised by law under Indian Forest Act 1927. They enabled the formation of village forest *panchayats* (which were later merged with village *panchayats*) to manage forest use sustainably, resolve conflicts, share benefits equitably, and protect forests from outsiders. They permit regulated extraction of resources, regulated removal of timber (except sandalwood, rosewood and teak) and quarrying of laterite bricks. All villagers are by default members of the village *panchayat*.

Administratively, both VFs and open-access regimes are under the dual control of the forest department and the revenue department. Shrinidhi and Lele¹⁸ state that 'since VFs are fully recognised under and notified as per the Act, they are generally clearly demarcated in the records; in fact, the de-recognition of most of the VFs in 1960s has not prevented the FD from continuously reporting them as VFs till date.'

Largely privately controlled forests include *soppinabettas* of Uttara Kannada; *soppinabettas*, *haadyas*, and *khaate-kaans* (historically) of Shimoga and Chikmagalur; *kumkis*, *kaanebaanes*, *haadis* and private forests of Dakshina Kannada; and two different *baanes* in Kodagu. These add up to about 16 per cent of the total forested area in the region. These seem to have been constituted to provide an assured source of biomass to the farmers to maintain productivity of agriculture and livestock, while also meeting their fuelwood and timber needs. They all confer exclusive access to individual households on the basis of their ownership of a particular piece of private agricultural land.¹⁹

3. Towards community conservation initiatives

Conservation amongst indigenous and traditional communities is built on knowledge based on a long series of observations of the behaviour of complex ecological systems, accumulated and transmitted through generations. Where people have depended on their environment for sustenance over long periods of time, they have developed a stake in conserving, and in some cases enhancing, local biodiversity. They are aware that biological diversity is a crucial factor in generating the ecological services on which they depend.

Conservation calls for restraint in resource exploitation. Arriving at an appropriate set of restraints for a bewildering array of resource-use systems and implementing them is not a simple matter of transmitting information. Rather, implementation seems to be based on a complex set of 'rules of thumb' arrived at through accumulated historical experience. Compliance is often facilitated through religious belief, ritual and social conventions,²⁰ many of which have been closely associated with the worship of nature and natural objects such as mountains, cliffs, forests, rivers, lakes, caves and waterfalls. Individual species of plants and animals were granted totemic importance.²¹



Such conservation is obviously based on the accumulated knowledge through generations on the uses of biodiversity. Intentional conservation of forests by communities may not be older than the introduction of agriculture in the Western Ghats about three millennia ago.²²

Karnataka had a strong tradition of community conservation,²³ especially in its forests, until the British domination that began about two centuries ago (see Section 2 and Section 4.1). The following sections explore community conservation systems, including the continuation of religious traditions as in

the case of Kodagu, more recent community efforts such as village forest *panchayats*, traditional conservation such as protection of village heronries, and so on.

3.1. Sacred groves

3.1.1. Kinds and extent of sacred groves

The most notable community conserved areas of the Western Ghats are its sacred groves (SGs). The sacred groves, wherever they existed, belonged originally to traditional societies, and were considered as links in a web of spiritual relationships with their biophysical environment. In time, these groves became isolated patches of the original forest in a landscape mosaic of villages, cleared fields, and secondary forest at various stages of growth.²⁴

Referring to patches of forest spared by the shifting cultivators of Travancore, Bourdillon wrote in 1893:²⁵ 'Many pieces of forests are seen on the hills left untouched when the surrounding land has been cleared ... because they are supposed to be each inhabited by some spirit.'

Brandis²⁶ the first Inspector General of Forests of India, impressed by the system of sacred groves, made special mention of the *devarakadus* of Kodagu. *The Imperial Gazetteer of India*, 1908, describes these *devarakadus* as 'untrodden by human foot and reserved for the abodes or hunting grounds of deified ancestors.'

SGs vary in terms of size, ownership patterns and also with respect to the vegetation. These factors are influenced by the biogeography of the species harboured and the human influence on SGs. The groves broadly come under two classes:

Smaller groves: These are entirely protected; no tree felling or other biomass extraction may be carried out. They are generally referred to as *devarbana* or *nagabana*²⁷ (serpent groves). These SGs are ubiquitous features of the landscape in Uttara Kannada, Udupi and Dakshina Kannada districts. The size usually ranges from a few *gunthas* (40 *gunthas* = 1 acre) to a few acres in rare cases. In Uttara Kannada the deities in SGs are mainly Bhutappa, Jatakappa, Mariamma, Chowdamma, Hulidevaru and occasionally Naga. The majority of SGs are owned by the forest department and managed by the local people. Siddapur taluka of Uttara Kannada district is illustrative. It has about 100 SGs. The whole district could be viewed as a single integrated unit, with interdependent areca nut cultivation, reserved forests, *soppinabettas*, paddy fields, *bena* (pasture) lands, minor forests and SGs. If the Siddapur case study data can be extrapolated for the entire Uttara Kannada district (comprising 11 talukas totally covering 10,291 sq km), this would suggest the existence of more than 1000 SGs in the district. Some of the rare ecosystems like the *Myristica* swamps are often found as SGs in Uttara Kannada district. In many cases the present-day smaller SGs amidst *soppinabetta* lands represent the smaller fragments of earlier larger *devarkans*.

Nagabanas are abundant in Udupi and Dakshina Kannada districts. They are small in size, ranging from a few *gunthas* to a few acres on rare occasions. The *nagabanas* are mainly owned by families and are occasionally linked with the temple complexes in the districts. A study conducted by the Nagarik Seva Trust recorded more than 700 *nagabanas* in the Belthangady taluk of Dakshina Kannada district.²⁸ Another inventory of *nagabanas* conducted by the Centre for Ecological Sciences, Indian Institute of Science, in a 50 sq km area surrounding village Mala in Karkala taluk of Dakshina Kannada, reported more than 300 *nagabanas*. It is clear that the number of *nagabanas* is very high in these two districts.

Larger groves: The large groves would vary in size from a few acres up to many hectares. These groves also function as resource forest, offering both sustenance and ecological security. The people of the village may gather fallen deadwood, extract non-wood produce such as pepper, mango and jackfruit, and tap toddy from the fishtail palm. They also tend wild pepper within the *kans*.²⁹ The SGs are referred to by names such as *devarakadu*, *devarkan*, etc. These SGs are mainly reported from Uttara Kannada, Shimoga and Kodagu districts.

Devarkans used to be an important part of the landscape in Uttara Kannada, Shimoga and Chikmagalur districts till about 150 years ago. Referring to such sacred *kans*, Wingate, the Forest Settlement Officer of Uttara Kannada, noted that the *kans* were of 'great economic and climatic importance. They favour the existence of springs, and perennial streams and generally indicate the proximity of valuable spice gardens, which derive from them both shade and moisture.'³⁰ The forest management by the British regime in these districts altered the land-use pattern substantially, by either discontinuing the traditional practices or neglecting them for revenue and timber. This made the *devarkans* as historical sacred forests. Uttara Kannada was part of the erstwhile Bombay Presidency, where the British regime abolished the rights of local people over the *devarkans*.

Buchanan (1870) observed that wild pepper requires human attention for better yield. He found people taking care of pepper vines in evergreen forest patches called *maynasu canu*, meaning *menasu kan* or pepper *kan*. Such *kans* were intermixed with gardens and rice fields. High demand for pepper could have been a good incentive for village societies to maintain *kans*.

Old records of Village Forest Registers suggest that Sirsi taluka had 106 *devarkans*, while Siddapur taluka had 116. It is quite likely that there could be about 1000 *devarkans* in Uttara Kannada district. It is quite necessary to identify the overlap between smaller SGs and the *devarkans*. All the *kan* survey numbers are mainly under reserved forest status.³¹

At the time of surveys by Brandis and Grant,³² Sorab taluka had 171 *kans* totalling an area of 14,850 ha. In other words about 10 per cent of the land area of Sorab was covered with these community reserves. Cowlidurg taluka (Tirthahalli) had 436 *kans* and Kadur district (Chikmagalur) had 128.

Shimoga and Chikmagalur districts were part of the erstwhile princely state of Mysore. *Kan* lands were recognised by the State forest department till almost 1970. But after that those survey numbers were merged in reserved forests and other kinds of forests including minor forests, State Forests and district forests. But even today Sagar division in Shimoga circle has 314 *kan* survey numbers on official record, which need to be cross-checked in the field for the status of forest.³³

These sacred forests have clearly demarcated boundaries and many village communities continue to spare time to mark their boundaries—at the very least the portion that houses the village deities.

The sacred groves of hundreds of villages are likely to have once formed an excellent network for conservation of biodiversity. They also protected watersheds, enhanced habitat heterogeneity, moderated local climate and supplied various non-timber forest produce to local communities. Produce of subsistence value from the *kans* included the main tradable produce of pepper and cinnamon, and several fruits such as mango, *Artocarpus spp.* and *Garcinia spp.*, various edible seeds, medicinal plants, toddy and sugar from the palm *Caryota urens*. Rattan canes and reeds like *Ochlandra* were collected for basket weaving.

The Government of Bombay (1923) highlighted the watershed value of the *kans*: 'Throughout the area, both in Sirsi and Siddapur, there are few tanks and few deep wells and the people depend much on springs ... Heavy evergreen forests hold up several feet of monsoon rain ... if an evergreen forest [referring to *kans*] is felled in the dry season, the flow of water from any spring it feeds increases rapidly though no rain water may have fallen for some months ...'

These evergreen forests, protected for centuries against the slash and burn of shifting cultivation, have acted as refugia for scores of fire-sensitive species, most of which are endemic to the Western Ghats. Mention may be made of plants such as *Dipterocarpus indicus*, *Vateria indica*, *Pinanga dicksoni* and *Myristica fatua*, which today survive only in some *kans* of Uttara Kannada. Chandran et al.³⁴ report 51 *Myristica* swamps in Uttara Kannada district. Of these, nine have a history of protection within sacred groves.

Kodagu district could be called the hotspot of sacred grove traditions in India, perhaps even worldwide, as it has the largest number of sacred groves in proportion to the area in the world. All 18 native communities are stakeholders in this unique tradition. There are 1214 listed sacred groves in Kodagu, covering an area of 2550 hectares. These *devarakadus* are owned by the forest department and managed by the community with the help of *devarakadu* committees. Apart from that, SGs are also associated with the *matta* (monasteries) and in private ownership with the families. Every village has at least one sacred grove and there are 39 villages having more than seven groves each. These groves have been protected in the names of 65 deities, of which Iyappa, Bhagavathi, Bhadrakali and Mahadeva are common. Though the district has a large number of sacred groves, nearly 45 per cent of the groves are less than one acre in extent and 80 per cent of the groves are less than five acres. Hence the sacred groves in Kodagu are small islands, surrounded by other landscapes like coffee estates, paddy fields, reserve forests and habitations.



Dodda Sampige sacred grove, Biligiri Rangaswamy Temple Wildlife Sanctuary
Photo: Sujatha Padmanabhan

In Kodagu, the first inventory of SGs was done in 1873, when 873 groves covering an area of 4398 hectares were listed. The area increased to 6277 hectares during the year 1905 and during the last inventory, undertaken in 1985, there were 1214 groves covering an area of 2550 hectares. Hence in the last 80 years, 42 per cent of the area under sacred groves was lost and the groves got fragmented resulting in an increase in their number.³⁵

3.1.2. Institutional structures in the conservation of sacred groves

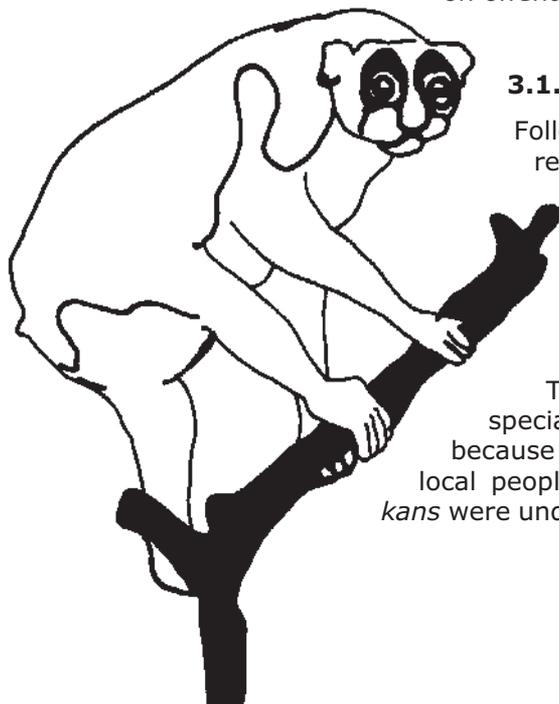
The local community almost always assumed responsibility for protection of the sacred groves and the enforcement of rules and taboos that governed them. In Uttara Kannada district the grove was an integral part of village life, and the entire community participated in decision making that affected its management. In fact, though the state owned the *kans*, local committees fined the offenders. Francis Buchanan, a British traveller writing on the *kans* of Uttara Kannada remarked in 1801: '... Trees ought not to be cut without having leave from the *Gauda* or headman³⁶ of the village ... The idol receives nothing for granting this permission; but the neglect of the ceremony of asking his leave brings his vengeance on the guilty person.'

Communities like the divars (namdharis), karivokkaligas and madivals traditionally carried out rites and rituals in the *kans* of Uttara Kannada and Shimoga districts. Since the divars, the main keepers of the *kans* of Siddapur, Sirsi and Sorab talukas, are intricately linked to the *kans*, they are known locally as kan divars. In Kodagu, the *devarakadus* are managed by a temple committee, represented largely by the dominant kodava community. The non-kodavas are also involved in the decision-making but to a much lesser degree. The members of the committee overlap with those of the village panchayats; hence VPs often have a say in the matters. The *devarakadus* were transferred back to the FD in 1985. Since then they have been classified as reserved forests (under a special category, where the management lies largely with the local community although the ownership is with the government).

Tropical forest ecologist, Peter Ashton³⁷ (1988), impressed by the *kans* of Sorab, described them as '... prototypes of a technique currently being promoted as a new approach to forestry: agroforestry. In a region dominated by deciduous forests that were annually burned [Sorab borders with the more humid Uttara Kannada towards its west, and the drier Deccan towards the east], the *kans* stood out as belts, often miles long, of evergreen forest along the moist scarps of Western Ghat hills. Assiduously protected by the villagers, these once natural forests had been enriched by the inhabitants through interplanting of such useful crop species as jackfruits, sago and sugar palms, pepper vine, and even coffee, an exotic.'

The extraction of NTFP from the village *kans* was not an open-access affair. Brandis and Grant³⁸ reported resident villagers paying taxes or *warg* to the state for the privilege of collection of non-timber forest produce such as pepper and toddy from palms. Each privilege holder, or *wargdar*, operated a specific part of the *kan* without infringing another's area. Such *warg* systems existed almost till the close of the 19th century.³⁹

Specific rules that govern sacred groves are peculiar to each grove, but some common mechanisms include (i) restricting entry to individuals outside the community, (ii) restricting resource extraction, by banning felling, permitting only dried leaves/fuel wood to be extracted or by defining specific periods during which extraction is permitted, and (iii) the imposition of fines on offending individuals.



3.1.3. Constraints for conservation of sacred groves

Following the Indian Forest Act of 1878, *kans* became reserved forests of the state. The surrender of sacred forests to the state eroded their unique identities.

That the colonial government did not recognise *kans* as areas of community importance is reflected by Buchanan,⁴⁰ who considered local claims of forest sanctity as a 'contrivance' to prevent the state from taking over such forests.

The Government of Bombay (1923)⁴¹ had indeed given special protection to the *kans* of Uttara Kannada, mainly because of their watershed value, though they did not recognise local people's access and customary use over them. While the *kans* were under the control of local communities, various rights such

as the right to tend to wild pepper, to tap toddy and to gather other non-timber forest produce were shared by the village communities, possibly on payment of a cess or *warg* to the rulers. This traditional system was discontinued by the British, who introduced the contract system for collection of NTFP from the *kans*, following the Indian Forest Act of 1878. The impact may be described in the words of Wingate (1888), the Forest Settlement Officer for Uttara Kannada: 'I am still of the opinion that the system of annually selling by auction the produce of the *kans* is a pernicious one. The contractor sends forth his subordinates and coolies, who hack about the *kans* just as they please, the pepper vines are cut down from the root, dragged from the trees and the fruits then gathered, while the cinnamon trees are all but destroyed ... I was greatly struck by the general destruction among the Kumta evergreens, they were in a far finer state of preservation 15 years ago.'

Following the state's takeover of the groves, some were included as part of the minor forests, some were added to *betta* or leaf-manure forests, and most were subjected to selection-felling and even clear-felling for raising monoculture plantations. In fact the decline of the *kans* of Uttara Kannada can be traced back to conversion of lands in their vicinity for raising betelnut-cum-spice gardens. These gardens require a large quantity of leaf manure, which the Havik Brahmin gardeners harvested even from the *kans*. Some of the Havik Brahmin gardeners, at the time of Buchanan's visit to Uttara Kannada in 1801, had claimed that all the spontaneously pepper-producing forests, obviously referring to the evergreen *kans*, belonged to them.

Under state control, destructive harvesting methods of the contractor replaced the care given to pepper and cinnamon by local communities in the *kans*. Subsistence hunting gave way to sport.⁴² In eastern Sirsi, 769 ha of *kans* were added to the state's minor forests and subsequently subjected to unregulated exploitation.^{43,44} Collins (1922)⁴⁵ pointed out that as a variation from its policy of strict protection to the *kans* of Uttara Kannada, the government allotted the *kans* in many villages of Sirsi and Siddapur talukas to the spice gardeners as *betta* or leaf-manure forests.

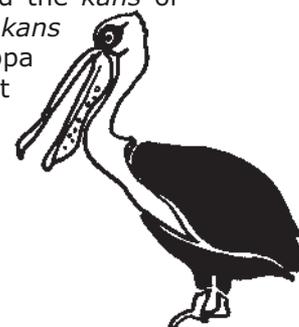
To meet demands for fuelwood and other biomass needs of the local population, the colonial government permitted the gathering of dry fuel wood from the *kans*. The *kans* were therefore, no more the 'property of the Gods'. By 1922 the *kans* of eastern Sirsi and Siddapur were already infested with the prolific weed *Lantana camara*,⁴⁶ from which we may presume that the canopies of the *kans* forests had been rapidly depleted.

Resource shortages faced by local communities after the forest reservations resulted in widespread tree felling within the *kans* of Shimoga as well. Forest Working Plans for Sirsi and Siddapur included 73 *kans* totalling an area of over 4000 ha for extraction of 'over mature trees'.⁴⁷ Another Working Plan, for firewood extraction for Sirsi town, included the *kans* of 10 villages, totalling 672 ha.⁴⁸ During the 1940s, *Dipterocarpus indicus* from some *kans* of southern Uttara Kannada was supplied to the railways and a plywood company.^{49,50}

Post-independence, industrial extraction of timber from what were once considered sacred forests was widespread in Karnataka. In 1967, the Chief Conservator of Forests reported to the Government of Karnataka that the non-extraction of over-mature trees from *devarakadus* of Kodagu was a waste. On his recommendation the government ordered that the forest department might carry out extraction of such trees from the *devarakadus*, and the revenue derived, after deducting the working charges, be debited to the Endowment Department of the state for the welfare of the temples. In 1967, the Chief Conservator of Forests (G1) reported to Government that migrant populations were destroying the *devarakadus* of Kodagu. In 1975, the government also permitted a veneer company to extract timber from the *devarakadus*.⁵¹

In recent decades, with the increasing popularity of text-based Hinduism among forest folk, temples have been constructed to house the gods of the groves. Such construction is often followed by a neglect of the groves by the community. The awe with which the groves were once held has been transferred to the temples, and violations are on the increase, in the form of tree cutting, gathering of other biomass, agricultural expansion and housing.⁵²

Encroachments of the *kans* for housing and agriculture have degraded the *kans* of Shimoga and Uttara Kannada as well. In the post-independence period, *kans* were even deforested to make way for human settlements—the Hittalkoppa kan of Siddapur, for instance. The township of Sorab in Shimoga district continues to expand into the Hiresekuni kan that was once spread over 120 ha.



3.2. Village forest *panchayats* and other forest conservation

In the traditional land use system of Uttara Kannada a typical village would have the following elements in the landscape:⁵³

- **Sacred Forests:** Locally called the *kans* or the *devarakadus* (see Section 3.1. for details).
- **Utility Forests:** Known as *kadu* or *adavi*, these were to meet the routine biomass needs of the villagers, like timber, leaf manure, fuelwood, poles and stakes, etc. These were often secondary in nature, particularly if fire was a common occurrence, but were evergreen if fire was not a common occurrence.
- **Bena, betta and kumri:** *Bena* were pasturelands, *betta* were for collection of leaf, and *kumri* were shifting cultivation sites, as well as regular fields and gardens.

Many traditions relating to restraints in resource use in pre-colonial Indian society exist even today, which include (in addition to the sacred groves mentioned above) quantitative quotas of biomass like fuelwood; closed seasons for hunting; protecting life history stages of various plants and animals; protection of individual species; protection of habitats; etc. British officials observed such systems of resource management in many parts of Karnataka. However, after the takeover of the forests in the coastal areas, there was a demand from local people for access to fuelwood and leaf manure. To satisfy this need, large parts of forests were declared protected forests or minor forests. However, soon the FD realised that it was an uneconomic affair. In the words of the then Chief Conservator of Forests: 'The forest department is commercial and its position must be criticised from a business point of view. Consequently this Department cannot look after forests where people are to be allowed to satisfy their wants either free or at rates much below market rates ... This Department readily abandons these minor coastal forests.'⁵⁴

Based on the above, a proposition was made to hand over the impoverished coastal forests (which had become open-access forests after the takeover and hence degraded rapidly) to the revenue department. However, G.F.S. Collins, the then Settlement Officer, observed that despite the denudation, the coastal hills of Kumta and Honavar talukas had many isolated bits of forests with good tree growth protected by villagers. In villages such as Manki, Gunawanti, Vanalli, Chitrigi, Halkar and Holangadde, there were even village committees to look after these forests. To save such forests on the recommendations of Collins (1922),⁵⁵ the Bombay Government made a provision in its forest policy for creation of village forest *panchayats*. Such *panchayats* or executives were to be constituted by the elected representatives of the villagers. By 1930, in Kumta Forest Range nine VFPs were formed covering 11 villages, and a total area of 1814 ha (See Case Studies).

However, as has been mentioned in Section 2.2, when Uttara Kannada's reserved forests were fast depleting in the 1970s, the state government permitted industrial logging in the well-wooded village *panchayat* forests. The 100 ha Kallabbekan of Kumta, administered by the Muroor-Kallabbe village forest *panchayat*, was leased out by the state government in 1976 to a plywood company for extraction of timber. Despite protests from the people, the company extracted several magnificent evergreen trees. The state government even promulgated an order asking



Biligiri Rangaswamy Temple Wildlife Sanctuary, Karnataka
Photo: Sujatha Padmanabhan

the village forest committee to surrender the forest to the forest department. Although the High Court of Karnataka upheld the community's appeal against this order, the struggle of the fragile village community to maintain its forests against increasing odds did not last long. Years of litigation, non-cooperation from the state and rising disunity among its own members resulted in the collapse of the VFP system. Unity among the villagers no longer exists and elections to the VFP have not been conducted. This is a sad instance of the collapse of one of the finest VFPs of coastal Uttara Kannada, where the local community managed a forest covering about 1000 ha, of which 100 ha was the *kan* of a bygone age.

The state government countered the protest by ordering all VFPs of Uttara Kannada to surrender their forests to it. Seven of nine VFPs concurred with the order. In Chitrigi village the surrender of the forest resulted in total extermination of its tree growth. The state's insensitivity to community management surfaced again in 1991 when it unilaterally allotted 6.5 ha of Halkar VFP forest for the passage of a railroad through it. The VFP failed to change the course of the rail but just managed to get the cut trees for the people. The request seeking compensation for the lost land has not been considered.

Other than forests under VFPs, there are a number of community conserved forests. Murthy et al. (2000)⁵⁶ document that there are about 23 cases of community forest management in Sagar taluka in Shimoga district of the Western Ghats of Karnataka. All these self-managed institutions have evolved over more than 25 years. Three such sites, viz., Hunsur, Alalli and Kugwe in Sagar taluk, were studied in detail, including the systems of local institutions of protection, extraction and sharing of resources. Mechanisms of controlling over-grazing were documented. Hunsur and Kugwe have a land record history of being *kan* survey numbers.

3.3. Species conservation

As in many other parts of the country, communities in Karnataka have helped in conservation of specific species such as mahaseer fish and waterbirds, due to religious sentiments, cultural and traditional associations or newly developed relationships. A precise assessment of the number of such examples is not available. In villages such as Kaggaladu in Tumkur District and Kokarebellur near Mysore, villagers extend protection to painted storks, grey herons and spotbilled pelicans, among other birds. The zeal for protection is so high that they suffer economic losses by not auctioning the tamarinds or mangoes from the trees on which the birds nest. Youth in these villages are actively involved in nursing the injured birds and chicks. These



Sacred fish in river Shishila at Shingeri
Photo: Vivek Gour Broome

birds are considered harbingers of good fortune to the village, and in years that the birds fail to turn up, villagers prepare themselves for natural calamities (See Case Studies). There are also examples like Uluvebailu in Shringeri taluka, where a family initiated protection of many waterbirds that came to roost on their trees after the construction of a dam in the vicinity. In the face of threats and cost implications involved, the family countered poachers from outside and planted trees for the birds to roost. In their efforts they also received the support of other villagers (See Case Studies).

Karnataka, with vast riverine stretches of about 6000 km, boasts a rich and varied fish fauna with about 200 species. Some of the riverine stretches near temples are considered abodes for certain protected fish species and have traditionally been referred to as 'sanctuaries'. Examples include parts of the Cauvery near Ranganathittu and Ramanathapura temples; parts of the river Kumaradhara near Shishila; and parts of the river Tunga near Shringeri, Jammalagi, and Chippalagudda. The Ramanathapura fish sanctuary on the Cauvery in Arakalgudu taluka, Hassan district, is also known as Vanhi Pushkarani. According to local legend, the fishes in the Vanhi Pushkarani are incarnations of noble souls around Lord Shiva. It has been observed that the fishes sheltering in the area never get displaced even when the river is flooded.

However, these community protected wetlands are under threat. Chandrashekaraiyah et al.⁵⁷ write: 'A declining trend in fish species, population and size have been noticed over the past few decades in the sanctuaries. The apparent reasons seem to be construction of barrages, weirs and anicuts, etc. along these rivers, establishment of industries, housing, etc. In order to safeguard these traditional sanctuaries some of them have been declared protected officially also. For example Ramanathapura fish sanctuary was declared an official sanctuary in 1935 by the Government of Mysore under Mysore Game and Fish Preservation Regulation of 1901. Ranganathittu and Shishila were declared sanctuaries more recently under the Wildlife Protection Act of 1972.'

In many of the examples mentioned above, communities have often felt helpless in the face of pressures from outside and have requested external intervention. NGOs and institutions such as Mysore Amateur Naturalists (MAN), Wildlife Aware Nature Club, Centre for Ecological Sciences and others have extended help. Often help has also come from government agencies.

3.4. State efforts towards community conservation⁵⁸

After Independence the major focus of state forest management was to provide raw material for industries as also manure requirements to the spice and betelnut farmers. This was to the extent that even legally recognised tenures such as Village Forests were de-recognised to meet industrial needs once the reserved forests were exhausted. However, as an apparent shift in

the policy (probably under the influence of the donor agencies or keeping in mind the level of forest degradation), a social forestry programme was initiated in 1985. This programme envisaged setting up of village-level committees to raise plantations in legally non-forest lands. According to Shrinidhi and Lele (2001),⁵⁹ though a large number of plantations were taken up, the committees themselves never functioned in any meaningful manner for a variety of reasons.

In 1993, the Government of Karnataka initiated Joint Forest Planning and Management (JFPM).⁶⁰ As of 2005, the state has 3887 JFPM Committees covering 0.32 million ha area (MoEF and WII 2005).⁶¹ Here again formation of committees was envisaged but this time it was to manage degraded patches of legally forest lands. Under JFPM, the villagers are supposed to get access to fuelwood, fodder and leafy matter in the managed patch, in return for protecting the forest. The products are meant for self-consumption but excess could also be sold to the neighbouring villages. The villagers are also supposed to get 50 per cent share in the net proceeds from the sale of any timber planted and harvested in the managed patch. Villagers are, however, not allowed any rights or responsibilities over the non-degraded forests being used by them. The Village Forest Committee formed under the programme is open to all adult members of the village, while the executive committee has reserved seats for disadvantaged groups. The secretary of the committee is always the local Forester, which causes the relationship to be lopsided in favour of the FD. Often women members or underprivileged sections represented in the committee are unaware of their being members, or are reluctantly included to fulfil the requirements.⁶²

The JFPM programme has been criticised as having a number of flaws:

- VFCs have some operational flexibility provided they prepare, and get the FD to approve, a management plan. However, villagers find extremely difficult to make plans in the absence of any guidelines.
- The constitution of the VFC or agreements with the VFC do not have any legal standing; thus their de-recognition by the FD cannot be challenged in a court of law.
- While the FD has a complete say in the decision-making process of the VFC, villagers have no say in larger decisions related to JFPM or forests.
- JFPM gives inadequate attention to the forests outside of the land that is legally forest.
- No cognisance is taken of existing individual rights and about giving full and clear rights over NTFPs to villagers.
- Instead of making JFPM a forest management policy and introducing it to the entire state, it remains a programme linked to the availability of special donor funds. Thus because of the limited funds, JFPM remains restricted to Uttara Kannada, Chikmagalur and Shimoga districts, managing 20–100 ha of minor forests, district forests and reserved forest lands.

It has been suggested that *kans* be included in the JFPM programme. *Kans* have traditionally been important for the local people, and continue to earn high revenues for the state government. Inclusion of *kans* in the JFPM would thus be an ideal situation (for more details, see case studies).

4. The way ahead

Studies in Uttara Kannada, Shimoga and Kodagu have shown that local-level ecosystem management systems were far more holistic and sustainable than modern utilitarian systems. Pre-colonial indigenous forest management systems were destroyed without the introduction of viable alternatives.



In Kodagu, *devarakadu* committees and the forest department have taken a very positive step to recognize sacred groves as one of the kinds of forest owned by the state forest department and managed by *devarakadu* committees. A federation of *devarakadu* committees has been formed at taluka and district level. The academic institutions like Forestry College, Ponnampet, collect the information and provide technical support. NGOs play a catalytic function in the overall process. The forest department has respected the local sentiments that emerged in a huge sacred grove festival at Virajpet in October 2000. This is probably the only such initiative in the country where this kind of concrete action has been initiated regarding sacred groves.

The model of Kodagu can be adapted for other parts of the state, especially in other districts of the Western Ghats as discussed earlier. The large number of groves certainly guarantees the faith of people in this tradition. But a lot needs to be done to convey the biological and ecological importance of this tradition to the common person, as temples are coming up inside the sacred groves at the cost of the vegetation.

Chandran and Gadgil (1993)⁶³ reconstructed the pre-colonial profile of a traditional land-use system prevailing in a 25 sq km area in eastern Siddapur, Uttara Kannada district, based on documented history, folk history and landscape features. The landscape was a mosaic of diverse elements: well-protected *kans* or sacred groves-cum-safety forests occupied 6 per cent of the area; supply forests (*kadu* or *adavi*) which met the community's resource needs accounted for 24 per cent; shifting cultivation areas and their fallows (collectively known as *hakka* lands) covered 23 per cent of the area; and *bena* or pastures accounted for 7 per cent, while fields and spice gardens constituted the remainder. Some semblance of this could be recreated with proper planning and participation.

A case study of Siddapur taluka in Uttara Kannada district shows that even today 1906.66 ha area is under *kan* forest (see table below). The biological importance as well as the historic linkage of *kan* tradition has been discussed earlier. Siddapur Forest Range case study also shows that there is lot of potential available to protect and nurture.

Table 2: *Kan* forest in Siddapur taluka, Uttara Kannada district

Range	<i>Kan</i> original area (ha)	<i>Kan</i> area still available (ha)	Percentage available	No. of <i>kans</i>	Range area (ha)	<i>Kan</i> area percentage in Range area
Siddapur	1450.62	963.47	66.42	83	67542.8	1.43
Kyadagi	970.12	943.19	97.22	29	20880.8	4.52
Total area	2420.74	1906.66	78.76	112	88423.6	2.16

Source: Gokhale, Y. 2002 unpublished

Considering the close relationship of people and forest resources in *kans*, there could be possibilities of restoring institutional responsibilities, such as in the matrix below:

Ways → Tasks	Decentralised performers	Joint performers	Local level performers	Open bidding performers
NTFP collection	VFC			
Controlled harvest		VFC, FD		
Quality control			VFC	
Market channels				FD, LAMPS, Industry
Benefit sharing		VFC, FD		
Forest protection		VFC, FD		
Overall monitoring		VFC, FD		
Linking research upto field		FD, Scientists		

(FD – Forest Department, VFC –Village Forest Committee, LAMP – Local Area Minor Forest Product Co-operative Society)

In recent years the Government of India has stressed that local communities and the forest department should jointly manage resources. In about 250 villages of Uttara Kannada, Joint Forest Planning and Management Committees (JFPMCs), consisting of elected members of the villages and local forest officers, are beginning to manage degraded forests. Feedback from village communities has revealed positive signals.

However, it is important to see JFPM as an integral part of state forest policy, and implement it irrespective of donor funds. In many villages in Karnataka momentum and expectations have been built up during a period when donor funds were available, only to crash once the project duration ended. The JFPM process has also not brought standing forests under its jurisdiction. Several *kans* are part of JFPM in Shimoga and Uttara Kannada districts, which would be able to provide immediate benefit to committees due to the potential of NTFPs like pepper (*Piper* sp.) and *Cinnamomum malabathrum*. Hence there is a need to establish link between the *kan* tradition and the JFPM process.

Villagers were able to maintain, even in a predominantly agricultural landscape, about 30 per cent of the land area under forests. Whereas the groves were conserved apparently on religious grounds, village communities traditionally regulated harvest from supply forests, a system that continues to this day in the Halkar village forests of Uttara Kannada district. The story of forest management by the community in Halkar village shows that resources can be managed both sustainably and equitably to the benefit of much of the local population.

Without the involvement of village communities it will not be possible to safeguard and sustainably use the biodiversity of this country. The state should aim at rehabilitating and restoring disrupted ecosystems through the involvement of local communities, and orient them in the local management of biological resources. But a true empowerment of communities will only be possible when they have secure tenure. Karnataka has seen a series of interventions from the state, where despite their best efforts at managing resources effectively, the interests of those in power and of powerful industries have led to undermining local institutions. Such lack of security and sweeping power to the government to de-recognise any community effort without any criteria has proved extremely discouraging, as in case of village forest *panchayats* mentioned above. But there remains hope, due to the strong faith of people in informal institutions like sacred groves, and examples such as the Kodagu *devarakadu* programme where the state forest department could recognize the importance of role of communities.

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Endnotes

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² www.webkarnataka.com

³ www.censusindia.net/t_00_003.html

⁴ www.censusindia.net/religiondata/Religiondata_2001.xls

⁵ http://www.censusindia.net/t_00_005.html

⁶ <http://www.tourismofindia.com/sts/stkarseaside.htm>

⁷ See case study of Halkar village for more details on estuarine farming.

⁸ www.mapsofindia.com/maps/karnataka/karnatakaagriculture.htm

- ⁹ This section deals predominantly with Uttara Kannada, as the authors are more familiar with it.
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- ¹¹ H. Cleghorn, *Forests and Gardens of South India*. (London, W.H. Allen and Co., 1861).
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Sacred groves of Virajpet taluka, Coorg

Background

This case study focuses on the current status of the age-old tradition of conserving patches of forests (termed as sacred groves) housing deities in the Coorg Virajpet taluka of Kodagu district in Karnataka. These *devarakadus*, as they are referred to in the local dialect, are located within an area of over 1500 sq km of Virajpet taluka and number about 500 (the total area that these sacred groves occupy has not been calculated). This case study is based on research carried out on 25 such SGs in 20 villages.

The forests in Virajpet along the eastern slopes of the Western Ghats mountains are of the tropical evergreen type. This study is along the hilly region, which is between 800 and 900 meters above sea level, where one comes across the Brahmagiri Wildlife Sanctuary.

Some sacred groves of ancient semi-natural forest type are found in an otherwise heavily utilized agricultural landscape of coffee plantations, paddy fields and habitations. Some of these SGs are also present in swampy areas, often adjacent to perennial streams, whilst some SGs are on hilly slopes, in ravines and gullies. The flora and fauna includes woody plants and birds, both of which are 25 per cent endemic.¹

Towards community conservation

The protection of patches of forest is presumed to have started as a safety measure and sometimes as a supply of resources to the communities protecting it by forming taboos and restrictions on the resource use.² Violation of the rules was believed to result in the wrath of the deity associated with the SG. This age-old tradition, which has modified itself into the 'Sanskritisation' mould with the construction of temples, is still respected and followed by the Kodavu community which forms the majority community of these villages.

The kodavus are primarily involved in activities in the SGs like cutting of trees, collecting forest produce, temple use, etc. Within the kodavus, those families that are economically richer than the others enjoy higher social status. The non-kodavu inhabitants of the villages such as tribals (yeravas, kurubas, mala kudias, etc.), other non-kodavas (gowdas, brahmins, etc.) and immigrant communities such as Tamils, Malyalees, etc. form the minority community of the villages and therefore have little to say on matters concerning the SGs. Not totally excluded, they have some duties to perform during annual religious gatherings. Settlers from outside or people with different religious beliefs may not be involved in the festivals at all.

In most cases temple committees have been formed to manage the forests. Where there are no temple committees, the village councils or village panchayats look after the matters of the SG; laying down rules, solving disputes, organising festivals and looking into the overall management.

The temple committee normally has a president, who oversees all functioning of the committee, with all members being answerable to him. Village heads and heads of village groups are also members of this committee. Another important person is the *dev-thakka* who is mainly responsible for the religious activities related to the temple.



Most of these posts are elected from the same Kodavu family or clan. People with previous experience with public service may have a greater prominence in the temple committee. There is no formal government institution involved, and the government will not interfere in the decisions made by the temple committee except on issues of ownership of land.

Before 1901, the SGs were owned by the colonial forest department. The historical records suggest that the colonial officers were aware of this local tradition of protecting patches of forest for their religious significance, and, to the extent possible, respected its cultural value.³



Between 1901 and 1985, management of these SGs was handed over to the revenue department. This resulted in a dramatic change in the land use of many of these groves. They were either sold or leased out in part or in whole to private individuals for agricultural purposes, mainly for planting coffee. They were also exploited for fuelwood and small diameter timber, although larger trees were retained and were presumably never felled due to religious beliefs.

In 1985, the SGs were handed over to the forest department again and notified as reserved forests. A land survey was undertaken and the boundaries were marked in some areas. In other areas the SGs are currently being surveyed.

The main association of the people with the SG is religious, and it is a prominent component of the local culture. Villagers from surrounding areas usually take active part in the annual festival organized by the temple. It is often a social gathering as well as a traditional forum for resolution of any disputes or conflicts amongst the villagers.

People are not directly dependent on the SG for livelihood or commercial purposes, except for those who encroach to cultivate coffee or cardamom, which they are sometimes allowed to do by the committee in exchange for a portion of the produce for the temple. Sometimes people extract NTFPs like honey, medicinal plants, resin, edible mushrooms, etc. All other conflicts except land ownership are dealt with at the temple committee level, normally during temple festivals. Resolution of conflicts is usually done by an elderly person of the community on behalf of the deity (when a person gets possessed and speaks a divine language, normally Malayalam, since the Kodavus believe that their gods came from Kerala.).

No rules or regulations are written, although there are certain norms that are followed, consisting of dos and don'ts that are passed on from generation to generation. Extraction from the grove for 'personal' purposes is prohibited. If someone from the village tries to encroach on the grove, strong opposition is raised by members, and the person is asked to compensate for the loss to the temple committee. If the objective behind felling trees and collection of NTFP is for 'the greater common good', such as at annual festivals, it is not subject to opposition. As the committee has no legal powers, the temple committees cannot take legal action against the offenders.

Financial support for the maintenance of the SG comes from the community itself. Annual festivals are organized by individuals or families of the Kodavu community, who share the burden of expenses. For more popular temples, people from elsewhere also contribute for construction, renovation, ornaments, jewellery of the deity, to add to the property of the temple committee, etc. Whether money comes from local sources or from a wider community, all of it is spent on annual gatherings and no money is spent on conservation of the SGs. Funds also come from compensation collected from the violators of the SG rules.

Challenges faced by the community

Lately the SGs face threats due to:

1. Decline of religious beliefs and lack of awareness about nature conservation traditions amongst the younger generation that is more exposed to modern life-styles.
2. The new immigrants who do not have the same belief system pose a threat to the future of the protected forests.
3. 'Sanskritisation' of the tradition of nature worship, leading to idol worship and ritualistic beliefs, often bypassing the SG itself.
4. There has been a trend of cutting trees and planting exotic species like silver oak, as coffee plantations require shade.
5. Constant encroachments on the SG land due to pressures of coffee/cardamom plantations, as they form the major income of most Kodavus, is observed, and any fluctuations in coffee prices in the market on the lower side leads to cutting down of trees and selling timber for cash from common property resources, including sometimes from the SGs.

The relationship between the field staff of the forest department and the community is harmonious. However, people in general are unhappy with the policies of the FD and believe that their policies lead to exploitation of Kodavu forests for the benefit of the state.⁴ There have been some complaints by the villagers about crop raiding by elephants, especially in the villages near the boundaries of protected areas (Brahmagiri Wildlife Sanctuary and Nagarhole National Park). However there are no major grievances about wildlife in SGs.

This case study is written by Shonil Bhagwat, Oxford Forestry University. This is based on his First Year Assessment Report (D. Phil), Oxford Forestry Institute (1999), Department of Plant Sciences, University of Oxford, UK. Unpublished.

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Endnotes

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CCA/Kar/CS2/Mandya/Kokkare Bellur/Heronry

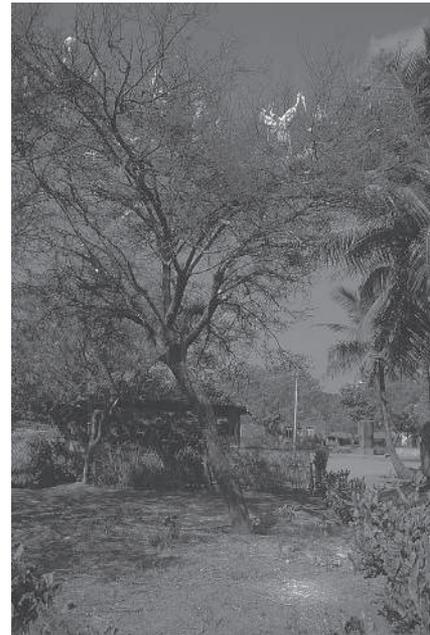
Kokkare Bellur village, Mandya

Background

Kokkare Bellur village is situated in Mandya District, 80 kilometers from the state capital, Bangalore. Its landscape resembles that of a typical dry land with the perennial Shimsha flowing to its south. Cultivated and fallow fields, cactus hedges and old and new trees of tamarind, banyan, pipal, babul, gular or atthi, neem, mother-in-law's tongue tree, mango, rain tree, portia, mark the landscape.

For six months of the year, Kokkare Bellur looks like any other village in South Karnataka. But from December to June hundreds of spot billed pelicans and painted storks move into and occupy the tamarind and banyan tree tops, to nest and breed in the heart of the village. The pelicans arrive first and settle on the crown of mature large canopied trees, while the lighter and more agile storks come in a few weeks later and settle on the outer branches of the same trees. Some trees are so populated that the nests touch one another. Over the following six months birds and humans by and large co-exist peacefully as they have done for generations. It is as if the entire village gets a two-tiered structure with the humans living downstairs and the birds living upstairs.

Besides these birds, this tiny village plays host to at least 139 other bird species, including little grebe, grey heron, night heron, white ibis, purple moorhen, whitespotted fantail flycatcher and many others.



Birds roosting at Kokkare Bellur heronry Photo: Ashish Kothari

Towards community conservation

History has it that the storks and the pelicans have been coming to Kokkare Bellur to breed for hundreds of years. Previously the village was situated on the bank of the river Shimoga (a major tributary of the Kaveri River) and the birds lived there with the villagers. A plague in 1916, forced the villagers to abandon the area and set up the current village a few kilometers from the river. The birds moved with the people. This might explain the strange choice of breeding ground of these birds away from a large water body.

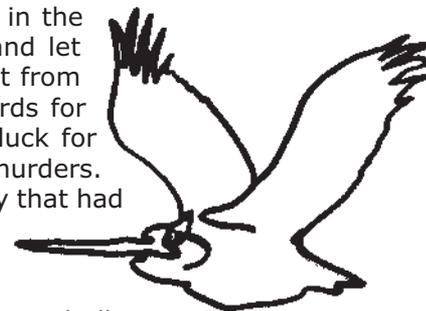
For a long time, this extraordinary village had escaped the notice of wildlifers, bird enthusiasts and forest officers. Dr. Salim Ali too did not know of this pelicanry, when he discovered Ranganthittu and got it declared a bird sanctuary in 1940. The only possible reference to this village may be found in the 1864 writings of British naturalist, T.C. Jerdon where he makes the following observation: "I have visited the Pelicanry in the Carnatic, where the pelicans have built their rude nests, on rather low trees in the midst of the village, and seemed to care little for the close and constant proximity of human beings." Further he describes the spotbilled pelican as the most abundant species found in India, occurring in all districts where rivers and tanks abound. After 130 years, the same species is on the endangered list, with not more than 5000 birds in the whole of South Asia¹ and only 10 breeding sites left in India, Kokkare Bellur being one of the most significant.

So who are these people, that the birds love to live in close proximity with even though there is no large water tank or river in the village? The current human population of the village is around 3000². The dominant occupations have been agriculture apart from which there are potters (kumbara-shetty), fishermen (ganga matha) carpenters (aachari) and silkworm rearers. Besides animal husbandry, sericulture, sand dredging and labour on village farms as well as in surrounding urban areas, are also practiced.



As to their relationship with the birds, the older generation have in the past, followed a policy of benevolent tolerance, a policy of live and let live. They had willingly given up their claim to the tamarind harvest from trees in their backyards when these trees were selected by the birds for nesting. They believed that the arrival of the birds assured good luck for the village and their absence was associated with drought and murders. People preferred to get their daughters married to the son of a family that had birds in their backyard, as this was considered a sign of prosperity.

One important benefit that villagers receive from the birds is the droppings or *guano*, which is used as fertilizer for agriculture. The villagers dig huge pits around the trees that the birds select to nest and allow the phosphate and nitrogen rich bird droppings to accumulate. These are then mixed with the silt from the nearby lakes and spread in the *guano* pit. This exercise is repeated several times in the nesting period so that the layers of *guano* and silt alternate in a sandwich effect. This provides ready mixed compost which is then spread over the field. Another benefit from this practice is that the removal of silt from the lakes prevents them from silting up.



Children in the village have for generations been taught not to tease birds or steal their eggs. When hunting tribes and outsiders were caught harming the birds in any way they were arrested by the local *panchayat* and asked for a penalty of Rs. 100, a princely sum for both the villagers and the tribe, where the barter system still played a large role in the economy. Failure to pay the fine resulted in being tied up to trees or being locked up in a room for a day.

Since the 1990s, however, changes have occurred in the lifestyle and attitudes of the people, due to the influences of the larger developmental model being pursued by the country at large. This change manifests itself in a number of ways like in many other villages across India. Today mud walls are making way for brick walls, local tiles making way for Mangalore tiles, earthen pots and pans being replaced with gaudy plastic ones, the dark brown nutritious raagi (finger millet) dumplings losing favour as local staple diet and making way for white polished rice. Further manifestations of this change can be seen in rich farmers increasingly growing cash crops and using chemical fertilizers and pesticides, whereas earlier they grew a variety of dry land nutritious millets and beans. Motorised vehicles have also entered the village life.

Behavioural patterns also manifest this change, e.g. families of potential brides that once looked for families with *guano* pits in their backyard, now give the young men of such families a wide berth, as the once auspicious *guano* pit is now seen as a source of trouble and hard work for the bride to be. As a result today most graduate youth migrate out to the cities looking for jobs. The free and abundant availability of phosphate and nitrogen rich *guano* had for long staved off the use of urea in the fields. However the cheap and easy availability of urea and the ease of application of the same to the farm vis-à-vis the long drawn and relatively messy method of preparing natural fertilizer from the *guano* is attracting more villagers to the idea of replacing *guano* with urea, breaking an important link in the human-bird symbiotic relationship.

Change can also be seen in the new acquisitions in the village. Kokkare Bellur has not been left untouched by the overall atmosphere of increased consumerism and urbanization that has overtaken the country. The lure of buying things from far off markets has necessarily increased the dependence of the locals on the market economy and increased their need for money. This coupled with the fact that there are no innovative yet sustainable income generation schemes within the village creates intense competition for all cash providing resources, and this includes the resources shared traditionally with the birds.

It was in this scenario that Manu K., founder member of the NGO Mysore Amateur Naturalists (MAN), came to the village in 1994 on a habitat assessment program. This proved to be the beginning of MAN's long and committed association with Kokkare Bellur working towards the re-establishment of harmony between the birds and humans. Towards this, MAN initiated the formation of a local youth group called the Hejjarle Balaga (Pelican Clan) to look after the welfare of the birds in general and fallen and injured pelican and stork chicks in particular. A local farmer B. Linge Gowda, donated a part of his land for the use of a pen, which has been fenced so that dogs and other predators do not get to the helpless chicks. As of 2006, the youth and children of Hejjarle Balaga have put back around 300 pelicans into the wild. An impressive number when one considers the endangered status of the birds. Chicks that fall to the ground and would otherwise perish, are taken into the pen, fed, tended to and raised to the fledgling stage, then returned to the wild to join their naturally raised siblings. Besides counteracting the drastic decline in pelican and painted stork numbers, this exercise seeks to and has been successful in recreating and strengthening the close bond between the children/youth and the birds while giving a hands on experience in the daily care of these birds. Hejjarle Balaga members also actively plant tamarind and ficus trees along the road, clean the irrigation tanks that are the foraging grounds of the birds

and discourage people from either cutting trees or picking fruits from the trees that birds have chosen for nesting in their backyards. In 1998, members of Hejjarle Balaga successfully stopped a local farmer from cutting his tamarind tree on which birds were nesting. The group asked the farmer to lease his tree to Hejjarle Balaga for the season instead of harvesting the tamarind from the tree and disturbing the birds. Ultimately a combination of moral pressure from the group along with a little financial benefit persuaded the farmer to leave the trees for the birds.

Some recent intervention by the members of the Hejjarle Balaga helped stop a road widening plan that would have involved cutting of some wayside trees. Between 2004 and 2006 many birds had got accidentally electrocuted on the high tension lines that passed through the village very near to the nesting trees. The community has been successful in getting the authorities to increase the distance between the power lines and the neutral lines of the high tension wires, which has put an end to the birds getting electrocuted.

Besides this, older Hejjarle Balaga members act as resource people in the many camps that are conducted for urban schools in the summer holidays. The younger children repeatedly attend the workshops filled with slideshows, stories, activities and drama, and will themselves be useful resource people someday. Many bird watchers, researchers, film and TV crews and newspaper photographers visit the village and young Hejjarle Balaga members spontaneously help these visitors spot and identify birds. Children also show the visitors around the pen where the birds are kept and explain what is done here. All this is done free of cost and the only payback is in the inherent act and a sense of pride about the uniqueness of their village.

However as this generation grows up, the reality of earning a livelihood in the village will have to be dealt with else these bright young conservationists will be lost to the city where they will go to earn a living. Currently MAN, through personal donations funds the salary of two Hejjarle Balaga members, who carry the main responsibility of looking after the pen, getting the fish and feeding and looking after the birds with the help of the other younger members.

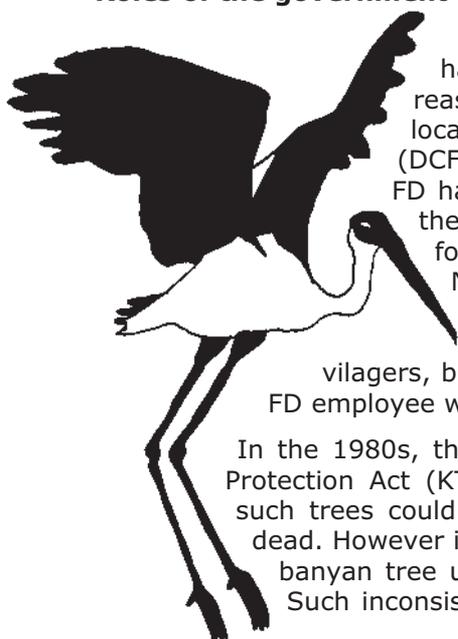
A personal donation in 2006 has helped Hejjarle Balaga purchase an adjoining piece of land with a few large tamarind trees on it. It is hoped that more birds will come here. There are also plans to set up a local bird interpretation centre on this plot, with local material and local resource people. Other plans to link village prosperity with the pelicans is to set up a small tea shop and a souvenir shop. The idea being that the locals regulate the inflow of visitors so as not to disturb either the nesting birds or the villagers' way of life.

Impacts of community effort

In 2006, the bird nest count stood at an all time high of 400, and Kokkare Bellur was identified as one of the Important Bird Areas (IBAs) in India by Birdlife International³. The village has also been assessed as the seventh important hotspot in Karnataka with regards to biodiversity.

Opportunities and constraints

Roles of the government agencies



The role of the forest department in protecting this amazing pelicanry has been sporadic, largely failing to support the initiative. The primary reason for this has been the lack of recognition of the role played by the local community in the existence of this bird heaven. As per S.G. Neginhal (DCF retd.), who was a wildlife officer in Mysore from 1972 to 1976 the FD had no knowledge of the existence of Kokkare Bellur. In 1976, when the FD became aware of the village, they appointed a local man as a forest guard to step up the protection. In 1982, when the Bannerghatta National Park was being set up in Bangalore, the FD tried to transfer some pelican chicks from the village without consulting the *panchayat*. The vehicle carrying the chicks was *ghearoed* (surrounded) by the vilagers, but on realizing that the chicks could not be put back in the nest, the FD employee was allowed to take the birds to the national park.

In the 1980s, the department issued a protection order, under the Karnataka Tree Protection Act (KTPA), regarding the trees used for nesting. The order stated that such trees could not be felled even by their owners unless they were diseased or dead. However in 1987, when a powerful local farmer felled a huge, perfectly healthy banyan tree used for nesting in his compound, no punishment was forthcoming. Such inconsistencies in the behaviour of the FD, led to a disregard for the order

passed under the KTPA. The FD then proposed to buy out every tree used for nesting, which was not acceptable to the tree owners. Finally a compromise was reached, whereby the villagers were to be given an annual allowance for the trees on their property that the birds used for nesting. The amount offered was and continues to be much lower than the income that might have accrued to the owners had they harvested and sold the tamarind from the trees, but it does provide some incentive to keep the trees in the face of increased dependence on a cash economy.



In 1996-97, the FD needed to spend two lakh (200,000) rupees and unilaterally decided to spend the sum on building a watchtower very near to the nesting trees so that the visitors could see the birds up close. The local community opposed this wasteful expenditure on the ground that this would frighten the birds away; they also felt that the money could be better utilised in planting more trees and providing for tree guards for the young plants. The opposition led to a nasty altercation between the villagers and the officials of the FD and while the construction of the viewing tower was stopped the money was not made available for the trees and tree guards either. Recently however the FD has been involved in plantation of trees in the area. However it has yet to win the trust of the locals, who feel that the plantations are yet again an outcome of the need to spend a certain amount of money before the end of a fiscal year rather than any genuine concern for the birds.

K Manu with a member of the Hejjare Balaga at the bird rescue centre Photo: Ashish Kothari

The distrust created by such ill-conceived interventions from the FD has led to the loss of an opportunity where both FD and local people could have worked together for the betterment of the birds and the village. The internal split of jurisdiction within the FD has led to further confusion. The split is between the territorial division in charge of the welfare of the trees and the wildlife division in charge of the welfare of the birds and often these two divisions work at cross-purposes.

Among the significant threats to the bird are ill conceived development plans that might put the birds at risk. Among these are a road widening project (which has been stopped for the time being), and the grandiose plans of the Tourism Department to set up a holiday resort close to Kokkare Bellur. As far as is known, there has been no research done to assess the viability or desirability of such a project, let alone the effect that such development will have on the birds.

Internal issues

As cheap and easy to acquire urea, insecticides and pesticides replace *guano* and natural methods of pest control, the lakes are increasingly at the receiving end of agricultural waste and sewage. The excessive use of chemicals has increased the level of nitrogenous nutrients which have led to the uncontrolled growth of weeds and reeds in the water bodies, reducing the expanse of water available to the birds to catch fish. Also pelicans being at the top of the aquatic food chain, are susceptible to pesticide poisoning.

The urban tourists that come in also display the huge difference in the material prosperity between the villagers and their urban counterparts.

Local inequities play a large role as most villagers see the powerful get away with tree cutting and other violations. Additionally, there is no stable institution for grievance redressal and to resolve internal disputes.

To make matters worse the local *panchayat* has been merged with the village *panchayats* of four other villages. This has eroded the traditional leadership of the village which had proactively protected the birds.

Aspirations of the local people are changing in keeping with the general consumerism that prevails in the country. This coupled with lack of creative and sustainable ways to earn a livelihood within the village has created a situation of dissatisfaction. Such a situation can easily create apathy for the birds as well as can put humans in competition with resources that were earlier allotted graciously to the birds but now are seen as cash-generating.

Favourable opportunities

On the positive side, Kokkare Bellur has a rich tradition of living with the birds and the wide interest generated by visitors and ample newspaper, radio and TV and film coverage have made the locals aware of their rich heritage, one which they had earlier taken for granted and begun to lose interest in.

The continuous work by committed MAN members and the growing up of a generation of Hejjarle Balaga youth provides available, well-trained individuals, who under the right conditions can lead the conservation effort as and when needed.

Obtaining additional land and trees and the starting up of work towards getting a local bird interpretation centre will provide some livelihoods and further impetus to carry on the work of conservation.

The many small victories that the locals have had in protecting the birds and the fact that they have single-handedly put back 300 injured birds back into the wild cannot but give encouragement and strength to the conservation process.

Kokkare Bellur has a lot going for it, but requires the will of all concerned to ensure that the birds return in larger numbers every year.

Conclusion

While the threats cannot be wished away and one must deal with these bottlenecks to bird and human prosperity, one cannot but feel hopeful of the future when one sees the strong link between the children and the birds in the village. According to Erica Taraporewala, Kalpavriksh member who witnessed a Sunday morning following a stormy night in the village in 2006, "Children all over the village on their own accord had started looking for birds under various nesting trees, chasing away dogs and bringing in the chicks that had fallen from their nests in the storm. Some spent the day in the pen, laughing, playing with each other even as they looked after the birds, while other children were seen showing birds to a camera crew that had come to the village. And all this was done with such joyous spontaneity, clearly showing that the intrinsic connection between the children and the birds that has been strengthened by the quiet and consistent efforts of MAN and Hejjarle Balaga." Will this endure in the face of the threats which are as true as this connection? Only time will tell.

This information has been extracted from: Manu, K. and Sara Jolly (2000). *Pelicans and People: The Two-Tier Village of Kokkare Bellur, Karnataka, India*. Kalpavriksh and International Institute of Environment and Development, Pune. The information was further updated by Erica Taraporewala based on a visit to Kokkare Bellur in 2007.

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Endnotes

¹ Asian Wetland Bureau Mid-winter Waterfowl Census, 1993

² Personal communication with K.Manu in March 2007.

³ Organisation based in England and working for conservation and protection of bird species across the world.



Hunsur village, Shimoga

Background

Hunsur village is located at a distance of about 12 km from Sagar town of Shimoga district. It is situated on the Sagar-Honnar road and falls under the Maraatur Panchayat. The nearest bus stop is 1 km and the nearest railway station is 56 km from the village, in Talguppa.

There are about 180 households with a population of 900 in this village. Agriculture is the mainstay in the village. The people grow paddy, arecanut, coconut, cotton, sugarcane, banana, groundnut, vegetables and spices like cardamom, pepper and ginger. Naiks, madivaals, and havik brahmins are the major communities residing here. There is a primary school in the village and a high school is situated at a distance of 5 km. The landscape of the area around the village is of agricultural land and deciduous forests.

Hunsur has been protecting a sacred grove, Aigala Mathada kanu or Hunsur kanu, for generations. Legally the forests under the grove are reserved forests, brought under government control during British rule (for details, refer to Karnataka state chapter). The terrain of the grove is almost flat. The approximate area of the grove is about 50 ha. The major species that are present here are mango, dhupa, uppage, aradala or murinahuli and shuntikayi mara.

Towards community conservation

Although the sacred grove had existed for generations in the village, it was only about 40 years ago that the protection efforts started with a new vigour. Facing indifference and overuse, the forests around the village were gradually degrading, including those in the sacred grove. This degradation directly affected the availability of water in the village. Realisation about decreasing availability of water led to the formation of the Hunsur Gramabhivruddhi Trust (HGT) for forest protection.

Certain rules and regulations followed by the villagers with respect to the sacred grove include:

1. No one is allowed to cut the green trees or green leaves from the conserved area.
2. Outside villagers are not allowed free entry into the forest.
3. Villagers are allowed to collect NTFP in a sustainable manner.
4. Dry leaves are allowed to be collected from the forest.
5. Fuelwood from this forest is auctioned to the villagers once a year during the summer.

Offenders are fined an amount ranging from Rs 10 to 1000 by the Gramabhivruddhi Trust. The money obtained through fines is collected by the HGT and is used for developmental activities in the village.

Till about a decade ago, the village followed a system of patrolling the forests by rotation. This system was called *kuyilugatti* system. *Kuyilugatti* in the local language means a kind of sword. The sword would be kept in the households of the village by rotation, throughout the year. The family in whose house this sword is kept undertakes the responsibility of protecting the conserved forest. This practice has now been abandoned.

Within the village, the conservation effort was initiated by the older generation but the younger generation is well aware of the importance of this effort.

Impacts of community conservation

The conserved area has a good vegetation canopy. Villagers claim an increase in the groundwater level since the protection started. Villagers are now able to procure a good quantity of fuelwood and dry leaves for making farmyard manure. The efforts by the HGT for the conservation practices in the sacred grove have also been recognised and won awards from the government.



Constraints and opportunities

K.C. Khannappa, an active member of the trust, recalls that there have been three or four attempts by the government to cut the trees within the grove. In 1967 the Karnataka forest department (KFD) gave out a contract for logging of trees in this area. In 1969 some plywood factories received a tender for selective felling of trees. In 1971, a contract was given to extract *dalchini* bark. However in all these cases the villagers have successfully avoided the entry of outsiders by staging a *dharna* (demonstration) and *satyagraha*.

Earlier, in 1961, a local landowner, who had started to encroach upon this forest area by digging trenches, was also stopped by the villagers.

Over the years the villagers have also received help from a few NGOs, including the Vruksha Laksha Andolan and Seva Sagar Trust, in their efforts. These NGOs have launched an *abhiyaan* (campaign) for protection of the sacred groves in this region.

This case study has been contributed by Mr. Narsimha Hegde/ Balachandra Hegde in the year 2001. Additional information was added from the 'Saving the Western Ghats Ecology' section of *The Hindu* dated 23 September 1999.

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Shiroor Alalli village, Shimoga

Background

Shiroor Alalli village falls within the Maraatur Panchayat of Sagar taluka in Shimoga district of Karnataka. This village is located at a distance of 10 km from Sagar on the Sagar-Honnar road and is adjacent to the Bangalore-Honnar highway. The village has a bus stop in the vicinity and the railway station is 3 kilometers away in Talguppa.

The village houses approximately 120 families with a population of nearly 700 people. The traditional form of housing of tiled roofs is distinct. Agriculture is the major occupation, with secondary occupations like trading, and service. The important crops grown here are arecanut, coconut, paddy, sugarcane, groundnut and banana. The village has a primary school for children which is located at a distance of 1 km from the village and a high school which is located at a distance of 3 km from the village.

Forest type around the village is moist deciduous to semi-evergreen. Geographically the terrain includes gently sloping forest hills. The villagers practice conservation in about 40 ha of the forest since it is considered sacred by the local villagers. Locally, this sacred grove is called *adergudde*. Major species present in the forest include hunal, matti, honne, nandi, sandalwood and bamboo.

Towards community conservation

Forest conservation efforts in this village were inspired by the similar efforts being carried out by the neighbouring village Hunsur Kanu. About 16 years ago the villagers of Shiroor Alalli decided to give full protection to the *adergudde* area. The *adergudde* area was almost a degraded land due to exhaustive logging activity, timber smuggling and forest resource exploitation. The villagers then set up a committee called Alalli Gramabhivruddhi Samiti (AGS) to protect the area. The committee has formulated some rules and regulations that are strictly practiced till date. These include:

1. Prohibition against cutting of green trees and collection of green leaves.
2. Dry leaves from the forest can only be brought by headload.
3. Fuelwood from this forest can be collected only twice a year and use of any vehicle to transport it is prohibited.
4. A fine ranging from Rs 25-400 is levied on those accused of cutting trees or collecting green leaves, depending upon the degree of the offence.
5. Outsiders to the village are restricted from free entry into the conserved area.

These decisions have been worked out and are being implemented entirely by the village. There is no involvement of NGOs or any other external body in the initiative.

Impacts of community effort

The marked conserved area is offered effective protection by the villagers. Subsequent to the protection the area exhibits good vegetation canopy mostly with young trees. The money obtained from the penalty claimed by the committee from offenders is redirected towards village development activities. Additionally, because of greater availability, villagers' need for fuelwood and dry leaves is being partly met from these forests. The evident output towards protection of the sacred grove area has won the AGS an award from the state government.

Opportunities and constraints

Villagers strongly feel that conservation efforts in the sacred grove are putting pressure on the forest resources that lie outside the sacred grove's boundaries. With an increase in people's needs, their requirements are regularly being met by consuming resources from these surrounding forests.



Conclusion

This case study indicates that when protecting an area for the sake of religious sentiments did not work, regulated use of the resources for meeting basic requirements actually led towards conservation efforts. However, in the initial years of protection, the pressure on the surrounding forests increased. But in the long run regeneration of resources will only help reduce that pressure.

This case study has been compiled by Narsimha Hegde and Balachandra Hegde, c/o Pandurang Hegde, Basavaraja Nilaya, Chowkimath, Sirsi- 581 401, Uttara Kannada. The information was provided in the year 2002. Another source for information is a feature 'Saving the Western Ghats', Ecology Section of *The Hindu*, dated 23 September 1999.

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Kaggaladu village, Tumkur

Background

The tiny village of Kaggaladu is located 9 km to the north-west of Sira Town of Tumkur District, in Karnataka. This village is inhabited by about 500-600 people. Agriculture is the primary occupation of the villagers and they mainly grow ragi (finger millet), wheat and groundnuts. Another source of income is the sale of tamarind that grows on the trees in and around the village.

This village has undertaken effective conservation efforts for birds like painted storks and grey herons, which flock here in plenty for nesting purposes every year.

Towards community conservation

In 1999 this village experienced a strange happening. Hundreds of painted storks descended upon this village for nesting and breeding purposes. For about 9 years before this, these bright and colorful birds had only been spotted in ones and twos in paddy fields and by the lakeside. Since 1999 (barring in 2005, which was a drought year), these migratory birds have been returning to this village for nesting every year. Enthusiastic and strict protection to these birds is voluntarily offered by the villagers. Villagers have a warm bonding with these winged beauties and some believe that they are harbingers of rain and prosperity.

The villagers were initiated into conservation by a local farmer Shivappa, who first offered protection to the birds after learning that these avian visitors came from far off lands and were endangered species. The villagers tried to approach government officials for the protection of the birds but they did not get any positive response. They then decided to take up protection of the birds by themselves. An informal local body has been formed in the village for the protection of the birds, anyone in the village can be the member of this body and Shivappa continues to play an important role.

Most of the birds nest on tamarind trees, some of which are owned by the villagers while others are owned by the government. The tamarind harvest generates an annual income of Rs. 3,000 per tree. The tamarind harvest time coincides with the nesting period of the birds. The local *gram panchayat* has imposed a ban on the auctioning of tamarind fruits from all trees irrespective of their ownership. The implication of the rule is to create no hindrance for the birds and not to displace them from the trees. Rs. 3,000 per tree is paid by the forest department to the owners to compensate for the loss. In 1999, the state forest department sanctioned an amount of Rs. 10,000 to erect fences around the nine tamarind trees which were home to these birds. The villagers actively participate in protection including children who also protect and rear the young ones that fall from their nests accidentally either due to strong pre-monsoon winds or due to over-nesting.

In 1999, some members of Wildlife Aware Nature Club (WANC), a NGO based at Tumkur and working for conservation issues in Karnataka, got involved with the protection of the birds along with the villagers. These members lived in villages nearby. They submitted a request to the forest department, subsequent to which a veterinary doctor of the neighboring village Gaudgere, started paying regular visits to Kaggaladu for providing treatment to the injured birds.

The NGO started an orphanage for the fallen and injured birds. Initially, fish fallen from the beaks of feeding parent birds were used as a source of food for the injured young ones. However, increasingly that is not enough and fish has to be bought from the market to feed all birds in the orphanage. WANC then approached the fisheries department to provide fish for this purpose.

Opportunities and constraints

Since protection is afforded by the villagers, there is little threat to the birds in the village. One of the major reasons that the birds roost in the village is the presence of a number of traditional irrigation tanks/wetlands within 20 km radius of the village. These include Kallambella tank, Handenahalli/ Lakshmisagar tank, Kaggaladu big tank and Hosur tank. These tanks provide easy availability of food for the birds.



The real threat to these birds comes when the birds are feeding at these tanks. In 1999, when the birds made news in the local papers, there was a rise in the number of poaching incidents at these tanks. Based on the information from WANC and the highlighting of this issue in the local news papers by WANC, action was initiated by the late M.N.Narayanaswamy, local deputy conservator of forests (DCF) and Suresh K Mohammad, Superintendent of Police to prevent such acts. A number of unlicensed guns were seized from the area. Meanwhile, a group of 30 village youths came together to form the Bannada Kokkre Rakshana Samithi (a committee to save the painted storks) for action against poachers. Since then, there have been some new incidents of poaching in 2007 at Lakshmisagara wetland and action needs to be taken again.

When the place made headlines in 1999, there was a big influx of tourists to see the birds. These urban tourists would bring polluting vehicles and plastics, which disturbed the environment of the village. Tourist activities have been controlled to a certain extent by display boards describing a set of 'dos and donts'. These boards have been put up by the local forest department. The village youth ensure that the rules related to bird protection are enforced and birds are not disturbed.

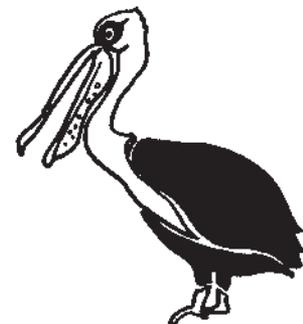
Conclusions

This initiative is an example of how local villagers conserve birds with the district level NGO (WANC) using its resources to highlight threats to these birds and the territorial wing of the state forest department using its resources to conserve wildlife under its jurisdiction. The forest department now compensates the villagers for the economic losses suffered by them. The villagers consider these birds as a part of their village and do not feel that their resources are being exploited by making provisions for these birds. The villagers innately understand that the birds have to be protected, as they are indicators of sound environment conditions. There is a need to build on this understanding and extend all possible help and support as and when they require, rather than co-opting their initiative.

This case study has been compiled based on information in Ahmed A. 'Large nesting colony of Painted Storks and Grey Herons identified in Karnataka', *Newsletter for Birdwatchers*, Vol. 39, No: 2, (Bangalore, Mar-April 1999). 'Painted Storks make a beeline for K'taka village' (*The Indian Express*, All India edition, 22 March, 1999). Information was further updated by Ameen Ahmed, Bangalore, in 2007.

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Nagavalli village, Tumkur

Background

Located in Tumkur district about 86 km from Bangalore, Nagavalli village peacefully co-exists with an endangered species, the slender loris, the smallest of the primates in India. Slender loris is found in abundance in and around Nagavalli village, and thanks to a government high school teacher the village is well aware and proud of this wealth in their backyard.

Towards community conservation

In 1996 some children saw two small 'monkeys' sleeping on a bamboo clump in the school compound. When the villagers searched the clumps, they were found to be slender loris which excited everyone, recalls the school teacher V. Gundappa . According to him subsequently several people in the vicinity started reporting to Gundappa about spotting the rare animal in their areas too. These primates are found in Lakkenahalli, Sopanahalli, Timmasandra, Pannasandra, Banavara, Bidrekatte, Dommanakuppe and Bellagere, all neighbouring villages of Nagavalli.

Today, children from schools in and around Tumkur visit Nagavalli to see the animal. Villagers' have made friends with the loris and no one harms them. "We are used to seeing these animals throughout the day. Sometimes in the evenings we see them crossing the road or moving in the bush," says Maruthi, a villager. Interestingly, slender loris can be easily spotted only during nights because it is a nocturnal animal. But, in Nagavalli, even a school kid can guide you to the tree where slender loris rest in broad daylight.

"Today, these primates are facing the danger of habitat destruction. A few electric wires which have come up in the village are also posing a threat. We have requested the government department to insulate the electric wires where the loris is usually found" says Gundappa. According to Tumkur deputy conservator of forests M. Parameshwar, the department could not make Nagavalli a popular spot as the exact number of these animals was difficult to estimate. Conservationists are now planning to put pressure on the forest department to declare the village as community conservation reserve, however that must be done with the consent of the villagers and with their full participation."

This case study has been taken from Upadhye, A.S. 'This village has an unusual friend'. *The Sunday Times of India, Times City* (Bangalore). Also see: <http://epaper.timesofindia.com/Daily/skins/TOI/navigator.asp?Daily=TOIBG&login=default&AW=1190527197187>. Or write to: amit.upadhye@timesgroup.com

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Doddabail, Uttara Kannada

Background

Doddabail is a little hamlet near Bhairumbe Village, which is about 12 km from Sirsi town, in Uttara Kannada District of Karnataka. It is a typical village of the Malnad area of the Western Ghats, situated in the midst of reserve forests, *betta* land, areca nut orchards, and paddy fields. About 15 maratha families live here in mud huts with tiled roofs. Eight of them own land, while others are landless. All the landless are engaged in farm labour.

Towards community conservation

The effort by this community to protect a largish patch of reserve forest around them is unique to the area. It all began around 1988-9 (villagers do not remember the exact year but say that Shri Bommai was then the Chief Minister of Karnataka). The forest department was carrying out massive afforestation of the area by planting Australian acacia all over. When they reached Doddabail, the villagers (then only eight families) strongly protested and voiced their opinion against the acacia plantations, their reason being that since no grass grew in these plantations, cattle could not graze there, and that acacia itself was inedible. Their effort was backed by a local farmer, K.M. Hegde, who was respected and had some clout with the higher-ups. 'You grow your forests, we'll grow ours,' they told the forest department officials. Arvind Hegde, who was the Ranger at that time, was wise enough to be sympathetic to the villagers' request. Hence the barbed wire around a bare slope was removed, and the villagers took over some 25 acres of land for protection. Interestingly neither is there a written agreement between the forest department and the villagers, nor have any boundaries been marked. Legally, this area is still a reserved forest under the jurisdiction of the department.

One strict rule for protection has been that the regenerating saplings should not be destroyed by anyone. Activities such as cattle grazing, firewood collection, etc. are allowed. The firewood requirements of the village are met from these forests. Cutting of trees or even branches is strictly prohibited. For the protection of the forest there has been no defined policing system; however efforts towards protection have worked effectively. Today, there are a number of forest tree species, such as sandalwood, jamun, jambe, etc. standing tall at over 15 feet in this area that was once a bare slope. One point of concern is that in this standing forest there is no understorey and the grass is grazed to the ground. This can have a serious impact on the quality of forests in the long run.

The land use here is similar to that of regular *betta* land. The entire protected area has been divided into eight parts. Each of the original families owning land has access to one part of this land for leaf litter collection for their areca orchards. Grazing is allowed all over the forests for all 15 families. The villagers are currently considering putting up a fence and having some regulated system of grass cutting, rather than allowing free-for-all grazing. They are also considering plantation of local species of trees, unlike the previous years when only natural regeneration was preferred.

One of the villagers, Negu Alu Marathe (in his 50s) categorically said that cutting trees was like cutting off the legs of his children. His father, Keriya Kesu Marathe, an old man, rather hard of hearing, and an original pioneer of the protection work, nodded in affirmation. The women of the family, Parvati and Kalavathi, also voiced their opinions on the importance of this community effort to protect their forests.

According to the villagers themselves and also people from outside, Doddabail villagers have a good understanding and cohesiveness with each other. This has probably been one of the crucial reasons in the success of the forest protection effort. This also gains importance considering that village power and party politics can often hijack any sort of simple community work in any village.

Doddabail is indeed a small but significant example of how community-based conservation can have its genesis from within, and sustain itself through time. This is also one effort where the



people are motivated, and are looking ahead. The effort was started by the older generation but many in the present generation are also aware of the importance of this effort. Doddabail has received no outside attention so far.

This case study has been contributed by Sunita Rao, Kalpavriksh, Pune in 2004. The author is grateful to Shri Nagaraj Joshi for introducing the village to her.

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Halkar village, Uttara Kannada

Background

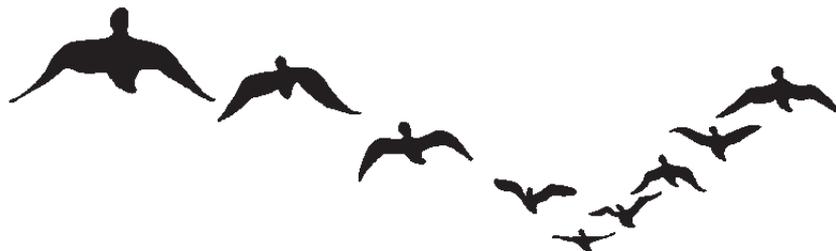
Halkar village portrays a community-based conservation system formalised by the British colonial government as village forest *panchayats* (VFP) about 70 years ago. This is almost a pre-colonial relic of the system that prevailed in the coastal district of Uttara Kannada (formerly known as North Kanara). This is also a very good example of how government apathy, lack of support and negative intervention can gradually discourage and lead to the degeneration of a well-functioning community initiative.

Halkar village is situated towards the centre of the west coast of Uttara Kannada district (which lies between 13° 55' and 15° 31' north latitude and 74° 09' and 75° 10' east longitude) in Karnataka. The village is on the banks of the estuary of the Aghanashini River. Halkar lies on the outskirts of Kumta town, with an area of about 200 ha, of which about 60 ha are submerged in the backwaters. The lands all around the backwaters have rich plantations of coconut palms, mango, jackfruit, banana and areca nut. The forest landscape is of semi-stunted type. The total forest area is 89 ha. The forest trees seldom exceed 10 m in height. The number of trees was not more than 100 per ha before the 1990s. However, plantation of fast-growing exotics in the gaps, which the forest had in plenty, has considerably increased the tree population. The species planted are mostly Australian acacia and casuarina. Cashew trees have also been raised in small patches, expecting to bear the nuts in the near future. The village is able to meet its regular requirements of fuel, leaf manure and minor timber on a sustainable basis from the community forest.

Notable among the evergreen trees are two species of blackberries or neeilu, andamurugila, kokum, surugi, halchary and bokalu. Amongst the leaf-shedding trees there are kavala, gojjalu and honagalu. Several herbs and climbers are found in the forest, including notable medicinal plants like agnishikha and satavari. The few mangrove trees left in the *gajni* (estuarine rice lands) are uppati, ipati and kandale.

Among the fauna, jackals are common and their number has increased since the raising of the exotic trees. Other species that are found here are hyena, black-naped hare, Hanuman langur, wild boar and barking deer. Around 50 years ago, panthers occasionally used to come down from the Western Ghat forests into this forest. Of the many birds found in the forest are herons, kites, red-wattled lapwing, jungle fowl, spotted dove, rose-ringed parakeet, oriole, cuckoo, kingfishers, tree-pie, coppersmith barbet, Indian peafowl, drongos, warblers, bee eaters, etc. Most of the estuarine birds like black-crowned night heron, ruddy shelduck, common teal, greater spotted eagle, grey plover, European golden plover, Kentish plover, lesser sand plover, whimbrel, redshank, marsh sandpiper, whiskered tern, pied avocet and rosy starling are found in the Aghanashini backwaters. The backwater marshes are excellent breeding grounds for fishes, prawns, bivalves, crabs and various crustaceans. The villagers here normally do not hunt. Some outsiders occasionally hunt for hares. The birds of this forest do not face any major threat.

According to the 1991 census, Halkar had a population of 1016, with 177 households. Halkar has a multi-caste Hindu society, who live in harmony despite their social hierarchy. Agriculture is one of the main occupations of the villagers. As a result of the abolition of landlordism, in the 1970s the patgars, who were traditional tenant farmers, became the owners of most of the rice fields, each of them owning approximately one hectare or less. The able-bodied people move out seasonally into the interiors of the district, after the planting of rice in the *gajnis*,¹ to work in the arecanut gardens of the havik brahmins². However, nowadays many members of these agricultural families pursue other education-based professions like banking, teaching.



The gunagas or kumbhars are traditionally potters. They also officiate as priests for the folk deities of the village. Barring a few families, the rest of them have diversified into business, transportation and other vocations. The Madivals or traditional washermen have also diversified into other professions. There is an outflow of the younger generation towards urban centres for business activities. Earlier the Mukris were hunter-gatherers and agricultural labourers who yet continue to be on the lower rungs of the socio-economic ladder.

Most villagers grow vegetables and various tubers for subsistence and some trade. Laterite bricks (which are quarried from the forest) and forest produce provide a major source of income to the village forest *panchayats*.

Sacred groves dedicated to folk deities were a characteristic of Halkar till recent times. The Mother Goddess of the village (Choudamma) was associated with a grove till about 25 years ago, which has now been replaced with a shrine.

Legal status of land and resources

Legally the forest of Halkar is under the jurisdiction of the forest department, but pursuant to the provisions of the Indian Forest Act of 1927, a village forest *panchayats* was constituted in Halkar in 1930. The village forest *panchayat* system gives virtual control over the forest to the village community, although the land is still legally under the forest department.

Overall administrative profile

Halkar village is in Kumta, one of the 11 talukas of Uttara Kannada district. The head of the taluka is the *tahsildar*. The Deputy Commissioner is the highest official government rank in Uttara Kannada district. Halkar village is a part of Holanagadde Panchayat³, which is responsible for public works such as roads and supply of drinking water, in addition to running of schools, health care systems, etc.

Towards community conservation

Prior to the British arrival, in the early 19th century, the forests of Uttara Kannada were mostly managed by the village communities.⁴ Most villages had large sacred groves of similar landscape, known as *kans*, covering several hectares in area. Tree cutting was a taboo inside the *kans*, but gathering of non-timber forest produce such as black pepper, fruits, seeds, palm toddy, etc. was not a violation. The *kadu* or ordinary forest was used by the people to meet their biomass needs such as fuel, leaf manure, poles, timber, etc. The *hakkalu* or *kumri* were shifting cultivation areas, where during the fallow period the forest would regenerate. The *bena* or grazing areas were maintained as grasslands by setting them on fire periodically to destroy woody growth.⁵

In 1805, during British rule, the new rulers laid claim over the forests of the Western Ghats, by classifying them as reserved exclusively for the state. By the end of the 19th century most of the sacred *kans*, secondary forests, shifting cultivation areas and even the savannised areas in the vicinity of villages and towns had been notified as the state-reserved forests of Uttara Kannada. However, heeding the persistent demand for privileges in the forest by the villagers, especially for leaf manure, fuel and grazing of cattle, the British allotted the much-degraded forests or minor forests and savannas to meet peoples' needs. The Bombay Government made a provision in its forest policy for the formal creation of village forest *panchayat* (VFP). This was done under the provisions of the Indian Forest Act, 1927. Under the provisions of this Act, panchayats or councils were mandated to elect representatives of the villagers. Subsequently, by 1930, nine VFPs were formed in the Kumta forest range, covering 11 villages, and a total area of 1814 ha. The Halkar VFP was one of them.⁶



Halkar wetland and forest Photo: MD Subhash Chandra

The formal institutional structure and bye-laws were provided by the Government of Bombay. The VFP has a General Body (GB). Of the 206 households known to exist in Halkar today, 186

households are members, represented by individuals above 18 years who legally possess the rights to the property. The eligibility criteria for membership are that the family should have resided in the village for minimum of 10 years, should own cattle and actively participate in VFP activities.

The GB of the VFP has an elected managing body (MB) consisting of nine members. The MB representatives belong proportionately to the various caste groups, of which two members each are from the harikanta (fisherman), patgar (estuarine farmer) and gunaga (potter) castes, one each from the brahmins and harijans (a collective term for low-caste Hindus) and one member from a general category, by popular choice. Amongst these members one would be elected as chairman, and another as vice-chairman. A secretary is appointed to look after the daily administration of the VFP, whose services are on payment of a modest honorarium. A watchman is also appointed from among the villagers, whose services are also paid payment. The democratic element means that the VFP is accessible to all the villagers, irrespective of the caste to which they belong.

The elections of the MB of the VFP are conducted once in three years, under the supervision of the *tahsildar*. Each caste group elects its representatives separately and the general category representative is elected collectively by all villagers. There is no gender bias against women contesting and participating in the VFP, although there seem to have been no instances of women contestants so far. The MB meetings are held on every second Sunday of the month, while the GB meetings are held once in six months, and at any other time during any important contingencies. The accounts of the VFP are audited every year by the *tahsildar*.

Halkar has a democratic system of resource sharing, which includes the following features:

1. Each bonafide household is issued a 'pass' every year by the VFC for a fee of Rs 15.
2. Only one member from each pass-holding household is allowed to gather fallen leaves for manure and dry wood as fuel.
3. A pass-holder may collect not more than one headload of branches (dead and fallen or dead branches broken by hand) from the forest towards fuel purposes.
4. The fallen leaves for fuel or manure may be collected only during the dry season.
5. The quota for each household is limited to a headload of 25-30 kg a day.
6. Green twigs for manure purposes may be collected only from bushes during the rainy season.
7. Wild berries and medicinal plants for their own use may be freely collected.

As mentioned earlier, the villagers are provided laterite bricks quarried from the village at a concession. The dead trees are auctioned amongst the villagers only, and one family can bid for only one tree, creating a scope for participation of the poorer people. The plantation species like acacia and casuarina are cut by the VFC itself and sold to needy households at prices lower than the market rates. The village community is well aware of the limited resource provided to them under their control. Those in need of more than the required quotas of plant biomass go to other forests several kilometres away. Due to conservation efforts, the forest of Halkar is reasonably well stocked to meet the villagers demands for leaf manure and fuel, thereby eliminating any resource depletion of other forests.

Box 1

Traditional estuarine farming and sustainable system of fishing

Most traditional agriculture in Halkar and other estuarine villages consisted of rice cultivation in the shallow parts of estuaries called *gajnis*. The process of rice cultivation in these *gajnis* was due to the collective efforts of a large number of farmers. The patgars took the leadership in the building and repairs of embankments, control of water flow, and all other agricultural operations. They showed concern and initiative in planting mangrove trees along these earthen dams. The entanglement of the aerial roots of the mangroves prevented erosion of the dams. The fishermen also believe that the presence of mangroves is a major factor for larger production of fish in the estuaries, as the mangroves increase nutrient supply. During the tides, saltwater finds a way in and out of the *gajnis* through a network of natural drainage channels called *kodis*. Rice cultivation in the estuarine rice fields does not require manuring or ploughing. On the other hand, manure obtained from cattle and leaves collected from the forest are added to the normal rice fields called *gadde*.

When earthen dams were made, the flow in the *kodis* was controlled through several sluice gates, which facilitated thorough drainage of the *gajnis*. During the pre-monsoon weeks,

towards the end of May, the gates were closed after the saltwater was drained. Subsequent to the torrential rains of June and July, these *gajnis* would be refilled and the salt-tolerant *kagga* rice was raised. Following the harvest of rice, usually in November, free flow of tidal waters was permitted in the *kodis* through the sluice gates. This permitted fishing activities of fishermen of the village in these *gajnis*. Customarily, only 3–4 families would practice fishing in a *kodi* and by way of mutual understanding never violated the *kodi* borderlines. They fitted nets called *gantivale* towards the mouth of the *kodi*, to trap fish that would be going out of the *gajni* at low tide. They also used a kind of scooping net called *gorubale* to fish inside the *kodis* at any time of the year, since the *kodis* were not planted with rice due to their depth and strong currents of water. Two people held the *gorubale* and went against the flow. Since the net stood a few inches above the soil, the fishing exercise would not exhaust the fish stock. The villagers adopted a system of sustainable fishing.

Fishing was restricted to the fishermen except for patgars and mukris who occasionally caught fish for personal family consumption. Patgars made basket-like devices of bamboo strips that were used for fishing, unlike the harikantas, who lacked the expertise in making them. The Harikantas used nets, which had larger mesh than the ones used nowadays, thereby allowing smaller fish, especially juveniles, to escape. The local community management system of the estuary never encouraged exhaustive fishing. The practice of planting mangroves, upkeep of mangrove sacred groves, and earthen building (rather than stone and dykes as used today) minimised the human impact on the estuarine ecosystems, ensuring sustainable use.

Monitoring and evaluation

The Halkar village community regularly monitors the functioning of the VFP with regard to account maintenance and responsible performance by the office bearers. Being an officially constituted body, the government has a vital role to play in the matters of the VFP functioning that may exceed beyond its authority. A regular event is a tree-planting ceremony held on 15 August every year, when the entire village community assembles in the forest and each family plants one tree.

Constraints and opportunities

Changes perceived in the habitat

During the early 1970s, under the Kharland (*gajni*) Development Scheme of the Karnataka Government, a series of permanent dykes were built of stone, intended to protect the *gajni* fields from salt water inundation. Once the *gajnis* were being protected by permanent dykes, the farmers felt no need to plant mangroves, which were a prerequisite for protection of the earlier earthworks. As a result, the existing mangrove flora suffered substantially, impoverishing the estuarine ecosystem of the Aghanashini on the whole.

Although the dykes were built to protect the rice fields from saltwater inundation, very soon outside forces entered the backwaters of the Aghanashini with tumultuous effects on the ecosystem, economy and social harmony among the people. Soon after the building of dykes, under the persuasion of outside fishing contractors, the farmers started storing the tidal waters in the *gajnis* in the post-harvest period for growing fish, mainly prawns, which fetched good prices in the international market. The estuarine fishing community was victimized due to such a development. There were restrictions imposed on them for fishing in the *gajnis*, sometimes forcefully. The only time they could now fish unrestricted was during the first few weeks of monsoon rains, when the contract period for fishing expired. Harikanta fishermen, having lost their source of subsistence, started moving out to seek employment in the more organised and mechanised sea-fishing sector in places as far as Mangalore, Cochin, Ratnagiri and Goa. The plight of their womenfolk, who used to sell fish, became more serious. They were compelled to purchase fish from markets and sell them for a small profit in the villages. There was a marked change in the fishing techniques as well. The traditional nets (*goruvale* and *gantivale*) were replaced by hand-held trawl nets, with small meshes, made to scoop the water of the *kodis* flush with the bottom, giving no room for fish to escape. Even patgars, who earlier did not use fishing nets, started using these trawl nets.

Early in the 1990s, the forest department planted fast-growing exotics, mainly Australian acacia and casuarina in about 30 hectares on the banks under the Wasteland Development Scheme of the Government of India. In 1997-8, the department also planted about 10,000 saplings of cashew and about 1000 saplings of teak. This trend of plantations led to suppressed growth of many other species that were growing earlier. These fast-growing exotics have of late provided a quick solution to villagers requirements of fuel and leaf manure.

Government interference

In case of any threat to the forest, the entire village is alerted and an emergency GB is convened. One such instance occurred in the early 1990s when the state government allotted about six hectares of the village forest to the Konkan Railway Corporation for laying down the west-coast railway line, without consulting the VFP. The villagers were helpless to resist this mega-project, but they unanimously opposed the entry of a private contractor for clearing the forest along the rail alignment. The Railway Department was forced to give in to the villagers' protest and they handed over the clearance of the trees to the villagers by coupling it with paying service charges. This wood was then sold to the villagers at nominal rates by the VFP.

Another instance occurred in the 1970s. After the reserved forests under the control of the state government were degraded because of excessive extraction, the government gave permission for industrial logging in the Muroor Kallabe forest. This forest was one of the 9 well-established VFPs during that period. The protests from the villagers were countered by the Government Order to surrender control of all forest *panchayats* to the state, with which seven of the nine VFPs complied. It took a 10-year-long legal battle by Halkar & Muroor Kallabe to receive justice. However, this legal battle demoralized the villagers to a great extent and the efficiency of the village management system went down significantly.

Administrative interference

Since then administrative interference has carried on in different forms. According to the provisions of the law, one of the *tahsildar's* duties is to monitor the financial accounts of the VFP. For the last two years the *tahsildar* has ordered auditing of accounts by the government auditors. The conservation efforts by the villagers are based on informal mutual understandings. The procedure of government auditing has challenged the faith in the traditional system of the villagers. Moreover they feel that the audit fee being levied on the VFC is quite high. The villagers feel that there is no need for the government to conduct audits, since the VHP has not utilised any government money.

Changing aspirations

With the passage of time, economic perspectives matter more than the ecosystem. The rise in prawn culturing has led to the decline of the estuarine ecosystem, also affecting the total number of mangroves. Natural regeneration is suffering due to exotic trees being raised. The many sacred groves once embedded in the village forest have been demarcated and given away to temples and shrines.

The younger generation are not active participants towards conservation efforts, as they are unaware of the forest ecosystem functioning. The reasons may be the geographic isolation of Halkar forest, the denudation and watery environment around and the high density of population

Conclusion

The VFP is finding it difficult to cope up with the exacting demands from the state bureaucracy, which needs legal knowledge and administrative skill of a formal type, which the villagers often lack. Earlier villagers were apprehensive about the plantations of fast-growing exotic trees. The availability of fuel, leaf manure and minor timber increased substantially, reducing the villagers' apprehensions. No ecological consultation is easily available for the villagers. The ecosystem is weakening and the soil is impoverished and eroded. Additionally, the villagers are unable to protect the plants from the cattle and goats, which forage freely.

Another major drawback of the VFP is that there is no gender equity in its administration. In Halkar, most households are registered with the names of men as their heads. Therefore men have outnumbered women in the General Body of VFC as members. The prerequisite for women contestants for the MB is that they have to be the members of the General Body. Since most of the resource collectors are women and not men, the VFC needs to amend its bye-laws to give more gender equity in its affairs.

During the last few years, however, several NGOs have visited Halkar to study the system of forest management. NGOs like OXFAM and Vikasat have rendered some help to Halkar villagers to overcome administrative crises, and also conducted short training programmes for VFP members.

Recommendations for the future

- The VFC has to create a greater scope for women's participation.
- The VFC should be assisted from time to time by the forest department and other relevant institutions with regard to the choice of species, especially indigenous ones.
- The species that are chosen should not only meet diverse kinds of biomass requirements of the people but should also render ecosystem services, such as water and soil conservation, and should also sustain wildlife.
- Since most of India lives in the villages, the government should pay greater attention to uplifting the village life. There can be small investments, which are but a fraction of the amount being spent to develop cities. Investments for forest improvement or mangrove vegetation are an effective source of providing long-term returns.

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Endnotes

¹ Estuarine rice fields where the farmers grow *kagga* rice which is tolerant to salinity.

² *Panchayat* is a system of local self-government for groups of villages consisting of elected representatives of the people.

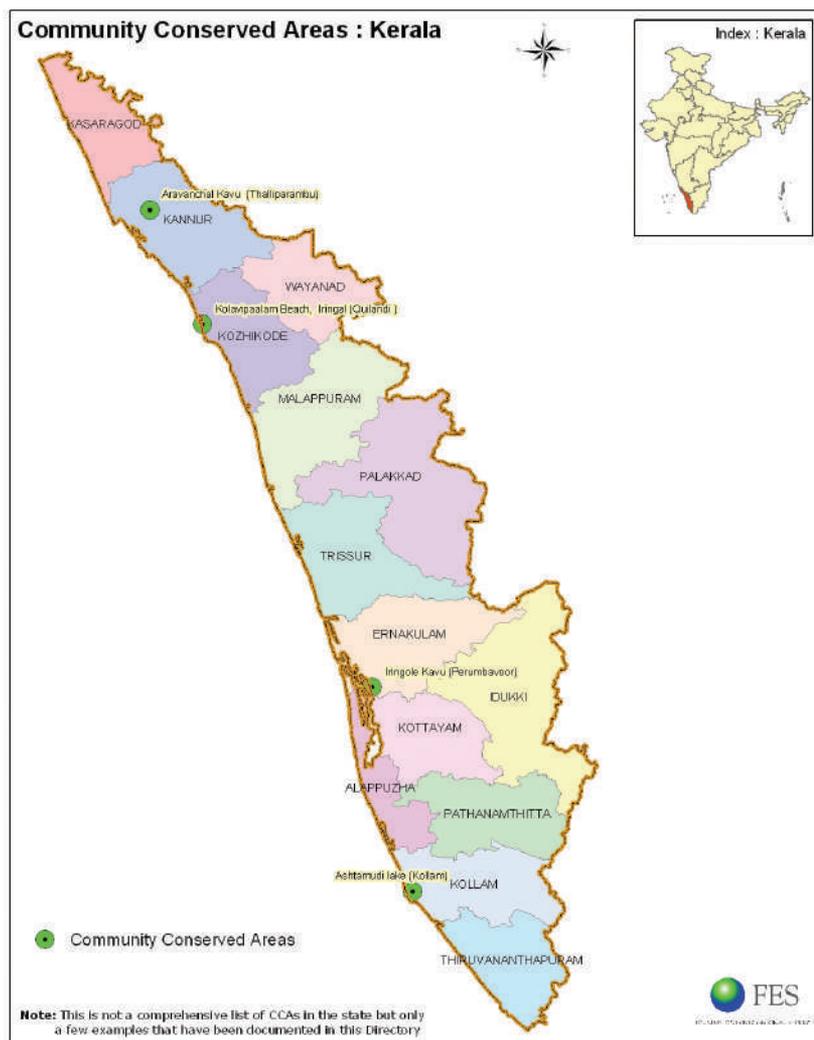
³ F. Buchanan, *Journey through the Northern Parts of Kanara (1801-2)*, vol.2 (Madras, Higginbothams, 1870).

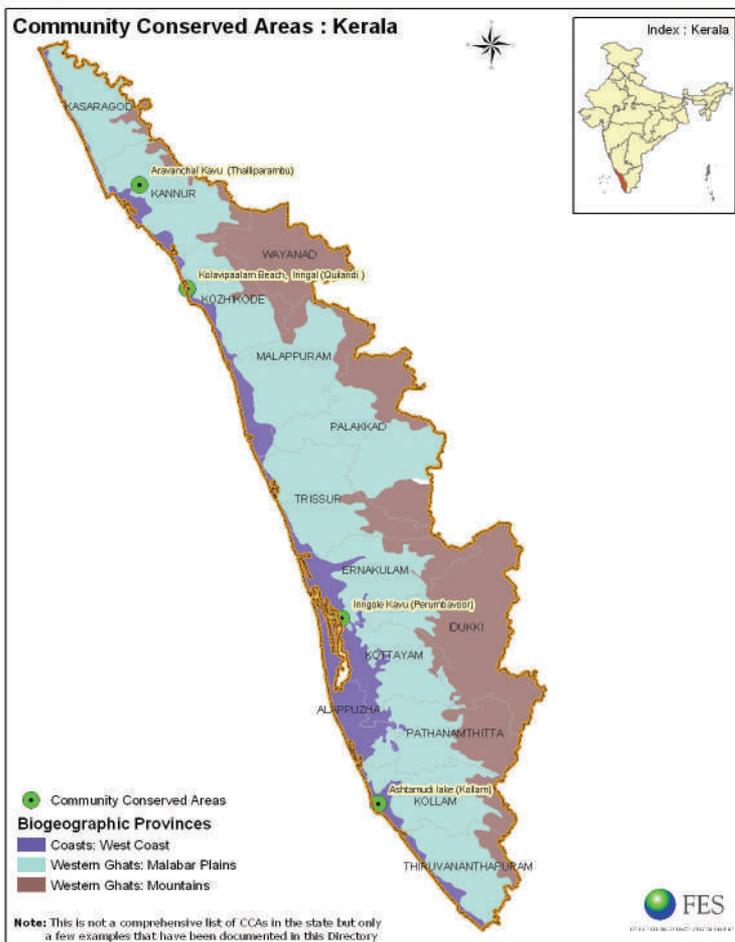
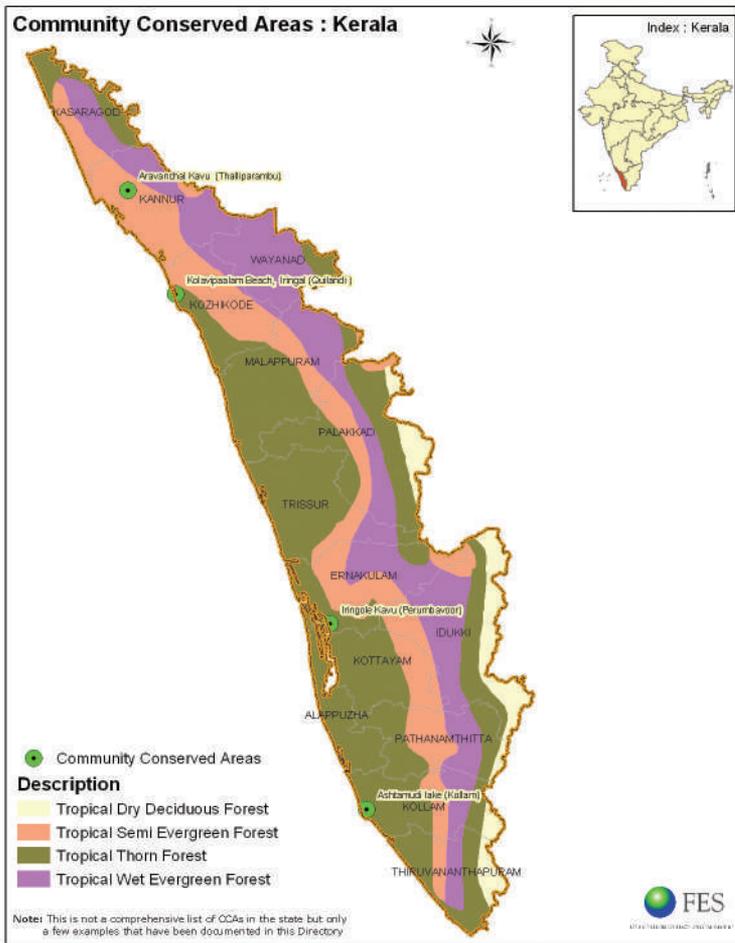
⁴ M.D.S. Chandran and M. Gadgil, 'State forestry and decline of food resources in the tropical forests of Uttara Kannada, southern India', in: Hladik et al. (eds), *Tropical Forests, People and Food: Biocultural Interactions and Applications to Development*. MAB Series, vol. 15 (Paris, Parthenon, 1993), pp. 733-44.

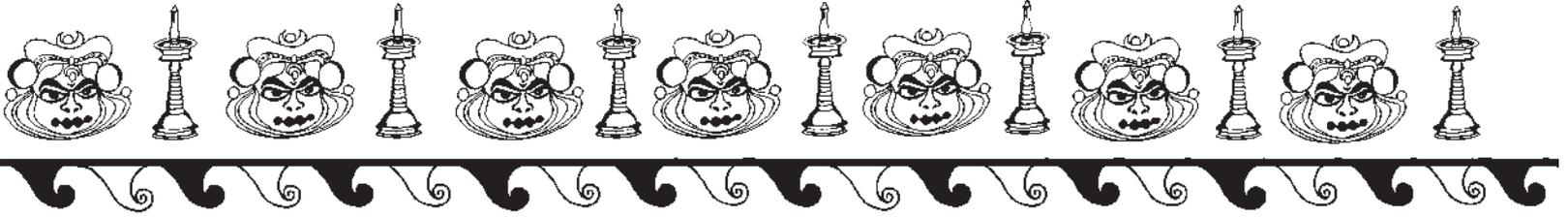
⁵ Chandran and Gadgil. 1993. (As above).



Kerala







Kerala: Community conservation in god's own country

Roshni Kutty

Author's note

In the chapter that follows, I attempt to showcase various shades of community conservation within the context of Kerala's highly literate and politically active society. The discussions that follow indicate that Kerala's traditional-emotional concern for conservation (represented by the existence of sacred groves) and nature in general has been replaced by a more rationalistic attitude towards nature, especially over the last two decades.

1. Background

1.1. Geographic background

The modern state of Kerala (formed in 1956 through the amalgamation of the kingdoms of Malabar, Kochi and Travancore) is a narrow strip of land between 8°18'N and 12°48'N latitude and 74°52'E and 77°24'E longitude, 38,855 sq km in area, and with a coastline of 576 km.

The state is blessed with a climate that provides for luxuriant vegetative growth. Normal expected rainfall is 2718.6mm annually.¹ Water has till recently not been a scarcity item, unlike in other states of India, thanks to the monsoons.

There are 41 west-flowing rivers in the state, in addition to three east-flowing rivers, which are tributaries of the Kaveri. Only four² exceed 100 km in length. Several places of historical and cultural importance are linked to the river systems, indicating the role these water sources played in influencing the historical and cultural development of the state. Some have even influenced political and military developments: Cochin rose in importance as a commercial port only after the 1341 floods in the Periyar choked the Cranganore harbor. Floods in the same river in 1789 prevented the ruler Tipu Sultan from continuing his aggressive advance into Travancore.³

The territory of the state may be broadly divided into three natural divisions: (1) a narrow, alluvial coastland extending only a few miles from the sea and mostly confined to the lower two-thirds of the coastline, (2) a midland consisting of low lateritic plateaus and foothills between 200 and 600 feet, covered with grass and scrub, and (3) the highlands.⁴

The Western Ghats form an almost unbroken wall guarding the state's eastern border. Ranging from 3,000-8,841 ft above sea level, the Ghats constitute the highlands of Kerala. At 8,841 ft above msl, the Anamundi Peak in Kottayam District represents the highest point in India south of the Himalayas. Mostly covered by thick forests, the upper ranges in the Ghats are also dotted with extensive plantations of tea and cardamom, while pepper, rubber, ginger and turmeric flourish on the lower slopes.⁵ The forests are rich in non-wood forest produce, used in myriad ways by local people, including very substantially in the preparation of ayurvedic medicines.⁶

Interspersed with plantations, the lowlands stretch along the coastal plains of the western side of the state. The soil in this region is sandy. Coconut trees grow luxuriantly in the area, dominating the landscape. Paddy is extensively cultivated here.

Sandwiched between the lowlands and highlands, the midlands are characterized by lateritic soils and intermittent rolling hills that lead to the forest-clad uplands. The midlands are extensively cultivated, with paddy, tapioca, spices and cashewnut being the most important crops.

Though cleared areas in Kerala regenerate more quickly than other, drier eco-regions in the country, there are several areas in the state that are increasingly experiencing landslides, acute drinking water shortages and resource erosion.



1.2. Socio-economic and political profiles in the context of conservation

With a population of 31.8 million, Kerala, with 818 persons per sq km, is the second most densely populated state in the country.⁷ It is India's most literate state with a literacy of nearly 90 per cent. The people of Kerala are politically highly motivated.

Before independence, Kerala was divided into three areas: Travancore, Kochi and Malabar. The northern part of Kerala was known as Malabar,⁸ which was directly under the British forming part of the Madras Presidency. In 1792 Malabar was ceded to the British by Mysore while the Cochin Raja and the Travancore Raja, in 1791 and 1805 respectively, signed a treaty with the British accepting British protection. In 1949 Travancore and Kochi were integrated to form the Travancore-Kochi state. All three areas were amalgamated to form the state of Kerala in 1956.⁹

The special features of the political life of Kerala are a high level of political consciousness, influence of caste and religion on the political system, presence of the Communist parties, and coalition politics. An understanding of these features will help us to understand the political cultures of the local communities. High literacy rates, reading habits, exposure to the media, the influence of progressive forces, and student organisations affiliated to political parties functioning from high school to the universities are some of the reasons for Malayalees being a highly politically aware community.¹⁰

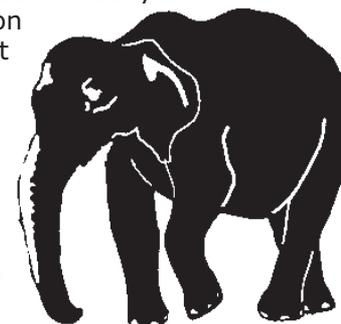
The egalitarian policies of the erstwhile Rajahs of Travancore-Cochin, which were continued by democratically elected governments, ensured that basic necessities such as food, water, health care, housing and education have always been provided to the people. The average Malayali is thus not as hard hit by the lack of basic amenities as people in other states.¹¹

One of the biggest contributing factors to the average Malayali's lack of concern for nature is high population pressure on a small land mass. Over time, this has resulted in few truly wilderness areas that remain for conservation. Kerala has the highest average population density in the country: where there is no land to cultivate or put up a shelter, people are hardly bothered about conservation issues.

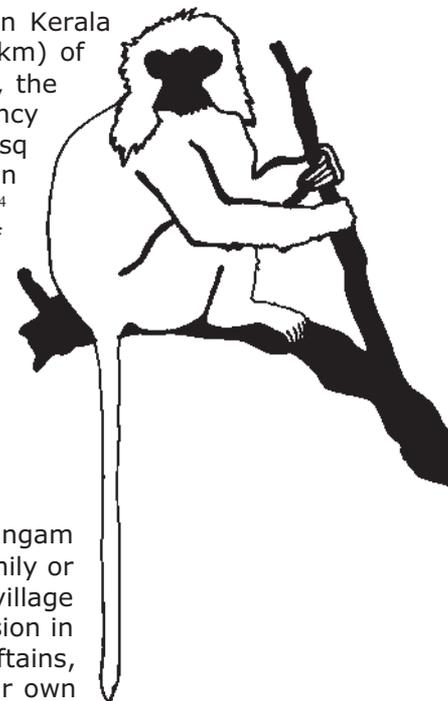
Two demographic processes have had major impacts on present socio-economic conditions in the state: (i) the peasant migrations that began in the mid-1920s, which saw large influxes of settlers from Travancore into Malabar, and (ii) the emigration of large workforces to the Gulf countries with substantial return of income, which resulted in major improvements in the living conditions of an English-educated middle class. Both these factors have contributed to taking the Malayalis far away from their Dravidian roots. With reducing dependence on agriculture, the common person's relationship with the natural environment has diminished. Peasant migration that began in the 1920s came to an end by the 1970s, when practically the entire area of cultivable wastelands was occupied by peasant farmers from Travancore for the purpose of extending cash-crop cultivation in Malabar. The peasants who moved were mainly Syrian Christians from the midland region of the northern half of Travancore. The cultivable wastelands were all owned by the *jenmis* (landlords). However, migrants could lease lands owned by the landlords, but only on terms and conditions of tenancy not favourable to them. The Kerala Land Reforms Act of 1963 and its subsequent amendments conferred absolute ownership on the tenants on payment of a nominal sum as compensation to the landlords. Thus the land reforms encouraged peasant migration.¹²

As Dr. S. Sankar from Kerala Forest Research Institute (KFRI) puts it (with a distinctly male perspective), 'The average Malayali's concern does not stop merely at the issue of survival. He has to have his wife, house and his gold too.' The basic needs are not enough to satisfy the people, and aspirations for a better and more 'convenient' lifestyle are growing. Apart from the above-mentioned migratory processes, the land reforms implemented by the Communist government in the 1950s have also had a major role in changing the socio-economic status of the people. The land to the tiller Act, as it is commonly referred to, has been enacted in nearly every state in India. However, in Kerala its meaningful implementation has taken place, due to the Communist government in power at that time. The land redistribution among the tiller classes uplifted them economically as well as socially. No more were they dependent on doles handed out to them by the upper-caste landlords. The lower castes, who formed a majority of the working class, were now aware of their rights and had learnt to get them too.

Distinctions between urban and rural areas in Kerala are not so clearly demarcated any longer. It may, in fact, be appropriate to say that Kerala's populace inhabits only urban and semi-urban areas.



The Pre-investment Survey of Forest Resources estimated forest loss in Kerala at 3,450 sq km between 1940 and 1970, almost 30 per cent (1,020 sq km) of which was lost between 1960 and 1970 alone.¹³ Between 1905 and 1965, the forest loss in Kerala was 6,400 sq km. The National Remote Sensing Agency reported that the forest loss in Kerala was of the magnitude of 1,200 sq km per year between 1972-75 and 1980-82. Forest cover in the state in 2003 was estimated at 15,577 sq km (40 per cent of the state's area).¹⁴ Encroachment of the forests for agricultural purposes is stated to be one of the main reasons for Kerala's shrinking forests.



2. A Brief history of administrative control over land and resources

2.1. Land revenue systems

Private ownership of land has been recorded in Kerala long before the Sangam age.¹⁵ Land was always owned either by an individual, an unpartitioned family or a temple. There was no land which belonged to the *desam* or *tara* (the village or the area inhabited by a particular community). Until the Mysorean invasion in the mid-18th century, no land revenue was collected in Kerala. All the chieftains, from the ruler (*naduvazhi*) to the *desavazhi* (village head) possessed their own landed properties, which were either cultivated by them through their slaves or leased to *kudiyans* (tenants). This state of affairs prevailed in Kerala in the beginning of the 19th century when the British had begun to establish their political authority over the land.¹⁶

The Chola-Chera¹⁷ war of the 11th century AD led to the total mobilization of the resources of the state. A new situation arose in which the Namboothiris (Malayali Brahmins) came to acquire a dominant position in economic and social life. Since large sections of the society were preoccupied with the conduct of the war, those Namboothiris who were the trustees of the temples mismanaged the temple properties and misappropriated for themselves all their revenue. During this time it also happened that several ordinary tenants who owned lands and properties transferred them in toto to the Brahmins and the temples. They did so because the lands and properties so transferred came to be regarded as *devaswoms* and *brahmaswoms* (temple trusts) and enjoyed freedom from devastation by the enemy forces in times of war as well as exemption from the payment of tax to the state. In the above circumstances, the Namboothiri Brahmins came to acquire the status of wealthy and powerful landlords or *jenmis*.¹⁸

The social awakening among all classes of people in Kerala, the spread of democratic and egalitarian ideas, the increasing pace of industrialisation, the rural to urban influx and the improvement in the level of literacy and educational standards are all factors which hastened the pace of social change in Kerala.¹⁹ The growing consciousness of peasants or tillers that the land belonged to them and that the *jenmi*, who was more of an absentee landlord, was denying them the fruits of labour led to the rise of agrarian movements aimed at land reform. The result was that successive governments in Kerala have given top priority to land legislation with a view to conferring rights on the tenant. The *Jenmi* system has now disappeared and a new class of peasant proprietors with a stake in the land has come into existence. This has transformed the socio-economic scene in Kerala beyond recognition.²⁰ Prior to the 18th century, the fixed rules that governed relationships between the *jenmi* and different classes of tenants also directed patterns of cultivation, development and resource extraction.

2.2. Management of forest resources by the state²¹

The evolution of forest management by the state in Kerala began with conservation by default, for want of options due to accessibility and technological and market limitations in the state's abundant forests. With time, and as limitations were overcome, Kerala's forests were extensively modified. Different phases in Kerala's forest management history (elaborated below) can be briefly summarized as the rise of forestry from the 1840s to the 1940s, turbulence and change from the 1930s to the 1980s and the ascent of conservation from the 1980s onwards.

The spice trade was an important source of government revenue in the kingdoms of Kerala long before the arrival of the first European merchant ships in 1498. Spices were collected from forests, which covered the entire region beyond the coastal and riverside settlements.

Prior to British rule, the forests belonged to one *jenmi* (landlord) or the other. Rivalry between European powers over Asian trade domination led to their insistence on exclusive contracts for pepper in the form of treaties with the rulers on the Kerala coast. Several such items important in trade, including teak, gradually became state monopolies.

Rise of Forestry phase (1840-1940): Teak plantations as a forestry enterprise were introduced in the 1840s by the British, and marked a shift from purely extractive and regulatory forestry to a phase of resource development. The Nilambur²² teak plantations started in 1840 paved the way for the cultivation of teak in other forests of the state.²³ Forestry was organized on commercial lines with sustained yields as the central principle of management, primarily to supply sleepers and fuel for the railways. The German tradition of forest management based on meticulous working plans and rigorous implementation of regulatory prescriptions was followed. The plans were suspended in 1939 to meet the timber and firewood demands of the Second World War. Many plywood industries were established in Kerala during this period.

Turbulence and Change Phase (1930- 1980): Commitments to supply forest produce as raw materials to industries in the post-independence period have continued to disregard prescriptions of working plans in force. The state witnessed intensive mechanical logging operations—in the guise of selective felling—in response to the post-Second World War boom in the timber market. In short, the post-independence period witnessed a demand for timber that far exceeded supply on a sustained yield basis.

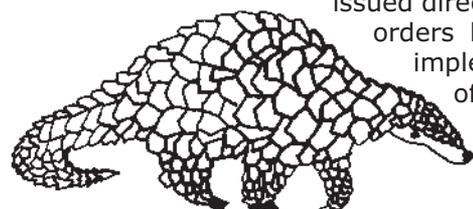
Ascent of Conservation Phase (Post-1980): The creation of a wildlife wing in 1993, an increase in area and number of protected areas, and large investments in research all marked the period of change in forest management. Responding to criticism by conservationists, the expansion of eucalyptus plantations was halted in Kerala in 1984. Clear-felling of plantations at rotation age was stopped in 1985 in wildlife sanctuaries. Even selective felling, which is not controlled by the Forest Conservation Act, was abandoned in Kerala in 1987 due to pressure from conservation groups in the state. Half of Kerala's protected areas were notified in the 1980s, marking the beginning of the 'Ascent of Conservation' phase.

2.3. Rights of forest-based communities

Pre-independence, the tribals who inhabited the forested frontier areas of Malabar, Cochin and Travancore were left mostly undisturbed. During British rule, tribals were required to hand over valuable items such as ivory and collect minor forest produce for depots of the state or its contractors. The state and the forest department considered them as labour reserves in inhospitable areas and also as valuable informants on poaching and smuggling of forest produce. Developments in the timber market and the war demand brought about changes in the intensity of timber extraction, such that the earlier privileges of tribals were reduced to concessions.

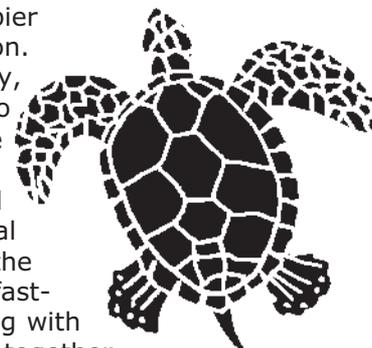
Post-independence government policy favoured the grant of food production leases in forests to non-tribals. Subsequently, large-scale immigration of people from the plains to the hills reduced the tribals almost to the status of landless persons.²⁴ A sizeable chunk of arable land, which the tribals had used for shifting cultivation, was encroached upon, depriving them of their only means of subsistence. The post-Second World War 'grow more food' campaign initiated by the government contributed considerably to this migration to the Malabar region. Land reforms failed to yield any benefits to the *adivasis*. When tenancy and landlordism were abolished in 1970, the tenants were granted occupancy rights; but in the *adivasi* belts, this was twisted, with the settler farmers acquiring the land rights in their garb of 'tenants' and the *adivasis* losing lands from their position as 'landlords'!²⁵

Restoring their rights and lands to tribals would involve disturbing the settlers and planters, who are not only a powerful political force but also belong to the same non-tribal category as most politicians and bureaucrats (see also Section 2.5). An attempt at reinstating their rights was carried out by the state government through the Kerala Hillmen Rules 1964, but the Kerala High Court struck down the rules as being beyond the purview of the state government. This further encouraged an exodus of non-tribals into tribal areas. Although the state government



issued directions for eviction of non-tribals from tribal settlements, these orders have not been implemented. Another legislation yet to be implemented is the Kerala Scheduled Tribes (Restriction of Transfer of Lands and Restoration of Alienated lands) Act 1975 (KSTA 1975). Under this act, all transactions of tribal lands during the period 1960-1982 were to be held invalid and the lands restored to the original owners who would be required to pay a sum equal to the total of the amount received, if any, as

consideration for the transaction and the amount spent by the occupier of the land before the commencement of the act as compensation. The government would advance a sum as a loan to the beneficiary, which was to be repaid in 20 years. Transfer of lands from tribal to non-tribals was also prohibited from 1982.²⁶ The KSTA 1975 was the product of a political compulsion to appease and wean the *adivasis* away from the 'Naxalites', who were active during the earlier period when the act was passed. Two decades later, the mainstream political parties had established their presence amongst the tribals under the organizational control of the immigrants. State repression and a fast-expanding market for cash crops and the plantation economy, along with the fact that *adivasi* lands were held by powerful economic interests, together worked to weaken radical movements. The *adivasis* had meanwhile become a numerical minority in their homelands.²⁷ The political parties and the government did an about-turn from support of the act to a total opposition to it. Thus came the 1996 amendment to the act which exempted the lands encroached upon during the period 1960-86 and those that did not exceed a hectare from the restoration drive. Yet another amendment in 1999 condoned encroachments of up to 5 acres (2 ha). The new name of the bill read thus: the Kerala Restriction on Transfer and Restoration of Lands to Scheduled Tribes, 1999. The word 'alienated'—denoting lands captured by the settlers—had been quietly dropped.²⁸



The collection of minor forest produce has, however, been recently entrusted to tribal societies. This programme initiated by the forest department in 2000 gives the tribal community direct responsibility in protecting forests.²⁹

2.4. Land use and changes of terrestrial habitat and resource use

Forests covered roughly half the geographic area of the state at the beginning of the 20th century and remained fairly intact for more than half a century.

Although plantations were developed in the hills, they were far removed from the settlements; and after the coffee blight (during 1868–80), planters were cautious in taking up plantations. There was no perceptible deforestation. Due to inaccessibility and strict implementation of rules regarding trespass into reserved forests prior to the Second World War, very few people from other areas visited the forests. Therefore, it is not surprising to expect that people believed that forests extended indefinitely, and, as a corollary, that there was no harm in clearing some for any immediate purpose.

The peasant migration that began in the early 1920s was a unique phenomenon in Kerala. Streams of peasant farmers moving from Travancore to Malabar had by the 1970s occupied practically all of the cultivable lands in North Kerala. The subsistence peasants were soon converted into a class of 'forward'-looking commercial farmers.³⁰ Higher population density concentrated on the coast coupled with a small land mass was not favourable for comfortable living conditions in south Kerala. At the same time north Kerala (the Malabar region) was relatively less densely populated, having vast stretches of forest cover that were hardly exploited. This prompted the more enterprising southerners to migrate to the northern parts and make a living on the hills, mostly through plantation agriculture (rubber, tea, coconut, spices, and others).

Between 1940 and 1980, Kerala witnessed both spectacular population growth³¹ and major administrative and political changes. The war had disrupted food supplies and the impact was felt severely in the state, particularly in Travancore, which relied heavily on food imports. The expansion of cultivated areas did not keep pace with the rate of population growth in the twentieth century. There was a marked shift from subsistence farming towards the cultivation of cash crops and plantations of export crops, mostly by the migrating peasants in the newly occupied areas. Responding to the famine, government³² policy began to encourage the expansion of cultivation in forests. There was a steady stream of government programmes encouraging settlements in the forests from the early 1940s through to the early 1970s, so it was inevitable that a spillover in the nature of 'encroachments' would take place. These encroachments were quickly regularized as political parties vied with each other to grant ownership rights to migrant farmers in the forests.³³ This had severe impacts on the local tribal population (see section 2.4). Between 1952-73 Kerala lost 3,400 sq km of forest land for agriculture, road construction and irrigation and power facilities.³⁴

A 'colonisation' programme followed the massive food production drive that was part of the nationwide 'Grow More Food Campaign' in Travancore, and was aimed at pre-empting the possibility of a claim by Madras State on the forests in the high ranges bordering Kerala and Tamil Nadu.³⁵

During this campaign, extensive stretches of road margins and stream banks were released for cultivation by migrant settlers.

Settlements in the hills became even more attractive with the eradication of malaria between 1948 and 1950. The development of roads built to facilitate timber extraction and the construction of dams opened up hitherto inaccessible lands. The post-war boom in the prices of cash crops further propelled the rush of migrant farmers into the forests. In Travancore and Cochin, what remained of private forests were those left uncultivated within large estates of tea, coffee and other cash crops.

In 1971, the state government decided to take over private forests, through the Kerala Private Forests (Vesting and Assignment) Act (KPFA), 1971, as part of its agrarian reforms. It must be noted that while the objectives of the Madras Preservation of Private Forests Act (MPPFA), 1949, was forest conservation, the KPFA sought to facilitate the conversion of forests to agriculture. The annexing of private forests under this Act as a land reform measure enabled the government to confiscate holdings without having to pay any compensation to the owners. Exemptions were, however, permitted in case of lands used principally for cultivation of various plantation crops. These exemptions had the effect of selectively penalizing forest-owners in Madras State, who, having abided by the MPPFA and preserved the forest, now suffered confiscation, while those who cleared the forest for agriculture/plantations were allowed to retain them!³⁶ The frequent regularization of encroachments in Reserved Forests also serves to reinforce this impression.

A new, decentralized approach to administration that encourages community involvement (popularly referred to as the 'People's Plan') introduced by the state government in 1995 has gone a long way in helping local communities decide how they want to manage their natural resources. However, even the decentralized mode of administration through the Panchayati Raj and People's Plan Programme has faced some criticism as the *panchayat* is seen to be nothing but a unit of the political party with no actual people's involvement. An interesting observation by a community conservation researcher is that one needs to look at political interference in reality as caste differentiation in the garb of modernism: whereas the Marxist party represents the downtrodden section, the Congress party represents the slightly more well-off community.³⁷ As our subsequent discussions will show, this has led to the failure or dying out of conservation efforts. In the case of sacred groves (the most common community conservation effort), party politics takes on communal colours and the protection of a sacred grove is implied to be the responsibility of the followers of the Hindu religion.

2.5 Marine resource use changes

The sea has been a permanent and decisive factor in the history of Kerala, which has 12,570 sq km of coastline. Fishery policy during the period 1956 to 1966 can be summarized as having been based on the judicious exploitation of marine resources. During this phase increased fishing effort was applied by the artisanal fisherfolk using their traditional non-mechanised craft and a wide array of fishing gear and tackle. There was a rapid change from cotton to nylon nets. This approach did not last long. By the mid-sixties the 'modernization/growth-oriented' model came to be introduced in Kerala. The single most important factor responsible for this was the rising demand for prawn in the international market. Fisheries development in Kerala soon became synonymous with increasing prawn harvest and earning foreign exchange. This was spurred by factors such as the enhanced growth of the US and Japanese economies and also the former's loss of access to supply from China. These demand-pull factors were outside the control of the local economy, and it was also difficult to insulate the fishery resources from being harvested in response to these factors. One can discern two phases in this timespan: a phase of steadily increasing harvests from 1956 to 1973, and a phase of stagnating or declining harvests from 1973 to 1985.

With the phenomenal rise in the number of small trawlers, the prawn harvest and export earnings increased steadily. The earlier caste-bound nature of the fishery sector ceased to be a barrier to entry. The main investors involved in the new development model were non-fisherfolk. This trend continued till 1974. The levels of overall fish and prawn harvest began to fall. By the end of the 70s the marine fishery sector of the state was heading towards an ecological crisis of overfishing.



When traditional technologies and the custom-bound organization of the fish economy predominated, the common property nature of the marine fish resource did not pose a major problem. Technical barriers, such as the need to have fishery specific skills, and social

barriers, like fishing being the occupation of a lower caste, prevented free entry of capital and persons from outside the traditional fishing communities. Traditional fishing technologies (nets, tackle and the methods of fishing) were evolved to suit the particular ecological context of the fish. Apart from these factors, the selective nature of fishing nets (different mesh-sizes for catching specific species of fish) and the 'passive' nature of fishing operations (allowing fish to get entangled in the net rather than pursuing or catching them by disturbing their milieu) ensured sustainable fishing.

The introduction of mechanised boats and the perceived profit opportunities in prawn exporting changed this scenario considerably. The mercantile capital class of Kerala took the initiative to break these barriers. Free access to the sea made it easy for them to make a rapid entry since mechanised boats could be operated without any license or registration at that time. There was also no regulation limiting the ownership of fishing assets only to those who were active fishermen. As a result, the post-1966 period witnessed an increase in both the influx of non-fisherfolk owners of fishing assets as well as the number of mechanized trawlers. Modern fishing techniques such as trawling (the method of scraping the sea bottom with a bell-shaped net to catch demersal fish) and purse-seining (the method of quickly encircling whole shoals of pelagic fish) led to overfishing.

Population pressures on inshore waters also aggravated the situation. Given Kerala's coastal sea area of 12,570 sq km, the population density was about 6.4 fishermen per sq km, ensuring that on the average each fisherman had 16 hectares of coastal commons to fish. By 1985 the population increased by 65 per cent, reducing the average coastal commons per fisherman to 9 ha as against 30 ha for all of India.³⁸

3. Origins of community conservation initiatives

Hemmed in by the Western Ghats on the one side and the Arabian Sea on the other, Kerala's geographic insulation considerably influenced the course of its history, allowing the development of several social institutions unique to Kerala.³⁹ Interestingly, like grazing lands in other states, some agricultural lands in Kerala have historically been considered common property.⁴⁰

Although the practice of conserving sections of natural forests as sacred groves, an age-old wisdom, is common in Kerala, pro-active conservation attitudes are a more recent phenomenon that arose in response to large-scale environmental degradation in the state. The beginnings can be traced to the famous Silent Valley protest that began in 1973, and showed the world how wilderness areas could be saved from harmful developmental projects by mass campaigns, purely on environmental grounds.

Local communities, in the strict sense of the term are absent in Kerala (except in a few tribal pockets in interior forests), a phenomenon attributed to the state's geography and history.⁴¹ 'The villages in Kerala were loosely organized and there never has been a free village habitation area. The ideal Malayali house is set in its own compound with their own bathing pool and well, vegetable gardens, food-producing trees, small deity for daily worship and even cremation ground. These dwellings were quite isolated, set off from neighbouring houses. Vendors make their rounds with additional foods, cloth for daily use, cooking utensils etc. Hence there was hardly any need for the Malayali⁴² to move out of his residential compounds to meet his daily requirements.⁴³

One of the main reasons for people to group together (thus forming a 'community') is water. But common water sources were not required in Kerala as every household had its own well. Nor did external threats such as wars require people to group together. In these situations, there was little opportunity for individuals to have a non-familial primary group life, such as characterises the nucleated village.⁴⁴ Family-controlled areas thus attained great importance in Kerala⁴⁵. The *jenmi* system was thus the only space that allowed interactions between various castes and enabled people to form loose communities.

With the disappearance of the *jenmi* system, the gradual disintegration of the joint family and with it various social arrangements that the *jenmi* had with his tenants were inevitable. Till a couple of decades ago, the bonds that are essential to community conservation were absent in Kerala, with the exception of strong socio-religious holds on sacred groves.

The Silent Valley movement triggered the birth of the environmental movement in Kerala and led the state government to pass legislation for the protection of certain selected areas.⁴⁶ The movement not only created awareness of environmental concerns but also helped organize people into groups that became vocal in opposing development trends which affected the environment and communities adversely.

3.1. Community conservation efforts

In the sections that follow, we explore community conservation efforts along two basic divisions: (i) conservation of forests including sacred groves, and (ii) conservation of marine and coastal resources. Specific mention must also be made of commendable individual efforts at conservation, which have brought about vast changes in their limited areas of work.

3.1.1. Sacred groves

Sacred groves (called *kavus*) and their associated ponds constitute a unique network of ecological systems intertwined with the life and culture of the people of Kerala. Important factors that led to the conservation of sacred groves include the strong belief of local people in the resident deity and the beliefs based on folklore that surround each grove. Festivals celebrated are varied and unique to the grove.

At the beginning of the 19th century there were more than 30,000 groves in Kerala.⁴⁷ A recent survey conducted by Induhoodan in 1996 indicated the presence of only 761 sacred groves of which more than half (399 or 52.17 per cent) are less than 0.02 ha in extent. However, size alone should not be considered a criterion for conservation, as protection is required not only to maintain their high biological values but also to perpetuate cultural values unique to each sacred grove. The size distribution of groves throughout the state is very variable: thus, though Kasargod District has a larger number of groves (60), Kannur District with 54 groves has a larger area (100.28 ha) under 'sacred' conservation.

The vegetation of sacred groves can be classified into two types: evergreen and moist deciduous. Sacred groves, in the drier parts of the state's moist deciduous vegetation, are mostly dry with open canopies and poor plant diversity. The groves have very poor faunal diversity due to their small extents of natural vegetation and the considerable biotic impacts of surrounding dense populations.⁴⁸

Ayyappan Kavus, dedicated to Lord Ayyappa, were the most common groves in Kerala in the past. Some existing groves are Sarpam Kavus,⁴⁹ dedicated to the snake gods, and Amman or Bhagavathi Kavus, dedicated to the goddess Bhagavathi. The sacred groves of north Kerala are mostly associated with goddesses, whereas those of south Kerala are associated mostly with snake worship.

Historically controlled as family-owned properties, the eldest male inherited the grove and shrine/temple and conducted the daily rituals of worship. Families unable to practice the *kavu* rituals handed over control of the groves to organizations like Devaswom Boards⁵⁰ and local temple committees (Basha, in Ramakrishnan et al).⁵¹ All higher-caste families had their own groves. The lower castes did not have any but were expected to adhere to the strict caste rules.

Once a common feature of every village and hamlet in ancient Kerala, the groves have been gradually fragmented across different generations and now only small patches of the original vegetation housing the shrine/temple exist. Some groves, though completely devoid of vegetation (only the temples exist) are still referred to as *kavus*. In many of these cases, the grove was 'freed' from the power of God by a special ritual and the vegetation cleared for conversion to alternate land uses.

Sacred groves remain a potent mechanism for conserving biodiversity. For example, *Holigarna beddomei*, a tree endemic to the Western Ghats and uncommon in Kerala, now occurs only in some of the midland sacred groves of north Kerala. Although present in large numbers in the Brahmagiri Hills of Coorg District in South Karnataka, *Holigarna* is absent in the adjoining Reserve Forests of Adoor, Muliyaar and Parappa in the Kasargode ranges of Kerala. That this species was once abundant in the evergreen forests of the midlands and has now become threatened reveals the extent to which anthropogenic disturbance is responsible for conversion of the vegetation from an evergreen nature to a deciduous one.⁵² Research has also revealed the importance of these groves as seed banks. Four new species of grasses have been recorded in the lateritic⁵³ wastelands that surround most of the groves in north Kerala. One of them, *Lepidagathis keralensis* (previously identified as *L. prostata*) has medicinal properties.

Institutional structures in the conservation of sacred groves

The sacred groves of Kerala can be categorized being under one of three broad classes of management: (i) by individual families, (ii) by groups of families and (iii) by statutory agencies.

More than 99 per cent of the groves are privately owned. These can be further grouped into four sub-classes:

1. **Family owned:** Management is looked after by a single family (as in Mannarassala Kavu, Alappuzha District) or managed by a group of families (as in Pambumekattumana Kavu, Thrissur district).
2. **Establishment owned:** Dewaswom Boards or Hindu Religious & Charitable Endowment Trusts (HR&CE) provide annual maintenance grants to temples situated in the groves. Most groves in south Kerala are under Dewaswom Boards established by the government and many situated in northern parts of the state are supported by HR&CE Trusts.
3. **Community-owned:** Certain communities own and manage the grove as common property (Cheema Kavu, Kasargode district, where the Asari or carpenter community manages the grove).
4. **Local trust-owned:** Local committees or trusts came into existence as a result of disintegration of the families that originally owned the groves (Prancheri Kavu, Kannur district is managed by the Prancheri Kavu Samrakshana Samiti). For example, in Aravanchal Kavu the breakdown of the joint families or the taravadus led to nuclear households inheriting smaller properties. But the awareness about the importance of green cover has made them come together to protect an old sacred grove that had been left in disuse.

Constraints and opportunities for sacred grove conservation

The temples of the modern era that first appeared in Kerala ca. AD 750 marked the beginnings of an erosion in the importance of Dravidian deities and their shrines. The fading out of cultural associations with the groves is intricately linked to the fragmentation and disappearance of sacred groves in Kerala.

State politics also played a role in this disintegration. Marxist uprisings of the 1940s, and subsequent post-independence land reforms and redistributive policies of the democratically elected Communist government led to more equitable land distribution, but also to an ascent of atheism among the masses as proof of loyalty to Marxist theory, translating into a waning of cultural and religious practices all across the state.

Most of the *sarpam kavus* (groves dedicated to the snake gods), under the control of joint families and *tharavadus*,⁵⁴ disappeared after the land to the tiller reforms were introduced in the state. With the division of the groves under land reform schemes, the new owners converted parts of the grove without the shrines to agricultural fields and home gardens. The sacred groves are mostly forest patches in the midst of populated areas, and, with time, encroachment of the groves, tree felling, fire and walking paths inside the groves became commonplace. Grazing of cattle, collection of leaf litter and firewood, quarrying within the grove and domination of weeds coupled with the disinterest of the temple administration towards the upkeep of the groves also contributed to their destruction.⁵⁵ One of the serious threats facing the sacred groves is the 'Hinduisation or Brahminisation' of the groves. The origin of most of the groves comes from the need that the community felt to protect forest patches for the future generations. And the presiding deities for these groves are all of Dravidian origin. Conversion of these deities into 'Hindu' gods and the subsequent temples constructed in their name within the grove has resulted in opening them up for destruction. This is seen to be a tactic of the Brahmin caste to dominate over resources. Temple construction ensures that where there was only an annual ritual to worship the grove deity, it was now replaced with daily *poojas* that brought in more revenue for the priest and temple authorities.⁵⁶

The number of community efforts at conserving sacred groves rose with the return of religious fervour among the masses in the 1990s, probably as a result of disillusionment with Communism and the rise of right-wing Hindu political parties. The revival of community participation in the conservation of sacred groves can also be attributed to increased awareness on the value of the natural heritage and the importance of biodiversity.⁵⁷ Where community members have fenced off remnants of a sacred grove on their own initiative, the groves have been revived, as in the case of Chaama Kavu of Payyanoor Gram Panchayat, Kannur district. In Muthappanar Kavu, until 1998, apart from eeyachembu tree, no undergrowth was left in the sacred grove. After the community constructed a concrete wall around it, the grove now contains a diversity of vegetation.

Such recent efforts have been observed in groves under two kinds of management: (i) by temple priests or *karanavars*⁵⁸ and other respected community members, and (ii) by local committees comprising community members of different castes and religions. In north Kerala, especially, several of these local communities have sprung to action to conserve the fast disappearing groves. The Aravanchal Shree Bhagavathi Kavu Committee represents one such community effort at conserving sacred groves, which we present as a detailed case study (see Case Studies). This is

just one example from among several groves in North Kerala that are being protected by local communities. A list of some community conserved sacred groves in Kerala is provided in Table 1.

Table 1: Community conservation efforts in sacred groves⁵⁹

Name and location	Panchayat/Municipality, District	Area (acres)	Eco-region
Iringole Kavu	Travancore, Ernakulam	-	
Nakravanam Kavu	Cheruvathoor, Kasargode	3	Midland
Aravanchal Kavu	Peringom, Kannur	7	Midland
Mannarsala Kavu			
Thavidissery Kavu	Peringom, Kannur	50	Midland
Theyyottu Kavu	Kangol-Aalapadambu, Kannur	60	Midland
Mookambika Kavu	Karivelloor-Peralam, Kannur	6	Lowland/ Coastal
Chaama Kavu	Payyanur	9	Lowland/ Coastal
Idayilakattu Kavu	Valiyaparamba, Kasargode	16	Lowland/ Coastal

In response to these community efforts, in March 1996 the state government passed a scheme for fencing all the sacred groves in the state. The responsibility of completing this task was given to the Social Forestry Division of the State Forest Department with a budget of Rs 20 lakhs per district. However, not a single grove has been fenced and the forest department has not even replied to letters sent by the managers of various sacred groves in the state questioning the delay. The forest department, on its part, realizes that it has first to resolve the community problems vis-à-vis resource management, win over the faith of the people, and stress the importance of the grove to the people by conducting awareness campaigns before it can begin fencing.

It has been suggested recently that *panchayats* should consider the importance of this valuable heritage while preparing village resource maps so that further degradation or change of land use does not take place in the sacred groves⁶⁰. The Pattuvom Gram Panchayat was in the news recently⁶¹ (for preparing the first community biodiversity register that not only lists the medicinal plants and their uses in the region, but have also proclaimed these to be the common property of the people. That *gram panchayats* (for instance, the Payyanur Gram Panchayat) are now giving considerable weightage to the conservation of sacred groves in their development plans (under the decentralized People's Plan) is a ray of hope for continued community protection of these sacred groves.

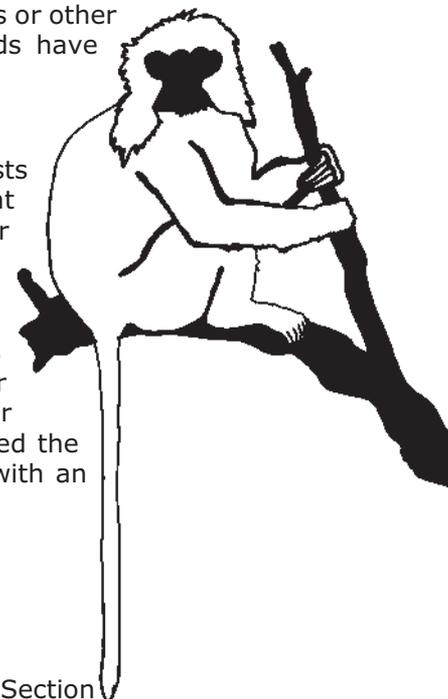
Ownership is a decisive factor in the conservation of Kerala's sacred groves. We observe that single-family-owned groves are the most amenable to conservation, as owners receive sufficient incomes from offerings and donations to the shrine by devotees. Multiple-family-ownerships are plagued by differences of opinion among individual families constituting the management committees and these can be considerable barriers to conservation. It has been suggested by academicians who have studied sacred groves, that those individual families who are continuing to conserve their *kavus* should be exempted from land tax and revenue tax. More than the financial benefit it is the social acknowledgment that will encourage them to continue their efforts at protecting these small patches of forest.

We observe that groves owned by institutions are least amenable to conservation, as most institutions are primarily concerned with increasing incomes from offerings at the shrine/temple. Cases where timber and other resources from the grove are extracted to supplement their income in order to conduct more grandiose temple rituals are also observed. Groves managed by communities or local committees, like family-owned groves, are slightly more conservation-oriented: the management bodies supplement any shortage of income through local collections rather than by resource extraction. One primary reason the sacred groves of north Kerala have

remained more intact than those in the south is that local caste communities or other community institutions manage them—government-run Devaswom Boards have yet to enter the scene⁶².

3.1.2. Other community forest conservation initiatives

There are also some more recent efforts by communities to conserve forests and wildlife. For instance, inspired by a sensitively planned ecodevelopment initiative of the forest department on the periphery of the Periyar Tiger Reserve, women from several villages joined together to form a 'Vasant Sena', and vowed to patrol the forests to check illegal activities. Since 2003, 5-6 women on a rotational basis go out every day on a regular beat, and record in a register their observations on the state of the forest, untoward activities and other noteworthy issues. When asked what their main motivation for this was, the simple response was: 'If there are no forests left, what will our children do?' Recognising this initiative, the forest department has provided the women with uniforms and backpacks, and also helped to felicitate them with an award presented by a local group.



3.2. Conservation of marine resources and coastal systems⁶³

The crisis of overfishing and degradation of marine resources, described in Section 2.6, did not go unchallenged. The artisanal (traditional) fishermen, who were only peripheral beneficiaries of the modernization model that brought about the crisis, responded to it at two levels. The more rapid, widespread and vocal response, at the political level, was in the form of organized protests demanding state regulation of what they perceived as destructive fishing methods. This was done through organized movements such as that led by the National Fishworkers Forum. Their demands included putting a stop to destructive fishing by trawlers and purse-seiners, zoning of coastal waters into distinct fishing zones and a total ban on trawling operations during the monsoon months of June-August. These protests led to legal enactments. The Kerala Marine Fishing Regulation Act, 1980, provided for comprehensive measures for registration of all fishing craft. It also restricted fishing by mechanized boats—in particular trawlers and purse-seiners—to a depth outside the 20-fathom depth contour line in the coastal sea. The zone on the onshore side of this contour was reserved exclusively for the non-motorized and motorized craft.

However, the economically strong and politically influential boat owners' associations and export processors' lobby challenged the government promulgations regulating and restricting their free access to the coastal commons. The High Court ruled that while the state did have a right to regulate the coastal commons, it could take action to exclude persons from them only if sufficient scientific evidence was available to substantiate that these persons' activities were socially or ecologically harmful and against the interests of society. Such unambiguous evidence could not be mustered up by the state government. Although successive state governments enacted fresh legislations to plug the loopholes in the law, in reality the coastal commons continued to be open to all. Nevertheless, where the artisanal fisherfolk are well-organised, the coastal waters are relatively safe from trawlers, helping in localized conservation. The fisherfolk agitation, coupled with recommendations of a number of expert committees set up by the state government, have also resulted in a ban on trawling during the monsoons.

The second, slower response of the fishworkers was the adoption of new technologies for mechanical propulsion of fishing crafts and greater investments in fishing gear in a desperate attempt to enhance their share of falling harvests. In order to cover the higher operating costs, fishermen took to fishing in the coastal waters for longer periods of time and with more fishing gear, including smaller versions of trawl nets and purse-seine nets. This response further aggravated the level of overfishing, particularly after 1984. There have been some efforts to enhance the biological productivity of the coastal waters through the establishment of fish aggregation devices such as 'artificial reefs' in coastal waters. These could be old truck tyres or a tree trunk deposited in the coastal waters; within a couple of months, marine flora and fauna are seen to aggregate around this and it soon resembles a reef ecosystem. Rich pools of fish and other marine life revolve around this 'reef' and the fisherman reaps in his harvest with little effort and through traditional means of fishing. The Thiruvananthapuram-Kanyakumari coast is now witnessing a trend towards artificial community reefs. The technical and financial support is being jointly provided by Programme for Community Organisation (PCO) (a NGO) and the state government. Since most of the natural reefs in this region have been destroyed due to modern fishing techniques, the artificial reefs form a reserve during the lean fishing season in January-February. Another positive fallout is that

trawlers have been prevented from coming too close to the shore as their nets get damaged in these reefs. Community restrictions are mainly enforced by the village parish, which fixes rules regarding fishing in the artificial reefs. These include a ban on light fishing⁶⁴ in the reefs during the night. Reef committees in these fishing villages have now become a means for fishery experts and government officials to introduce new ideas and hold fishery management discussions.⁶⁵

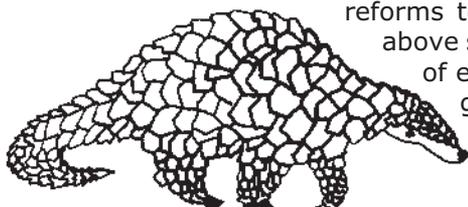
There are also individual and community efforts to protect some of the mangrove areas in north Kerala. 'Pokudan' in Kannur district has gained fame because of his singular efforts at afforesting mangroves here. Ironically, it is stated that the forest department gets its supply of mangrove seedlings from this man. In another area in the same district, a section of the mangrove area has been purchased by a group of local farmers under the banner of 'Prakruti Karshaka Samiti', simply to protect it from being destroyed. Sadly, the local fishermen are not involved⁶⁶. Vijayan attributes the non-participation of fishermen to the disinterest of the future generation of fisherfolk in entering their traditional occupation. There are, thus, only scattered efforts at protecting the sea coast.

4. Conclusion and way ahead

The forests of Kerala, which were once considered inaccessible and gave the illusion of being plentiful, have over the years decreased considerably. Official protection of these forests in the form of national parks and wildlife sanctuaries has managed to cover only about 6 per cent of the state (Kutty & Kothari, 2001)⁶⁷; conservation under the Forest Act has also helped, but to a limited extent. In many of these officially conserved areas, there remain conflicts with local communities who depend on them for livelihoods, though some recent attempts at sites such as Periyar Tiger Reserve show initial promise of resolution to the mutual benefit of wildlife and people. The other form of conservation has been by communities, such as in the case of sacred groves. Although these groves are only small patches of forest, they perform important ecological functions that affect the micro-climate and at the same time houses rare and endangered species.⁶⁸ As mentioned earlier, these groves are facing destruction due to various reasons. The government should take sincere efforts towards protecting these groves through community involvement. As a first step, the 1996 scheme for fencing all the sacred groves in the state should be implemented quickly. This step will effectively put a stop to cattle grazing, walking, and other threats inside the grove. Where the groves have been seriously depleted, afforestation, taking into consideration the species profile in the surrounding groves or forests, should be carried out.

Development of watershed areas and wastelands should have a focus on the sacred groves of that area. Village *panchayats* and decentralised planning processes should consider sacred groves while drawing up the development plan of their village. What is also urgently required is a comprehensive socio-ecological analysis of the sacred groves of the state, since such a complete picture is lacking. The concerned government department should carry out a re-survey and reclaim the encroached portions of the grove, where afforestation should be carried out. Declaring these sacred groves as 'heritage sites', an education-cum-awareness campaign needs to be carried out in the villages by science organizations, nature groups operating at the village level, and village organisations themselves. They should give special emphasis on the conservation of existing groves and eco-rehabilitation of destroyed groves. Considering that they have a literate population, it should be a relatively simple task to carry out.

Unlike with forests, the state government has not declared any protected areas on the coast or in the marine areas. Conflicts between destructive commercial fisheries and traditional or artisanal fishers continue in parts of the state. Several academicians and fisheries experts have come up with solutions to resolve the fisheries crisis in the coastal waters of Kerala. The scale and type of harvesting technology should be in consonance with known biological and ecological parameters of the resource. Small-scale fishing craft using multiple sources of energy, selective fishing gear, and operations from decentralized centres along the total length of the coastline should be encouraged. The ownership of harvesting technology—fishing craft and gear—should be restricted exclusively to those who are willing to themselves fish. Such a community of workers and working-owners should be entrusted with the collective rights and responsibilities of managing the coastal commons. Policy reforms to ensure this should be enacted by the state. Some of the above suggestions are reflected in the recommendations of a number of expert committees appointed since 1984, which cautioned the government about the impending crisis if fisheries continued to grow in an unregulated fashion. The 1984 committee advised a drastic reduction of the fleet size of the trawlers to half the then current level and a total ban on purse-seiners. It



recommended the use of more passive fishing techniques of the type used by artisanal fishermen and cautioned against the massive motorization of country craft. It also highlighted the need for active fishermen's participation in managing the coastal commons. Subsequent to a third expert committee submitting its report in 1989, the government immediately implemented a total monsoon trawling ban. Other recommendations, which included restriction on the use of ring-seines,⁶⁹ limitations on horse-power rating of outboard engines, and measures for protection of estuarine areas were kept in abeyance. The enforcement of the total trawling ban resulted in bloody confrontations between the enforcement police and the boat owners. The matter was taken to the courts, which were unwilling to issue a stay order to the government's decision. This legal ruling and the unwavering stand of the government, despite the possible adverse political fall-out, ensured that the ban was relatively effective. It was probably the most important fishery management decision made by any state government since independence.

The forest department has to seriously consider bringing some of the substantial mangrove areas in north Kerala under official protection. In addition, a check is needed on the large-scale illegal sand mining in the rivers, which has had a detrimental effect on the coast. Reduced sand deposition from the rivers, as well as the peculiar tidal effects in this part of the country, have resulted in the sea eating away at the coast at a rapid rate in most of Kerala. This has meant that a large human population is now depending on a reducing land mass. Sand mining has now been recently banned in most of the rivers in the state. Additionally, the state government has erected sea walls all along the coast to stop erosion, though some experts contend that this is not very effective. One hopes that strong political will and a sensitive community will put some of the recommendations of the marine expert committees into action, especially about reverting to passive fishing techniques used by artisanal fishermen, without the use of outboard engines. Coastal zoning and management policies also need to be framed and implemented, with full participation of the artisanal fisherfolk, at an urgent pace.

The management of agricultural lands is also showing some positive trends, even if tiny by comparison. This is the move towards organic farming. Farmer groups advocating and practicing organic techniques have arisen in different parts of the state. Even in plantations, an increased awareness on the harmful nature of intensive agricultural practices have made plantation owners adopt more ecologically sustainable methods of cultivating cash crops. The forest department has started eco-development programmes in the cardamom plantations in the high ranges in Idukki district. The farming community under the banner of Cardamom for Rain Forest Protection has joined hands with the forest department in protecting the forests.⁷⁰ Similar programmes need to be conducted with other plantation owners. The government should give incentives, subsidies, exemptions from tax duties or other related financial support to those plantation owners who are conserving forest patches near their plantations, and who are employing organic methods.

Finally, none of this will be possible without further strengthening decentralised governance. Kerala has already experimented with some far-reaching measures in this respect, but the environmental component of this action is weak. An appropriate mix of land and resource rights (especially to the tribal and fisher communities, thus far marginalised in state policies), local settlement-level decision-making regarding natural resources, landscape-level planning and appropriate laws are needed, to consolidate some of the positive steps already taken.

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Endnotes

¹ CSO, *Compendium of Environment Statistics* (Central Statistical Organization, Department of Statistics, Government of India, 1999).

² The Bharatapuzha, Periyar, Pamba and Chaliyar rivers.

³ E. Kunjan Pillai, *Studies in Kerala History* (Trivandrum, E.K. Pillai, 1970).

⁴ Sreedhara Menon *A Survey of Kerala History* (Kottayam, Sahitya Pravarthaka Co-operative Society Limited, 1970); P. Joan Mencher. 'Kerala and Madras: A comparative study of ecology and social structure', *Ethnology*, vol. 5, 1966.

⁵ See Karnataka chapter for similarities with Kerala in terms of plantations and cash-crop cultivation.

⁶ Ministry of Environment & Forests, *National Forestry Action Programme – India: Vol II, Issues and Programmes* (New Delhi, Government of India, 1999).

⁷ www.censusindia.net. The density has been calculated based on geographical size and population figures available

on this site, which otherwise does not directly provide the density figures.

⁸ Malabar is south of Dakshina Kannada district of Karnataka, which was also under Madras Presidency, and thus had similar policies and laws relating to natural resources, especially forests. See Karnataka state chapter for conservation in Dakshina Kannada district.

⁹ Mathew Aerthayil. *Fishworkers' Movement in Kerala (1977-1994)* (New Delhi, Indian Social Institute, 2000); R. Leeladevi, *History of Kerala* (Kottayam, Vidyarthi Mithram Press, n.d.).

¹⁰ (As above)

¹¹ K.C. Zachariah and S. Irudaya Rajan, *Kerala's Demographic Transition: Determinants and Consequence* (New Delhi, Sage Publications, 1997).

¹² (As above)

¹³ C. Chandrashekharan, *Forest Resources of Kerala: A Quantitative Assessment* (Kerala Forest Department, 1973).

¹⁴ http://www.fsiorg.net/fsi2003/states/index.asp?state_code=14

¹⁵ The first five centuries of the Christian era.

¹⁶ Mencher, 'Kerala and Madras' (As above); A. Sreedhara Menon, *Cultural Heritage of Kerala - An Introduction* (Cochin, East West Publications Pvt. Ltd., 1978).

¹⁷ Chola and Cheras were the reigning dynasties of this area.

¹⁸ Menon, *Cultural Heritage of Kerala*. (As above)

¹⁹ (As above)

²⁰ (As above)

²¹ Mammen Chundamannil, *History of Forest Management in Kerala* (Peechi, Kerala Forest Research Institute, 1993).

²² Nilambur is a forested taluka in Wynad district of Kerala. The first formal forestry operations by the British began here in 1840, and thus the first office of Conservator of Forests was created here.

²³ Menon, *Cultural Heritage of Kerala*. (As above)

²⁴ Chundamannil, *History of Forest Management in Kerala*; C.R. Bijoy and Ravi R. Raman, 'Muthanga: The Real Story - Adivasi Movement to Recover Land', *Economic and Political Weekly*, vol. XXXVIII no. 20 (2003).

²⁵ Ravi K. Raman, 'Breaking New Ground: Adivasi Land Struggle in Kerala', *Economic and Political Weekly*, 9 March 2002.

²⁶ Bijoy and Raman, 'Muthanga'. (As above)

²⁷ This situation is very similar to what happened in Andhra Pradesh with tribal areas being encroached and taken over by an influx of non-tribals, thereby depriving tribals of rights over land. Refer AP chapter.

²⁸ Bijoy and Raman, 'Muthanga' (As above); Raman, 'Breaking New Ground'. (As above)

²⁹ P. Unnikrishnan, CCF, Eco-development & Tribal Welfare, Kerala Forest Department. Personal Communication. 2000.

³⁰ Zachariah and Rajan, *Kerala's Demographic Transition*. (As above)

³¹ The highest-ever growth in this century in Kerala occurred during 1961-71 when the population grew at the rate of 446,000 persons per year. In 1981-91, the growth came down to about 356,000 persons. Zachariah and Rajan, *Kerala's Demographic Transition*. (As above)

³² Initially government of Travancore and later Travancore-Kochi, prior to state formation in 1956.

³³ M. Balakrishnan and P.S. Easa, 'Strategies for Management of Forests and Wildlife in Kerala', in *Recent Trends in Forest Management* (Trivandrum, Department of Forests, 1982).

³⁴ M.K. Prasad, *Kadum Nadum (Malayalam)* (Quilon, Kerala Shastra Sahitya Parishad, 1982).

³⁵ The Kerala state government feared that Malabar, being under Madras Presidency before independence, may stake a claim to Malabar as part of the new state of Tamil Nadu.

³⁶ One particular large private forest holding belonged to Nilambur Kovilakom, who had been systematically preserving and managing the forests. The family volunteered to sell the holdings to the government: part of their holdings which lay in Tamil Nadu (after the re-organization of States) was purchased by the Tamil Nadu government, but their holdings in Kerala were confiscated.

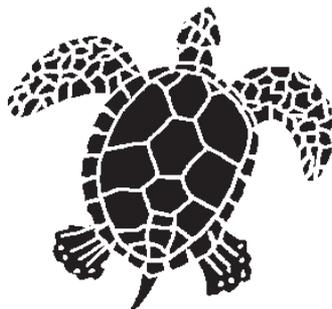
³⁷ Readers should note that Kerala has two main political streams: UDF (Congress) and LDF (Marxist).

³⁸ J. Kurien and T.R. Thankappan Achari. 'Overfishing along Kerala coast: Causes and consequences', *Economic and Political Weekly*, 18th September 1990, pp. 2011-18.

³⁹ Like polyandry and the *Marumakkathayam* or matrilineal system of inheritance. Though they follow *Makkathayam* or patrilineal inheritance systems as a rule, there are groups of both Brahmins and Muslims in the State that follow the matrilineal system. Menon, *Cultural Heritage of Kerala*. (As above)

⁴⁰ Pillai, *Studies in Kerala History*. (As above)

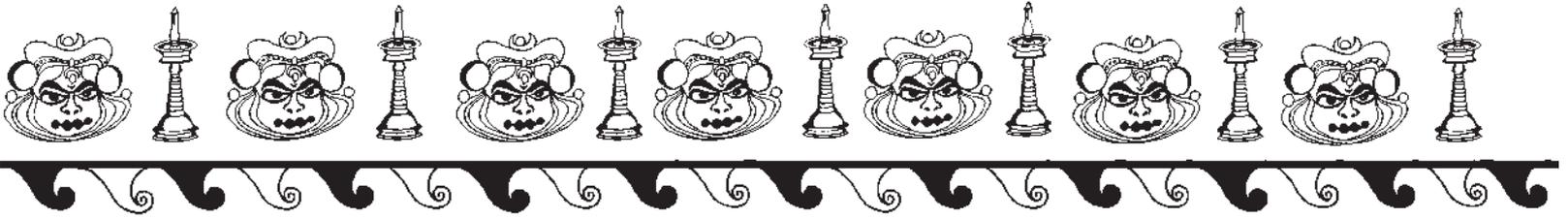
- ⁴¹ Dr. Satish Chandran Nair, Director, INTACH, (Southern Chapter) explains, '... the traditional community in Kerala vanished with the advent of the Aryans in the 6th century.'
- ⁴² This holds true for the Namboodiri Brahmins, higher groups of Nair and even ordinary middle-class Nair and Thiyya castes.
- ⁴³ Mencher, 'Kerala and Madras'. (As above)
- ⁴⁴ (As above)
- ⁴⁵ Chundamannil, personal communication; Mencher, 'Kerala and Madras'. (As above)
- ⁴⁶ Such as the Silent Valley Protected Area (Protection of Ecological Balance) Act, 1979.
- ⁴⁷ W. Logan, *Malabar* (Madras, Government Press, 1951).
- ⁴⁸ E. Unnikrishnan, *Uthara Keralathile Vishuddha Vanangal (Malayalam)* (Kannur, Samskriti Publications, 1997).
- ⁴⁹ Similar to *nagabana* in Karanataka.
- ⁵⁰ A trust with nominees from among members of the state legislature. The trust looks after the day-to-day activities of the temple (S. Sankar, KFRI. E-mail communication. 2001).
- ⁵¹ P.S. Ramakrishnan, K.G. Saxena and U.M. Chandrashekhara (eds), *Conserving the Sacred for Biodiversity Management* (New Delhi, Oxford and IBH).
- ⁵² Unnikrishnan, *Uthara Keralathile Vishuddha Vanangal*. (As above)
- ⁵³ A type of red soil found along the Konkan coast of India. The high ferrous content in the soil is the cause of its red colour.
- ⁵⁴ *Tharavadu* are equivalent to clans where descendants have a common ancestral mother.
- ⁵⁵ Unnikrishnan, *Uthara Keralathile Vishuddha Vanangal*. (As above)
- ⁵⁶ (As above)
- ⁵⁷ M. Jayarajan, President, SEEK, Kannur. Personal Communication. 2000
- ⁵⁸ A *karanavar* is generally the eldest male member of a *tharavadu* and manages the financial affairs of the *tharavadu*.
- ⁵⁹ Unnikrishnan, *Uthara Keralathile Vishuddha Vanangal*. (As above)
- ⁶⁰ T.P. Padmanabhan, Director, SEEK, Personal communication, 2000.
- ⁶¹ Stated to be 50 acres as per old records. However, it is now believed to have shrunk to 30 acres. Padmanabhan, 2000, Personal communication.
- ⁶² Unnikrishnan, *Uthara Keralathile Vishuddha Vanangal*. (As above)
- ⁶³ This section has been extensively quoted from Kurien and Achari, 'Overfishing along Kerala coast'. (As above)
- ⁶⁴ Flares are used by the fishermen, as they attract the fish in the reefs to come near the sea surface, thus making it easy for the fisherman to catch them.
- ⁶⁵ J.B. Rajan, Member of Programme for Community Organisation. Personal communication. 2000.
- ⁶⁶ A.J. Vijayan, Founder Member of National Fishworkers Forum and the NGO 'Programme for Community Organisation'. Personal communication. 2000.
- ⁶⁷ R. Kutty and A. Kothari, *Protected Areas in India – A Profile* (Pune, Kalpavriksh, 2001).
- ⁶⁸ P.N. Krishnan, 'Study on the structure, function and dynamics of sacred groves of Kerala and their conservation' Project Report. 1998.
- ⁶⁹ A smaller version of the larger purse-seine nets.
- ⁷⁰ Unnikrishnan, personal communication.



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CCA/Ker/CS1/Ernakulam/Iringole/Sacred grove

Iringole sacred grove, Ernakulam

Background

Iringole sacred grove has an interesting myth of three goddesses, who, while traveling the world, each settled down in three different places, one of which is Iringole. The name 'Iringole' is derived from 'Irunna Aval', which means 'she who rested here'. Local people believe that even today the three goddesses meet up here in the evenings and spend the night here. Therefore nobody is allowed to stay at the grove overnight.

Located three km north-east from Perumbavoor town in the Perumbavoor taluka of Ernakulam district, the sacred grove can be accessed by several private buses that ply to the Iringole school. This is the largest sacred grove in the Travancore-Cochin region,¹ covering lush evergreen forest land, though disturbed in certain sections. Studies indicate that the vegetation at Iringole Kavu is comparable to other evergreen formations in the Western Ghats with respect to floral species diversity and other characteristics. Waters from the Poorna irrigation project play a crucial role in keeping the forest lush and green. The sacred tank of the grove can be seen as one approaches the temple from the northern side.

Towards community conservation

The sacred grove and temple are under the administration and management of the Travancore Dewaswom Board.² Previously, this sacred grove was owned by 32 Brahmin *illams*.³ Only three *illams* now survive, and were managing the grove till recently. Due to financial constraints and administrative difficulties, they could no longer take care of the grove and handed it over to the state government. The state government slated this grove for developing a tourism centre. This plan was fiercely opposed by the local villagers and consequently the government had to withdraw the plan. The village itself does not have any institution of its own to manage and look after the grove. The villagers still actively protect the grove and oppose any action that may cause harm to the grove. Villagers strictly adhere to all traditional rules and regulations regarding maintaining the sanctity of the grove as well as regarding the resource collection from the grove. Some of these include:

1. No material (plant or animal) is permitted to be taken out of the sacred grove, except on certain exceptional cases or occasions after consulting the local priest.
2. Fallen twigs, branches of trees or leaves are also not taken out.
3. Women are not allowed to enter the grove during menstruation.
4. Pilgrims visiting the grove are permitted to dip in the sacred tank, but bathing is prohibited.

Violation of the rules that disturb or dispel the sanctity of the sacred grove and its immediate surroundings were considered to be unpardonable sins that would invite the wrath of the patron deity.

Impacts of the initiative

The local community does acknowledge the fact that the sacred grove has an important impact on the micro-climate of the region. The constant presence of groundwater in their wells is attributed to the fact that the grove is important in maintaining the local environment.

Constraints faced by the community

Despite the above measures, the sacred grove is faced by a series of threats:

1. Since the grove is not fenced and is open to entry, outsiders use grove for picnics and leave behind the usual picnic trash.



2. After the management of the sacred grove was transferred to the Dewaswom Board, the temple priests are treated as regular government employees. Their duties are to conduct morning and evening *poojas* and return home. There is thus an indifferent attitude towards conservation of the sacred grove.
3. Since the grove is situated in the plains, it is buffeted by strong winds. This has caused the uprooting of a lot of trees. Tying the temple elephant inside the grove and burning elephant dung has resulted in damages to the sacred grove.⁴

This case study has been compiled by Roshni Kutty, Kalpavriksh in 2001.

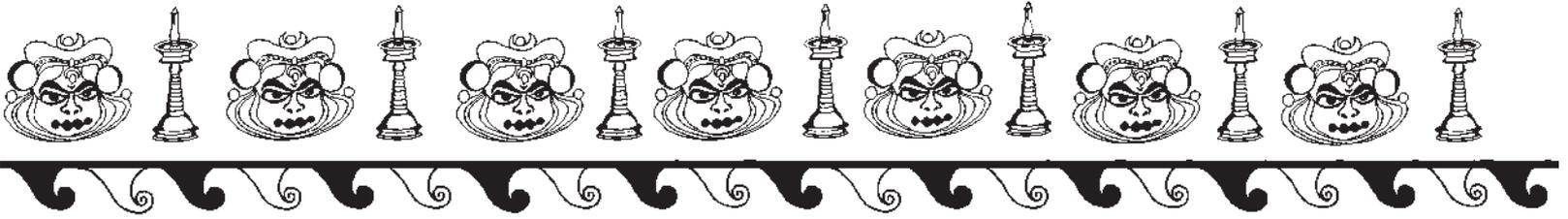
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Endnotes

- ¹ E. Unnikrishnan, *Sacred Groves of North Kerala* (Samskriti Publications, Kannur, 1997).
- ² The board established by the state government to manage sacred groves in the state.
- ³ These are joint families of the highest caste of Brahmins.
- ⁴ Unnikrishnan, *Sacred Groves of North Kerala*.





CCA/Ker/CS2/Kannoor/Aravanchal KavU/Sacred grove

Aravanchal KavU, Kannoor

Background

Located about 25 km east from Payanoor in Thalliparambu taluka in Kannoor district of north Kerala, Aravanchal KavU (sacred grove) is an excellent example of local community involvement in the management of an old sacred grove. The grove is about 7 acres (2.8 ha) large, situated in the middle of the grassy plains of Aravanchal village of Peringom Vayakkara Panchayat, which falls in the midland eco-region of Kerala state.¹ The presiding deity for this sacred grove, as in most sacred groves of Kerala, is the Mother Goddess in the incarnation of Thayiparadevada, locally called 'Vellarakurangal Bhagawati'.²

The grove is representative of vegetation structures that would be found in semi-evergreen forests, *Myristica* swamps, deciduous forests and grasslands, and grassy meadows. There are more than 200 varieties of plants in this grove, with *Diospyros buxifolia* forming the top canopy of the forest. However, due to gradual degradation of these forests through forest fires, human interference and grazing, only the core area of the grove contains the original floral structure. In the areas where it was open to human interference and others destructive factors, the evergreen vegetation structure has given way to a deciduous one. These degraded sections of the forest now contain species of a more deciduous and thorny scrub nature. Trees and shrubs belonging to the *Leguminosae* family—a rare occurrence in the evergreen forests—is a common sight in these groves with the top canopy of these forests now occupied by nandi, *Wrightia* spp., white silk-cotton tree, Alexandrian laurel, *Dioclea* spp., shisam and others.³ Bonnet macaques are stated to be in such large numbers that these creatures fearlessly interact with the villagers residing outside the grove.

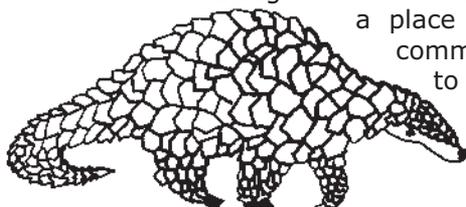
The kavU is located in a region of 5 sq km where 600 families reside, of which 400 are Hindus, 160 Christians and 40 Muslims. The total population of the village is stated to be around 1000.⁴ Most of the community members are occupied with agriculture or earn their living through private service.

Towards community conservation

This kavU once belonged to an old Nair family called Tharavadu. In the memory of the people of centuries ago, this Nair family abandoned the grove as they felt that it was unlucky for them. Since then the grove lay without ownership until the 1970s, when the local community took over its management.

In the past many years the community members had been collecting fallen wood for fuelwood purposes from the grove and grazing their cattle on the outskirts of the grove. Despite being not owned by anyone in particular, the sacred grove was respected by all members of the surrounding villages. People also feared the wrath of the deity if they disturbed the grove in any way. This fear was one of the contributing factors towards the conservation of this grove over many decades.

Around 1970, the Hindu families (from all castes), residing within a 4 km radius of the sacred grove formed the Aravanchal Shri Bhagavati KavU Committee. Presently 400 Hindu families are members of this committee. A general body meeting is called once a year, wherein an executive committee comprising of nine to thirteen members is elected through voice vote. The executive committee members in turn elect the president, vice-president, secretary, joint secretary and treasurer. The objectives of this committee as stated by Shri K.M.K. Nambeshan, Secretary, Aravanchal Shri Bhagavathi KavU Committee is 'for wildlife protection and to conserve/protect a place where we can bathe and worship nature'.



Although the committee holds meetings in formal office building, it is interesting to note that the committee members arrive at decisions related to the management of the sacred grove through application of divination techniques, which means passing resolutions after applying to the local deity. This brings a curious mix of tradition and modernity to the management of the grove.



Although Christian and Muslim families in the vicinity of the sacred grove do not become members of the committee, they co-operate in the management of the *kavu* and adhere to all laws and rules. Women are not permitted to be executive committee members. Traditionally, women were not even allowed to enter the *kavu*.

The active interest that Mr. Nambeeshan has taken in the management of the sacred grove has resulted in the participation of the forest department too. Recently, a 15 sq m tank was constructed with monetary aid from the forest department.

Certain rules and regulations are strictly followed by the local community:

1. Strict observance of entry and exit into the *kavu* as per the Hindu calendar.
2. Entry is open to pilgrims only during certain times of the year.
3. No leaf litter/dead branches are permitted to be taken away from the grove.
4. Only during Theyyam festival is fallen wood from the grove collected and burnt for the purpose of the ritual.
5. Grazing of cattle is also not permitted within the grove limits.
6. Grass from the sacred grove is auctioned once a year, although this does not bring in much money to the *kavu* committee.
7. Photography is not permitted inside the grove, or of the Theyyam dancers, as they are believed to be possessed during the dance.
8. Women are not allowed to enter the grove during menstruation.

Finances for the management of the sacred grove come from donations and offerings of the devotees and local residents. Villagers believe that some funds from the Dewaswom Board⁵ have been allotted to them, though the committee had not received them yet. Once a year, the committee auctions off grass cut from the grove; the amount goes to the committee fund. However, all these methods of income generation have proved to be insufficient for the *kavu* trust, which is a constant source of worry for the members.

A water tank has been constructed recently with the help of funds collected from the community members and the forest department. The committee hopes that this tank will not only be useful to the villagers for bathing purposes but also be a source of water for the wild animals during summer.

Impacts of the community initiative

The local community hopes that by conserving the sacred grove the water shortage that they face during summer will be resolved. Aruvanchaal, a perennial stream that originates inside the grove and flows out from the eastern side of the grove, has run dry over a period of time as the grove has become smaller and surrounding forests have been denuded. The committee plans to afforest some area around the grove to create a buffer around it. Through this afforestation, the committee members hope to rejuvenate the Aruvanchaal stream. They plan to largely plant fruit trees in order to provide sufficient food for the monkeys of the grove.

Opportunities and constraints

The greatest constraint faced by the committee currently is that of funds. Because of the financial crunch the construction of the water tank has not been completed. They would also like to take up the stonewall fencing of the sacred grove on priority if sufficient funds are available.

This case study has been compiled by Roshni Kutty, Kalpavriksh, based on field visits and interviews with Shri K.M. Kunhappan Nambeesan, secretary of the Aravanchal Shree Bhagawathi Kavu Committee, in 2001.

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Endnotes

- ¹ E. Unnikrishnan, *Sacred Groves of North Kerala* (Sanskriti Publications, Kannur, 1997).
- ² (As above) K.M. Kunhappan Nambeesan, Aravanchal Shree Bhagawati Kavu Committee, personal communication, 2000.
- ³ Unnikrishnan, *Sacred Groves of North Kerala*. (As above)
- ⁴ Nambeesan, personal communication, 2000. (As above)
- ⁵ A board established by the state government to facilitate management and preservation of sacred groves.





Ashtamudi lake, Kollam

Background

This conservation effort has been initiated on the second largest of all the estuaries in Kerala, the Ashtamudi Estuary. This estuary is connected to the Arabian Sea through a perennial opening at Neendakara and Sakthikulangara in Kollam taluka of Kollam district. Located on the Kollam-Alleppy stretch of national highway 47-T, this estuary is situated about 12-km from Kollam railway junction and can easily be accessed by buses that ply between Kollam and Ernakulam.

The Ashtamudi Lake has a total area of approximately 38 sq km. It has numerous islets occupied by traditional fishermen. The natural clam bed area of short-neck clams (*Paphia malabarica*) is confined to the part of the estuary from the mouth to 3 km upstream with a maximum width of 0.5 m in the middle of the estuary. The communities living along the north and south banks of the Ashtamudi backwaters are the four *panchayats* of Chavara, Neendakara, Sakthikulangara, and Kavanad villages (Kollam district). There are approximately 1000 families from these villages who are engaged in clam picking and selling. Most of the clam pickers are fishermen and some of them living on the banks have Chinese dip-nets and normally engage in seasonal fishing in the backwaters and the sea. There is no cultivated land in this area and it is densely populated.

The important groups of marine life found in the clam bed are polychaetes, bivalves, gastropods and crustaceans. Seaweed such as *Hypnea*, *Enteromorpha* and *Gracilaria* sp. are also common. *Katelysia optima*, a potential clam resource in the Ashtamudi lake, once abundant in the estuary, is now extinct. The closure of the sluice gates of the Kallada dam, which stopped the flow of fresh water from the Kallada River, thereby increasing the salinity of the lake, is held to be the cause of the extinction.

Towards community conservation

Prior to 1981, clams were rarely eaten outside fishing communities in Kerala and hence picked only for domestic consumption. Also, they had a very low economic value in comparison with fish and were seen more as recreation for daring youth than a source of livelihood. Due to these two reasons, only a few families were engaged in clam collection and selling. Traditionally clams were caught with bare hands from the shallow banks using a simple dugout canoe. The maximum depth possible for clam picking was about 15 feet.

In 1981, clam fisheries was initiated by the Fisheries Department for export and 200 tonnes of clams were landed that year for exports. When the export market picked up, more and more local fisherfolk in the backwaters began to engage in clam picking. During the peak season, about 300-400 traditional canoes engaged in clam picking in the bed. The clams have also been in great demand by the carbide industry. After the export market grew and the prices soared, the local community and some outsiders started to harvest clams in large quantities. This led to a noticeable increase in the socio-economic status of the clam pickers, as the export market could easily support them. The average annual landing from 1982 to 1992 was 6800 tonnes with a peak of 10000 tonnes landed in 1991. In 1993 the landing data showed a sharp decline with a production of only 5000 tonnes. This created concern among the clam fishermen who realized, in a very real and economic sense, the consequences of indiscriminate fishing in the estuary, especially during the spawning season.

In response to the community concerns, Dr. Appukuttan, Head, Molluscan Fisheries Division of Central Marine Fisheries Research Institute (CMFRI), Kochi, explained to them the hazards of indiscriminate exploitation of this resource. The community realized the hazards of over-exploitation and conveyed their concerns to the district administration. A meeting of the fishermen, officials of the state Fisheries Department, Mining and Geology Department, scientists of the CMFRI and trade union leaders was held on 26 December 1993. The District Collector was very supportive of the need to conserve clams and made decisions in favor of the community members despite objections from some of the trade unionists.

In the meeting, the following decisions were taken for conservation of clam fishery:

1. To impose a ban on clam fishing from October to January in the estuarine zone, when spawning and spat settlement occurs (this refers to the process of settlement of the clam spawn onto the bed which later grows to become baby clams).
2. The mesh size of hand dredges and other nets used for *Paphia* sp. fishing to be more than 30 mm and for other clams 20 mm.
3. The annual export of clam meat should be less than 1400 kg.
4. Strict control on exploitation of undersized clams by the carbide industry in Tamilnadu.

Box 1

Some facts about clam fishing *vis-à-vis* shell mining

The mesh size for clam picking dredge nets varies from 30-35 mm. The techniques adopted by shell miners are the same as that of the clam fishermen except for a few changes. The mesh size of the dredge net is 14-16 mm and the beds where shells are in plenty are located further towards the estuary mouth. The area normally used by shell miners is full of shell fossils, which are buried quite deep in the bed.

Regular fishing is not done over the clam bed when the clams are being picked because the clam pickers are underwater most of the time and all other craft keep well clear of the clam bed for reasons of safety. When the clams spawn and the ban is in progress, fishermen use nets in the water over the bed. This does not harm the clams, as the fishing does not disturb the clam bed.

The community of clam fisherfolk agreed to engage in other permitted forms of fishing during the ban period. To impose the ban, members of the community and the informal leaders (usually the middlemen) had to obtain the District Collector's order every year. They patrolled the clam bed areas at their own initiative and expense, while the government machinery played a very passive role. The scientists of the CMFRI continued to provide great support in terms of spreading awareness with regular workshops and classes for the clam fishermen.

The informal leaders of the clam picking supervise the processing of the clams for export and act as middlemen between the exporters and the clam fishermen. An informal meeting is held in the month of October to decide the date of the ban. This coincides with the spotting of juveniles and all community members are informed about the start of the ban. They then obtain the order from the District Collector and hand over copies to the respective police stations. As the local police do not have any watercraft for patrolling the clam beds, the members of the community patrol the beds themselves.

Other methods of fishing are followed during the ban, like crab fishing, which takes place in the night. This opportunity is also used to patrol by night and if any boat is found anchored over the bed, the entire community is alerted. Shell miners who are from the community are difficult to deal with. Then there are costs and the trouble of getting the police to reach the waterfront. They need transport to the bank and they insist on power-driven craft, which has to be hired. The entire cost of the operations like patrolling, visiting the District Collectorate (which is about 12 km away) and informing the fishermen of the ban dates is borne by the community without any financial help from the government or NGOs.

Constraints faced by the community

The ban has brought about an increase in the clams landed in the subsequent years. However, the community is still faced with many challenges:

1. The response from official enforcement agencies and the police has been poor, almost negligible, and is subject to the influences of the more powerful shell-mining lobby.
2. There is a lack of a proper law regulating the clam fishery. The current ban order in this area is only a directive from the District Collector, which needs to be renewed every year by the community.
3. The shell-mining lobby has been indulging in indiscriminate fishing of undersize clams for the

carbide industry in Tamilnadu. The demand for clamshells, which provide the raw material for welding gases, cement coatings and poultry feed, has attracted a large group of clam fishermen towards this trade. Hence there has been a division within the community.

4. The community leaders are also 'middlemen' who may sometimes weaken their stand under pressure from export companies and delay the start of the ban.
5. Mesh size regulations are not being adhered to strictly by the fishermen and there are instances of large-scale hand dredging of the clam beds with bag nets of small mesh sizes by the shell miners, which, if continued, will lead to depletion of the clam bed.
6. The lack of funds for conservation efforts like patrolling, holding meetings, and so on.
7. All shell mining activity comes under the Mining & Geology Department and the rest of the clam fishery is under the Dept of Fisheries. The jurisdiction, and consequently the vigilance, is divided between two government departments.

The community is apparently losing their drive and energy to conserve their resources and is on the verge of accepting that wanton mining cannot be stopped by their efforts alone.

Conclusion

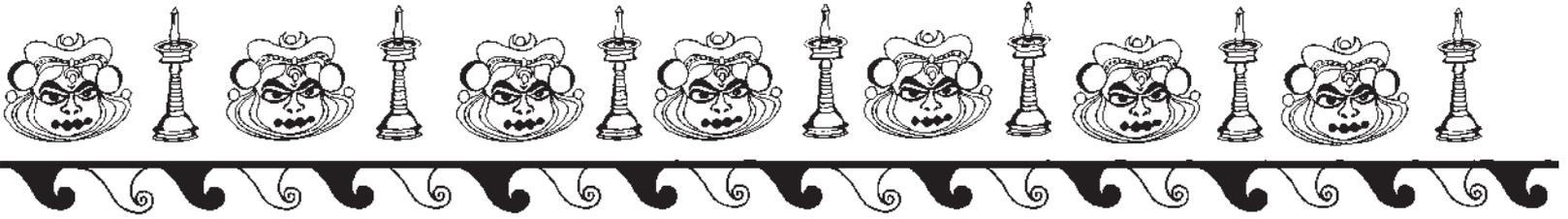
Ashtamudi is a very good example where depleting marine resources rang a warning bell for the fisherfolk whose livelihoods were directly dependent upon the clam yields. This did bring them together to take some action. However, the action has not sustained itself as effectively as it started. Although in this initiative the concerned government departments were involved in putting a system in place for sustainable development, they have not been very successful in carrying the support through and keeping the community mobilised.

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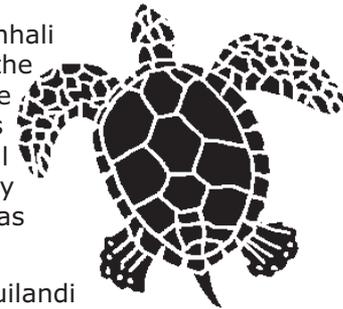


CCA/Ker/CS4/Kolavipaalam/Kozhikode/Beach and turtle conservation

Kolavipaalam beach, Iringal village, Kozhikode

Background

Also known as Kotta Kadapuram, Kolavipaalam is the birthplace of Kunhali Marakkar, a famous maritime warrior of Kerala during the rule of the Zamorins (AD 1120–1498). Recently Kolavipaalam has been in the local newspapers for a different reason. The local community here was awarded the P.V. Thampy award in November 2000 for environmental protection through community participation. This community is not only protecting the Olive Ridley turtles that come to nest on the beach but has also undertaken mangrove afforestation in the estuarine area.



The beach is located in Iringal village of Payyoli Gram Panchayat in Quilandi taluka of Kozhikode District (11°32'N; 75°45'E). Kolavipaalam beach is situated 46 km north of Kozhikode. The nearest town is Payyoli, which can be reached by private buses plying from Kozhikode. Payyoli also has a railway station. The bus service from Payyoli to Kolavipaalam is irregular. Autorickshaws from Payyoli are available in plenty.

Falling within the coastal eco-region of the state of Kerala, this area shows a typical coastal ecosystem with an estuarine region towards the northern part of the Community Conserve Area (CCA). An 8-km stretch of coastal village commons faces the Arabian Sea on its western side and the Kottapuzha river draining on its eastern side. A 4-km stretch of coastal sandy beach as well as brackish mud flats can be seen in this area. Mangroves grow in the brackishwater estuarine regions and attract a large number of attractive marine birds to this area. Turtles come to nest all along the 8-km stretch of beach starting from Kottapuzha estuary mouth in the north to Payyoli beach located in the south. The mean annual rainfall is 3,500 mm, with the annual temperature range between 20°C and 34°C. A 4-km stretch of coastal sandy beach as well as brackish mudflats can be seen in this area.

The beach stretch is very narrow due to the severe coastal erosion that most of Kerala's coastline experiences. The southern portion of the beach is now protected by a sea wall. The Olive Ridley turtles come to nest on the sandy stretch of the beach, which has not yet been protected by a sea wall. The village is located very close by and the houses are mostly made of brick and lime walls and clay-tile roofs. Private coconut plantations occupy the space between the houses and the beach stretch.

The natural fauna in this area include jackals, several migratory and local birds and Olive Ridley turtles that come to the beach during the nesting season. Of these, the Olive Ridley turtles face a threat to survival, both through loss of eggs and habitat destruction.

This is traditionally a fishing community with the majority of the population of 135 families being Hindus (Thiyya community), with only five Muslim families. Like any other typical coastal village, this community too draws its major source of income from fishing in the sea. Apart from that they supplement their income through toddy tapping, exporting dried fish and selling coconuts from their private plantations. A few cattle (15 in number) are kept by some of the more prosperous families. These are either stall-fed or grazed on private land.

Although fishing continues to be the major occupation of the community here, the present generation of fishermen has either opted out of this traditional income source or has supplemented fishing with other sources of income. This is because of a combination of two factors: a) depleted fish resources, and b) increasing aspirations for a better living standard. The secondary occupations include mostly self-employment opportunities such as working as trained electricians, autorickshaw drivers and casual labour, and running small bakeries or other kiosks. The current People's Plan¹ has helped the women in this village to set up and run two eateries, a dry rice mill and a sweetshop within the village. Due to the recent pest attack of coconuts that has affected the coconut production in the state, toddy tapping has also been adversely affected. Dry fish export was a major cash earner for this village and had also employed around 500 fisherwomen. Due to the receding beach stretch, space is no longer available for the women to dry large quantities of



fish. The number has now reduced to around 50 women. Some amount of seashells are generally collected in the rainy months of June to August. Seashell mining met local needs for lime mortar (which is extracted from seashells) and also added to the small incomes of some of the families through sale outside the village.

The villagers are protecting the 4-km stretch of coastal village commons which is administered by the Revenue Department. A stretch of about half a kilometre of the northern portion of the CCA (near Kottapuzha river mouth) falls in Vadakara municipality, while the rest is in Payyoli Gram Panchayat area. This is a coastal village where traditional fishing is carried out. At a recent political function in the village, there was a suggestion to convert this area into a marine national park. However, the office of the Kozhikode (Wildlife) Division does not have any official proposal to that effect. As far as the forest department is concerned, Kolavipaalam comes under the Peruvannamuzhi Territorial Range. Locals say that the Tourism Department also plans to organise boat rides for tourists from Kunhalli Marakkar's house in Iringal village to Velliyaangal (also referred to as the Sacrifice Rock) in Quilandi. Velliyaangal is a rocky island off the coast of Payyoli, situated 14 km into the Arabian Sea. At present, there are boat rides organized along the Kottapuzha River.

Towards community conservation

Olive Ridley turtles came to nest on Kolavipaalam beach since time immemorial. In 1992, some of the youth of the village while reading the newspaper (The Hindu) came across an article that talked about the endangered status of the Olive Ridley turtles. It suddenly dawned on them that the marine turtles, which came to nest on their beach so regularly needed protection, and this motivated them to act upon what nature had blessed them with. They formed a group called Theeram Prakriti Samrakshana Samiti with 12 members. The key persons in this effort are the present president of Theeram, Mr. Surendra Babu, and the Joint Secretary, Mr. K. Vijayan.

Initially, they had no clue as to how many days were required for turtle eggs to hatch. Hence, the first nesting season when the protection measure began, they literally spread mats over the nest and slept there to 1) protect the nest from jackals that abound the area, and, 2) to see when the hatchlings came out. They deduced that since nobody in their village knew how long it took for the turtle eggs to hatch and since they have not seen hatchlings come out during the daytime, the eggs hatched at night and they hence decided to sleep near the nests. It was this lack of knowledge that prompted these educated village youth to read various books. And that was also how they realised the importance of protecting the mangroves in their area for the benefit of the coastal ecosystem.

During the Olive Ridley nesting season of October-March, the youth of the village keep watch over the beach to check on turtles that come to nest. As soon as a turtle lays its eggs and returns to the sea, the watchful youth transfer the eggs into a sheltered hatchery that has been constructed for this purpose. A meticulous record is maintained of the number of eggs that are laid by each turtle, the dates when these were laid and so on. On hatching, the turtles are immediately released into the sea. The hatchery is part of the beach that has been fenced off. The fence is made of dried palm thatch supported on bamboo stakes and wrapped with old fishing nets. The fence is about seven feet high to provide protection from stray dogs and jackals. Inside the hatchery, the pits are marked out and paper boards are stuck into the sand that notify the day when the eggs were laid and when they are expected to hatch. A big threat to these eggs is from the jackals that inhabit the mangroves nearby. They smell the eggs as soon as they are laid and immediately prey on them. It is for this reason that the village youth transfer the eggs into the protected hatchery. Initially, the youth tried to protect the nests in their natural state, by fencing them with dried palm thatch. But, the jackals burrow through the sand and eat the eggs.

The group also met with active support from the forest department. The Divisional Forest Officer (DFO) in charge in 1996, Mr. Amit Mallik, took interest in the effort. Later, in 1997, Mrs. Prakriti Srivastava, DFO, encouraged the local youth to keep watch over the beach by paying daily wages for four members during the nesting season and providing them with iron cages. However, these iron cages have not become popular with the youth. Allegedly, these cages have been responsible for the death of hatchlings that got trapped beneath these cages and could not come out. The forest department now pays six members of Theeram a wage of around Rs 2500 per month per person. This scheme is only during the nesting season from October to March.

On realising the important role of mangroves in the conservation of the coastal ecosystem, the youth have started an afforestation programme of mangroves in about 5 acres in the estuarine portion of the CCA. This began in 1998 when the forest department and other NGOs conducted nature camps and slide shows for the residents of this village. The forest department initially supplied

mangrove seeds to the villagers. About Rs 15000 has been donated by the *gram panchayat* to buy mangrove seeds from private sources in Kannor. Theeram members encourage and involve the local residents as well as local school children in planting these saplings along the estuarine region of their area.

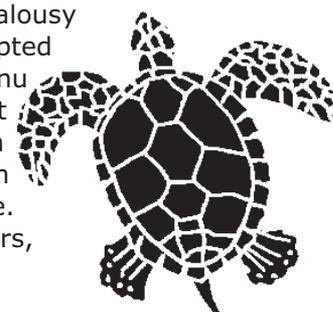
The forest department has plans to set up a nature interpretation centre here. Theeram members conduct their meetings at a small building that has been constructed with financial aid from the forest department. This building also serves as a shelter where, during the nesting season, the members patrol the beach in rotation. There are also a few specimens of turtles and turtle hatchlings kept as exhibits for visitors. This building thus doubles up as an informal nature interpretation centre as well as Theeram's office.

The youth of the village and especially Theeram members are actively involved in the conservation efforts, and other community members are aware of the conservation effort and provide passive support to it. Before the involvement of the forest department, funds for guarding the eggs were generated by donations in cash and kind from within the group and the community. Even now, the community participates in the mangrove afforestation programme. Whenever nature awareness programmes are carried out, they are keen to learn new things.

Impacts of community conservation

Although no scientific studies have been carried out in this area to see if these conservation measures have given results, locals have been emphatic on the positive outcome of these efforts. Some of these are as follows:

1. Increased fish catch in the areas surrounding the mangroves. Locals state that one can get a larger number of fish through simple hook and line fishing in the mangroves nearby.
2. It has also been noted that the drinking-water wells located near the mangrove area still contain sweet water, whereas the rest of the region complains of salty water in their drinking water wells. This has led the Theeram youth to believe that the mangroves, apart from various other functions of coastal protection and marine life replenishment, also help in reducing salinity ingress into the ground water table.
3. There has been an increase in the number of turtles coming to nest and the rate of hatching success of the turtle eggs is high.
4. Turtle eggs are considered to be a good curative for piles and were once sold in the local market. This is no longer seen.
5. The youth experience a sense of empowerment as a result of protecting their natural area.
6. As a result of their interaction with the forest department as well as being talked about in the local media, the youth are now treated with respect by various government officials, which is otherwise rarely seen. The villagers have taken advantage of this and have submitted a proposal to the Irrigation Department (through the good offices of the forest department) to install a drinking water pipeline for their village.
7. As a consequence of being in the news, several people have visited Kolavipaalam and met Theeram members. This has not only been an enriching experience for the visitors but also for these young men which has given them a wider perspective of what they are doing and what other villagers elsewhere have been doing.
8. Even the local governing body, the village *panchayat*, has recognised their efforts and has set aside funds during the year 1999-2000 for planting mangroves. This comes as part of the empowerment of village *panchayats* through the People's Plan programme that is currently going on in Kerala.
9. The success of these men has, allegedly, also brought in its wake jealousy among other villagers. The fame of Kolavipaalam has been attempted to be hijacked by the neighbouring Mudiyaam beach of Vallikunnu Panchayat situated about 80 km from Kolavipaalam. A news report of turtles nesting on their beach turned out to be a false one. When Theeram members read this article they made a visit to Mudiyaam beach to share the information they had with the local people there. However, they found no turtle tracks. According to Theeram members,



they were approached by the local villagers of Mudiyam beach for turtle eggs so that the latter could claim that nesting goes on in their beach. Being the native village of the present DFO has helped the Mudiyam residents to get World Bank funds for turtle conservation.

Challenges faced by the community

The community itself has faced several constraints/ obstacles that have hampered their conservation efforts. These are:

1. A financial resource crunch has limited the group's activity to simply a protection effort. The youth have expressed their desire to study turtle biology in more detail. They hope to have a school for nature training, survey and research. The objective of this school would be to impart knowledge, and create interest and concern for the community's natural wealth.
2. A couple of individuals whose business interests would violate the CRZ notification have not been supportive of the protection efforts. Theeram had complained about their illegal construction to the *panchayat*, which ensured that the construction was stopped.
3. During the nesting season, the young men have to keep long hours patrolling the beach. This means that they have a dual responsibility of earning their living during the day and keeping awake during the night (in shifts) to protect the turtles and their eggs. This responsibility has also curtailed their choice of occupation, in that only self-employment allowed this kind of flexibility in working hours. What is heartwarming though is that the Theeram members have stressed that this is not seen as a constraint, as they have chosen to undertake this responsibility themselves.
4. The Kottapuzha riverbed is leased out by the state government to rope makers for retting coconut fibres. Due to the leases granted, there is no land available for afforestation of mangroves. This has restricted Theeram members from bringing more estuarine land under mangroves.

There was a traditional system of conflict resolution called *kadal kodathys* (literally translated as marine courts), where conflicts apart from natural resource conflicts were settled. These conflicts may be domestic in nature, such as disputes over property, marital matters, etc. Decisions arrived at these community courts were respected by the formal law and order system. Most of the disputes were resolved at this community court level and very rarely did they spill over to the formal conflict resolution systems that were in place. The *kadal kodathy* of Kolaavipalam was situated in Payyoli, which is stated to be no longer functioning. However, there are other community courts, which are active and playing an important role in coastal areas north of Payyoli.

Constraints and opportunities

1. Predation of turtle eggs by jackals, as mentioned earlier, is a considerable threat. The community has overcome this problem by transferring the eggs into the hatchery as soon as they are laid and round-the-clock patrolling of the beach during the nesting season.
2. Cutting of old mangrove trees by some of the local community members for cattle fodder and for retting of coconut fibres has contributed to the reduction in mangroves over the last few decades. Theeram members have been trying to protect the natural mangrove areas and at the same time carrying out plantation of mangrove saplings. However, since the original mangrove area (vegetation) is considered to be village commons, some of the villagers continue to cut the trees for domestic purposes, although there is a tacit understanding that the offenders will not destroy the newly planted mangroves. The offenders are under increasing pressure to desist from such activity through social disapproval.
3. The sand mining lobby, however, poses the biggest threat, not just for the Olive Ridley turtles but for the very existence of this beach. Coastal erosion of the sandy beach has reached this level in Payyoli village simply because of the massive sand mining that is being carried out in the Kottapuzha estuary. Consequently, the process of sand transfer and deposition from the estuary to the beach and vice versa through changing tides and currents has been disrupted. Due to sand mining in the estuary, the sea is no longer able to replenish the beach with more sand from the estuary, while the reverse currents continue to erode the beach. The end result is that at Kolavipaalam beach, year after year the beach stretch is getting narrower, thus leaving

very little area for the sea turtles to nest. Theeram Prakriti Samrakshana Samiti has filed a case in 1999 in the High Court against the sand mining lobby that is operating here. An interim stay order was granted by the court, but the enforcing authorities seem to be helpless in putting a stop to this. One of the reasons could be that the present ruling political party supports the labour unions that are involved in sand mining.

In January 2001, the sea tides destroyed the hatchery. This was a great setback to the young group's efforts. It would not be false to say that this community initiative runs the real risk of fizzling out since the natural habitat of the Olive Ridley turtles is itself disappearing.

4. Another negative fallout of the sand mining issue is the pessimism that has crept in among some of the community members here. Although not legally permitted, seashell collection continued on the seashore as a customary right till the locals realised that this was harming their coastal ecosystem. Hence they stopped mining for a year or so. However, when sand mining in the estuary continued unabated, the residents decided to make full use of this natural resource. They have thus resumed collection of seashell fragments on the grounds that since the coast is anyway being eroded due to unabated sand mining in the estuary, they might as well make some money out of it before it finally destroys them.
5. Party politics plays a very important role in Kerala's social structure. The high media coverage of the Theeram members has put them under tremendous political pressure of including party members in the group. So far the Theeram members have been successful in keeping them at bay. When the members had opened the membership of Theeram to young minds so as to keep the group active with fresh ideas and to make new ventures and strategies, the youth wing of a political party threatened them saying that their members must be included. This prompted them to close the membership and thus Theeram continues to consist of only the original twelve members who had joined nine years back.
6. The forest department has helped the community to obtain a favorable order from the court; yet political pressure seems to have scuttled the rest of the effort, leading to non-implementation of government/ and court orders. For the local community this initiative has led to the empowerment of their community. It could be said that this effort is unique in the entire world because it has been born purely out of concern for the natural environment and continues to be so without any notable financial benefit attached to it.

This case study has been compiled by Roshni Kutty, Kalpavriksh, in 2001. Inputs for the case study were provided by Surendra Babu, Satish Babu, Ramesh and Vinod from Theeram Prakriti Samrakshana Samiti, Kolavipaalam.

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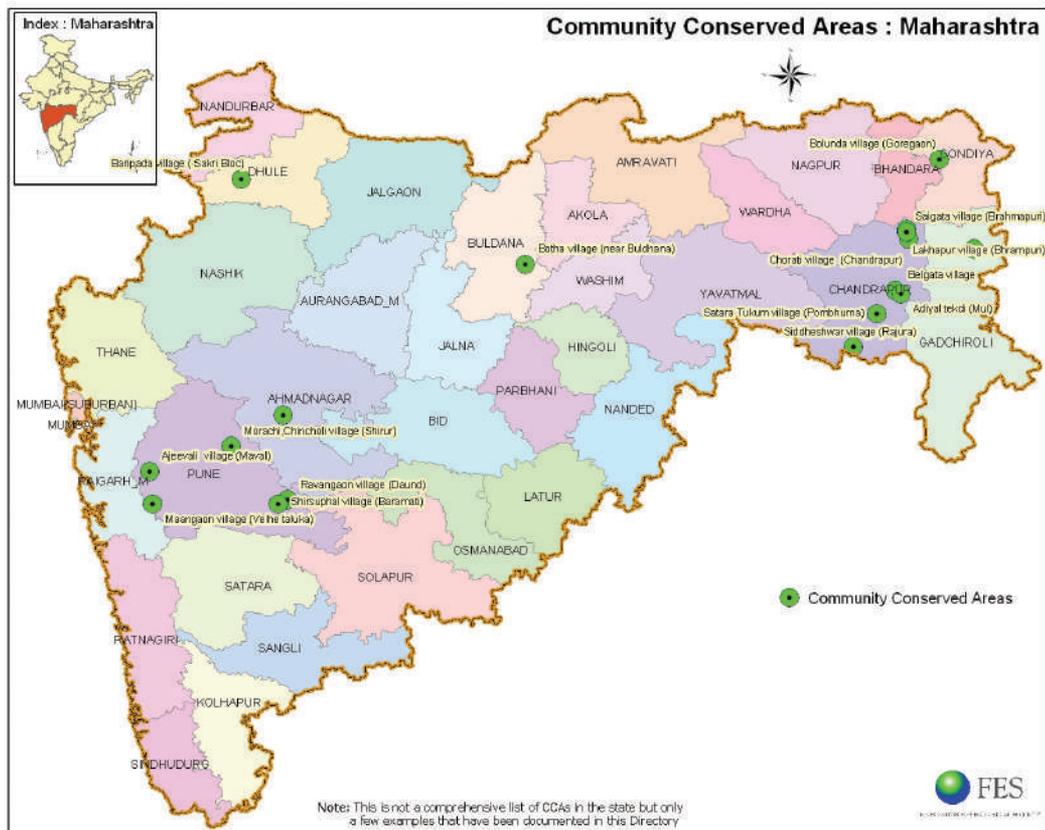
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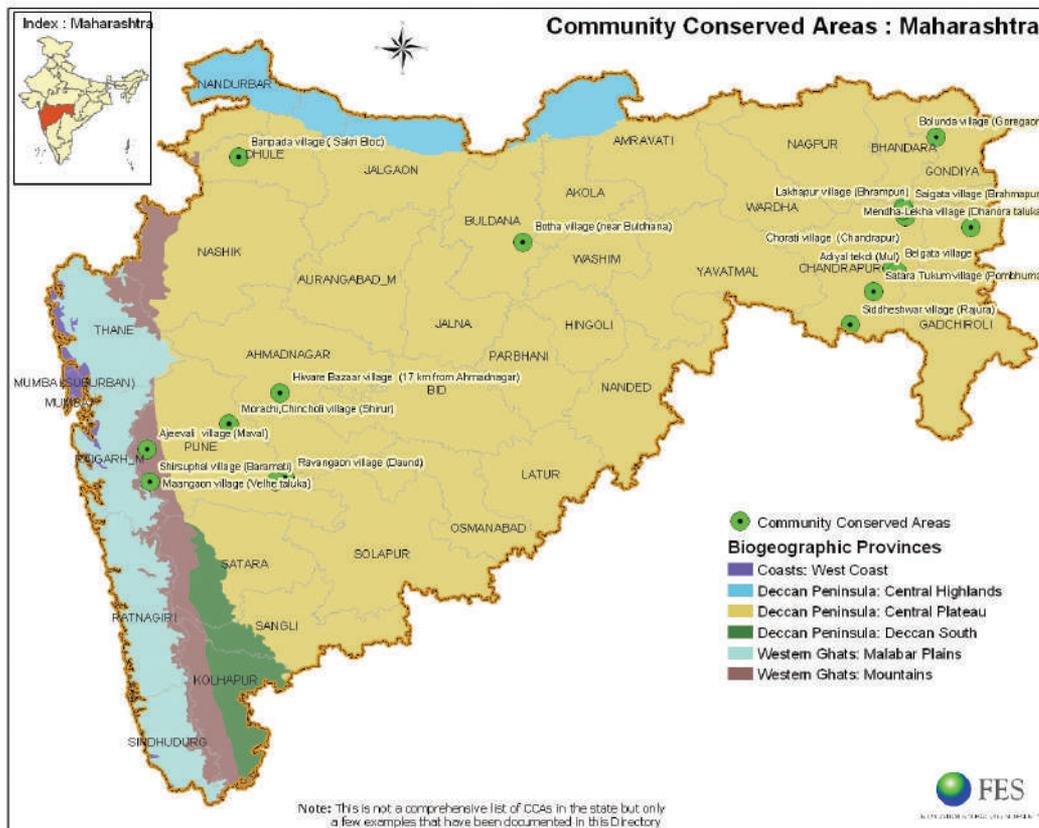
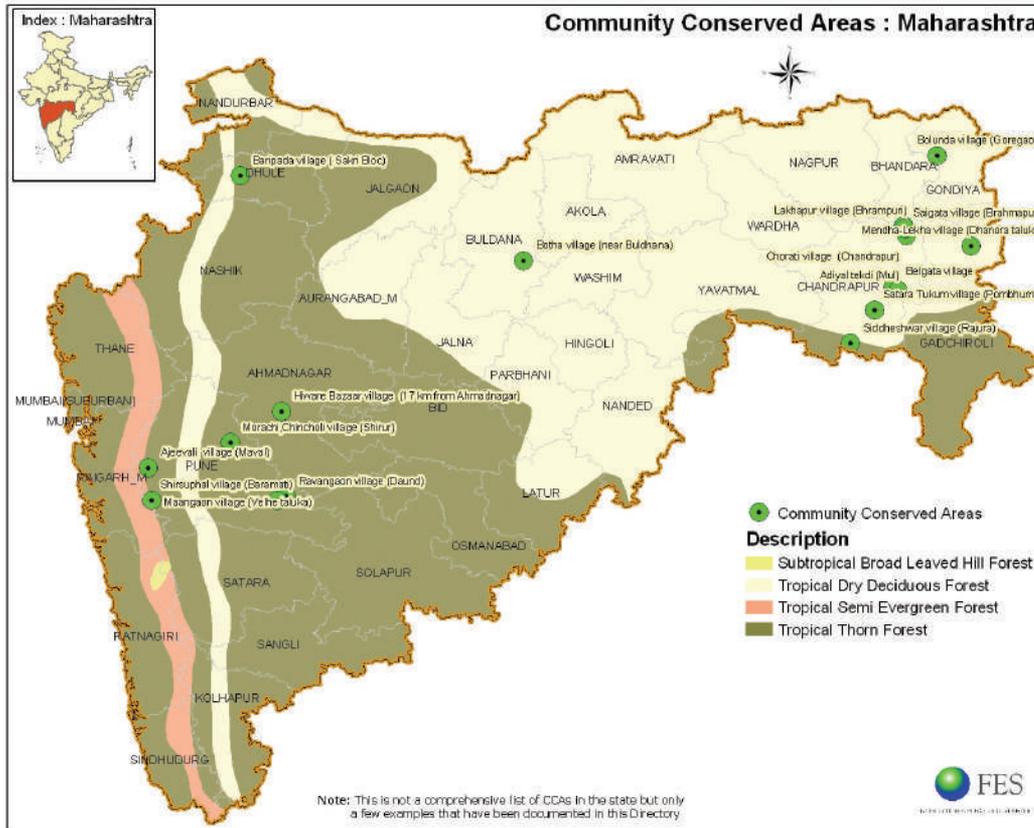


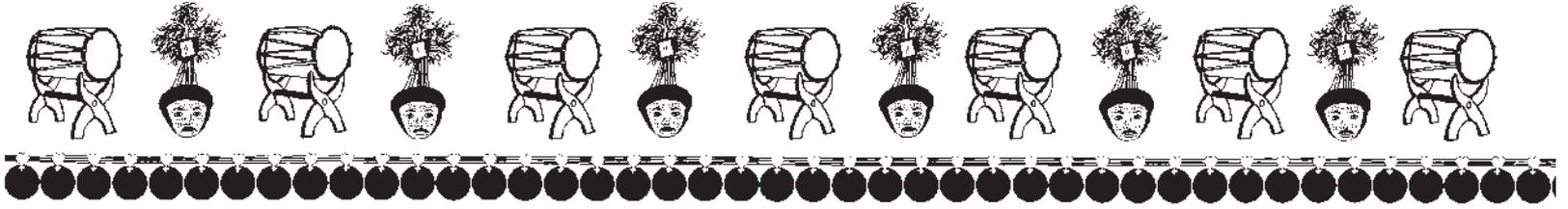
Endnotes

¹ Decentralisation processes in Kerala resulting in devolution of power and finance to local governing bodies such as village *panchayats* and municipalities.

Maharashtra







Maharashtra — an introduction with special focus on the Vidarbha region

Editor's note: This chapter is a combination of an introductory section on Maharashtra state in general and then a more detailed section on conservation scenario, state, history and current status of CCAs in Vidarbha region in particular. Details on status of CCAs in the entire state of Maharashtra could not be compiled.

Location and biogeography

Maharashtra has a total geographical area of 3,07,713 sq km. The state extends from 15°35' to 22°02' N latitude and from 76°36' to 80°54' E longitude. Maharashtra is bounded by Gujarat to the north, Madhya Pradesh to the north-east, Chhattisgarh to the east, Karnataka and Goa to the south and Andhra Pradesh to the south-east. The mean maximum and minimum temperatures in the state range between 46.2° C and 26° C respectively. The state has a 720 km coastline bordering the Arabian Sea to the west.



Western Ghats in the Bhimashankar region

Photo: Ashish Kothari

Geologically, the state predominantly comprises Deccan Lavas (Deccan Trap). It also has Gondwana rocks in the Satpuras and laterite, alluvium and granite gneiss in the eastern and south-western parts. Some of the main rivers in the state are Bhima, Godavari, Krishna, Ghod, Koyna, Nira, Mula-Mutha, Wardha, Wainganga, Manjra, Pravara, Dudhna, Purna, Painganga, Indravati, Tapti and Narmada.

The total forest cover of the state as per the Forest Survey of India (2003) is 46,865 sq km, covering about 15.23 per cent of the total geographical area. Of the total forest area about 18,478 sq km is open canopy forest. In Maharashtra, three biogeographic zones have been identified, which cover six distinct provinces:

Table 1: Biogeographic zones in Maharashtra¹

Biogeographic zone (sq km)	Biogeographic provinces	Area of province in sq km (% of state area)	Total number of national parks/wildlife sanctuaries	Size of NP/WS in sq km (% of province area)
5 Western Ghats (37,554)	5A Malabar Plains	23,626 (7.7)	4	156.75 (0.7)
	5B Western Ghats	13,928 (4.5)	4	1,214.46 (8.7)
6 Deccan Plateau (2,66,693)	6A Central Highlands	12,679 (4.1)	7	1,760.95 (13.9)
	6D Central Plateau	2,46,148 (80)	23	11,804.40 (4.8)
	6E Southern Plateau	7,866 (2.6)	1	10.88 (0.1)
8 Coasts	8A West Coast	3,467 (1.1)	1	29.12 (0.8)

Socio-economic profile²

The state is divided into five socio-economic regions: Vidarbha, Marathwada, Western Maharashtra, Konkan and Khandesh.

As per the 2001 census, the total population of the state is 96,878,627. There are 47 scheduled tribes in Maharashtra; these include the Gonds, Bhils, Mahadeo Kolis, Warlis, Koknas, Thakurs,

Halbas, Andhs, Koli Malhars, Katkaris, Kolams, Korkus and Gamits. The Scheduled Tribes constitute about 9 per cent of the total population, while the Scheduled Castes constitute about 10.2 per cent of the total population.

5809 villages and 16 towns in 12 districts, covering an area of 46,531 sq km (about 15.1 per cent of the area of the state), have been declared Schedule V areas in the state to facilitate special schemes for the predominantly tribal population here. The Schedule V districts are Thane, Pune, Nashik, Dhule, Nandurbar, Jalgaon, Ahmednagar, Nanded, Amravati, Yeotmal, Gadchiroli and Chandrapur. The Tribal Sub-Plan (TSP), which provides for a number of special schemes for the development of tribal communities, is operational in the entire Schedule V area. To provide special help and facilities to the tribal communities, the state has instituted four posts of Additional Tribal Commissioners at Thane, Nashik, Amravati and Nagpur.

As per the provisions of Schedule V of the Constitution, a Tribes Advisory Council has been formed in the state with the Chief Minister as the ex-officio president and the Minister, Tribal Development as the ex-officio vice-president. Fifteen tribal MLAs are members of the Council and two members are nominated by the Governor. The main function of the Council is to advise the Governor on important matters pertaining to the welfare and advancement of scheduled tribes.

A majority of the tribal population depends on subsistence rainfed agriculture and nearby forest resources. Non-Timber Forest Produce (NTFP) is one of the major sources of income for most tribal communities.

Conservation

There are five national parks covering an area of 955.93 sq km and 35 wildlife sanctuaries covering an area of 14,376.66 sq km. Thus the total area under protected areas (PAs) is 15,332.59 sq km, which is about 5 per cent of the total geographical area. When portions of the Great Indian Bustard (GIB) sanctuary land are denotified as proposed, this figure will come down to 2.15 per cent. Melghat, Tadoba-Andheri and Pench are the three Tiger Reserves in the state.

The Joint Forest Management (JFM) programme was introduced in the state in 1992. In 1994, about 947.27 sq km of forest land was being managed in this manner with the help of 502 Forest Protection Committees (FPCs). Degraded forest lands and plantation blocks were taken up for JFM. There are 15,694 villages in the state which contain lands categorized as 'forest lands' within their boundaries (as per the 2001 census). This amounts to a total of 31,653.87 sq km. Status of actual tree cover on these 'village forest lands' or 'revenue forest lands', as they are referred to in the census, is not known.

Sacred groves are a valuable traditional concept of biodiversity conservation. About 2,808 sacred groves in 500 villages have been recorded in Maharashtra so far, covering an area of about 51 sq km. Many sacred groves were established to preserve, share and save water resources of the area they were established in. Linking them with prevailing religious beliefs gave them the required sanctity and helped to regulate local uses of their resources.

20 Important Bird Areas (IBA) have so far been identified in Maharashtra by the Indian Bird Conservation Network.³ Though presently there is no Ramsar site declared, 6 Ramsar sites are proposed in the state.⁴



Anti-dam protest, Hemalkasa, Gadchiroli district
Photo: Ashish Kothari

Vidarbha region

Mahadev Gurlurkar⁵

1. Background



Vidarbha or Varhad is the easternmost region of Maharashtra, comprising the basins of the Wardha, Vainganga and Purna Rivers. The region is a thickly forested, hilly expanse, interspersed with artificial tanks, and it has significant mineral wealth. It borders on Madhya Pradesh, Chhattisgarh and Andhra Pradesh.

People of different castes from northern India and from Andhra Pradesh have migrated to this region. A portion of it, known as *Jhadimandal* (area of trees) was under the control of a Gond kingdom (hence it is also called Gondwana), and this has a large proportion of *adivasis*.

In the mountainous region in eastern Chandrapur and Gadchiroli districts live tribal communities like the bhils, the gonds, the rajgonds, the korkus, the kolams, the banjaras, the pardhaans, the raathyas, the halbaas and the andhraas. Their livelihoods are based on hunting and gathering plants, honey and fruits from the forests. They visit rural areas to sell forest produce so gathered. They have distinct cultures and their languages include gondi, kolami, chhattisgadi and marathi.

The bhils, the gamits, the mahadev kolis, the gavlis, the thaakars, the korkus, the dhaankas, the paardhis, the naaikdas, the pardhaans, the raathyas, and other tribes make their home in the hills of the Satpuda mountain range (Amravati district) of Vidarbha. They speak languages like bhilli, korku and lamani.

The total land area of Vidarbha is 97,404 sq km, of which 63,874 sq km is under forests.⁶ The average annual precipitation is 1016–1270 mm.⁷

2. Wildlife wealth of Vidarbha

Some of the animals to be seen in the forests of Vidarbha are tiger, gaur, leopard, wild dog, nilgai, sloth bear, sambar, chital, wild boar, chousinga, Hanuman langur, fox, jackal, porcupine, wild cat, black-naped hare, mongoose, blackbuck, striped hyena, and others. Monitor lizards and a wide variety of reptiles are also found in the region. In 1994, a slender loris was observed at the Sulezari water hole in Nawegaon National Park. This animal is usually seen in the forests of southern India. Chandrapur and Gadchiroli districts of Vidarbha are part of Gondwana, a region populated by the Gond, Gowari and other tribes. Bhandara district is known as the district of tanks. Nawegaon National Park in Gondia district is renowned for its variety of birds, being the wintering grounds of a number of migratory species.

3. Loss of forest wealth of Vidarbha

3.1 Paper industry and the supply of bamboo

The Thapar group started a paper mill at Ballarpur in Chandrapur district. Since 1950, this mill has been provided with an abundance of bamboo at an extremely low price. According to the local villagers the extraction techniques have been quite destructive, resulting in the degradation of bamboo forests in the region (also see case study on Mendha-Lekha).

3.2 The *bidi* industry and the supply of tendu leaves

Tendu leaves are harvested for supply to the *bidi* industry from most districts of Vidarbha, including Bhandara, Chandrapur and Gadchiroli. Trees of other species are destroyed while collecting tendu leaves. The collectors often set fire to patches of forests in order to induce new tender leaves, considered more suitable for rolling *bidis*.

3.3 Encroachment on forest land: *Jabran jote andolan*

The Government of Maharashtra passed legislation to regularise encroachments on revenue and forest lands that were made between 1 April 1972 and 31 March 1978. Thousands of cases of encroachments in Vidarbha were thus regularised. In Vidarbha, the *jabran jote andolan* (a campaign to bring under cultivation forest area for the benefit of the disprivileged) had converted much forest land to agricultural use.

3.4 Mat weaving and the burad community

Members of the Burad community residing around Navegaon National Park and Nagzira Sanctuary weave mats from bamboo. The government has a policy of supplying bamboo to them at a concessional rate. But the businessmen exploited the Burad community, tricking them into passing on the concession to them, and mass-producing mats. Thus a scheme introduced for raising the standard of living of the Burad community was hijacked by the business community, which became rich at the cost of the Burads.

3.5 Hunting

Tiger, sambar, and other wild animals are still hunted illegally both for meat as well as sale.

3.6 Encroachment of Kathiawadis on the forest

Cattle and sheep of Kathiawadis (a migratory herder community from Kathiawad in Gujarat) are seen in large flocks in Vidarbha. These communities have traditionally been passing through these forests. Now with reducing forest cover and increasing number of cattle there are constant conflicts with the local communities. Many Kathiawadis have, in fact, begun to purchase land and to settle down here.

3.7 Coal mines

Bearing huge deposits of coal, the forests in Vidarbha are being degraded because of coal mines.

4. Forest control and administration

As in some other parts of the country, the British introduced the *malgujari* system in order that they might retain control over agricultural and forest land and maximise use of produce from revenue forests. This system is also called the *saranjamdari* or *ryotwari* system elsewhere. The *malgujars* were expected to collect tax on the use of any forest produce by locals and to pass it on to the government. Later, 'the *malgujari* forests of Vidarbha were transferred to the FD and *nistar*



Satpura landscape Photo: Kishore Rithe

Akola district adjoining Yavatmal district, the hilly parts of Gavilgad, the hills of southern Satpuda in Amravati district, the hilly part of Nagpur which adjoins Madhya Pradesh and the hills and low-lying areas of Gadchiroli and Chandrapur districts. These surviving stretches of forests are invariably inhabited by *adivasis*. Their minimal needs and forest-friendly lifestyles are the reasons why these forests remain. Some forests included in the national parks and sanctuaries of Vidarbha are a part of such forests.

rights (customary rights) were given to villages for the satisfaction of their daily requirements. For this purpose, the revenue department appointed *nistar* officers, who set up a system for each settlement. The forest land used for satisfaction of *nistar* rights was not planned for, scientifically and hence over a period of time, it was degraded so that only sparse scrub (called *Bhu-khanda-van* or class 'E' forest) remained. And the area remained under the control of the revenue department except settlements in and around forests; the rural areas in Vidarbha have hence become barren.⁸

Old forests stretching over large areas are still seen in some parts of Vidarbha. Some of these still surviving forested patches include, the parts of

4.1 National parks and sanctuaries

Four of the five national parks in Maharashtra—Gugamal NP, Nawegaon NP, Pench NP and Tadoba NP—are in Vidarbha. The area they cover adds up to 868.97 sq. km. In addition to these, seven out of the 25 sanctuaries in Maharashtra—Melghat (Project Tiger), Andhari, Bor, Chaprala, Katepurna, Nagzira and Painganga—are also in Vidarbha and their combined area is 2587.19 sq. km. Besides, six of the eight sanctuaries declared by the Government of Maharashtra in August 1997—Amba-Barwa (Buldhana), Tipeswar (Yavatmaal), Dnyanganga (Buldhana), Bhamragad (Gadchiroli), Narnala (Akola) and Vaan (Amravati)—are in Vidarbha and they cover a total of 708.70 sq km.⁹

4.2 Management of forests through rural participation

Under the National Forest Policy, the Government of Maharashtra implemented the Joint Forest Management (JFM) scheme in 1992 with the objective of regenerating degraded forests with help from the local people. In return the protecting communities were to receive 50 per cent of the benefit from any harvests from these forests.

Even before the implementation of JFM and unknown to policy makers and others, however, people in certain rural settlements were protecting their *nistar* rights and the forests in which they enjoyed these rights. These villages included Adyal Tekdi, Lakhapur, Dhorpa, Saigata and Metepaar in Brahmपुरi taluka, Belgata and some surrounding villages in Mul taluka of Chandrapur district, as well as Mendha (Lekha) and other villages in Gadchiroli (See Case Studies).



Discussion with *gram sabha*, Mendha Lekha, Gadchiroli district Photo: Neema Pathak

In most of the above cases, the main decision-making body for the management and protection of these forests was the village *gram sabha* (the general assembly of the village or the hamlet) and its members managed the forests as per the principles of self-reliance, self-rule and villages' sovereignty. The examples of these villages lead to the spread of the message about the responsibility for forest protection among rural society, its organisations, individuals and administration. As a result, many villages in Chandrapur, Gadchiroli and Buldhana districts took the lead in protecting their forests, thus setting an example for the rest of the state.

The state introduction has been compiled by Anuradha Arjunwadkar, member of Kalpavriksh, primarily based on information from: P. Pande with N. Pathak, *National Parks and Sanctuaries in Maharashtra – Reference Guide* (Mumbai, Bombay Natural History Society, 2005).

The detailed information on Vidarbha region has been provided by Mahadeo Gurlurkar, 'Khoj', c/o Shri P.M. Khandelwal, Near Govind Lodge, Gujari Bazar, Paratwada – 444805, in March 2001. We are extremely grateful to Ajay Dolke, Yavatmal District, Maharashtra for additional inputs.

Endnotes

¹ Source: W.A. Rodgers and H.S. Panwar, *Planning Wildlife Protected Areas Network in India*, Report prepared for the Department of Environment, Forests and Wildlife, Government of India (Dehradun, Wildlife Institute of India, 1988).

² Official website of Maharashtra Tribal Department at <http://cgwb.gov.in/CR/achi-gw-resou.html>.

³ Source: M.Z. Islam and A.R. Rahmani. *Important Bird Areas of India: Priorities of Conservation* (Mumbai, IBCN: BNHS and Bird Life International, UK, 2004).

⁴ M.Z. Islam and A.R. Rahmani. *Potential Ramsar Sites in India*. (Mumbai, IBCN:BNHS and Birdlife International, UK, 2006).

⁵ Translated by Anuradha Arjunwadkar

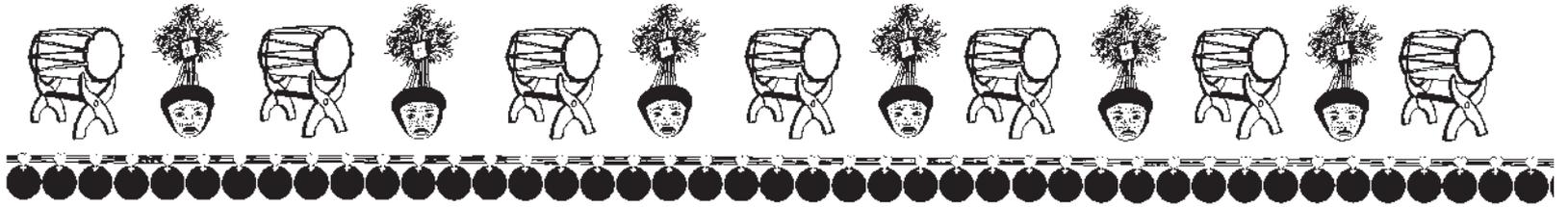
⁶ Source: Forest Department, *Maharashtra Rashtriya Udyane va Abhayaranyancha Sadyasthitidarshak Ahwaal* (National Parks and Sanctuaries, Report on the Current Status) (Maharashtra Forest Department, March 1995-96).

⁷ Government of Maharashtra, Cultural Activities Department, *Maharashtra: Bhumi va Lok* (Land and People), Gazetteer (Government of Maharashtra, 1996).

⁸ W. Padmakar, 'Graminanchya Sahabhatun Vanavyavasthapan Chikitsakman Drishtikshep' (Forest Management through Rural Participation: A Perspective), *Deshonnati*, 8 November 1997.

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Ajeevali sacred grove, Pune

Background

Sustainable use of plant and animal species by rural people can play an important role in conservation of particular ecosystems. In India, as elsewhere in many parts of the world, a number of communities traditionally prohibit harvests from patches of forests termed as 'sacred groves' and dedicated to deities or ancestral spirits. Amongst varied religious practices the most significant from an economic viewpoint are those relating to the preservation of sizable patches of forest, sometimes as much as 20 hectares in extent, as sacred groves.¹

Ajeevali village (18.5° N, 73.52° E), with a land area of 493 ha, is situated in Maval taluka in Pune district, Maharashtra State in Western India. The nearest town is Lonavala. (28 km from Ajeevali) The village can be approached from Pune, which is at a distance of 50 km by road. The village is situated in the eastern offshoots of the Sahyadri mountain ranges (popularly known as the Western Ghats). The terrain in and around the village is undulating. A part of the village boundary overlaps with the taluka boundary of Maval and Mulshi. The village is on a sloping hillside, one side being flanked by a steep cliff. The highest point is about 3000 feet above mean sea level. The village lies in the catchment of the river Pavana and is situated on the banks of the backwaters of Pavana dam. Agricultural fields surround the landscape.



Old statue of the deity Waghjai, in the grove
Photo: Supriya Goturkar

A number of streams flow down the hill slopes, forming the source of water for agriculture and fish that migrate upstream for breeding. The region receives heavy rainfall of around 4300 mm from June to September. Winters (from October to January) are cold with temperatures dropping to 4°C. Summers (February to May) are hot when temperatures rise up to 40°C.

The village shows the following landscape elements: human settlement and temples, agricultural fields, sacred grove along the mountain, a dense vegetation patch of privately owned plots and a patch of sparse vegetation (privately owned plots) which is allotted for cattle grazing and fuelwood requirements.

All forest land in the village is privately or community owned. The decision-making body in the village is the *gram panchayat* (formed of elected representatives of people), which governs the overall administrative and village welfare activities. There are three schools in the village. The village is supplied with drinking water through taps and has electricity. People also drink well water which has to be brought from a longer distance.

Ajeevali has a good semi-evergreen forest patch of 22 acres, a sacred grove traditionally conserved by the local people. A special feature of this grove is the abundance of fish-tail palms from which *maadi*—a popular local liquor—is extracted commercially. Interestingly, religious belief coupled with this activity of *maadi* extraction play a crucial role in the conservation of the grove and village economics.

The village population consists of a single community, the Kunbi Marathas, with agriculture as the main occupation. The tribal community of Katkaris that is mainly dependent on natural resources is found in the surrounding forests. Katkaris do not have a permanent settlement in the village. There is a small Katkari *pada* (a small settlement of Katkaris) in the neighboring village of Shilim. Agriculture is the main occupation of the people. Rice is cultivated traditionally here, the *ambemohor* variety being the speciality of this area. Other varieties of rice cultivated are kolam, saal, jire saal, indrayani, etc. Ragi is also cultivated traditionally on the hill slopes by the cyclic *raab* (mature and dried *Strobilanthes callosus* on selected hill slopes is slashed and burnt



every seven years and ragi is cultivated). These two main crops are grown using only rainwater. But recently there is a decreasing trend in ragi cultivation, the very strenuous work involved in ragi cultivation being the main reason given by the villagers. Other crops cultivated include wheat, masoor, gram, beans, tur, vegetables, etc. However the other crops are grown on a very small scale due to lack of irrigation facilities.

There has been an increasing trend in the use of inorganic fertilizers for farming, although many farmers are aware about the negative impact of their over-use. It is a usual practice to grow crops and vegetables for personal or domestic use separately using only organic manure, and to use chemical fertilizers for crops grown for sale. The villagers say that organically grown food is tastier than that grown using inorganic fertilizers.

Nearly all the land in the village is privately owned. The sacred grove of Ajeevali is a common property resource owned by the entire village. In recent times, some additional privately owned forests adjoining the grove have been collectively dedicated to the temple by the villagers in the name of the goddess. Uncultivated private land under forest cover on the slopes is being rapidly sold off to people outside the village, usually from the urban elite.

The sacred grove is situated at an altitude of around 1000 mamsl. As one travels from the village to the grove, a gradual change in the vegetation is observed. Agriculture fields start adjacent to the habitation. Exotic species like eucalyptus (nilgiri), *Thespesia populnea*, casuarina, etc. are seen here on the bunds. In addition to this, other plant species like *Bombax ceiba*, *Terminalia tomentosa*, *Holoptelia integrifolia*, *Eliodendron glaucum* are seen in this patch up to a distance of about half a kilometre from the village. Next starts a vegetation patch with deciduous species and relatively fewer agriculture fields. Tree species found are *Madhuca indica*, *Oidna wodier*, *Anogeissus latifolia*, *Bridelia retusa* *Hollarhena* etc. In these are the scattered *Acacia catechu* patches. This degraded secondary vegetation indicates a considerable human and cattle interference. As we proceed further, a relatively wooded patch appears showing species composition of *Erythrina suberosa*, *Mangifera indica*, *Lagerstroemia lanceolata*, and *Terminalia tomentosa*. At an elevation of about 60 m from the village a predominant bamboo area is seen along a stream. Then starts vegetation dominated by *Terminalia tomentosa*. However, at this stage evergreen species like *Caryota urens*, *Mangifera indica*, *Syzigium cumini* and *Pongamia pinnata* can be noticed. This is woodland with considerable canopy. Thus the gradual change in the quality of the forest continues till the grove, where a sudden change in the vegetation is observed due to sharp boundaries of the grove.

The sacred grove shows the presence of densely wooded patches with species composition like *C. urens*, *Mangifera indica*, *Atlantia racemosa*, etc. The opened-up habitats outside the grove favoured growth of deciduous trees such as *Terminalia*, *Bridelia*, *Grewia*, etc. A heterogeneous plant community comprising pioneer species like *Mappia foetida*, *Macaranga peltata*, etc. is seen outside. As mentioned earlier, activities such as fuelwood collection and timber extraction are common outside the grove, leading to degradation of vegetation. The biomass of the sacred grove forest is significant (145 T/ha) as compared to that of the habitat outside.

Comparative analysis of forest in the sacred grove and outside

Habitat	Area Sampled (sq m)	Density per Quadrat (min./max.)	Canopy Cover (%)	Biomass T/ha
Grove	1600	18/47	>80	145
Outside	800	18/40	40-60	72

The grove is a densely wooded forest with more than 80 per cent canopy and can easily be distinguished from the surrounding degraded forest. Such a dense canopy makes the grove the last refuge for the animals like giant squirrel. Among other animals, Ajeevali sacred grove harbours diverse kind of fauna such as Hanuman langur, Malabar giant squirrel, barking deer, wild boar, leopard, porcupine and white-backed vulture, in addition to being home for a variety of other birds, insects, amphibians and reptiles.

Towards community conservation

The grove is a dense patch of vegetation of 16 hectares. It has been conserved since ancient times in the name of Goddess Waghjai (the Tiger Goddess). The grove is locally called as Waghjai chi Devraai (the sacred grove of the Tiger Goddess) or the *raai* (grove). The village community has

deep faith in the goddess. The grove has a natural cave in which is situated the idol of the deity: a small stone, painted saffron. There is no construction of any temple or roof over the idol. It is a belief that deities having no roof or temple construction are more fierce and powerful. People visit the grove during special occasions like marriages, festivals, before beginning any important farming activities, etc.

Every year, starting from Chaitra Pournima (full moon day of the first month of the Hindu calendar, around April), they celebrate the four day-long annual festival - *urus* of the goddess. A ritual called *bagad* is performed on Chaitra Pournima. In this festival, a *galkari* (a person believed to have spiritual powers) is hung from a 20 m pole of teak wood with the help of metal hooks pierced through his back. It is believed that a tiger spirit enters the body of the *galkari* and some other members of the community (*bhagat*). These *bhagats* are worshipped by offering flower garlands and applying *tilak* on their foreheads. After a short procession lasting for about an hour, the actual ritual is performed. The *bagad* represents human sacrifice to the deity. The villagers organize wrestling competitions, spiritual discourse and devotional song programs. During the *urus* all the villagers take their meals together. All activities are performed in the village in front of the temple. No activity is performed in the grove except for a few rituals performed by the *bhagat* and a few villagers, and carrying the palanquin with the deity from the cave to the village temple.

All Hindu festivals are celebrated with great enthusiasm and villagers come together at these times. The most important festivals include Diwali (October-November)—associated with the harvest season and Ganesh Chaturthi (August-September). During the activities conducted with schoolchildren, their attitude towards the grove was noted. The boys visit the *raai* weekly or fortnightly, just for fun, and during special occasions like festivals and while accompanying visitors and guests who come to drink *maadi*. Girls do not visit the *raai* as frequently as boys do, since they are advised not to do so by their parents due to safety considerations. But they also visit *raai* during festivals and other occasions. Most of the children (including girls and boys) know the types of large mammals found in their *raai*. They do not know names of any birds but they are aware that a great diversity of birds is found there. Analysis of a painting exercise (picture of the grove as subject) conducted for the students to know their perception of the grove showed the association of the deity, dense vegetation, and the grove with the fish-tail palm and *maadi* extraction being the most important constituents of the grove.

There is a strict taboo which restricts the entry of women during menstruation. Women visit the grove on special occasions like festivals and ceremonies. Women in the village whose male family members are involved in *maadi* extraction have the additional job of going to the *raai* to take food for them twice in a day. They do take turns sometimes. These women also have to share greater responsibility of the farm since the male members are busy with *maadi* during the season. However work involving strenuous efforts like ploughing is done by the male members only, during which their kin or friends look after their *maadi* business for that day.

Men visit the grove more frequently than women. The reasons for visiting include worshipping and praying to the goddess during festivals, important ceremonies and before commencing any important agricultural activity for the season. Men involved in *maadi* extraction business have to go to the grove regularly during the season.

People from Ajeevali recognize the benefits of the grove like the grove acting as aquifer recharge, thus aiding water conservation and supply to the village which has no irrigation facilities and thus is largely dependent on this water for their farms. Some villagers also have knowledge regarding the role of birds and animals like frogs, etc. in pest control on their farms.



Ajeevali sacred grove Photo: Supriya Goturkar

Tribal people visit the grove for hunting. Hunting is legally banned here as in other parts of the country. Katkaris mainly depend on hunting and wild edible plants for food. Wild boars, barking deer, mouse deer, partridges, quails, hares, crabs, etc. are killed and eaten by Katkaris as well as villagers. Katkaris use home made searchlights and handmade guns for hunting. Many villagers are *maalkaris*—a cult which refrains from non-vegetarian diet. Tourists from urban areas occasionally visit the village for hunting and drinking *maadi*.

About 20-30 years ago, against the background of decreasing religious beliefs,

many sacred groves in this area were lost when sold to coal merchants for economic gains,. Ajeevali sacred grove was also on the way to being sold as nearly half of the village population was for it. However a teacher from a nearby village along with Jagdish Godbole² convinced the villagers to protect the grove by suggesting a long-term economic benefit from *maadi* extract from the grove. The sap exudates for *maadi* are collected by cutting off an inflorescent axis of the fish-tail palm plant. After this incident, a few villagers, especially the politically stronger ones, started reaping benefits from *maadi* extraction and sale.

Till 1986, any interested villager, and especially those who were politically strong, used to go to the sacred grove to extract *maadi*. The villagers realized that the benefits were being cornered by a few in the village. A decision was then taken by the village assembly for *sarvajanik* (community) *maadi* extraction, where the rights for extracting *maadi* would be contracted out. Villagers, however, were concerned that contracting people from outside the village for this purpose may affect the sustainability of the process. The extraction rights of the *maadi* are therefore auctioned to those interested from within the village. Under this system the extraction is still carried out by the same powerful people of the village but the benefits are now shared as a common village fund. The revenue thus generated is used in village welfare and religious activities. As the funds generated by *maadi* increased, villagers established a system of a well-defined and organized management structure comprising the temple trust, the *gram panchayat* and the *maadi* extractor.

Under the current system the contract is necessarily awarded to a local person, thereby increasing their stake in conservation and assigning them the responsibility of protecting the grove while extraction of *maadi*. Activities like hunting, grazing and extraction of timber and non-timber forest produce (NTFP) other than *maadi* inside the grove were traditionally prohibited because of religious beliefs. This regulatory system has now been revived under the contract system.

The decision-making body in the village is the *gram panchayat*, which governs the overall administrative and village welfare activities. The second management institution in the village is the temple trust, which governs the activities related to the sacred grove. It works independent of the village *gram panchayat*. The temple Trust is a committee of 13 villagers, and works as a self-governed organization. It functions with a president, a vice-president, a treasurer and the trustees. It has a pivotal role to play as strong religious taboos are attached to the grove. The trust has the administrative authority regarding management of the grove. Annually, the contract for *maadi* extraction in the grove is auctioned by the temple trust. The revenue thus generated (Rs 1,50,000 per year) is managed by the trust for village welfare and religious activities.

Impacts of community action

In Ajeevali (sacred grove and surrounding area), so far a total of about 250 species of plants have been recorded from the grove and its catchments. These species are distributed across various habitat types such as semi-evergreen forest, moist deciduous and dry deciduous vegetation patches, scrub jungle and grasslands. 75 per cent of the total recorded plant species have utility value. Wild edible plants (about 30 species) recorded from the study area supplement tribal diet during rainy season, e.g., *Dioscorea pentaphylla*, *Meyna laxiflora* and *Nothapodytes nimmoniana* (*syn. Mappia foetida*), a globally endangered and endemic species, well known for its anti-cancer and anti-HIV properties. The grove gains significance because of the presence of *Nothapodytes*. The population of this species has declined by 50-80 per cent during last decade from the other parts of Western Ghats owing to clandestine trade. In addition to *Nothapodytes*, we also recorded 8 species of medicinal value which belong to IUCN threat category, and 4 endemic tree species. *Abutilon ranadei*, a species believed to be extinct from the Western Ghats region, was also recorded here during this study.

The quality of the grove forest is good enough for its limits to be clearly identified in the landscape. The surrounding vegetation of the grove that is under the influence of human interference is different in composition, and lacks in lianas and certain evergreen tree species which are found in the grove (as mentioned earlier). Lianas and sciophytes such as *Actinodaphne hookeri* are recorded in the grove, whereas heliophytes such as *Bridelia retusa*, *Butea monosperma* are frequent outside.

C. urens, from which *maadi* is extracted, is concentrated in a 8 ha forest patch of the grove. Out of 22 tree species found in the grove, *C. urens*, an indicator species of evergreen and semi-evergreen forests, is the most abundant. It grows among tall trees, in the humid atmosphere and humus-rich soil. This species, currently threatened due to human interference, was once a prominent tree in the high rainfall regions of the Western Ghats. Thus sacred groves where this species is proliferating in large numbers become important from a species conservation point of view.³

The current population structure of the palm in the grove could be attributed to its historic and present use. Activities like hunting, grazing and extraction of timber and non-timber forest produce (NTFP) other than *maadi* have been prevented on religious grounds since ancient times, when the sacred practices must have been established. The pre-existing rules and regulations regarding harvesting of forest produce are now being followed more strictly in the contract system. The contractor has the responsibility of protecting the grove. This has restricted activities such as collection of leaf litter that led to trampling of the saplings and eating of the pith of young palms by the tribal people that led to reduction in the number of palms.

The sap exudates for *maadi* are collected by cutting off an inflorescent axis of the plant. Those employed (from local tribal communities) for extracting the sap, have a good understanding of the phenology and population structure of the palm. They have also devised methodologies for maximum extraction. According to the villagers who are experienced in *maadi* extraction, the business of *maadi* extraction is a profitable one. The economic turnover, summing up two harvesting seasons, was as high as Rs 3,00,000 to 4,00,000. As per the sources, each palm when tapped yields about 200 bottles (150 litres), each worth Rs 15, in one season. Thus the income obtained from one palm amounts to about Rs 3000 per season.

It is well understood that the sacred groves also often serve as a last refuge for many species of flora and fauna. Ajeevali sacred grove too harbours diverse kind of fauna as reported above. A number of wild edible and medicinal plants are commonly found in the grove and its surrounds. Endangered species such as *Ceropegia* spp. are commonly sighted not only in the grove but also in the other landscape elements in the village. The grove therefore acts as an important wildlife habitat, as a source for recharging local aquifers and helps in soil binding and soil conservation.⁴

Opportunities and constraints

The present study points towards a possibility of continued protection to the sacred grove and the palm species coupled with the religious and economic aspects. The practice of conservation along with commercial linkages at a local level needs to be understood further and studied for its economic, ecological as well as institutional sustainability. There are some issues that currently face this initiative, including:

1. Increased migration of youth to cities like Pune and Mumbai in search of employment, so less people interested in looking after the grove.
2. More and more people finding it difficult to manage their landholdings and are selling it to outsiders for real estate development.

The current system of conservation definitely needs positive external intervention to strengthen it to deal with these challenges resulting from the changing socio-economic scenario.

Local individuals who are concerned with the future of the grove are concerned about the sale of village land to outsiders. They are also concerned about ecological changes within the grove. For example the local knowledgeable individuals (KIs) regard the trend of the high level of regeneration of *C. urens* as detrimental for the regeneration and growth of other species. However they also encourage extraction of *maadi* because of its economic value.

A local KI has suggested an adaptive management strategy for dealing with some of these problems, which includes:

- Cut off the palm inflorescences at a critical timing during the year for controlling their rapid population increase.
- Deal with the problem of land being sold to outsiders: the money generated from the auction could be used to buy plots in Ajeevali from villagers who wish to sell them to outsiders. This way the land will be protected from outsiders and the area under the grove can be increased.
- Give the farmers options like medicinal plant cultivation, through facilitation by some NGOs, etc., and make them aware of conservation values and guide them. The farmer can be a responsible agent for protecting the grove. Thus, strengthening the people's initiative by intervention and support of some NGO can help in conservation.

Recommendations

1. Strengthening of existing conservation initiatives/traditional practices

Some people from the village know the importance of biodiversity conservation and sustainable use of natural resources. In the context of rapid urbanization and land being sold to outsiders

for farmhouse construction, it is necessary to encourage such knowledgeable people to come forward. These individuals can help initiate a conservation movement by reviving the traditional ecological knowledge and reach this awareness to each and every villager. There are examples of conservation initiatives in the past from this area.

As children are an important medium to spread awareness and information among the villagers through their parents, local school programmes can integrate revival and use of traditional knowledge and new local ecological findings in their curricula. This would be an important method of reviving conservation aspirations in the village.

Some NGOs have in the past tried to work with the women in the village and form self-help groups (SHGs). Local politics and other reasons ensured that these SHGs did not work for too long. Various interactions as part of the current study encouraged the women to restructure and revive these. Presently there are two SHGs in the village. These SHGs need to be encouraged and sustained. Through these much work towards conservation in the area can be achieved. These SHGs could also be the medium for village women to establish natural resource-based economic independence.

2. Additional economic gains to the people

Tourism already exists in the village to a certain extent. Presently tourists come mainly for hunting and drinking *maadi*. Ajeevali and the surrounding area can be developed into an eco-tourism area. The eco-tourism program can be run by the local people, following a 'Panchsutri' (a set of five principles: organic food, handloom/*khadi* cloth, wooden/bamboo furniture, herbal medicines and bio-fuels), aimed at sustainable livelihood, through providing to the urban people, who need such changes desperately, organic food which is more nutritious and tasty; herbal medicines, which have greater value and effects (naturopathy centre); bamboo or wooden pottery/furniture/cottages; traditional hand-woven/*khadi* clothes and energy generated with the help of bio-fuels such as biogas/bio-diesel/solar panels. In such a situation, there is a greater possibility of Ajeevali becoming self-governed and self-sustaining. This will again yield mutual benefits to people as well as ecosystem.



Traditional fishing by the Katkari tribe
Photo: Supriya Goturkar

3. Conservation model through villagers' participation

Villagers' participation in the conservation process is an important factor. People should understand the importance of biodiversity and the need for its conservation for a sustainable future. Environment education and awareness programs are necessary for increasing people's understanding about biodiversity around their village. People should be made aware of the legal provisions for protecting their rights over biodiversity and other natural resources. The working of the present temple trust needs to be studied and suggestions for improving its working and efficiency should be given. An important role in this can be played by experts and government or non-government organizations working in the field of natural resource management and biodiversity conservation.

4. Legal provisions for conservation of biodiversity

Various existing legal provisions that could be used in the village after sufficient discussions in the village and after receiving villagers' consent include:

- Looking at the close dependence of people on the biodiversity, only if the local people are willing, it may be possible and advisable to declare the area as a community reserve. This will make conservation a participatory as well as a legal process.
- Another provision can be to declare the sacred groves as a Heritage Site under the Biodiversity Act 2003. But the details of what this provision stands for how or whether it is the best means to support initiatives of this kind was not very clear till the time of writing this case study. Under

the same Act, however, there is a possibility of strengthening the present initiative through the formation of a village-level Biodiversity Monitoring Committee (BMC). However, it is important that the composition of the BMC is acceptable to the villagers and the rules and regulations formulated are locale-specific and respect the land-use pattern that the villagers have established for this area, particularly the sustainable harvesting of *maadi* and other NTFP.

- Declaring this area as an Ecologically Sensitive Area under the Environment Protection Act 1976 would restrict construction and destructive development in this area.

However different provisions would have their own advantages and constraints. These need a thorough debate prior to taking any decision. It should be kept in mind from the beginning that laws and policies are a means of supporting and facilitating conservation, and not tools for imposing external powers and creating local conflicts.

Conclusion

This practice of conservation along with commercial linkages at a local level seems to be an interesting system and needs to be studied especially for its sustainability. Our study points towards a possibility of continued protection to the sacred grove and the palm species coupled with the religious and economic aspects. Ajeevali has a wide range of landscape elements and land-use patterns. From the results of this one-year study (conducted as part of completion of Masters programme in the year 2004-5) it is clear that Ajeevali sacred grove needs a long-term conservation plan. However the grove does not exist in isolation, rather it is a part of the overall village landscape and land-use pattern. Therefore, conservation of the grove is also very closely linked to the conservation of the surrounding landscape elements and linked cultural aspects. A study of this kind was useful to understand this link between the conservation of the grove and economic, ecological and cultural fabric of Ajeevali village. An effective step ahead would be to use the results of this study to generate a village-level as well as larger debate to arrive at an appropriate conservation model for Ajeevali as a whole.

This case study has been compiled from the following documents: Supriya Goturkar and Radhika Kanade 'A study of biodiversity, its use and conservation in rural lifescape at Ajeevali sacred grove, Pune, India', dissertation submitted in partial fulfilment of Master's degree in Biodiversity (2005); Supriya Goturkar, Radhika Kanade, Neema Pathak, Mukul Mahabaleshwarkar and Ankur Patwardhan, 'Abstract - Ajeevali village, a case study of socio-economic strength leading to self-governed conservation', for the Society for Conservation Biology (2005).

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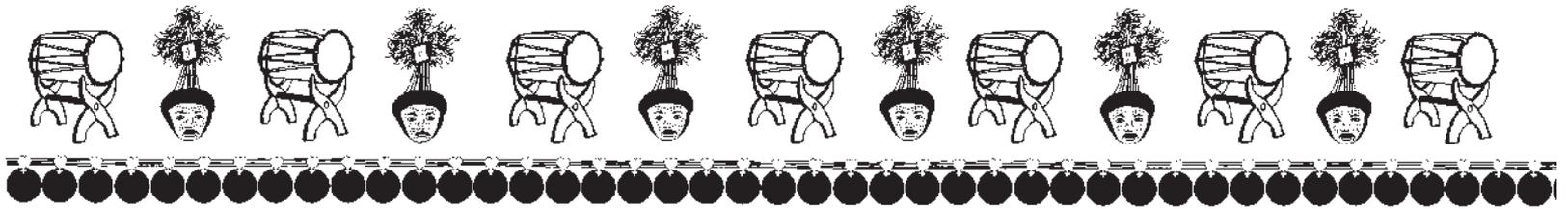
Endnotes

¹ M.G. Gadgil and V.D. Vartak, The Sacred Groves of Western Ghats in India, *Economic Botany*, 1 (1976), pp. 152-60.

² A researcher from Pune who had started 'Save Western Ghats Movement' around the same time.

³ V.D. Vartak, *Tadamanchi Palmsrushti* (Pune, Continental Publication, 2001).

⁴ M.G. Gadgil and V.D. Vartak, 'Sacred Groves of India - A Plea for Continued Conservation', *Journal of Bombay Natural History Society*, 72(2) (1974), pp. 198 - 205.



Mangaon village, Pune

Background

Mangaon village is located in Velhe Taluka of Pune District, Maharashtra. This village is remotely situated in the catchment area of the Panshet reservoir along the Western Ghats. At a distance of 70 km from Pune city, the village can be approached by the state transport buses till Panshet (30 km) and by launch there onwards. In the monsoons, this village gets water-locked on all sides and is inaccessible by road. This area receives a total annual rainfall of approximately 5000 mm. Temperatures range from a low of 9°C in winter to a maximum of 40°C in summer. The village is surrounded by the Western Ghats on one side and the backwaters of Panshet Reservoir on the other. This is mainly a forest ecosystem situated on the crestline of the Western Ghats. The forest under protection is a sacred grove that is revered by the villagers of Mangaon since times immemorial. There are still many sacred groves and protected patches of Reserve Forest along the Western Ghats of Maharashtra (northern Sahyadris), which form a corridor between Bhimashankar and Koyna wildlife sanctuaries in Maharashtra.

The area of the sacred grove is 18 ha and is legally a reserved forest (RF) under the jurisdiction of the forest department. The main communities residing in Mangaon are the marathas, dhangars, donger kolis and mahadeo kolis. The total population of the village is 450. The main source of income is agriculture. The total livestock population is approximately 150. Many from the younger generation migrate to cities like Mumbai and Pune in search of employment. Villagers occasionally extract fuelwood and other forest products from the sacred grove. However, the percentage is negligible and does not greatly affect the ecosystem. The villagers also derive income from the sale of bamboo planted around their houses. This bamboo is sold to the contractors who collect bamboo from the entire village and from neighbouring villages. Wood of narkya and amruta is similarly collected and sold in a market at Bhor.

Towards community conservation

People have been conserving the grove since time immemorial. There are no written records of the time for which this grove has been protected, but villagers maintain that their ancestors have been protecting it for at least 600 years. People seldom collect fuelwood from the sacred grove. Collection from the grove is largely restricted to dead and dried wood that has fallen down. No trees are felled in the grove. Non-timber forest produce such as garbi, hirida, beheda and shikekai are collected occasionally.

There is a *bhagat* (religious caretaker) appointed to look after the temple inside the sacred grove. He belongs to the Mahadev Koli tribe. He is responsible for performing regular rituals for the deity. The responsibility of protecting the grove lies with the entire village and there is no specific body to manage it. An annual festival of the deity is celebrated by the surrounding villages. Contributions for the celebrations are collected and the *bhagat* is paid a salary from this money. The government has not been directly involved with the management, nor does it have any known management plans for the area.

Impacts of community conservation

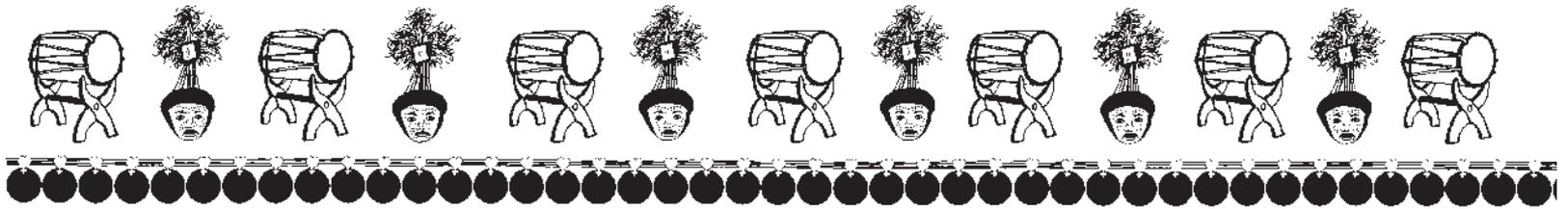
In the landscape of Panshet catchment, Mangaon sacred grove stands out. Trees with large girth and huge lianas such as *Entada*, *Diploclasia glaucescens* and kadu karanda have made the canopy virtually impermeable to the ground.

This case study has been compiled based on a questionnaire answered by Sambhaji Jagtap of Mangaon on 1 May 2001.

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Baripada village, Dhule

Background

Baripada village is a part of Sakri Block in Dhule district of Maharashtra. The village is surrounded by a 445 ha forest supporting a rich vegetation composed of species such as teak or saag, devakhumba, palas, pangara, ain, kumbha, moha or mahua, neem or kadulimb, karwand and others. Wild animals found here are panther, Indian wolf, black-naped hare, fox, monitor lizard, and others.

Towards community conservation

Towards the end of the 1980s and in the early 1990s, illegal felling of teak and other plants was done mainly by outsiders. Villagers noticed that the hill near the village, which had always been green, was turning into a barren and dry sand pile. This began to worry the villagers. In addition, Chaitram Pawar, a youth in the village, was noticing some other harmful effects.

The supply of fuelwood had become irregular. A third of the 35 wells in the village had gone dry. Forest degradation was leading to a number of other social problems. In the absence of other livelihood options, women had turned to liquor production as a source of secondary income. Liquor consumption led to social disquiet in the village.



Baripada village tank Photo: Milind Thatte

Pawar felt the need to do something about the situation in his village. Gajanan Pathak, who was then associated with a local NGO Vanvasi Kalyan Ashram, extended his support. Subsequently the forest department (FD) also started helping Pawar in his initiatives. The forest department extended their Joint Forest Management (JFM) scheme to the village in 1998. JFM has subsequently been also extended to other villages in the vicinity. Thus a large contiguous patch of forest is currently under protection by different villages.

Pawar mobilised the villagers and urged them to take action. He pointed out that if deforestation continued, their access to dry wood, fruits and other minor forest produce would get affected. In a village gathering on 23 May 1993, a local informal forest protection committee (FPC) was set up to protect the forest. Initially some villagers were sceptical about this initiative. They were then roped in as important position holders in the FPC. Pawar was elected the chairman of the FPC.

It was decided that the FPC would not have any permanent members. The idea was that each family would have the chance to send a representative to the committee in turn. Thus all the families in the village had a stake in the entire process.

The people of Baripada have initiated a plant diversity register process in October 2004 to monitor the plants found in their forests. They have identified 14 different sites from the forest and initiated vegetation mapping through a 100 sq m quadrant.

Rules and Regulations

The rules and regulations for forest use were announced in the weekly markets and in all neighbouring villages. The rules included:

1. Anyone found destroying or taking anything from the forest would be punished as per the rules framed for regulating human and cattle activity in the area.



2. Only the inhabitants of the village were eligible for extracting resources from the forest, if at all.

Two elderly people in the village would work as watchmen and report to the FPC. The watchmen would be paid Rs 100 per month and would be changed every year.

3. Each family would pay Rs 3 in cash or 7 kg of grain to generate funds required to pay the watchmen.
4. Any person found removing any plant or animal material without permission would be penalised Rs 151 per headload and Rs 751 if taken out of the forest in any other manner. For cattle grazing in the forest the fine would be Rs 1000.



Board of the village development committee

Photo: Milind Thatte

5. If someone other than the watchmen caught the culprit, then an award of Rs 501 would be given to the person.
6. Farmers whose lands lay next to the protected community forest would have the moral responsibility to report any theft they may encounter.
7. Nobody from within or outside the village would be allowed to enter the forest with a bullock cart for any reason.

Subsequently, there have been some changes in the rules and regulations. For example:

1. The neighbouring villagers are now allowed to extract some resources for social and religious purposes but only if the permission had been sought in advance from Baripada village.
2. For 30 days in a year 50 acres of forestland is given for grazing. The area allocated for grazing is changed every year. Grazing for sheep and goats is not allowed.
3. Villagers are allowed to remove dead/dried wood on social occasions or community gatherings (deaths, weddings, etc). In addition one month during winter (February/March) is a free time again, when only villagers are allowed to remove fuelwood.

The Indian government recognised the effort of the village by awarding it Rs 1,00,000. This amount was used in starting a village level jaggery-making unit. This unit now employs 25 young men from the village.

Inspired by Jan Seva Foundation, environment education camps for local school children are organised in community protected forests. In these programmes the schoolchildren get acquainted with local plants, including medicinal plants, birds and animals.

In 2003, Pawar helped the village women start a fish-farming cooperative using the common village pond. Jan Seva Andolan helped in the process. The women are now pleased as they can give up making liquor. Since alternatives are now available, the women have taken a strong stand on drinking alcohol. Men are now afraid of coming home drunk. Villagers have also undertaken cultivation of a common forest nursery as part of joint watershed development activities.

Impacts of community effort

Social

1. Collective action in the village has now increased appreciably. Marriages are also organised collectively on an auspicious day, thereby reducing expenses.
2. The village has developed a more inclusive method of conflict resolution. One person from each family has to participate in resolution of conflicts, irrespective of the nature of the issue.
3. Jan Seva Foundation and Vanvasi Kalyan Ashram have helped villagers in community-based development activities, like building improved toilets, setting up kitchen gardens that use recycled water, and so on.

Ecological

4. The number of thefts from the forest has substantially reduced.
5. Illicit extraction of forest resources by the villagers has completely stopped.
6. Protection and conservation efforts have helped reduce water run-off.
7. The forest department has legitimised the informal village protection group under its Joint Forest Management (JFM) scheme.
8. Species like *Tectona grandis*, korfad, ghaypaat, among others, have been planted under JFM in the community protected forest.

According to Chaitram Pawar, plant and animal life has increased in the forest, both in terms of number and variety. More importantly, not only has Baripada become self-sufficient in terms of meeting its fuelwood and water needs, it can even supply water to surrounding villages.

Box 1

Community action fosters the 'we' spirit in the village

Gajanan Pathak recalls an interesting incident. The forest *havaladar* (forest guard) had hired some outsiders to collect wood from the forest for him. The villagers came to know about this and questioned the *havaladar*. Embarrassed, he asked for a transfer and soon moved out of the region. Pathak says, 'What was interesting about this incident was the fact that the villagers did not shy away from confronting the *havaladar*, who usually behaved like a king. They could question him because of their own unity and because they felt that he should not go unpunished, as this would set a precedent.'

This article is based on inputs from Gajanan Pathak and Chaitram Pawar and documentation done by Shailesh Shukla and other members of SRISTI team in *Honey Bee*, Vol. 15 (2) April-June 2004. For more recent information contact Neema Pathak at neema.pb@gmail.com

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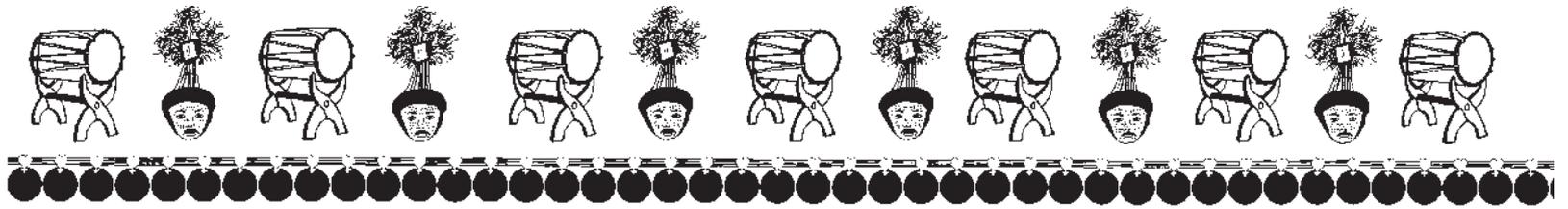
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Check dams made by villagers in the protected forest
Photo: Milind Thatte





Belgata village, Chandrapur

Background

The story of Belgata is a unique narrative of the villagers of a tribal village that overcame its vices, particularly alcoholism, and organized themselves for the development of the village as well as individuals. Located in Mul taluka of Chandrapur District, this village lies 9 km from the taluka headquarters.

This is a forest ecosystem with young trees, plants and shrubs that have been planted here in the past 8 years. The total area conserved is 350 acres and is legally categorised as reserved forests (RF), under the jurisdiction of the forest department (FD). Species like teak or saag, hirda, rohan, yen, sesam, tiwas, tendu, charoli and Amla can be seen here. Indian peafowl were once abundant but are no longer found. Avian fauna like parakeets, sparrows, pigeons, owls, wildfowl and waterfowl are found. Quails, cranes and Indian rock Python are some of the wild animals found in these forests.

The total population of the village is 640 with the majority community being the tribals, who comprise 95 per cent of the population. The other communities residing here are the beldars, kunbis and mahars (Scheduled Caste). The main sources of income of the villagers are dairy farming, working as agricultural labourers, and employment with the railways. The livestock consists of 500 cows, 250 bulls, 70 buffaloes and 500 goats.

The villagers depend on the forest for most of their biomass requirements such as fodder, fuel, food, fodder, timber for house construction and agricultural implements, and so on. Apart from Belgata, 19 other villages depend on the same forest for their timber, fuelwood and fodder needs. Before protection, uncontrolled extraction and illicit felling had almost completely destroyed the forest. The forest department could do nothing to stop the destruction. There were many stories where the villagers would tie up the government forest guard on duty to a tree and steal timber. Alcoholism and domestic disputes were a way of life.

Towards community conservation

The first step of awareness about the issues came to the villagers in the 1970s due to the effort of a tribal villager V.S. Triptiwar. This 65-year old was greatly influenced by leaders like Jayaprakash Narayan and Vinoba Bhave and had participated in many of their movements. He used the method of *saam daam dand bhed* to eradicate alcoholism in the village. These are the four methods of dealing with alcoholism as successfully practised by Anna Hazare in the village of Ralegan Siddhi in Maharashtra. The four words mean prohibition through persuasion, coercion, fine and if nothing works, then punishment. He targeted the youth of the village and motivated them to persuade their fathers to stop drinking. Awareness camps were conducted and help was sought from the forest department (FD). Slowly the villagers gave up the bottle and began to spend more time in farming and forest protection activities. Once the village was rid of alcoholism, their awareness about the issues facing the village increased. By 1990-1 they realised that the forests of Belgata had degraded so badly that they may not be able to support the needs of the future generations.

In 1992, the forest department introduced the Joint Forest Management (JFM) scheme to the villagers. Awareness programs were organized with visual demonstrations and educational groups were formed. Camps for water conservation were also organized by the FD in order to raise awareness. By September 1992, JFM started in Belgata and a *van sangharakshak samiti* (VSS) was formed for the management and protection of 350 acres of forest. Three other groups that exist in the village—the *mahila gat* (women's group), *gram sabha* (village assembly) and the Bhajan Gat (community religious singing group)—also participated in forest protection.

The VSS is a 11-member committee, of which 4 members are women (the forester is the member-secretary). It is mandatory that decisions are taken in the presence of 70 per cent of the villagers. The village has decided that 10-20 people would patrol the forest every day. Some of the rules that have been established by consensus in the village include:

- Extraction of fuelwood and timber for agricultural implements is prohibited in the protected



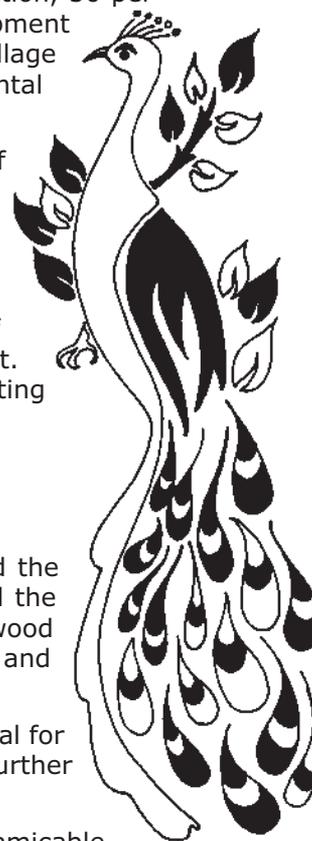
area.

- Grazing is prohibited and villagers are encouraged to replace their goats with high-yielding buffaloes.

Violators of the rules are fined by both the VSS and the FD. The stolen timber is impounded by the FD and auctioned at a later date. Of the amount earned at the auction, 50 per cent is given to the VSS. In addition, the VSS takes up community development work with voluntary community labour contribution (*shramdan*). The village women also patrol the forest and have on several occasions been instrumental in apprehending timber thieves.

As per the JFM scheme the villagers are entitled to a 50 per cent share if any resource extraction is carried out by the department after 10 years of protection offered by the villagers. The villagers requested the FD to also include the other villages in the sharing of fuelwood and bamboo.

Apart from JFM, the village has also adopted the concept of *gramdaan*.¹ In this concept, all the farmers have to surrender one-twentieth portion of their landholdings to the *gram sabha* for community use and management. Also, they are bound to sell their lands only within the village, thus preventing any outside presence.



Impacts of community effort

Since the commencement of protection, the forest has regenerated and the villagers no longer have a deficit of timber. The forest has flourished and the availability of a certain kind of local species dikemali, which is used as fuelwood by the villagers, has increased. Ample fodder has increased milk production and the overall income of every villager has improved.

There has been an increase in the water table, which has proved beneficial for agriculture. Increase in the bird population has kept a check on the pests, further benefiting agricultural production.

The villagers feel a sense of pride towards their forest and share an amicable relationship with the FD. Their efforts received a boost when the media highlighted their efforts and they won an award of Rs 1 lakh for their protection efforts.

Opportunities and constraints

With the increase in forest cover, the population of wild animals has also gone up, particularly the wild boars. Wild boars cause serious crop damage, leading to resentment among the villagers against them. There does not exist any policy to compensate the villagers for such damages.

The villagers also feel that instead of dividing fuelwood among all households equally, sharing should be based on the size of each family. The decision regarding equal division is as per the JFM rules.

This case study has been compiled based on a questionnaire answered by V.S. Triptivar from Belgata on 21 August 2000 and an article by Vivek Deshpande, 'Message in a bottle', *Indian Express*, 2 July 2000.

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RFO

Forest Range Office,

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Mahadeo Gurlurkar,

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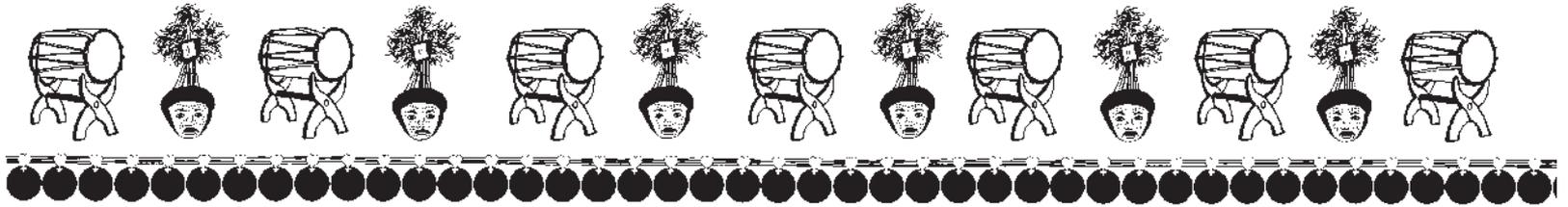
Near Govind Lodge, Gujari Bazar,

Paratwada-444805

Endnotes

¹ Villagers donate a part of their land for the common village good to carry out community activities, including agriculture, regeneration, etc.



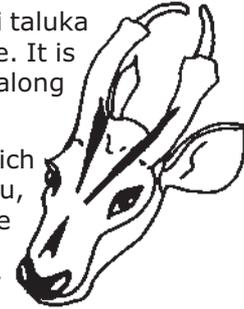


Chorati village, Chandrapur

Background

Chorati village is situated close to the Nagpur-Brahmapuri road in Brahmapuri taluka of Chandrapur District. The Adyaal Tekdi bus stop is 4 km away from the village. It is an *Adarsh Gaon* (ideal village), where villagers are involved in various activities along with conservation practises, making the village self-sufficient to some extent.

The forest surrounding the village is dry and moist deciduous, supporting rich floral diversity. Some of the commonly found trees are teak, ain, beheda, tendu, anjan, jambhul, moha or mahua, etc. Among the major animals found here are tiger, leopard, leopard cat, sambar, spotted deer, barking deer, black-naped hare, wild dogs or dhole and common mongoose. The total area under conservation is 560 ha.



Many communities like the Hindus, Buddhists and Adivasis (tribals) inhabit the village, which has a total of 175 households. The total population of the village is 1030. The total livestock population is 700, with 400 cattle, 200 sheep and 100 buffaloes.

Towards community conservation

Forest conservation began in 1993, initiated by the *gram sabha* under the influence of *gaon ganrajya samiti* (village self-rule committee) and the *adarsh gram nirman samiti* (model village development committee). The *gram sabha* (village council) is the main decision-making body in the village and decisions are taken by consensus. An *adivasi* is the village head.

The *gram sabha* is also responsible for conservation and management of the village forest. Besides the *gram sabha*, the *adarsha gram nirman samiti* and six *mahila bachat gats* (womens' savings groups) are also involved with forest conservation.

The *gram sabha* has an executive committee for day-to-day functioning. This committee has five members, out of which two are women. However, all major decisions are taken in the *gram sabha* meeting by the entire village. All the families actively participate in the decision-making and implementation, and enjoy equal share in the resource benefits.

The villagers have to pay a yearly amount of Rs 50 to gain access to fuelwood from the forest. Under the Adarsh Gaon Yojana,¹ 56 acres out of the 560 acres of land was afforested with species of various forest fruit trees and indigenous trees of economic importance such as teak, *Terminalia tomentosa*, *Terminalia bellerica*, bamboo, tamarind, etc. Besides forest protection, the *gram sabha* imposed a ban on alcohol consumption. Under the *yojana*, 165 *gobar*-gas plants were introduced in 175 households, 13 latrines were constructed and family planning was introduced in the village.

Impacts of community effort

After the protection of the forest was initiated, villagers now have abundant resources required for agriculture and livelihood. Fodder availability has increased, in turn increasing the milk production.

According to the villagers, wild creepers, medicinal plants, insects, mammals and avian populations have increased in the area. The conservation efforts have helped improve the wild habitat for animals ranging from tiger to mongoose that are found in these forests.

The ban on alcohol has reduced the number of domestic fights in the village. Since the village now enjoys *nistari* (customary) rights in their village, royalty which was earlier given to the FD for use of forests now remains with the villagers. Many internal conflicts are now being resolved internally, without depending on the external judicial system.



Opportunities and constraints

The relationship with the FD is riddled with friction and political neglect. In spite of this the villagers are determined to keep the conservation effort going. The major reason for the success of this initiative has been the feeling of unity in the village and the sense of belonging towards the conserved forest. This can be illustrated by an incident in June 1999 when the District Collector arrested 41 villagers and imprisoned them for 45 days, after an agitation. During this time the rest of the village looked after the families of the 41 villagers.

The *gram sabha* plans for the future are to distribute 150 acres of land to the village landless.

This report has been prepared by Mahadeo Gurlurkar of the NGO Khoj, in March 2001. We are extremely grateful to Ajay Dolke, 'Shrujanpod', Yavatmal District, Maharashtra.

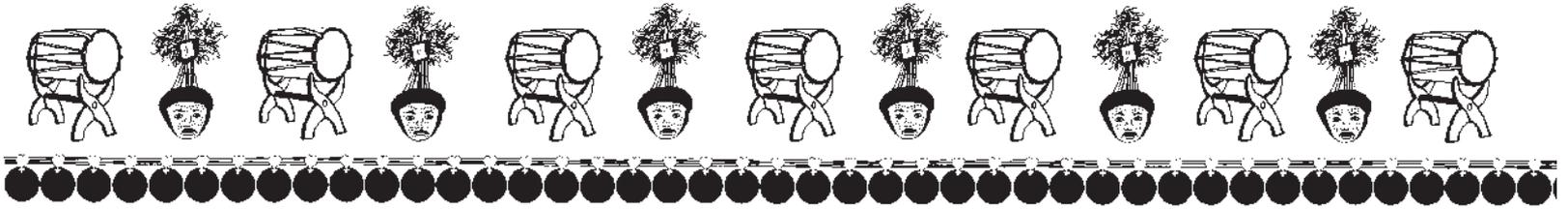
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Endnotes

¹ A scheme of the state government aimed at encouraging and financially supporting villagers carrying out outstanding social and economic development in their villages.





Lakhapur village, Chandrapur

Background

Lakhapur village is situated in Brahmapuri taluka of Chandrapur district in Maharashtra. A dry- and moist-deciduous forest surrounds this village with species like khair, dhawada, sehma, saag, mahua, neem, bel, anjan, mini, babul, tamarind, mango, bahawa, rohan, shendri, tendu, sahu, etc. Some of the big mammals found here include Indian wolf, spotted deer or chital, wild boar and jungle cat.

The total human population of the village is 510, living in 100 households. The main communities include the bhois, gonds, kumbis and nalivis. Buddhism and Hinduism are the two main religions practiced in the village.

Agriculture is the main occupation of the villagers, rice being the main crop. Other crops grown here are pulses and wheat. The secondary occupations are livestock rearing and agricultural labour. The livestock population is 250 cows and 100 buffaloes.

The villagers are dependent on the forest for fuelwood, wood for agricultural implements and housing, medicinal plants and fodder. Honey and resin, and mahua, mango, tamarind, biba and charoli fruits, are extracted for livelihood.

Legally this forest is under the jurisdiction of the revenue department and *nistari* (customary use) rights remain with the villagers.

Towards community conservation

In 1955, when one of the villagers of Lakhapur went into the forest to collect fuelwood, he was beaten up by some outside villagers. This angered the Lakhapur villagers. They decided to take charge of their forest so that an incident like this would not be repeated.

In 1956, a forest area of 600 acres (240 ha) was selected by common consensus of the village for protection. A forest cooperative society called Gram Swarajya Jungle Sahakari Sanstha was established to manage and protect the forest. Though the village got rights over the forest in 1956, actual work began under the guidance of Gurudev Geetacharya Tukaram Dada of Adiyal Tekdi in 1962.

The cooperative is made up of an elected 9-member team, which includes the president, vice-president and secretary. Two villagers patrol the forest and are paid Rs 150 per month. The *gram sabha* and the Forest Cooperative together take all major decisions, resolve conflicts and protect the forest. Neighbouring villagers who used to hunt and steal firewood from the protected forest have been caught and punished. The villagers also take fire control measures.

Each family pays a sum of Rs 50 annually to the cooperative for forest management. Funding for activities like afforestation comes from fines. Fuelwood, fodder, timber, etc. are distributed equally among the villagers.

Impacts of community effort

Protection has helped regeneration of the forest understorey. Fire control, regulated removal of dried leaves, etc. increased the humus in the forest. Villagers claim that soil fertility has increased, soil erosion has been checked and moisture levels have gone up. The increased water table level has increased the water in wells and surrounding waterbodies. The overall biodiversity of the forest is claimed to have shown a marked increase. Encroachments on village common land and forests have been brought under control.

The villagers benefited greatly from the increase in the availability of fuelwood, fodder and NTFP in the forest. Expenses that the villagers would incur to purchase this forest produce is saved. Agriculture has improved, as has the dairy production. Time that was earlier spent on searching for and gathering fuelwood is now spent in looking after their fields and other work. Overall health benefits have been seen along with increase in income. Conflicts between them and neighbouring villagers have also reduced.



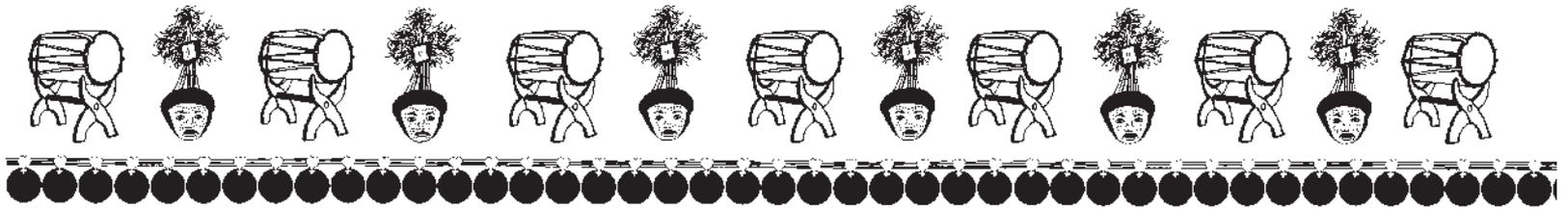
The feeling of unity among the villagers and the sense of belonging to the forest has increased. The decision-making powers of the villagers have been enhanced and they now realize the importance of self-governance.

This case study has been contributed by Mahadeo Gurlurkar of the NGO Khoj, in March 2001. We are extremely grateful to Ajay Dolke, 'Shrujanpod', Yavatmal District, Maharashtra, for his useful comments.

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Saigata village, Chandrapur

Background

Saigata is a small village situated in the Brahmapuri block of Chandrapur district in the western Indian state of Maharashtra. For over twenty years this village has protected 280 ha of its surrounding forests. The population of 426 in the village consists of people of various castes and religions and also includes tribals.

The protected forest patch has a large water reservoir on one side. The patch of forests to the southern end is protected by the neighbouring Lakhapur village; on all other sides virtually no forests remain. Saigata forests are mainly dry deciduous forests with tree species like lendia, saja, ain, teak, bija, mahua, and charoli.

The population of Saigata village is 426. The eight communities residing here include *dalit* Buddhists, gonds, dhivars, govaris, manas, malis, lohars and kunbis. According to official classification, these belong to scheduled castes, scheduled tribes, nomadic tribes and other backward castes. In the year 2000 there were 88 households in the village. The main source of livelihood for the community is agriculture and employment as agricultural labourers. Some (mainly the younger generation) are employed outside the village.

Forests protected by Saigata villagers are legally classified as Protected Forest (PF), under the Indian Forest Act, 1927. The rights over forest produce in this forest are as per the Nistar Patrak,¹ 1956.

Towards community conservation

After independence, the authority to oversee land matters and *nistar* (forest resource) rights of people shifted from the *jagirdar* (as this region was under the *jagirdari* system²) to the Revenue Department. The control over granting access to forest resources—firewood, minor forest produce, etc.—now lies with the *talathi* (the land records officer) through the Nistar Patrak. The overall management of the forest lies with the forest department.

Aided by a corrupt administration, timber started being illegally extracted by outsiders from this forest. The villagers watched helplessly as the forest was gradually being denuded. Soon residents from a neighbouring village, Mayar, started selling firewood from the forest. A time came when some of the villagers in Saigata themselves started selling firewood. Around the early 1970s the forests were all but wiped out. Due to the extreme degradation of the forest, livelihood options based on collection of non-timber forest produce (NTFPs) such as *mahua* flowers, *tendu* leaves, gum, etc. were no longer possible, and the availability of forest resources for personal consumption—fuelwood, fodder etc.—were also affected.

In 1973 a *krushak charcha mandal* (farmers' discussion society) was established in the village under the leadership of a *dalit*,³ Suryabhan Khobragade. The aim of this group was to initiate reforms to improve the agricultural productivity in the village. This *mandal* also had a *kabaddi* team and a dramatics group, and served as a useful platform to bond people together. The synergy which emerged from these activities also led to the formation of the Nabhovani Shetkari Mandal (a farmers' collective) and a library.



Villagers of Saigata in community protected forest
Photo: Ashish Kothari



With the evolution of the *krushak charcha mandal* came the realisation that it was critical to conserve the forests for future survival needs of the village, and a special *gram sabha* (village council) meeting was called on 31 March 1979. Khobragade stressed the relationship between the forest, land and water, and called on the villagers to protect the forests. The message was well received and a unanimous resolution was passed by the *gram sabha* to protect their forests.

The villagers started patrolling the forests to stop the removal and sale of timber and firewood. It was initially decided that everyday two villagers would patrol the forests and stop the wood-sellers. This was a tough task, as many people from Saigata itself were engaged in these activities for their livelihood and were not ready to give this up. But the village community decided that they would first tackle the people from their own village before they stopped the wood-sellers from other villages. Though they eventually managed to wean the Saigata villagers away from selling firewood, information is not available on whether concrete alternative livelihood options were offered to them then. The surrounding villages were more difficult to tackle, but by now the villagers had grown in strength and managed to deal effectively with the timber thieves even though they received death threats. The patrolling often involved confiscating axes and ropes from these people.

The conservation initiative had a minor hiccup in the period around 1982-3 when there was timber felling by outsiders with the help of a certain section of the village itself. This strife continued for two years. But the villagers recovered from this and renewed their resolve to conserve the forests after another special *gram sabha* meeting called by Khobragade. They formulated certain rules in their village, which included *charaibandi* (ban on grazing), *kurhadbandi* (ban on use of axes), *nasbandi* (population control) and a ban on sale of any form of wood. Access to basic forest resources was available after consulting the *gram sabha*.

Though the village had strengthened itself considerably by the mid-80s, the struggle was far from over. In 1982, they had to take on the forest department itself. The local department officials confiscated the grass bundles which the villagers had cut for use in their homes, even though the grass had regenerated only as a result of the protection efforts of the community. But the villagers met the Divisional Forest Officer of Chandrapur. The DFO asked villagers by what right were they claiming to protect the forest. Villagers responded in writing saying that it was the responsibility of all villagers to protect the government forests in their vicinity. Eventually, the grass was freed and the Department stopped questioning the village authority to protect the forests. The villagers got their forest boundaries demarcated clearly by the department on the ground. Around the same time a major battle had to be fought during the construction of a road coming to the village (the Khed-Saigata road). The 650 labourers engaged for this work were exerting tremendous pressure on the forest. The villagers guarded the forest round the clock during this period and faced many confrontations, several of them violent.

In the late 1980s, the village decided to keep two paid *chowkidars* to guard the forest. These were chosen from the village and contributions of Rs 10, 20 or 30 (depending on the economic status) were taken from the villagers. The villagers also imposed a ban on hunting in the area and vigils became stricter as the people fought fires, confiscated axes and bullock carts of thieves, and faced armed robbers and on occasions even hostile relatives.



Women collecting fallen twigs for firewood at Saigata Photo: Ashish Kothari

It is important to remember that though the initial catalytic movement was provided by the *Krushak Charcha Mandal* and later the *gram sabha* was used to give a call for forest protection, neither of these really developed as strong institutional structures. Though the village fiercely guarded their forest, the village depended largely on the guidance of Khobragade rather than any village institutions.

In 1993, the villagers were approached by the Range Forest Officer, Nagbhid, to join the official Joint Forest Management (JFM) scheme of the Government. The villagers agreed to be a part of this and a *van samrakshan samiti* (VSS) (Forest Protection Committee) was elected for this purpose. Soon plantations, pit digging, etc. were taken up, providing employment opportunities to some of the villagers. This was for the plantation work, which was

undertaken over 125 ha. As this partnership with the government completed eight years in 2000, Khobragade and a few others with whom the author interacted felt JFM has strengthened their initiative of twenty years by giving it a legal backing. The villagers are also expecting to reap the benefits of their initiative, as some of the forest produce will be harvested, giving them their 50 per cent share as per the benefit-sharing mechanism. In 1994 three wings of the forest department—Working Plan, Social Forestry and Territorial—sat with the VSS members in Chandrapur to draft the micro-plan, but the villagers expressed a lack of their proactive involvement in the drafting of the working plan. The micro-plan should ideally have been drafted in the village with maximum participation of the villagers and not in a faraway place like Chandrapur where a only few village members could have made a small contribution.

Initially, some conflicts were also created with the neighbouring villages as Saigata villagers did not allow extraction of fuelwood. Eventually, people moved to using agricultural residue and planting fuelwood trees on their agricultural fields for fuelwood to overcome the scarcity.

In 1993 grazing was stopped in the entire protected forest. Between 1994-5, to encourage regeneration, only rotational grazing was allowed. Subsequently the entire forest has been opened for grazing, except where new plantations are taken up. In the initial years the villagers had reduced the number of goats per family. The number of goats has now increased again because of a government scheme under which loans are given for buying goats.

It is important to note that the forest produce (wood, grass, etc.) is presently used for personal consumption only. Since 1989, there has been no commercial exploitation of the forest produce by the villagers. However, they allow the neighbouring villages of Uchli and Kaleta to collect mahua, charoli and palas leaves for their business of making leaf-plates, as they have done traditionally.

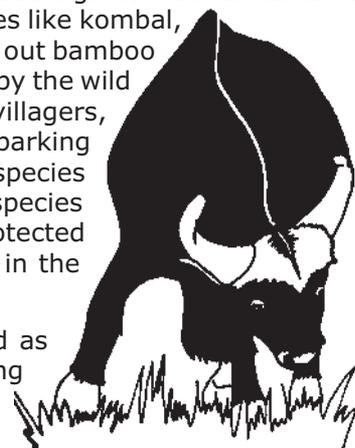
Impacts of community effort

This initiative has helped the village achieve local empowerment. 'It has united us, increased the esteem of the village community, and helped us overcome barriers of class, caste and religion,' says Khobragade. Achieving social equity as part of the effort towards forest conservation and equitably sharing the benefits of the conserved forests have definitely been among the major achievements of the community. This was clearly indicated in the 1970s—when the rest of Brahmपुरi taluka faced riots between Dalits and other castes, this village of eight different communities fought together to conserve their forests under the leadership of a Dalit. Local empowerment has also helped the villagers assert their rights and responsibilities.

According to the villagers the regeneration of the forest has facilitated the availability of basic survival resources such as firewood, fodder, and so on. The water table has gone up, and while earlier there was no water after January they now have enough drinking water as well as water for irrigation. Villagers do not use water provided by the government and meet their entire drinking water requirements from the two borewells in the village. Besides, the rise in the water table due to forest conservation has helped improve agricultural productivity. In recent times some of the works undertaken under the JFM scheme have also provided employment to the villagers. NTFP-based livelihoods had once disappeared from the village, but from 2002 onwards mahua flowers are being sold by the villagers.

A 1999 observation⁴ showed that most of the regeneration was actually coppice shoots that had grown after the stumps of trees (that had been felled repeatedly in the past) were given adequate protection. Amongst these coppicing trees were numerous other seedlings of various different species. There were also thickets of the usual secondary growth species like kumbal, *Flacourtia indica* and different kinds of climbers. Villagers have carried out bamboo plantations, which often do not succeed as the seedlings are uprooted by the wild boars which feed on the rhizomes of the bamboo. According to the villagers, the wild animals found in the area include leopard, spotted deer, barking deer, black-naped hare, wild boar, jackal, Indian wolf, and various species of birds and snake. According to a local professor, V.N. Mahajan, 70 species of birds and 250 species of plants have been recorded from the protected forests so far. Villagers also claim that in 2004, a gaur was sighted in the fields close to the forest.

There have been no forest fires since 1980. Fires are extinguished as soon as they start. Controlling the fires along with regulated grazing has greatly helped in the regeneration.



Opportunities and constraints

While the forests around Saigata stand testimony to the efforts of the villagers, there are several challenges before the villagers.

The villagers feel they need to strengthen the *gram sabha* as an institution and also develop a second line of leadership, as a large part of the effort has depended on the initiative and guidance of Khobragade and remains till today an individual-driven effort.

While the villagers feel that the JFM programme has given legal backing to their conservation initiative, it appears that it has not been internalised either by the villagers or the FD. Forest protection even today is more an outcome of the informal efforts of the villagers rather than the VSS. This could be due to several reasons, some of which are mentioned below:

1. The VSS is elected every five years and includes three women members, seven men and one forester. The VSS has to yet establish itself as a strong institution. Interaction with some members of the VSS indicated that the committee met very infrequently. Villagers felt a need for it to meet more often. They also expressed the need for a more proactive participation of the Forester, who is the Member-Secretary of the VSS. Forest related decisions are made in the *gram sabha* rather than the VSS.
2. Another important issue is the need for sustained employment opportunities within the village. As the youth look outwards for employment opportunities, it is difficult to gauge how this will affect attitudes of people towards their natural resources in future. While the forest protection initiative is old, one of the main reasons in people's interest in the official JFM programme has been the employment opportunities it provided, although temporarily. The JFM programme is now facing serious monetary constraints to carry out its activities. This programme was initially supported by a World Bank loan. This fund, however, is now over. Self-sustaining livelihood opportunities have not really taken off: for example, the dairy farm project is yet to start, almost three years after it was initiated. According to Khobragade, the VSS itself is responsible for inertia on this front, as they have also not pushed the issue strongly enough.
3. A lack of proactive involvement of the villagers in the micro-planning for management of the forests is another vital issue. This is in many ways linked to the weakness of the VSS. As the commercial exploitation of the forests and subsequent sharing of benefits is slated to begin, the need for active involvement of villagers in the planning process is vital to ensure that their conservation initiative of 20 years is not undermined and that there is sustainable exploitation.

The increasing wildlife populations have also brought with them increasing rates of crop damage. The population of wild boars has increased considerably. Wild boars reportedly cause much damage in the forests as well as to agriculture. In 2004 wild boars have been declared as pests by the government and license-holders are allowed to kill damage-causing boars. However, the body of the animal killed in this manner needs to be buried and cannot be consumed. The government has also agreed to pay compensation for crop damage. Such compensation is paid based on a joint assessment done by the *sarpanch* (elected political representative), forester (local forest officer) and *patwari* (local revenue officer). However, no such compensation has been paid in the village so far.

On the one hand the villagers have been trying to control the goat and sheep populations in the village; on the other, under a government scheme the villagers are being granted loans to buy sheep and goats. This has resulted in the increase in the number of goats in the village now where they had once nearly disappeared.

A very interesting feature to examine will be to compare the forests of Saigata and the neighbouring forests of Lakhapur, which have also been protected by the village residents. It is important to note that the forests of Lakhapur were never wiped out as were those of Saigata. According to Khobragade, the Lakhapur forests are not protected as well as the Saigata forests, but more detailed social and ecological investigations will have to be undertaken to examine this. Some of the possible factors which might have been responsible for the Lakhapur forests surviving the degradation the Saigata forests experienced could be the relative isolation from the main road and less pressure from other villages.

This information has been compiled based on the following sources: Neeraj Vaghlikar, 'Saigata: A forest reborn', *Hindu Survey of the Environment*, 2000; Suryabhan Khobragade, 'Ek Gaon Saigata' (Marathi), Note on the community conservation initiative of village Saigata (undated), 'Above all differences', *Down to Earth*, 30 April 2000; Questionnaire filled on 1 February 2000 by Suryabhan Khobragade; and Vivek Gour-Broome, 'Note on first impressions of the ecology of Saigata forests' (2000), unpublished.

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Endnotes

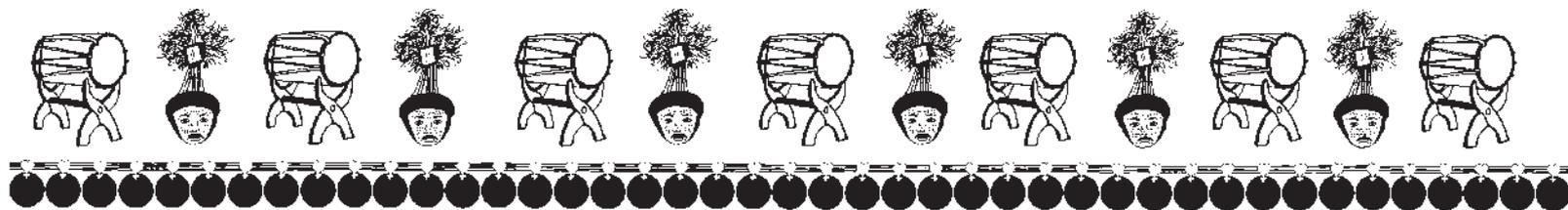
¹ An official government document which lists out types and quantities of forest resources people can extract as their customary right for *bonafide* personal use.

² In the *jagirdari* system the state administration assigned a certain area to an individual, the *jagirdar*, as a favour. The *jagirdar* collected the revenue from this area, with a portion going to the state.

³ A generic term for communities which have been traditionally the lowest castes in the Hindu caste system.

⁴ Unpublished report by Vivek Gour-Broome, independent biologist, Pune.





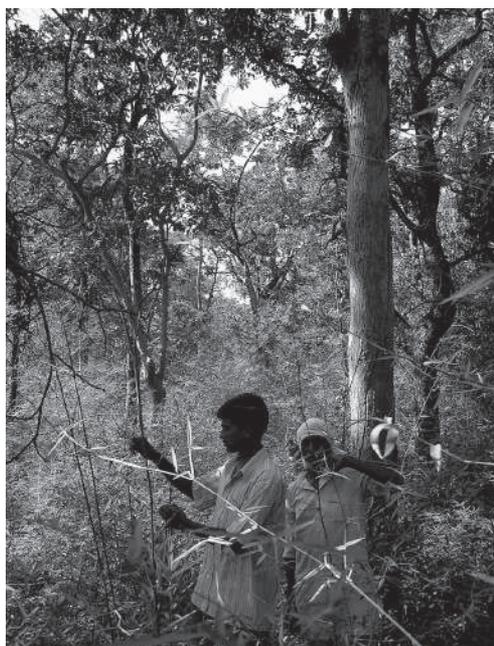
Satara Tukum village, Chandrapur

Background

Satara Tukum is a small tribal hamlet in Pombhurna taluka about 25 km from Chandrapur District Headquarters. It falls under the Mul Forest Range of Chandrapur Forest Division. Legally the forest under conservation are Reserve Forest. Forest department initiated the Joint Forest Management (JFM) Programme here in November 1997. The forests of Satara Tukum once housed local species like dhaoda, ain, kalam, chinchawa, tendu, etc. However, unrestricted grazing and illicit felling in the past few decades left these forests largely degraded, although they still supported mammals such as tigers and panthers. Under JFM the forests are now recovering their past glory. These forests represent the last stretch of forests extending all the way to Tadoba-Andhari Tiger Reserve.

Towards community conservation

The villagers of Satara Tukum have been watching the degradation of their surrounding forests and to some extent contributing to it. The general feeling among the villagers was that the forests belonged to the government and the government had the responsibility to protect them. Much of the protected forest around the village had already been encroached upon. Satara Tukum was brought under the World Bank-sponsored forestry programme in 1997. Mr. Chaphekar (Divisional Forest Officer) and Ms. Imtiena Ao (Assistant Conservator of Forests) persuaded the villagers to join the Joint Forest Management (JFM) scheme under this programme. An agreement to this effect was made in the *gram sabha* (village assembly) on 14 November 1997. About 285 ha were allotted to the village community for protection. A *samiti* (committee) was appointed, which had 96 members—i.e., one member each from all the 96 households. These 96 members included 84 men and 12 women. Since the government resolution prior to 1998 required only one person per household in the JFM committee, the Samiti is even today dominated by men, and women's representation comes only from the women headed households. The executive committee consists of 12 members, three of which are women (as per the requirement under JFM resolution). The participation of women members in the decision-making process is non-existent. The executive committee is elected every two years. After the appointment of the *samiti*, Imtiena Ao prepared the micro-plan for the area which was approved by the *samiti*. As per the micro-plan the FPC undertook the following activities to protect and manage the forests:



Forest protection committee members in Satara Tukum Photo: Ashish Kothari

1. Forming groups of seven persons each, which would patrol the forests daily on a rotational basis. The patrolling teams tried to convince hunters and others to stop their activities rather than forcibly stopping them.
2. Prohibition on free grazing. Cattle grazing illegally in the plantation and regeneration areas were impounded by the FPC.
3. Controlling illicit felling, a serious problem facing these forests.
4. Appointment of a forest guard to look after the plantation area as well as the protected area.
5. Generation of employment through forestry works such as plantations, soil and moisture conservation, and so on.
6. Those coming to the forests for headloads of fuelwood for sale were strictly warned or punished (particularly those from other villages).



7. Soil erosion was effectively checked by building check-dams on various *nallahs* and big gullies.
8. Raising plantations of bamboo, shiwan or gambhari, khair and teak or saag on 60 ha of degraded area.
9. Giving loans to needy villagers to establish small cottage enterprises, such as vermicompost plants, swing machines, dairy development, etc.
10. Various other schemes taken up to create alternative livelihoods for the villagers, such as beekeeping, sewing-machine training for young village girls, dairy development activities, development of medicinal plants in the village, etc.
11. Health and education were given importance with the introduction of toilets, bio-gas plants and better educational facilities, all with FPC funds.
12. The women of FPC formed a *mahila bachat gat* (self-help group) in which they got 57 quintals of rice in subsidy, which was distributed to each family in the village. The rice recovered from each family was stored in a seed bank for use in the next year.
13. Youth in the village were organised to protect environment and study fauna and flora of the village. A 'Young Environmentalist' movement was organised by a Nagpur-based NGO, the Vidarbha Nature Conservation Society.

The FPC has an account jointly managed by the FPC and the forest department. This account receives money from the forest department for various developmental activities. The profits from catching and selling fish from a community fish-tank established under JFM also go to this account. Sometimes various forestry works are carried out through voluntary work (*shramadaan*) by the villagers and the amount meant for their payment is deposited in the FPC account. As of September 2004, the *samiti* had Rs. 1.26 lakh in its account. The Sarpanch (president) of the *samiti* and the forest guard (member secretary of the *samiti*) are the joint signatories. Before making an expense the *samiti* has to pass a resolution and the accounts are regularly announced at the meetings of the *samiti* but not at the *gram sabha*. The funds in the account are used to give loans to farmers. In the lean period, each member of the *samiti* gets a loan of Rs 1000. This loan is returned on 14 January (Makar Sankranti, the harvest festival) with 2 per cent interest. If the loan is not returned on time, some property of the concerned person is mortgaged. These funds are also used for some community activities, such as buying vessels for village functions, etc.

The effort was very successful till funding was available from the WB. However, after the forestry scheme ended the government was not any longer as interested in the initiative. This has demoralised the villagers; they are also not sure what kind of benefits they would eventually get, because till 2004 no Memorandum of Understanding had been signed between the village and the government. Lack of funding and lack of information at the village level of tapping various government schemes has made it difficult for people to continue to patrol the forests at the expense of daily wages that they would earn.

Bamboo harvesting from the protected forests was taken up in 2004 by the FD. Villagers, however, were only paid daily wage labour. No royalty or share of the harvesting was paid. Initially, the villagers refused to offer labour for bamboo harvesting because the paper mill was only paying Rs 2.60 per bundle of bamboo. When villagers raised the point that for similar work the rate elsewhere was Rs 8 per bundle, the company decided to get labourers from other villages. The village put an embargo on the outside labourers. They gave them food for 15 days but did not allow them to work. Eventually, the company agreed to pay Rs 3 per bundle. Considering that there are few opportunities available for employment, such incidents are extremely discouraging for the village, more so because they have protected the forests for nearly a decade now.

The *samiti* is demanding that the adjoining forest compartment should also be handed over to the village for protection. According to them, this will bring a larger area under protection and villagers would also benefit more when



Community fishing in reservoir, Satara Tukum
Photo: Ashish Kothari

any harvesting eventually takes place. In discussion in 2004, the local RFO and ACF agreed that this could be done as there were no villages around. If the village would pass a resolution, this area could be handed over to the *samiti*.

Impacts of community effort

1. Due to effective patrolling and protection, natural regeneration took place rapidly and within a period of two years the forest has regenerated to its past glory with the return of wildlife such as tiger and panther. This is shown clearly in the satellite imageries (see left) taken in years 1994 and 2004.
2. Hunting was prevalent earlier as the inhabitants of the village are largely tribals. According to the villagers there is very little hunting in these forests now.
3. Villagers also claim that wild animal population has increased considerably. Animals like wild dogs or dhole (seen in packs coming to drink water at the community tank), panthers, sloth bears, chital or spotted deer and barking deer are sighted regularly by the villagers. 4-5 incidents of attacks by wild animals on human beings are reported every year. According to the villagers these incidents have increased in last few years.
4. Before JFM was initiated in the village, forest encroachments were a major issue. No encroachments have been recorded in the reserved forests by either the residents of Satara Tukum or from other villages.
5. Due to protection, abundant grass was available in 1998 itself. The grass was enough to meet the village requirement and also to supply to the victims from a flood-hit Orissa in 1999. Similarly, in 2000, 3 tons of grass were supplied to Gorakshan Kendra at Nagpur and two tons were used to thatch their own houses and to feed their own cattle.
6. Prior to JFM, crop loans were taken from moneylenders who would in turn exploit the farmers. Considering this the FPC started giving loans to the needy. The interest collected would again be pooled back into the FPC account.
7. Vermicompost, developed by one of the villagers, increased paddy yield by about 25 per cent. So did the production of vegetables. Villagers noticed that this also considerably decreased insect and pest attacks. These observations made the villagers use vermicompost during the next crop season.
8. Encouraged by the success of JFM in the village, the Zilla Parishad of Chandrapur allocated fisheries work in one of the tanks to the FPC for a period of 5 years. The profits from this also go back to the FPC account.
9. Availability of daily wage labour, even though irregular, construction of a community hall to conduct community functions, vessels, sound system, etc. for the village are also seen as a benefit of being part of the programme by the villagers.
10. Adoption of JFM by the village seems to have made the villagers more aware of the virtues of forest conservation. There has been a sea-change in the relationship between the forest department and the villagers. The fear and antagonism that the villagers felt against the department earlier is not felt anymore.
11. Funds available for fire extinguishing come to the village fund in Satara Tukum. This is a unique experiment being tried at the behest of the local staff. During a personal communication in 2004, the local RFO revealed that this experiment has not been tried anywhere else in Maharashtra so far: 'Since the villagers are protecting the forests against fire, this saves the Department resources meant for fire extinguishing activities. This money has therefore been allocated to the village fund.'

Opportunities and constraints

1. **World Bank funding and JFM:** This JFM initiative was started as part of the WB-sponsored Maharashtra Forestry Project. The project came to an end in 2000. During a trip to the village in 2004, it appeared that the project, while initiating JFM programme in various villages, had not worked out an exit strategy. Once the funds came to an end the enthusiasm of the department also diminished. Lack of funds made it difficult to carry on with employment-generating schemes. For a village where land holdings are very small and daily wage is not very easily accessible, it has become very difficult for villagers to forego a day's wage to go

for forest patrolling. Villagers are right now continuing in the hope that some day income will be generated from the forests for those who have helped protect it. However, villagers feel let down by the Department. Satara Tukum which was once being portrayed as one of the best examples of JFM is not a priority for the department since WB funds have exhausted.

Box 1

Funding opportunities for JFM in Satara Tukum

The local RFO confessed in 2004 that implementation of JFM requires funds: 'This is the best village in my range, but I don't have funds to encourage them.' He felt that there were a number of local sources of funding which can be pooled together to support initiatives of this kind. According to him some good sources of funding could be:

- a. Bringing this range under the Forest Development Authority (FDA) of the government. Here the Central Government funds for all development activities are pooled together at the district level and can be allocated directly to the village institutions for implementation of forest and social development schemes.
- b. 20 per cent of the revenue earned from confiscated material (material being illegally smuggled out and confiscated) could be deposited in the village fund.
- c. The Chief Secretary of Maharashtra has issued a circular stating that JFM villages should get a priority for implementation of schemes under all line agencies.
- d. In all forest areas in Maharashtra 10 per cent of sales proceeds from forest produce are deposited by the forest department with the state government. The state government then distributes this money to *zilla parishads* (District Councils) in the state. The *Zilla Parishads* are expected to use this money for development of forests under their jurisdiction. This, however, does not happen. The Range Forest Officer's Association in Maharashtra has demanded in an intervention in a High Court case that this money should be returned to the forest department for forest development activities. Through this tax the state government earns about Rs 500 million per annum. The RFO felt that if this money could be returned to the Department, programmes like JFM would benefit.
- e. The RFO intends to construct bio-gas plants for all the families in the village under the Employment Guarantee Scheme (EGS) through the local *panchayat* office.

2. **Lack of tenure security:** Often villagers feel concerned that after all these years they may not get the benefits from the forests. This fear emanates from the fact that after all these years a Memorandum of Understanding has still not been signed between the villagers and the Department. No records are being maintained about the harvest levels at the village level. In addition to that, while the JFM Resolution of the state government earlier talked about an understanding with the villagers for 30 years, an amendment in 2004 says that the agreement will be for ten years only. Such changing policies make villagers insecure about their efforts.
3. **Lack of information:** Villagers indicate that they could do with information about various government schemes for villages. They felt they needed support from the forest officials at the divisional level to help them get such information, which will in turn help them generate employment at the local level.
4. **Institution building:** In 1997 when the JFM committee was formed, only one member per household was included in the committee. This immediately excluded women from the decision-making process. Over the years the constitution of the committee has remained the same. However, by the year 2004 a group of young people had started taking interest in the activities of the committee. They also participate in forest patrolling. Since the young boys have been to school, some of them also play an important role in the administration of the committee. Pravin Chichdhare has in fact been included in the executive committee, even though he is not a member of the general body of the Forest Protection Committee (FPC). The youth, therefore, also wishes to be included in the FPC; however, the older members are reluctant to do this. Their concern is that they have invested almost a decade in protecting the forests and now if new members are included then the share of benefits from the forest harvest per member would further reduce.

Conclusion

During a village meeting in 2004 many villagers expressed concern that the accounts are not being announced to the entire village. The FPC members clarified that many people do not come for the meeting when these announcements are being made. In addition, alcoholism is still quite prevalent in the village. It therefore becomes difficult to elicit effective participation, particularly if the meetings are being organised in the evenings.

This brought home the reality that although forest protection by the village was very effective, much more attention should have been paid to building institutional capacity and systems of conflict resolution to ensure its long-term sustainability. Much of this could be done by facilitating regular dialogues among the villagers and between the villagers and government and non-government individuals from outside. A constant flow of information and regular dialogues could help strengthen the village initiative.

This case study has been compiled from 'Joint Forest Management. Satara Tukum'; A report on the progress of JFM of the village on its 3rd anniversary (Chandrapur Forest Division, 2000). The information was further updated after a field visit to the site by Neema Pathak and Ashish Kothari of Kalpavriksh, Suryabhan Khobragade of Saigata village and Dilip Gode of Vidarbha Nature Conservation Society in October 2004.

Information in the box is based on personal communication from Range Forest Officer of Mul Range, Shri A.N.Tikhe, and others, during a field visit by Kalpavriksh members Ashish Kothari and Neema Pathak in October 2004.

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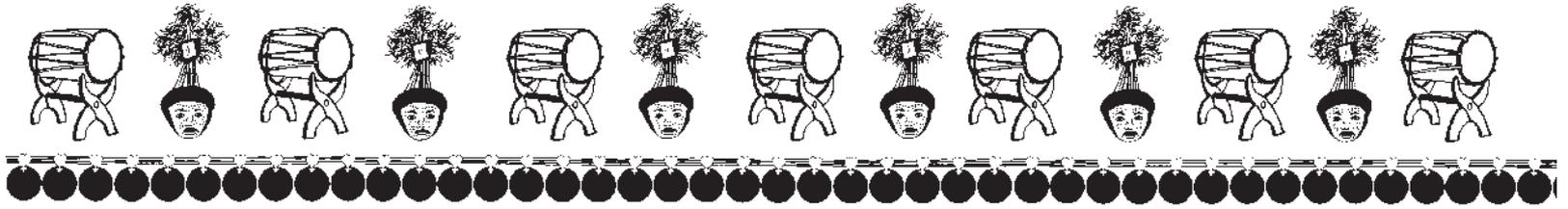
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Botha village, Buldhana

Background

Botha, a small village in Khamgaon tehsil of Buldhana district in Maharashtra, is well-known for its success in the Joint Forest Management Programme in Maharashtra, which was initiated by the enthusiastic DFO Dr. Mohan Jha.

The village comes under Khamgaon Range in Buldhana Forest Division. This forest is classified as a Class A forest and covers an area of 1510 ha. The village lies on the outskirts of the Dnyanganga wildlife sanctuary, and part of the conserved forest falls within the sanctuary. The major tree species found in the forest are ain, dhavada, palash and teak.

The total human population of Botha is 270, distributed in 63 households. The inhabitants of the village are mainly Mahadeo Koli tribals and the scheduled castes. The total geographical area of the village is 1662 ha. 49 per cent of the villagers are landless, while 51 per cent of the population consists of marginal farmers growing crops like paddy and *nachani*. Livestock rearing is also practiced. The total cattle population is 388, with 267 cows, 40 buffaloes and 81 bullocks, and there are also some sheep and goats.

The villagers are dependent on the forest for fuelwood and fodder. Fodder is not collected only for home consumption but is also an important source of revenue for the villagers. Another important source of revenue is the leaves of anjan, which, being a high-value fodder, fetches a good price. A few villagers collect medicinal plants from the forest. Cattle graze in the forest.

Towards community conservation

According to the villagers, excessive grazing by the cattle of the nomadic Kathiawadi community from the neighbouring state of Gujarat was a major reason for forest degradation in Buldhana district. Traditionally, Kathiawadis would migrate seasonally to Buldhana district to graze their cattle and sheep. They had a distinct understanding and resource-sharing arrangement with the local villagers. Local villagers would offer to house them on their land to get manure in their fields from the goats. However, this relationship started changing over last two decades. Gradually, the Kathiawadis bought land and settled in parts of Buldhana. They owned cattle and donkeys in hundreds, which would graze in the surrounding forests, leading to rapid degradation of forests. The donkeys would feed on the bark of the teak tree, resulting in the wilting of the trees. To camp in the forest, the Kathiawadis would clear patches of forest. While in the past they used the forests for a short period in a year, moving on to other areas soon, now they remained in the forests almost throughout the year. The local people could not stop them since the Kathiawadis are financially and politically a very strong community.

Illegal tree-felling for the saw-mills was another major problem. This was done by an organised forest mafia using a group of 20 to 30 women and men. Many times male forest staff found themselves helpless in controlling these smugglers for fear of being framed for mistreating women. The leaders of this mafia were also known to bribe the FD and had connections with the politicians.

The local people wanted to put a stop to all these activities that were causing degradation of their forest. However, they felt helpless due to the strong economic and political power that the Kathiawadis and the mafia enjoyed. Villagers saw a ray of hope when the new DFO (Territorial) of Buldhana, Dr. Mohan Jha,¹ showed interest and determination to stop these illegal activities.

In 1996, annoyed by the situation, the villagers of Dongarkheda—a village close to Botha—approached Dr. Jha and sought his help. That same evening, Jha conducted a meeting in Dongarkheda and towards the end of the meeting a plan of action was prepared to drive away the Kathiawadis. The very next day, villagers of Botha (including women), Dongarkheda and a few other villages *gheraod* (encircled) the *heti* (settlement of Kathiawadis). They stayed there for two days and refused to let the Kathiawadi cattle graze in the forest. The forest staff helped and carried food and other requirements for the villagers. The Kathiawadis finally surrendered. They were asked to pay Rs 50,000 as a fine for grazing in the forest and leave Buldhana district. The



Kathiawadis agreed, paid the fine, left the district and have not returned till date. The recovered amount was deposited in the forest department treasury.

Beginning of Joint Forest Management (JFM)

Encouraged by this experience, the villagers of Botha decided to protect the forest in their area. They were also convinced of the commitment of Dr. Jha to the cause of forest protection.

The Joint Forest Management programme of the Maharashtra Forest Department was taking shape during this period. On seeing the willingness of the villagers to protect their forest, Dr. Jha visited Botha and informed the villagers of this programme. The villagers felt that the programme would help them to protect the forest. The *gram sabha* (village council) and the *gram panchayat* (village executive) passed a resolution to participate in the JFM programme and a forest protection committee (FPC) was constituted in August 1996. As per the JFM Resolution, the local forester became the member-secretary of the committee and one individual from each household became a member of the FPC. With the active participation of the villagers, a micro-plan was prepared by the FD. A participatory rural appraisal was conducted to know more about the village and to understand the needs of the people.

The DFO Buldhana signed a Memorandum of Understanding (MoU) with the FPC and allocated 1486 ha of forest land to it for protection. The responsibilities of the FPC included:

1. Protection of forests,
2. Regulated use of forest products that were obtained from forest cleaning, etc.,
3. Maintenance duties,
4. Ensuring equitable sharing of any benefits to the entire village from the forest produce, and
5. Protection against fire.

In the first year of JFM (1997), a community hall was built and a leaf plate-making machine was purchased. However this machine did not prove to be useful, as there was no assured market in the vicinity. A check-dam was also constructed to increase the availability of water in the village and bamboo plantation was carried out on 20 ha. In the next year, mixed plantation was undertaken on 25 ha.

A separate bank account for the FPC was opened, which was jointly operated by the secretary and the president of FPC. Fodder grown on the protected forest land was harvested and distributed in the village by this body. Surplus was sold in the market and the money was deposited in the FPC account.

Protection of the forest land



Villagers took turns in forest protection. They did not appoint any paid watchman. Cattle, sheep and goats were not allowed inside the protected area. For grazing a fine of Rs 20 per cow and Rs 30 per bullock was charged. Sheep, if caught, were handed over to the FD for legal action. In 1997-8 with the help of the FPC, the FD registered 11 cases against illegal grazing and tree felling. Rs 45,470 was collected as penalty which was deposited in the FD. Before the JFM programme there were hundreds of goats in the village. After JFM the village decided to reduce the goat and sheep population, and switched to rearing buffaloes and cows to reduce pressure on the forest. To allow the plantations and fodder to grow, rotational grazing of cattle was practiced with a cycle of 4 years.

The FPC had many sources of revenue apart from the fine amount and the auction of the confiscated material. It also collected *anjanpala*, i.e., leaves of anjan. These trees make very good fodder and are found in abundance in the forest. These leaves were plucked under the supervision of the FPC, collected at one place and sold at a reasonable price. The revenue earned from the sale was used in paying off the wages of the labour engaged in plucking, and the surplus was deposited in the FPC account. This JFM programme was supported by the World Bank-funded Maharashtra Forestry Project. Under the project the FPC was receiving Rs 1000 per month for protecting the plantation till the duration of the project, which ended in the year 2003.

The FPC even managed to earn some income for the FD. For instance, during a collective inspection tour with the forest guard, the FPC noticed 20 live stumps on the protected forest land. Coppicing and cleaning of these stumps yielded 4.088 cubic meter of wood, which was auctioned and the sum of Rs 20,000 was handed over to the FD.

Participation in range, district and state level networks

Buldhana division consists of seven ranges. There are range-level networks of all the FPCs in that particular range. The district-level network of FPCs comprises members of range-level FPCs. The network used to meet once in six months. The SDO (Sub District Officer) is the secretary of the district-level network. The current status of the network is not known. Khamgaon range network had 15 FPCs and 11 members on the executive committee (EC). The range-level network is represented by one or two members of the individual FPCs. The network would choose its own president and secretary and meetings of the network were held every three months. The tenure of each elected EC would be for one year. Expenditures incurred for the meetings were paid by contribution. The network guided the individual FPCs on issues related to registration, protection, etc. If any of the FPCs faced any problem, the network approached the higher officials to resolve them.

Botha FPC was also a member of JFM Maharashtra Network. FPC members felt that their association with the state-level network definitely helped them in lobbying for their case.

Impacts of community conservation

Protection activities have led to protection of forests from large-scale illegal grazing, extensive forest fires and illegal felling. The Botha FPC received the Vanashree award for the year 1997-8 for their efforts at forest conservation.

Opportunities and constraints

Till the end of 1997, the FPC was very active in the protection of the allotted forest land. However, serious problems developed thereafter. Two major problems were declaration of a wildlife sanctuary in the area, and hence a sudden shift in rights and responsibilities without any consultation with the villagers; and a World Bank-sponsored forestry project coming to an end in 2003.

Declaration of Dnyanganga sanctuary

The Dnyanganga Wildlife Sanctuary was declared in January 1998 in accordance with the state government's resolution to bring a certain percentage of forest land in every division under the protected area network.

The sanctuary includes within its boundary forests protected under JFM by Botha and other villages in Buldhana. The declaration of the sanctuary also meant transfer of jurisdiction from the territorial wing of the FD to the wildlife wing. Thus completely new staff with a very different mandate (of strict protection of the area from all kind of human use) were now in charge of the area. Within the sanctuary, rights of the local people were no longer valid. The villagers could not enter the sanctuary without the permission of the District Forest Officer (Wildlife) at Akola. The FPC established under JFM was now considered defunct, as the Wildlife Protection Act did not allow for any conservation model that involved local people in the management, or any kind of use of a PA. This gave rise to a conflict situation. People felt betrayed; according to them, 'The wildlife for which the sanctuary was declared has been benefiting as a result of the protection provided by the FPC, so the villagers should not be denied their rights.'

After many deliberations with the Wildlife Wing, including the Conservator of Forests, Wildlife, the villagers decided to continue with the protection of the allotted land and sale of the surplus fodder in the market. The Villagers were supported by Maharashtra Joint Forest Management Network and other NGOs in their demand. Though the FD has not accepted this legally, informally villagers have been given verbal assurances that they could continue fodder extraction as long as this is not misused for commercial interests.

Protection without 'protection' - attack on the FPC members

On 10 August 1998, a few FPC members accompanied the RFO, Forester and Forest Guard were on patrolling tour when they found about 1000 sheep grazing illegally on the 25 ha of protected plantation. On the instructions of the forest staff, the villagers started rounding off the sheep and caught one of the Dhangars (mobile goat and sheep rearers, migrating locally within Maharashtra). Suddenly they were attacked by a hidden group of about 30 to 35 Dhangars. The forest staff were not attacked but they remained silent spectators. Four villagers were seriously injured and were admitted to a hospital. Though the hospital expenses were borne by the FD, it did not file any complaint against the Dhangars. The Dhangars, on the other hand, launched a false complaint against the FPC members for violent attacks at a place which was 7 km away from the actual site where the confrontation took place. Their complaint included the names of Botha villagers who were not even present at the site when the confrontation took place. The villagers suspect that the Dhangars were instigated to resort to violence by the local politicians. This was apparently because the Dhangars were actually looking after a huge population of sheep owned by the local politicians.

Villagers of Botha whose names were in the complaint were arrested and later released on bail. However, for the next three years the case was pending in the court. The cost of the case was borne by the FPC, which they managed to meet with great difficulty.

Some NGOs, such as Kalpavriksh, Vrikshmitra and JFM Maharashtra Network, investigated the case and submitted a detailed report to the government. They lobbied for taking the case off the board; finally, the case was resolved in 2002.

This attack and the following events affected the morale of the nearby FPCs. They felt that it was futile risking their lives for protection of the forests when the FD itself does not show the commitment to assist them. However the Botha FPC has made an attempt to convince them to continue with the protection of forests saying that if a similar incident happens again they will now be better prepared with the bad experience behind them.

Village eco-development programme

After constant demands from the villagers and continuously extending protection to the forests, in 2003 the DCF (Wildlife) formed a Joint Wildlife Protection Committee on a strictly informal experimental basis. Under the Village Eco-development Programme, a number of activities were undertaken, aimed at reducing dependence on the forest and hence the pressure on it.

Approximately Rs 600, 000 were sanctioned for this village in the early 2000s. With these funds, training programmes for skills such as motor rewinding, motor driving, bee keeping, poultry rearing and masonry work were organised, wherein resource persons from outside were specially invited to train the villagers. Horticultural trees were also planted. Out of the Rs 600,000, approximately Rs 300,000 were utilized for the above-mentioned activities; the remaining Rs 300,000 were sanctioned for improving irrigation. However an irrigation check-dam had already been constructed by the *zilla parishad* (district council). Since the villagers were not allowed to divert it for any other activity, this money was returned to the government.

Crop damage by wild animals

Crop damage by wildlife is a major problem near the sanctuary area. Compensation is seldom paid in these cases. It is quite difficult to prove the cause of damage. To reduce the damage, the wildlife wing planned to install a solar energy-activated fence around the sanctuary area. The amount was sanctioned for 4 km, but the villagers wanted it for 10 km. They decided to ask for more funds and returned the already sanctioned amount. The funds have not arrived yet. The FPC feels that they have learnt a lesson: 'Never to return government grants in anticipation of additional amount.'

Conclusion

Botha is considered a success story of JFM in Maharashtra. DCF (Territorial) Mohan Jha who initiated the JFM programme in Buldhana had a cordial relationship with the local villages and was able to use this relationship to effectively protect the forests as well as improve the economic status of the villagers. However, under political pressure he was transferred from Buldhana. The

Wild Life (Protection) Act was implemented in the area for the well being of the forests and wildlife; however, while implementing the law the ground reality was completely ignored. The wildlife wing would have done well by building on the existing goodwill of the people. The law needs to be more flexible to be able to incorporate the preparedness and contexts of a local situation.

Presently the FPC is functional. Protection activity is still going on. The villagers collect dry wood and *anjanpala* from the sanctuary area with the oral permission of the Conservator of Forests (Wildlife).

The villagers strongly feel that the FPC should have legal recognition, and should be given identity cards. Considering that they shoulder most of the protection responsibility, they should be given the status of forest staff. The FD officials are sceptical and think that the FPC may misuse such powers.

The FPC members have decided to participate in party politics as they feel that political support is essential in case of difficulty. There have been attempts to bribe the FPC members into letting the Dhangars graze on the forest land. However till now, the members have shown commitment and not succumbed to such temptations.

The FPC is trying to take back from the wildlife wing the 1468 ha of forestland that was protected under the JFM programme. They have registered the FPC and the Wildlife Protection Committee in May 2001 under the Bombay Public Trust Act, 1950, and Societies registration Act, 1860. They feel that registration will enable them to undertake activities and accept grants directly.

Some of the forest officers feel that the Botha success has been blown out of proportion in order to gain publicity and the ground reality is quite different. The officers also feel that JFM programme cannot be implemented successfully if funds are not available. However the Botha FPC members say that they are willing to protect their forest even if there is no financial provision.

This case study has been compiled based on field visit report of Girija Godbole (Jeevan Sanstha, Pune) in 2001; and the visit of Neema Pathak and Neeraj Vaghlikar (Kalpavriksh) in 1999.

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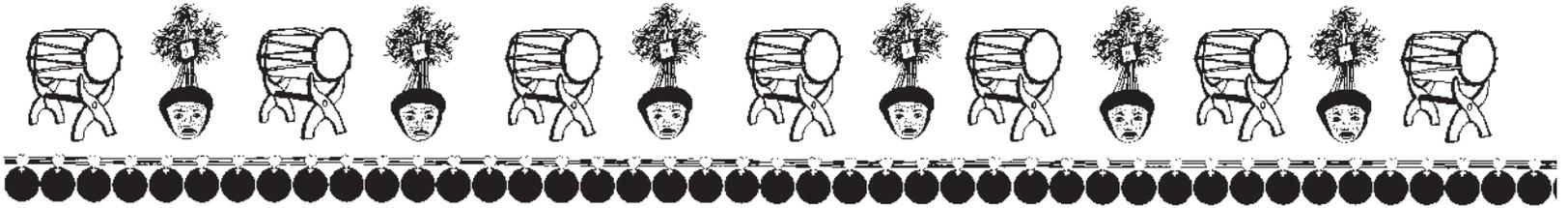
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Endnotes

¹ Later he was awarded the Indira Priyadarshini award for his efforts.





Hiware Bazar, Ahmednagar

Background

In the fast-developing urban growth of India, there are a few small villages that can teach us a lot about progress that is ecologically balanced! Hiware Bazar would certainly lead the list of these villages. About 17 km away from the city of Ahmednagar in the state of Maharashtra, this community of 1250 people has taken the reins of its future firmly in its own hands! A village that was considered to be a 'punishment zone' by all government officials who were posted there due to its high crime rate has in the last 17 years turned around completely. Hit by repeated droughts, migration of its inhabitants to larger cities and a severe addiction to liquor, this village hit rock bottom in the late 1980s.



Hiware Bazar Photo: Manisha Gutman

The village hosts a typical grassland ecosystem with thorny acacia species and neem trees. The village is surrounded by small hills, on which many continuous contour trench (CCT) and nala bundings were made. Among the big mammals found here are the blackbuck and the black-naped hare.

The village conserves about 976.84 ha of forest, which is legally a reserved forest, under the jurisdiction of the forest department. In addition, the village has privately owned land and village common land.

The main communities residing here are the Hindu marathas and scheduled castes like mahar, mang, ramoshi, cobbler and carpenter. Milk production, poultry and farming are three main sources of income. The total livestock of the village is approximately 2000. Many people from this village are in the armed forces or teachers. The village is dependent on the surrounding forest for its fuelwood and fodder requirements.

Historically, this village was an important and prosperous trading center because of its location. Hiware Bazaar marked the end of Shivaji's territory and the beginning of the Nizam's area. The prosperity was apparent in the plentitude of food and water for the people and animals of the village. Hiware Bazaar's downfall began in the early 1970s. A drought-prone area, the farmers had no option but to be dependent on rains for a single crop every year. The decline in the availability of water for drinking and agriculture led to increased unemployment of the farmers. This was immediately reflected in the increased rate of alcoholism, crime and migration to the cities. The social structure was so badly affected that the eligible youth would not get brides from outside the village. This was for two reasons: first, that the woman would have a hard life due to paucity of water and, second, it was feared that alcoholism and crime rampant in the village would affect the future of the family.

Towards community conservation

This situation continued till 1991. The transformation came about when Popatrao Pawar was elected as the village Sarpanch. Holder of a Master's Degree in Commerce and a former competitive sportsperson, he began studying and implementing various government schemes for village self-development. Under his guidance the villagers decided to proactively reorganize themselves. The Yeshwant Krishi Gram Panlot Sanstha was formed and began chalking out a plan that would increase the water table in the village. The forest around the village was divided into four watershed zones. The villagers decided to construct various types of bunds and trenches, along with planting trees and constructing storage and percolation tanks. A number of check-dams were built in order to prevent loss of water by run-off.

Various government schemes and voluntary agencies supported this integrated approach under their own watershed development programmes. In 1993-4, an afforestation programme was started with the help of forest department on 400 ha of land, which involved contouring of the hills



to reduce loss of topsoil and better water retention. Afforestation was also taken up on private lands. Nearly 10.5 lakh trees have been planted in the past decades.

The villagers set up following rules and regulations for themselves and for the management of the area:

- Certain areas were demarcated as no-grazing areas and grazing was permitted only in certain patches.
- Tree felling was completely stopped.
- It was realized that borewells lead to rapid depletion of groundwater and unequal distribution of water. This led to a decision prohibiting digging bore wells for the purpose of irrigation.
- Water-intensive crops such as sugarcane and banana were also prohibited, unless irrigated by drip or sprinkler system.
- Selling of land to outside landlords or to industrialists was banned.
- The *gram sabha* also decided to ban hunting in the forest.

The village adopted the Adarsh Gaon Yojana (AGY) (Ideal Village Scheme).

Under the AGY the village under the leadership of Popatrao Pawar focused on restoring the natural environment around the village, mainly by addressing the problem of soil and water conservation. Due to heavy deforestation, the meagre rainfall received by the area was all lost in surface run-off. The first steps were to help this water percolate into the earth, so that wells could be recharged and vegetation could grow again.

Most of this was made possible because of the discipline that the villages agreed to impose upon themselves and adhere to. In addition to the rules mentioned above, the village decided to follow five thumb rules to ensure overall development:

1. No intake of liquor and other addictive substances (*nasha bandi*)
2. No free grazing in forest lands (*charai bandi*)
3. No tree felling (*kulhad bandi*)
4. No large families, i.e., the need for family planning (*nas bandi*)
5. Providing voluntary labour for community welfare (*shramadaan*). (Nearly a third of the work that has gone into rebuilding the village has been done through voluntary labour offered by the villagers!)

Since free grazing is not allowed and forests and grasslands are protected, people meet their fodder requirements mostly from their agricultural fields. Since 1994, villagers have been stall-feeding their cattle. Dairy is now a big business in the village, which is supported by fodder from the grasslands extracted in a regulated manner prescribed by the villagers. After all the water harvesting efforts, water is now in plenty; however even now it is used judiciously and equitably. Water-intensive crops are not allowed and borewells are not dug in the village.

Institutional arrangements

Most major decisions are taken in the *gram sabha* (village council), which is convened on the 15 August (Indian Independence day) and 26 January (Indian Republic Day) every year. The *gram sabha* meetings may be called at any time if there are any issues to be discussed or resolved. All women and men aged 18 years and above are members of the *gram sabha*. 66 per cent of the total electoral population forms the quorum. As a rule, at least one family member from each family volunteers two days in a month for common village activities. The village nominates one full-time volunteer who has passed at least his 10th standard and is aged between 25 to 35 years. As part of the AGY, villagers also select a village committee to work for village development, which has to be approved by the district commissioner. The committee also has to be approved by the *gram sabha*.



The committee is constituted of at least 7 members, of whom at least one has to be a woman and one from a scheduled caste or tribe.

Impacts of community effort

As the water table got recharged, water reappeared in open wells and seasonal ponds. The constant assured water has helped farmers to change their cropping patterns to grow crops that are more nutritious and lucrative. Not only do the villagers now grow enough to last them the entire year but are also able to generate substantial income by selling farm produce, particularly vegetables. They have also managed to increase their profit margins by establishing direct producer-consumer links and doing away with the middlemen. Now the produce from Hiware Bazar sells at good price in the local market, as the village assures quality to the consumers. Additionally, the farming is largely organic, since the villagers find it cheaper and more productive to use cowdung (which is now available in plenty because of stall-feeding) and locally produced vermicompost.

The increased fodder available has improved the yield of milk from livestock. Milk production has reached 2200 litres per day, as compared to a mere 150 litres per day in the mid-90s. Fodder in the forest now is enough to meet all the village needs and those of the surrounding villages. Once the cutting season is declared, anyone can take one headload per day till fodder remains available on payment of Rs 100 for the entire season. Payment is made to the *gram sabha*.

Given the enthusiasm of the villagers, their efforts at forest conservation, watershed development and the ban on hunting, the forest department has initiated its Joint Forest Management scheme and the forests of the village have been handed over to the village for management. This has also helped them bring in some resources for water harvesting structures and tree plantation.

The development indicators of the village are amazing. The number of wells have increased from 97 in 1999 to 217 in 2006. 600 ha of land has been brought under irrigation as against 120 ha in 1999. The number of families living below the poverty line has reduced from 198 in 1999 to 53 in 2006.

The village has paid serious attention to formal and informal education of the youth. In addition to achieving 99 per cent literacy rate (as against 30 per cent in 1999), they also organize debates, education camps, essay writing competitions, etc. for the village youth.

There has been a considerable decline in alcoholism and the crime rate. Out-migration has declined sharply due to the cultivation of more than one crop per year. The spirit of cooperation and success of the programme has increased the self-confidence of the villagers. Bio-gas plants have been established for the purpose of meeting fuelwood requirements. Villagers claim that the number of wild animals has increased since the ban on hunting.

As a recognition of their efforts, Hiware Bazaar received the Gram Abhyan Puraskar 1995-6, the Adarsh Gaon Award in 1997, the National Productivity Award in 1998-9 and the Maharashtra Vanashree Puraskar in early 2000.

An effort to involve the neighboring villages of Akolner, Bhorvadi, Chaas, Kamargaon, Bhoirepathar, Neemgaonwagha, Jakhangaon, Neemgaondhana and Dahitne in the conservation and watershed initiative has now been initiated by Popatrao Pawar. This includes lectures and discussions with the villagers.

In a report on Hiware Bazar, the Ministry of Environment and Forests (MoEF) website in September 2006 claimed that the protection measures have led to significant increase in the population of wild animals in the village.

Conclusion

Having achieved what hundreds of villages in India are striving for and urban areas should be striving for, villagers in Hiware Bazar speak of their achievements with pride, and rightly so! The village has very effectively fought the pressure from land-grabbers, which is a big pressure as the village is very close to the urban centres of Ahmednagar, Mumbai and Pune. One of the rules specifies that outsiders cannot buy land in Hiware Bazar, and those villagers returning from big cities (and there are several) have to stay in the village for a minimum of one



year to prove their commitment to village life before they can be re-accepted!

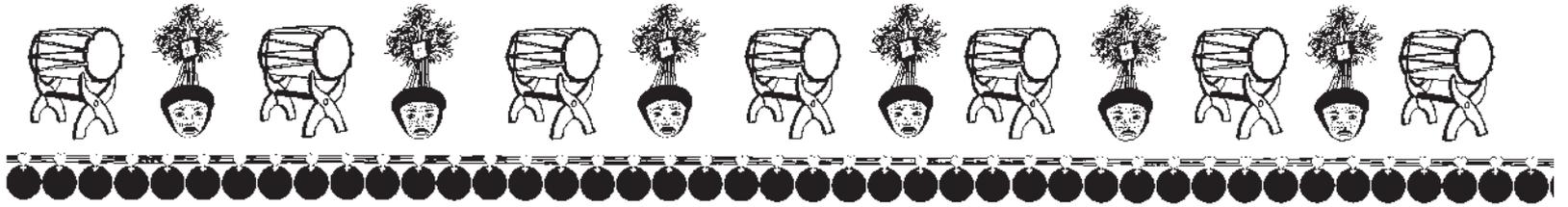
Finally, one realizes, the secret of the success of this village lies in the respect and space given to each resident's opinion. All decisions are taken through a process of consultation, ensuring inputs from the collective wisdom of the community. Self-discipline is sustaining life in Hiware Bazar—the lives of the environment as well as humanity!

The information here has been compiled from an article by Girish Kulkarni, '*Watershed development transforms village in Ahmednagar district*'; a questionnaire filled with the help of villagers by Shanta Bhushan, Kalpavriksh, Pune, in 2000; a questionnaire answered by Mohan Chattar Yashwant Krishi Gram aur Panlot Vikas Sanstha, (YKGPVS) on 20 April 2001; notes by Manisha Gutman, Kalpavriksh, based on a field visit in September 2006.

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Mendha-Lekha village, Gadchiroli

Background

Gadchiroli district of Maharashtra state in India, along with areas in the surrounding districts and states, is a region famous both for its biodiverse, dry deciduous forests as well as for its tribal communities. The district is more than 700,000 hectares in area. Approximately 80 per cent is under forest cover, a figure that is the highest in the state and is among the highest in India.

Mendha-Lekha is located 30 km from the district headquarters and is spread over two small and closely situated *to/as* (hamlets). The total area of the village is estimated at 1900 hectares. Nearly 80 per cent of this area is forested. There are approximately 400 people in the village, largely without any class and caste hierarchies. The entire population is composed of the Gond tribe, which has ruled and inhabited the surrounding forests since time immemorial. The livelihood of the villagers is heavily dependent on subsistence farming and on the forests, which provide a range of food, fuel, timber and fodder. The average landholding is five acres. The major source of income is from the collection of non-timber forest produce (NTFP) and daily wages from labour work with government and private agencies.

According to Rodgers and Panwar (1968),¹ the area falls in the bio-geographic zone of Central Plateau. The forest type is the sub-group Southern Tropical Dry Deciduous Forests (5A/C3) of Dry Deciduous Forests, with patches dominated by teak and bamboo. The local sub-types of forests found here include teak forests with dense bamboo, teak forests with scanty or no bamboo, mixed forests with dense bamboo, and mixed forests with scanty or no bamboo. The main species of bamboo is veddur while katranji is also found along the major streams and riverbanks.

A total of 125 species of plants, 25 of mammals, 82 of birds, and 20 of reptiles have been recorded from the forests so far. Villagers report presence of Indian gaur, chital or spotted deer and wild dogs or dhole in the past, none of which have been sighted for last three decades. Animals like monkey and Hanuman langur are used in traditional medicines. Indian wolf, leopard, sloth bear, tiger and Indian peafowl are the endangered wild animal species in the forests of Gadchiroli district at large. Another highly endangered species found in these forests is the Central Indian giant squirrel. The range of the sub-species found here is restricted only to certain parts of central India. Leopards are common, while tiger sightings are few and far between.



A view of Mendha forest from the highest point
Photo: Vivek Gour Broome

Towards community conservation

In the late 1970s the Indian government proposed an ambitious hydroelectric project in the adjoining state of Madhya Pradesh. For the poor tribals of the region, the project not only meant displacement from their traditional homes and possible social disruption but also destruction of large stretches of forests on which their livelihood and culture heavily depended. It was also claimed that the majority of the benefits to be derived from the power generated would go to industry and other elite sectors of society. This awareness led to a strong tribal opposition to the project, and many non-governmental organizations (NGOs) helped the local people mobilize and organize public rallies and agitations against the dams. In 1985, after prolonged and determined tribal resistance, the government shelved the project.

The anti-dam struggle emphasized and strengthened the determination of the tribal people to take decisions at local level for activities directly affecting their lives. It gave rise to a strong movement towards self-rule in the region, based on the revival of tribal cultural identity and greater control over land and resources. Mendha was one of the villages where this process gained momentum.





Old burial site inside community protected forest, Mendha
Lekha Photo: Ashish Kothari

Upon their return to Mendha, individuals who had been engaged in the anti-dam movement continued to advocate for greater village self-rule and collective responsibility. Discussions ensued over a period of 4-5 years centred on key village issues such as creating equal status for women, reducing alcoholism, creating greater personal responsibility, and establishing means to protect and regulate the use of the surrounding forests. The discussions led to many positive social, cultural and environmental changes, including the development of a forest protection and management system in the village.

Prior to 1950 the forests in the region were controlled and managed by local tribals as common property, and their overall charge rested with the tribal landlords. A strong system of community management governing the use of the common lands existed. However, it is not clear what the health of these forests or the status of forest management in the area surrounding the village of Mendha was. In 1950, following independence, the Indian government abolished the tribal system and all lands were vested with the government and subject to the Indian Forest Act (IFA) of 1927. Forest areas occupied by settlements continued to be privately owned, whereas all other wasteland, common property land, etc. came under state ownership. The forest department assumed management responsibilities for the forested land. The customary rights over common property that people had enjoyed for generations were not accepted, and the region was declared protected forests (PF).² Under pressure from the local population, an inquiry into local people's rights was undertaken in 1953 and completed two years later. The report recommended that the customary rights be legalized in the form of an act. There was also a recommendation to form customary zones for villages to meet their daily requirements, which was subsequently accepted and implemented.

However, because of the inaccessibility of the forests in the district, officials did not visit many villages. Many questions and criticism were raised about how the customary zones were assessed and demarcated. Demarcation was not made physically on the ground, and villagers were not informed about the zones. Management and use of the government forests was then established with detailed instructions and rules. These instructions envisaged that the forests would be managed on a scientific basis by the forest department, and communicated to village governing bodies that would then regulate the supply of customary requirements—using a quota system—as per the established rules. However, the forest department was critical of many aspects of this programme which granted large areas of forests for customary needs. In the 1960s, the forestry department, looking to regain control of more forest land, took control of the quota system. As quotas were not sufficient to meet people's basic needs, and paying more money for further concessions was not feasible, paying bribes to the local forest officers became a common practice. Mendha villagers describe the period between the state takeover in the 1950s and the beginning of the movement towards self-rule in 1989 as filled with unpleasantness and humiliation.

The state also exerted greater control over the forests in 1959, declaring its intention to constitute some of the PFs as reserved forests (RFs). In accordance with the IFA, a study was carried out on the rights of the local people in the forest (the IFA states that the rights of the local people must either be legally accepted or acquired before any forests are converted to RFs). In 1992, based on the study's recommendations, 84 per cent of the total PFs and unmanaged forests in the Gadchiroli Forest Division were declared RFs (1697.27 sq km out of a total of 2019.65 sq km). The remaining 16 per cent was assigned as PFs to meet people's customary requirements. This decision affected a substantial part of the forests traditionally falling within the boundaries of Mendha village. It also meant that approximately 1900 hectares of the customary zone of the village was to be reserved forests. This left only about 350 hectares as protected forests for the villages to meet their customary needs. The criteria used by the forest department for determining and assigning areas that would fulfil people's customary needs were not clear. Despite local resistance, the process was carried out.

Between 1950 and the late 1980s a number of state-sponsored commercial extraction activities were initiated in the forests surrounding Mendha village. These activities, such as the indiscriminate

fellings by charcoal contractors, forest department timber and bamboo extraction, and activities of a paper mill (private bamboo extraction), along with the increased human and cattle population within the village and in the surrounding areas, had a negative impact on the quality of the forest.

Regarding forest-based wild animals, little is known about regulations or legal provisions protecting them from hunting or trapping prior to 1972. After the enactment of the Wild Life (Protection) Act, 1972, hunting of wild animals was officially banned across India.

Village institutions managing forest-related issues

In Mendha, the movement towards self-rule and protection of the surrounding forests in the late 1980s led to the creation of three key village institutions.

The *gram sabha* (GS)

The village council for Mendha is called the *gram sabha* (GS). In the past, village elders took most decisions. However, through the village discussions that took place during the late 1980s movement towards self-rule, a decision was reached to constitute a village-level decision-making body. The GS was created, and is responsible for all village-level decisions including those related to natural resource use and management. It was agreed that the GS would use a consensus process for decision-making, and that these decisions would prevail over any government or other decisions. The GS initiated the move towards self-rule by acquiring factual, legal and political information about the village including various revenue and customary use documents. The move initially faced strong opposition from officials but villagers eventually succeeded in acquiring every important document.

The GS is composed of at least two adult members (one male and one female) from each Mendha household. All adult members of the village can attend the meetings. The GS has its own office and an office administrator maintains the records of all meetings organized in the village. It meets once a month and issues are discussed and revisited, if necessary until a consensus is reached.³ On average, about 75 per cent of the members attend GS meetings, with equal participation from men and women. In 1999, a decision was taken to declare a traditional holiday on days when the GS is convening to make it possible for the maximum number of people to participate. Outsiders (including government, industry, NGO representatives, etc.) are occasionally invited to discuss their plans and programmes with the villagers. The GS also functions as a dispute resolution body for small village-level disputes. For larger conflicts, a meeting of elders from 32 surrounding tribal villages is called. The GS also decides what activities will be assigned to other village institutions based on interests, responsibilities and capacities.

The GS is responsible for the following forest-related decisions and activities:

- Carrying out watershed development in the forest
- Holding discussions on forest use activities and other issues such as forest fires and soil erosion from the forests
- Formulating forest protection rules and ensuring adherence to these rules
- Selecting representatives for the official *van suraksha samiti* (see the Joint Forest Management programme below)
- Delegating responsibilities for forest protection
- Handling NTFP extraction and trade-related issues

In carrying out these decisions and activities, the GS works with forest department staff. Most often, these will be the local forester and two guards who are directly responsible for the forests falling within Mendha village boundaries. The GS can also interact with the four forestry officers who oversee these three functionaries.

The GS has also registered itself as an NGO, the Village Management and Development Organization. In this role, the GS carries out a number of village



Gram sabha meeting, Mendha Lekha
Photo: Vivek Gour Broome

development and welfare activities. It focuses on equitably distributing the costs and benefits of development projects and programmes amongst the villagers. The GS has also been a strong force in coordinating the efforts of many government departments and NGOs wanting to offer various forestry protection or development programmes.

So far, the GS has deliberately avoided receiving major external funds, unless originating from government programmes targeted for the region. Each member of the GS donates 10 per cent of her or his wages to the GS corpus fund from their employment generated through the GS. Any money left over from GS projects or programmes also goes into the fund. In addition, any donations or payments made by visitors go into the fund. The GS now has its own account in a local bank, and uses a unique accounting system that spreads the responsibility and accountability for withdrawing and spending money among many villagers.

The *mahila mandal* (MM)

All women in the village (of all ages and classes) are members. The President of the MM is chosen at every meeting for that meeting. Often the GS meetings also work as MM meetings. Forest-related activities carried out by the MM are:

- Regular monitoring of the forests;
- Punishing those who breach forest protection rules.

The *abhyas gats* (AG)

This is a study circle which operates as an informal gathering of people. Meetings are convened as and when desired for discussions on any issue. Outsiders are sometimes specially invited if the village wants some specific information or desires debate on a certain issue. These dialogues have helped the villagers develop their conversation skills, increase their awareness of the outside world, learn about their rights and responsibilities, and obtain important inputs and information which help them take informed decisions at GS meetings. In turn, outsiders have gained insights into village life and the process of village self-rule. For example, discussions initiated by outsiders at the AG significantly helped the village overcome the problem of encroachments on forest land. Discussions in the AG have also been focusing about the negative impacts of fire and hunting on the ecosystem. Frequently, the AG members establish smaller, specialized study circles to pursue particular issues and research (e.g., bird and habitat inventories, honey extraction). The following are a few examples—and some results—of the many participatory research and monitoring activities related to forest management:

- A study on the number and types of bird species and their habitats.
- A study on the impact of NTFP collection on the productivity of the concerned species. The results led to a decision to prohibit the felling of fruit trees in the village.
- A study on the behaviour of bees and the structure of their combs during honey extraction. The findings led to the development of a new enterprise specializing in 'non-violent' honey extraction. The marketing of non-violent honey has generated substantial economic benefit for the members of the honey-bee study circle.

Both village and outsider members of the study circles carry out these activities.



Villagers trying to identify birds found in their forest Mendha Lekha Photo: Ashish Kothari

The *gram sabha* often interacts with another key village-level administrative structure, the village *panchayat*. The *panchayat* is an executive council of elected representatives from one village or a group of villages. It works with the government administration and the judiciary. In most government schemes and programmes the elected *panchayat* is responsible for receiving funds and implementing projects. The *panchayat* for Mendha is composed of the elected members from Mendha and two other adjoining villages. In 1999, a decision was taken by these three villages to select rather than elect their members to the *panchayat*. By doing so they hoped to eliminate the corruption involved in the election procedure. The selection has to be unanimous and the process takes place in an open meeting where

the merits of each candidate are discussed freely.

Establishment of forest protection activities

Efforts towards forest protection started in 1987 through various discussions in the *gram sabha*. Several decisions were taken, including:

- All domestic requirements of the village would be met from the surrounding forests without paying any fee to the government or bribes to the local staff.
- Approval of a set of rules for sustainable extraction.
- No outsider, including governmental, would be allowed to carry out any forest use activities without the permission of the *gram sabha*. If someone was caught doing so, the material would be seized by the village and the offender would have to accept any punishment decided by the village.
- No commercial exploitation of the forests, except for NTFP, would be allowed.
- The villagers would regularly patrol the forest.
- The villagers would regulate the amount of resources they could extract and the times during which they could extract resources from the forests.

To implement these and other minor decisions regulating extraction, an unofficial *van suraksha samiti* (forest protection committee, see below) was formulated, including at least two members from each household in the village. Originally, a procedure for collecting fines from those who did not adhere to the village forest protection rules was established, but this failed to work because people did not want the responsibility of collecting fines and, most often, fines were not paid. As a result, the system for applying sanctions to Mendha village members became one of peer pressure, creating family shame and social ostracism. In the commercial sector, the *gram sabha*—representing a strong and united village opposition to forest practices and revenue sharing—succeeded in stopping the timber industry's bamboo and teak extraction from the late 1980s/early 90s.

Mendha villagers speak proudly of the fact that the forests now 'belong' to them, and that they have implemented effective forest protection activities. Indeed, despite the state's 1992 declaration of 1900 hectares of the customary zone of the village as Reserve Forests, the villagers continue to view the entire area as their forest and include it in their activities governing regulated use and protection.

Establishment of the Joint Forest Management programme

The efforts of the villagers at forest protection were not initially recognized in official circles. However, in 1992 an opportunity arrived to remedy this when the state adopted a Joint Forest Management (JFM) resolution. In general, the JFM scheme envisages the handing over of degraded lands and forests to villagers for raising valuable timber species. Plantations are created and valuable forests regenerated, with the forest department and villagers jointly responsible for forest management. After 5–10 years, valuable timber is harvested and local villagers involved in forest protection are entitled to receive up to 50 percent of the revenue generated. The scheme, however, was not applicable for districts like Gadchiroli where most of the forests were still close canopy natural forests. Since Mendha's forests were healthy standing forests, the government did not plan on creating plantations for revenue generation, and there were no guidelines for benefit sharing for standing forests. The villagers, however, persistently demanded that they be included in the JFM scheme, pointing out that they should not be punished for protecting their forests thus far. With the help of some supportive forest officials, the villagers succeeded, and they entered into a JFM agreement in 1992. Subsequently, an official *van suraksha samiti* (VSS)⁴ was formed and Mendha became the first village with standing forests in the state—and one of the few in India—to be brought under the JFM scheme.

After the introduction of the JFM programme, the villagers discussed the scheme in greater detail with outside experts. Subsequently, the villagers managed to bring in many provisions that were not usually within the mandate of the JFM resolution. These included meeting the actual needs of the villagers and not interfering with the rules set out by the villagers for controlling the extraction of resources from the forest. Thus, the rules (some written, but most unwritten) followed by the villagers are a mixture of what the official resolution states and what the villagers have decided. The written rules include:

- All decisions regarding the forests will be taken in a joint meeting between the forest department and the villagers.
- Mendha villagers will have the first right to employment in any official forest-related activity in the village.
- To carry out any work in the forests, permission will have to be sought from the *gram sabha*.

The unwritten rules include:

- Labourers from the outside will have to take a letter of permission from the VSS;
- Villagers will extract forest produce for their real requirement as per the existing village rules;
- Villagers will have the power to punish offenders both from within the village and outside;
- Details of the joint meetings will be recorded both by the forest department and the villagers.

The functions of the VSS were also adopted for Mendha's JFM programme. The VSS in Mendha meets far more often than it is officially obligated to, and the meetings are open to all members of the GS, not just the executive committee. The creation of the official VSS has not affected the functioning of the unofficial Mendha VSS, and official decisions found unacceptable to the villagers are not carried out. The official VSS has a set of forest protection rules, and supports the authority and role of the GS regarding its forest protection activities. The official VSS in Mendha carries out the following forest-related activities:

- Daily forest vigilance, carried out equally by men and women members.
- Stopping outsiders from commercial extraction, e.g., the paper industry.
- Initiation and implementation of JFM in the village, including decisions about the time of bamboo extraction and plantation, methods to be employed and payments to be made.
- Appointing an official firewatcher in the village.

For any forestry operation to be carried out under the JFM, a joint meeting between the forest department and the villagers is organized and all matters, including those of daily wages, are openly discussed. As evidenced above, the implementation of the JFM scheme is largely based on the Mendha village rules and regulations, not the provisions of the JFM Resolution. JFM in Mendha village is viewed as among the very few successful cases of JFM in Gadchiroli District.

Present forest-based employment and livelihood opportunities

After the village initiative towards forest protection started in the late 1980s, all outside commercial activities in the forest were stopped. Beginning in 1994, the forest department designed a Forest Working Micro-plan for Mendha village. Despite limited involvement of the villagers, the *gram sabha* did discuss and accept joint bamboo extraction by the forest department and the villagers. The micro-plan has been in operation since 1997-8, ending an almost decade-long ban on commercial extraction from forests (except for NTFP). The following are the present-day forest-based employment and livelihood opportunities for Mendha villagers:



Bamboo grove harvested under JFM, Mendha
Lekha Photo: Ashish Kothari

- Food: There is substantial dependence on the forest for food, including honey, roots, fruits, mushrooms, bamboo shoots, fresh leaves, and hunting for wild meat.
- Under the JFM agreement with the forest department, the villagers have the first right to any daily wage employment for forestry works in the surrounding forests. These activities include bamboo extraction and plantation of forest species.
- Non-violent honey extraction and specialized marketing.
- Fuelwood: Permission from the VSS is required for each cartload. As per the village rules collection

of only dry wood is allowed, with some exceptions for collecting green branches. Currently, biogas plants are being constructed in the village to reduce the dependence on firewood.

- Timber and bamboo: For household needs, collected from the surrounding forests as usufruct rights. Bamboo is a vital material in the villagers' lives.
- Fodder for livestock: Each family owns about 5-6 heads of livestock on an average. Rearing of livestock is for both consumption and sale. Cattle depend entirely on the forests for fodder. Cattle dung, as manure for the fields, is an important added incentive to maintain livestock.
- NTFP: Collection for domestic consumption and for sale. Food and commodities are sourced from various species' flowers, fruits and leaves.

Impacts of community efforts

Ecological Impacts

Only limited ecological studies have taken place to try to measure the impact of Mendha's conservation initiative. A major finding is that, since the introduction of forest protection activities, the unregulated use of forest resources by commercial interests, the adjoining villagers and Mendha villagers has been controlled to a great extent. Mendha villagers claim that the quality of the forests in general has improved during this period, but they qualify this, saying that availability of certain resources, especially closer to the village, has gone down, including fuelwood and some palatable grass species. They attribute this to the increased human and cattle population within the village and in the adjoining areas. Due to increased human and cattle populations, encroachment of forest areas for agricultural expansion has increased. Thus, the forests have receded further away from the village leading to a decrease in forest resources in the vicinity. However, the quality of the forests in Mendha improves as the distance from the village increases. Villages in adjoining areas have the same, or worse, amount of degradation in nearby forests, and all have greater degradation than Mendha in forests further away from the villages (possibly due to the continuation of commercial extraction activities).

Specific, positive ecological impacts include:

- Soil and water conservation programmes: In the last seven years the villagers have taken up a number of soil and water conservation programmes, including building an earthen dam to retain water for longer periods. This has been especially critical in summers when water is a scarce commodity;
- The decision not to set fires in the forests and to the extent possible help in fire extinction.
- A vigilant watch is now kept in the forests against illegal activities.
- The forests are protected from commercial activities like extraction of bamboo by the paper mill.
- Imparting to the government the value of bio-diverse forests. Through the JFM scheme, the villagers have been able to impress upon the forest department their preference for a more diverse forest in contrast to government-preferred forests dominated by commercially valuable species.

A repeat visit to the forests in 2004 indicated that the quality of forests has gone down since the extraction of bamboo started in 1998. Conversations with the villagers revealed that this has been noted by them too, and there have been discussions in the *gram sabha* about what can be done to check further degradation. Villagers are of the opinion that a three-year extraction cycle is too short for optimal development of bamboo. This is also because, in addition to bamboo extracted with the department, villagers too take bamboo boles and bamboo shoots. They were considering bringing this up with the forest officials.

Along with a team of people under the guidance of Madhav Gadgil from the Indian Institute of Science, the village youth have also compiled a People's Biodiversity Register for the village. The information has been uploaded on the village computer for the use of the villagers, if need be.

Social impacts

The following are some important social impacts of the village initiative towards self-rule and forest protection:

- Increased empowerment by striving and achieving the capacity and confidence to assert their rights and reaching a stage where the village is respected even in official circles. Today all

government and non-government people come to the village (if they need to), instead of calling the villagers to their offices. They sit with them and converse with them on equal terms and often in their language.



Villagers constructing biogas unit using pooled resources of the line agencies.
Photo: Vivek Gour-Broome

- Inclusion in decision-making processes.
- Established a reliable reputation as effective partners in development and forest protection. Through a non-violent strategy Mendha has established strong and good relationships with many government officials, who in turn have helped them at many crucial points.
- Established informal yet strong institutional bodies. The village has initiated a democratic and transparent process of informed decision-making and implementation, which creates clarity in understanding and collaboration in community effort.
- Stronger equity: They have created almost equal participation of all villagers in the process of decision-making, including women and the poor;
- Inspired others: The village effort has set an example for many surrounding villages, which have a lower economic status. Many villages have begun to work towards the same model of fostering self-reliance and a better quality of life.
- Managed financial transactions with confidence: The GS has its own bank account and manages it well.
- Strengthened livelihood security to all: The GS tries to ensure basic economic security to all villagers through access to forest resources or other employment opportunities, including forest-based industry like honey and other NTFP collection.
- Strengthened inter-departmental coordination and cooperation among various government agencies: Villagers have achieved inter-agency coordination and cooperation among all line agencies functional in their area. For example, the *gram sabha* organized joint meetings of representatives of all the government functionaries in the area with the villagers. These meetings facilitated a face-to-face dialogue among these agencies and resulted in a pooling together of otherwise segregated resources for certain developmental activities in the village.

While earlier there was a strong opposition to Mendha and its efforts at self-rule and forest protection in surrounding areas, a visit in 2004 found the situation quite transformed. Adjoining villages such as Lekha and Tukum are now trying to follow in the footsteps of Mendha. Despite a multi-community society, Lekha village now meets regularly and discusses issues related to village development as well as forest conservation.

Opportunities, constraints and steps for the future

While Mendha village has made significant progress with their process of self-rule and forest protection, many challenges remain. The following are some of the main ones:

- Ecological monitoring and evaluation at the village level does not take place. There are no studies being done to evaluate the impact of forest-use activities such as hunting and bamboo extraction on the long-term viability and sustainability of the forest and its resources. The villagers, along with a few researchers, are presently planning to establish a research station in the village. The local villagers will assist the researchers both in fieldwork and data analysis;
- More efforts towards controlled hunting and grazing by cattle are needed, as is better personal use of forest resources;
- Greater legal recognition of village process is needed. Even though Mendha villagers have *de facto* control of the ecological and developmental processes in the village, aside from those included in the JFM programme, these processes are not yet recognized by the law. There are possibilities of giving legal recognition to the village efforts through many existing and proposed laws and policies, which need to be explored. For example, in the case of long-term protection of the forests, the villagers could consider requesting status as a protected area (i.e., national park or sanctuary, under the Indian Wild Life (Protection) Act 1972). However, as yet there are no provisions in the Act where the control of the protected area could remain with the conserving

communities and where they would be able to meet their subsistence needs while protecting the area. Under the revised Wild Life (Protection) Act, 2003, two new categories—Community Reserves and Conservation Reserves—have been introduced. However, both these would be inappropriate for a situation like Mendha as of now. The Biological Diversity Act 2003, also has a provision for the declaration of heritage sites, which could be useful for Mendha once the bill is enacted. In the Forest Act of 1927, along with the RF and PF categories (both government-owned and -managed) there is a third lesser-known and highly underutilized category of village forests (VF). In this category, the forests are owned by the state but the management powers rest with the surrounding local community. Mendha is an excellent candidate. The most important legal provision for Mendha is the Panchayat (Extension to Scheduled Areas) Act, 1996. This Act gives more decision-making and implementing powers to village-level institutions, especially in tribal areas. It also confers ownership rights of a specified list of NTFP to the local communities. There are many useful provisions in the Act which can be helpful to initiatives like Mendha's. However, the Act is relatively new and there has been little work toward implementation at the ground level. Therefore, its potential remains unknown, and there are many outstanding issues. For example, it is not yet clear whether the Act provides control over the resources and development plans of government-owned lands (this would include the majority of Mendha's forests) to the local communities, or whether the GS (as in Mendha) is recognized as the basic administration institution at the village level.

- Stronger institutionalization of the initiative is needed. In the absence of statutory recognition, and subsequent institutionalization, the sustainability of Mendha's initiative depends very heavily upon various informal support structures. These are, for example, outside individuals, sympathetic officers, and dedicated village members and leaders. Major changes in any of these people could affect the character and progress of the initiative.
- An extension role should be considered. Considering that a large part of the villagers' time must go into earning their livelihoods, it is sometimes difficult for them to dedicate the time and energy required for the forest protection activities, especially if there are no immediate threats. Therefore, a proactive outside agency, especially a state agency, could play an important extension role to keep the momentum going.
- Ongoing government resistance to power sharing continues. Despite the success of JFM, the JFM resolution does not provide guidelines for benefit sharing in standing forests. Mendha villagers demand that 50 per cent of the profits from the sale of any forest produce extracted from their forests under the JFM scheme should be shared with the villagers, since they are sharing equal responsibility with the forest department for forest protection. The forest department contends that the area involved is too large and the revenue generated too much to share with a single village. Mendha has put forth a number of possibilities to solve this issue, but so far the forest department has resisted sharing revenues. Moreover, the forest department originally denied the village had been officially accepted as a JFM village, an assertion quickly refuted based on the village's own copy of the minutes of the meeting establishing it as part of a JFM scheme. Some of the problems stem from a distrustful attitude toward the Mendha initiative on the part of forestry officials. This attitude comes from the bureaucracy's continuation of the colonial attitude of distrust and authoritarianism towards local communities. Education, including visits by officials at all levels to Mendha can help create new beliefs and attitudes that support these positive initiatives and social processes.
- Till the year 2000, efforts to include surrounding villages in village protection and regulated use activities did not succeed. Even though neighbouring villagers were required to seek permission for extraction of biomass for basic requirements from the VSS, they seldom abided by these rules. To protect the forest resources from unauthorized extraction, material was confiscated. Moreover, on-the-ground forest department staff are known to have accepted bribes from members of surrounding villages in exchange for illegal extraction of resources. The situation has changed in recent times after surrounding villages, on the persuasion of the forest department, have decided to get into a Joint Forest Management arrangement.
- Village leaders and government officials need to make more efforts to engage villagers in the development of a long-term forest management plan. Present forest staff, though helpful to Mendha's initiatives, are not proactive themselves. Suggestions have been made to the FD to include villagers more in forest planning processes.
- Role of leadership and sustainability of effort: Transparent and democratic functioning of all decision-making processes has achieved greater villager participation and investment, and thus a more sustainable initiative. However, there is a lack of participation of youth in the process, which could create a vacuum in terms of a second line of leadership. A greater focus on village

life and including local issues as an important part of the formal education syllabus may improve the situation.

This case study has been adapted from: Neema Pathak and Vivek Gour-Broome, *Tribal Self-Rule and Natural Resource Management: Community Based Conservation at Mendha-Lekha, Maharashtra, India* (Pune, Kalpavriksh, and International Institute of Environment and Development, London, 2001). The information taken from this book has been updated based on a visit to the village in October 2004 by Neema Pathak, Ashish Kothari and Bansuri Taneja of Kalpavriksh.

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Endnotes

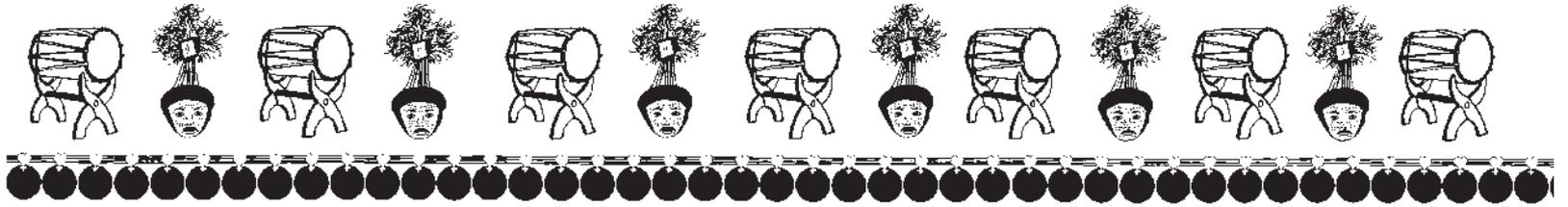
¹ H.G. Champion and S.K. Seth, *A Revised Survey of the Forest Types of India* (Dehradun, Forest Research Institute, 1968).

² The IFA identifies three categories of forests under state control: protected forests (PF), reserved forests (RF) and village forests (VF). The RFs are the strictest category where very few rights of the people are accepted and most rights are extinguished. PFs allow more rights in them. VFs are forests which are owned by the state but are handed over to the villagers for management and use, a category seldom used.

³ However, if there is unanimity, a decision will go forward without consensus. For example, despite divided opinion on the value of controlled fires for maintaining forest health, the GS made a unanimous decision not to set forest fires, which the villagers follow to the extent possible.

⁴ The *van suraksha samiti* (VSS) is the official forest protection committee established under the JFM resolution. The VSS needs to include at least one member of each family in the village and is expected to elect an executive committee composed of six village representatives, two NGO representatives, the head of the village executive, and the local government-appointed village liaison person.





CCA/Mah/Other villages

Other villages, Maharashtra

1. Bolunda village, Bhandara¹

Bolunda village is located in Goregaon Taluka in Bhandara district of Maharashtra. The village has traditionally protected a sacred grove, covering an area of 7 acres. This grove is located on the boundary of Nagzira Wildlife Sanctuary. The natural canopy is dense, with 80 per cent of the original vegetation in the sacred grove (SG) still intact with tall woody tree species. The flying squirrel and rhesus macaque are some of the commonly found mammals here. The village has a total population of 1,200 composed of Dhivar community, whose main occupation is fishing (35 per cent), Koshti's engaged in farm activities and agricultural labour (35 per cent) scheduled castes mainly casual labours (25 per cent) and others (5 per cent). A few villagers depend on the grove for extracting forest resources for basic needs. Most villagers have a strong faith in the deity of the grove. Although there are no specific taboos associated with this deity, the villagers have been protecting these forests for generations. It is believed that those who damage/exploit the grove face natural calamities like rolling of rocks from the hill slopes and attacks by honeybees. Hunting is not carried out in the sacred grove except when substantial crop damage is caused by a particular animal. Local people are in a process of registering a trust for the maintenance and management of the grove.

For more details contact:

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District Yavatmal
Maharashtra 445302

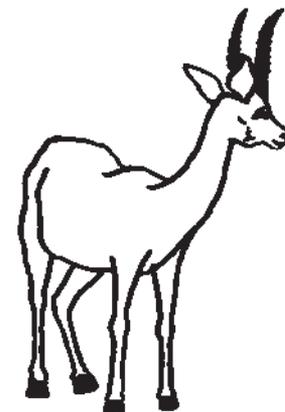


2. Ravangaon and Shirsuphal villages, Pune

Ravangaon and Shirsuphal villages are located in the Daund and Baramati talukas respectively of Pune district of Maharashtra. Located in the semi-arid parts of the Deccan plateau with grassland vegetation type, the villages have protected the rhesus macaque for the last 400 years. Although protection is only extended to the macaques, a number of other mammal species are found in the area, such as the chinkara, the blackbuck and the Indian wolf. The villages are located in close proximity to the Rehekuri sanctuary. The total population of the villages is about 15000 and that of the livestock in the villages about 20000. The major source of income is agriculture, with crops like sugarcane, onion and wheat grown on a large scale.

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410



3. Siddheshwar village, Chandrapur²

Siddheshwar village is situated in the Rajura taluka of Chandrapur district, Maharashtra. Siddheshwar can be reached by road and rail. The nearest railway station is at Virur, about 10 km from the village.

The total population of the village is 300. The resident communities of the village are waddewars (stone-breakers), golkars (shepherds), adivasi gonds (agricultural labourers) and other so-called lower castes. They live in traditional mud houses built with grass and wood. The village has for generations protected a sacred grove covering an area of 3.5 sq km and located at a distance of 1.5 km from the village. The sacred grove is owned by a trust called the Siddheshwar Shivalaya Devasthan.

The villagers, young and old alike, are staunch believers in the deity (Lord Shiva) residing in the grove. The villagers are partially dependent on the grove for meeting their subsistence needs, although visually there does not appear to be any serious negative impact of this on the grove ecosystem. In 1995 they registered the trust to promote plantation and other educational activities in the area. They believe that the grove supports many medicinal plants and even the water from the grove has disease-and pest-control properties. They are hoping for greater support from local political parties and the administration for better management and protection of the grove.

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 At village: Mangurda
 Post: Mangurda
 Taluka: Kelapur
 District: Yavatmal
 Maharashtra 445302

4. Adiyal tekdi, Brahmapuri

Located in Chandrapur district of Maharashtra, Adiyal Tekdi is a small village covering 30 ha, established in 1966 by Tukaram Dada Geetacharya on the suggestion of the spiritual guru Sant Tukdoji Maharaj. The village is occupied by 60-70 families and has been established with the objective of creating a self-sufficient and self-governed village.

In this village the villagers construct their own houses, grow food organically for their requirements, produce their own oil, fruit and other articles of basic need. They also depend on locally found medicinal plants and naturopathy for combating disease and ill-health. The village represents a farm-forest ecosystem and supports many wild fauna and flora. Villagers carefully manage and sustainably use their forests. These forests support a good population of wild cat, wild boar, jackal, and others.

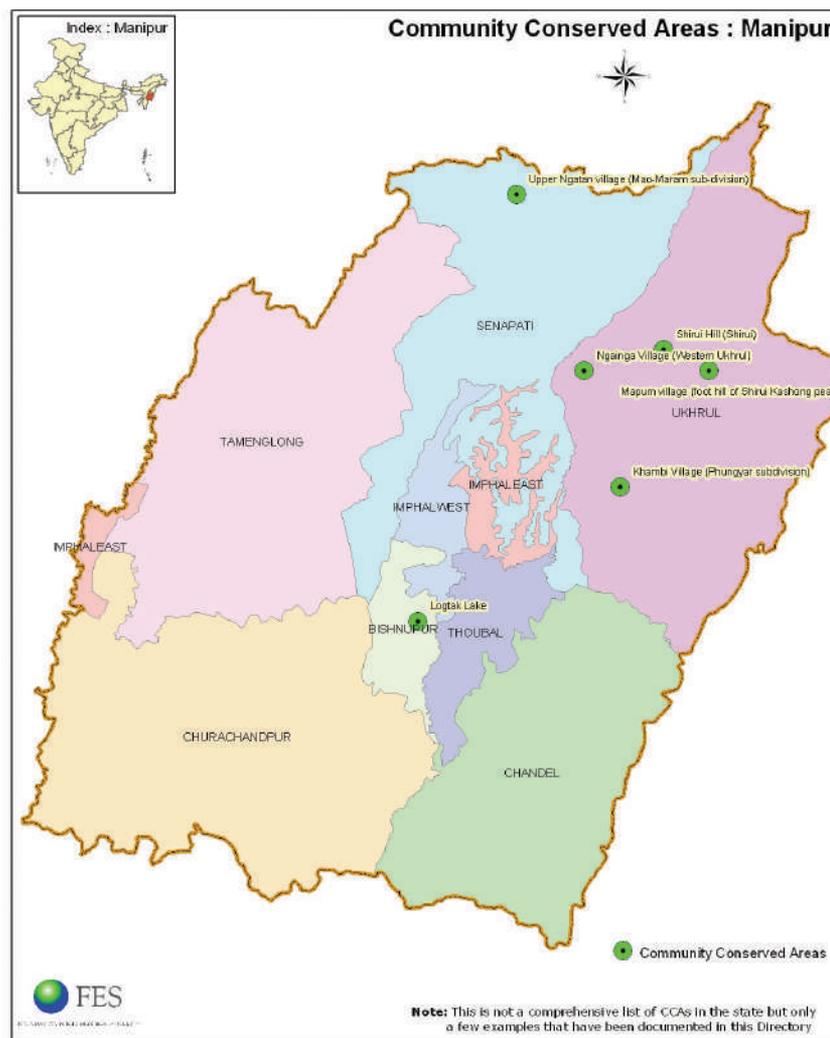
Adiyal Tekdi has been an inspiration for many neighbouring villages like Charoti, Lakhapur, Metepar, Dhorpa, etc. to work towards village self-rule and forest protection and management.

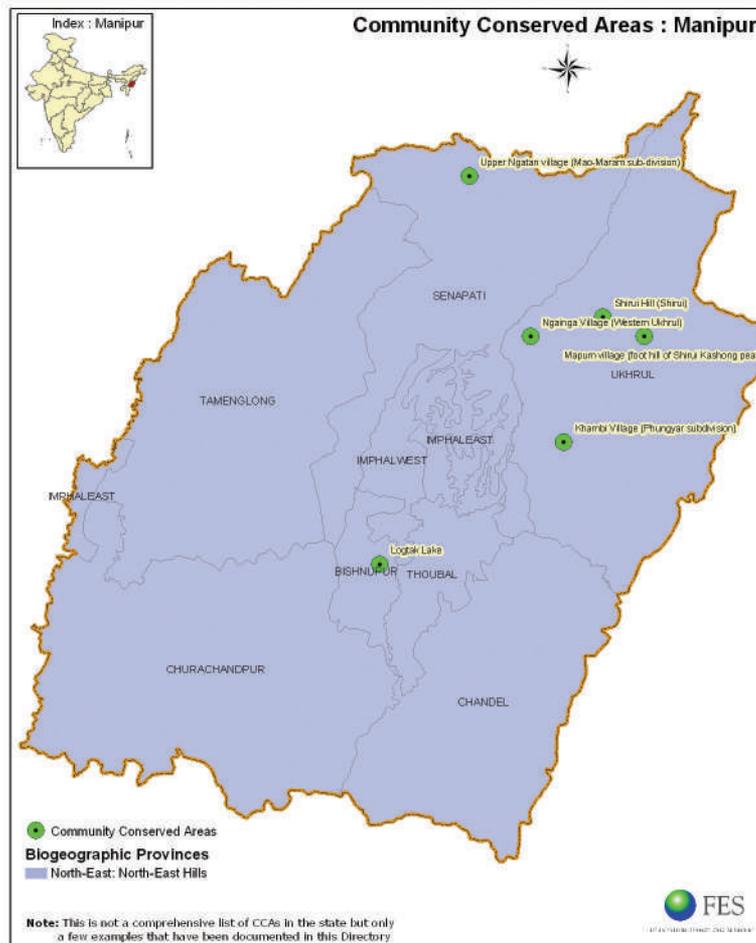
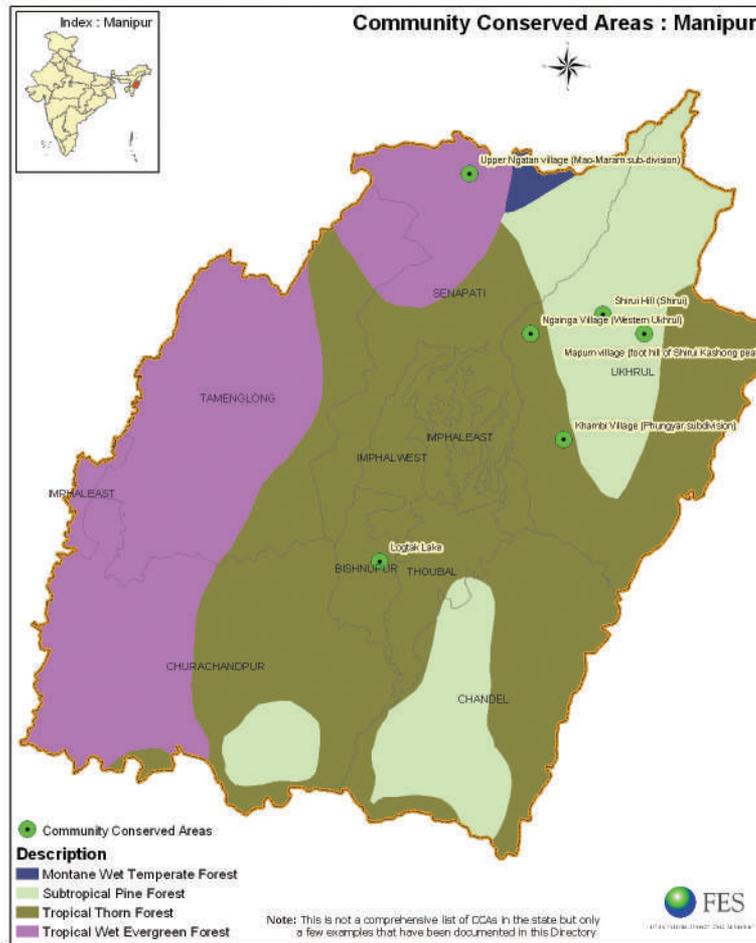
For more details contact:

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 Sant Tukdoji Maharaj Ashram
 Adiyal Tekdi
 Mul Taluka
 Brahmapuri District
 Maharashtra
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Manipur







Manipur - an introduction

Location and biogeography

Manipur covers an area of 22,327 sq km and lies between latitude 23° 80' N to 25°68' N and longitude 93°03' E to 94°78' E bordering Myanmar to the east, Nagaland to the north, Assam to the west and Mizoram to the south. The hill ranges occupy 90 per cent of the total geographical area and completely surround the oval-shaped central valley, which has an area of 2,230 sq. km. The altitude of the state above mean sea level varies from 790-2020 m.

The two major river systems in the state are the Barak drainage system (part of Bramhaputra drainage) and the Chindwin system. Monsoon climate and rainfall spreads from April to October. Mean maximum temperature varies from 24°C (January) to 33°C (May) and mean minimum temperature from 2°C (January) to 20°C (August). Annual rainfall in the state is 76.9 cm. The major mineral found in the state is limestone.

Physiographically, Manipur can be characterised as two distinct physical regions: an outlying area of rugged hills and narrow valleys, and the inner area representing the features of flat plain topography with all associated landforms.

The total forest cover is 17,219 sq km (as per the Forest Survey of India 2003), constituting about 77.12 per cent of the total geographical area. The majority of the forest area is of the category Unclassed Forest (76.6 per cent), with a small percentage of Protected Forest area (8.4 per cent). There are 14 major lakes (wetlands) in the state, forming a major part of the area under wetlands.

Broadly, there are four types of forests: (i) Tropical Semi-evergreen (ii) Dry Temperate, (iii) Sub-Tropical Pine, and (iv) Tropical Moist Deciduous.

Biodiversity

The flora of Manipur consists of 2192 plant species distributed over 213 families and 1012 genera. The state has 51 bamboo species identified within its geographical boundaries. There are 500 varieties of orchids, of which 472 have been identified. The important mammals of the state are tiger, leopard, clouded leopard, spotted linsang, Asiatic black bear, Malayan sun bear, Indian elephant, golden cat, marbled cat, Chinese pangolin, slow loris, various ungulates and primates.

Socio-economic profile

The population of the state, according to 2001 census data, is 21,66,788. The people of Manipur are grouped into three main ethnic communities: the meiteis, those inhabiting the valley, and the 29 major tribes in the hills which are further divided into two main ethno-denominations, namely nagas and kuki-chins. The meiteis are Hindus by faith while many tribal groups are Christians. In addition to meiteis, the valley is also inhabited by Nepalis, Bengalis, Marwaris and people from other Indian communities.

The meiteis, who live primarily in the state's valley region, form one of the primary ethnic groups. Their language, meitei (also known as Meiteilon or Manipuri), is also the *lingua franca* in the state. Other languages spoken in the state are Nepali, Hindi and Bengali (2001 census data) and various naga or kuki-chin languages. Scheduled castes constitute about 2.8 per cent of the total population while scheduled tribes make up 34.2 per cent.

The major occupation is farming along with other forest-based livelihoods. Agricultural systems in Manipur are divided into 3 systems: i) *Jhum* or shifting cultivation on hill slopes, ii) Permanent or settled agriculture in flat lands of the valley, and iii) Terraced agriculture in the gentle slopes. Teak, pine, oak, uningthou, leihao, bamboo, cane, etc. are important forest resources growing in plenty. In addition, rubber, tea, coffee, orange, cardamom, etc. are also grown in hill areas. The forests offer avenue of livelihood and employment to a large section of the hill population. Sericulture and horticulture are being promoted in a big way by various government departments in the state.



Administrative and political profile

The princely state of Manipur was merged in the Indian Union on 15 October 1949 and became a full-fledged state of India on 21 January 1972. Local institutions at the district, block and village levels operate in the state as elsewhere in the country. There are nine districts, 30 tahsils, and 2182 villages and uninhabited 30 villages in the state.

As per constitutional provisions in Article 371-C, Autonomous District Council status has been conferred on Hill Areas of Manipur. The council functions as per the Manipur (Hill Areas) District Council Act. Manipur has been seeking Sixth Schedule status for all its hill areas for decades; these areas account for about a third of the total population of the state.¹

Conservation

There are two national parks (Keibul Lamjao and Siroy) and five wildlife sanctuaries (Bunning WLS, Jiri-Makru, Kailam, Yangoupokpi-Lokchao and Zeilad). The forest department of the state has also identified ex situ conservation sites for sangai deer, orchid preservation and zoological gardens.



Loktak lake is the biggest natural wetland in the north-eastern region of India with an expanse of 26,600 ha. Loktak lake is also included in the list of World Heritage Sites out of five sites in India. Loktak lake and Keibul Lamjao were declared as Ramsar Sites in 1990. However it was added to the Montreux Record under the Ramsar Convention on 16 June 1993.² Additionally Zeilad lake has been proposed to be included as one of the Ramsar sites in the state by Bombay Natural History Society.³ There are nine Important Bird Areas identified in the state by the Indian Bird Conservation Network (IBCN).⁴

The various threats to the ecosystems of Manipur are habitat loss, *jhum* cultivation, deforestation, hunting and hydroelectric projects. There are seven major development projects taken up so far and two more are proposed.

In many traditional village communities like the Tangkhul Nagas, systems of land management exist for optimum resource utilization. All lands belong to the village community and there are separate zones for different kinds of cultivation, woodlands (as green belts), common village land and homesteads.

There are numerous sacred groves with dense forest patches and even individual trees that are preserved by people in the state due to their belief in nature worship. A number of groups like Green Warriors are doing commendable services in increasing forest cover.

This information has been compiled by Saili S. Palande mostly based on Environment and Ecology Wing (NBSAP, Manipur State Nodal Agency), *Manipur State Biodiversity Strategy and Action Plan* (Department of Forests and Environment, Government of Manipur, 2003). Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests (Government of India). Other sources for specific information are given in the text.

Endnotes

¹ Source: Advisory Panel on Decentralisation and Devolution, 'Empowerment and strengthening of Panchayati Raj Institutions', A Consultation Paper on Empowering and strengthening of Panchayati Raj Institutions/Autonomous District Councils/Traditional Tribal Governing Institutions in North-East India (National Commission to Review the Working of the Constitution).

² List of Ramsar sites in danger are put in this record and if relevant actions are not taken to remove the threats by the concerned governments, the sites are taken off the Ramsar list after an evaluation.

³ M.Z. Islam and A.R. Rahmani. *Potential Ramsar Sites in India* (Mumbai, IBCN, BNHS and Birdlife International, UK, 2006).

⁴ M.Z. Islam and A.R. Rahmani. *Important Bird Areas of India: Priorities of Conservation* (Mumbai, IBCN, BNHS and Bird Life International, 2004).



Loktak lake, Bishnupur

Background

Loktak lake is situated approximately 38 km south of Imphal (the capital of Manipur) in the Bishnupur district of Manipur. It acts as a natural reservoir for the rivers and streams of the valley and hills in the state. Loktak is the largest freshwater inland natural reservoir in the eastern region of the country and has been identified as a major Indian wetland by the World Conservation Union (IUCN). The rich wildlife/biodiversity of this area had earned it the status of a Ramsar site of international importance in 1990. Loktak Lake also finds a mention in the Montreux Record, which is a record of Ramsar sites 'where changes in ecological character have occurred, are occurring or are likely to occur'.



Loktak lake Photo: Ashish Kothari

All villages in the lake periphery are connected by road to Imphal via Bishnupur Bazar and Moirang on the western side of the lake, and via Mayang Imphal and Sekmaijin on the eastern side of the lake. The rainfall varies between 600 mm and 1600 mm (with an average of 1400 mm).

The ecosystem can be described as a wetland with north-south elevation (Imphal 790 mamsl; Loktak lake surface at present level 768.5 mamsl). About 36 feeder streams from the western catchment area flow into Loktak. The lake is characterized by the presence of a thick floating biomass locally called *phumdi*. A variety of plants and grass grow on the *phumdi*.

The lake is dotted with several small islands, the prominent ones being the Thanga and Karang islands, both inhabited. The 28896 ha Loktak lake area is actually not a single body but a composite of several separate wetlands, locally known as '*pats*', which could earlier be easily distinguished in the lean season before the Loktak Hydel Project (see section on socio-economic changes) was initiated.

Besides the massive occurrence of *phumdi*, there is also a large growth of aquatic plants like ishing charang, kabo-kang (water hyacinth) and kabo-napi. In addition, there is now an extensive growth of choura, which is an introduced grass species originally brought in from outside the state as fodder for cattle and now found colonizing the *phumdi*. Choura has practically dominated other species occurring on the *phumdi*.

The open waterbody provides a habitat to migratory water birds in winter months, starting from October up to March-April. An area of around 5200 ha in the southern part of Loktak lake, inclusive of the Keibul Lamjao portion, was declared a wildlife sanctuary in 1954, but the area was later reduced to around 4050 ha and was declared a national park, called Keibul Lamjao National Park (KLNP), in 1977 under the Wild Life (Protection) Act, 1972, and the Manipur Wild Life (Protection) Rules, 1974.

In addition, the state forest department (wildlife wing) has proposed the adjoining area of Pumlun Pat (approx. 2200 ha, located on the south-eastern side of Loktak Lake and across the eastern bank of Manipur River) as a bird sanctuary.

Vegetation growth like tou, singnang and singmut in the park area provide shelter to various species of wildlife including the sangai or swamp deer, kharsa or hog deer, lamok (wild boar), sanamba (common otter), moirang sathibi achouba (large Indian civet), moirang sathibi macha (small Indian civet) and kak-thenggu (Malayan box turtle) among others.

There are approximately 55 suburban and rural settlements within and around Loktak Lake. The predominant community is meitei (both Vaishnavite Hindus and orthodox meiteis) with a sparse population of meitei Christians and meitei Pangal (Manipuri Muslims) living in separate pockets





Phumdi vegetation in Loktak lake in Manipur
Photo: Ashish Kothari

around the lake. There is also a small population of kabui (rongmei tribe) in Toubul village near Bishnupur district headquarters on the western side of the lake.

It is estimated that around 30,000 people depend on fishing for their livelihood in the lake area. The number of hutments constructed on the *phumdis* is estimated to be more than 1000, with a rough population of about 4000 individuals. The total human population in Bishnupur district according to the 1991 census is 1,80,773 with a density of 364 persons per sq km.

traditional fishery *phum-namba*. Income is also derived from sale of locally produced vegetables such as cabbage, cauliflower, potato, brinjal, ladyfinger, parkia (tree bean), and dry and fermented fish, fermented bamboo shoots, edible plants and roots from Loktak lake, water-reed mats, etc. More recent forms of income are modern fishery practices, large-scale farming with modern equipment and technology, small-scale businesses, transport businesses with cycle-rickshaws, auto-rickshaws, jeep taxis, minibuses, shops, restaurants, and employment with the government at different levels.

The primary sources of income of the local people have been traditional agriculture and

After the commissioning of the Ithai barrage on the Manipur River in 1979, as a part of the National Loktak Multipurpose Project (officially commissioned in 1983), an artificial reservoir was created. This resulted in permanent rise in the water level of this wetland, coupled with a vast water spread throughout the year. The natural flow of water to and from the wetland was severely altered by the creation of the barrage, affecting the hydrologic cycle of this delicately balanced system.

The barrage constructed to create the artificial water reservoir for the Loktak Hydroelectric Project (LHEP) maintained a constant water level at 768.5 mamsl (in peak season during the monsoon, the water level is maintained at 769 mamsl). This level of water surface has resulted in huge tracts of settlement and agricultural lands getting either submerged under water permanently or inundated at regular intervals through the year whenever there is continuous heavy rainfall (3-5 days).

The effects of this on the local wildlife and people include:

1. Fish farms in the lake periphery owned by local farmers are constantly affected by flash floods or sudden rise of lake water level during periods of heavy rains, often resulting in heavy loss of fish.
2. The KLNP in the southern part of the lake has suffered extensively as a result of raised water level. The entire Park area is subjected to frequent and regular flash floods, especially in the monsoon months.
3. Back-flow effect of the Khuga River through the Ungamel channel towards the south of KLNP has had adverse impact on the national park. Sudden water rise in the river after continuous rainfall for up to 4-5 days hits the southern portion of KLNP with great force, and as a result the floating biomass is ripped apart and the loose vegetation drifts off. This not only reduces the vegetation cover in KLNP but also endangers the wildlife inhabiting in the Park. Occasionally, it has been reported that wildlife like wild boar, hog deer and sangai were found to have strayed out of the Park area on this drifting biomass and into human habitations, sometimes causing injury to humans. Poachers take advantage of such situations to capture the wildlife.
4. A sharp increase in the number of fish culture ponds that has led to a profusion of vegetation mass, depleting the areas which were earlier clear water zones. Clear water zones are essential for the local people to meet basic water needs such as drinking, washing, bathing, sanitation, etc.
5. On construction of the barrage, those people who earlier eked out a living through tilling the soil started fishing, thus putting pressure on the already depleting aquatic resources.
6. Decreased fish catch has forced the fishermen to employ different techniques of fishing, such as using closely knitted plastic nets of varying sizes and thickness bought from neighbouring Burma. There is also an apparent increasing competition and tension amongst the fishermen for the right to access particular areas of the lake. Fishermen are noticed to have put up bamboo poles to demarcate their 'land' (i.e., waterbody) inside the lake.

7. The increase in the proportion of floating vegetation mass, while causing undesirable impact such as the decrease in area of clear waterbody and affecting spill-over in lake shoreline areas, is also encouraging an increase in undesired human activity such as the increase in number of hutments, disturbances in the waterfowl habitat area (such as instances of poaching, poisoning of the birds, collection of eggs, etc.), and obstruction in the traditional waterways. Massive *phumdi* build-up is also causing blockage in the waterways used by the locals for traveling in their dugout canoes from place to place across the lake.

Towards community conservation

The conservation efforts by the local communities are spread over different localities of Loktak lake surface area. Legally most of the area under community conservation falls under the jurisdiction of the Revenue Department of Manipur, which includes settlements, agricultural lands and fish farms in the lake periphery.

The areas where community conservation is active are:

- The Birahari Pat Migratory waterfowl habitat (approximately 400 ha waterbody). This area is located around 2-3 km offshore from the Khoijuman village on the western side of lake. The single largest population of waterfowl seen here is the Uren porom (Common Coot);
- Keibul Lamjao National Park (KLNP) (4050 ha on the southern end of lake);
- Lake shoreline fish farms (Migratory waterfowl habitat, approx. 4-5 hectare area, covering around 4 to 6 km area in length) and adjacent waterbody in Nongmaikhong and Khordak village areas (on the south-eastern side of lake and also south-east of KLNP). This area is outside the KLNP but in its immediate proximity. Around 14 species of waterfowl and avifauna have been sighted in this area. Some of the species are nganu thanggong (Ruddy Shelduck), nganu khara (Northern Shoveller), thanggong mal (Eurasian wigeon), iruppi (ferruginous pochard), tharoichabi (Asian openbill), meitunga (northern pintail), nganu pirel (spotbill duck), thoidingam (gadwall), utsai saingou (grey heron), tingi (lesser whistling teal), etc.

The distance between the Nongmaikhong-Khordak community initiative area and the proposed bird sanctuary at Pumlen Pat is less than half a kilometre, separated by the Manipur River. Pumlen Pat is similar in its features to Loktak lake. The migratory waterfowl feeding in the Nongmaikhong-Khordak area rest at Pumlen Pat at night.

The Loktak lake is associated with folk legends and cultural beliefs of the Manipuri people. The religious temperament of the people finds expression in the different religious worships and folk art performances, such as the projection of the Loktak Lake as the 'mirror of Manipuri civilization'.

The sangai is a legendary beast (as embodied in the form of *Kangla Sha*, which is the official emblem of the Manipur government) is best explained as the representative cultural and social identity of Manipur. The sangai is also the official state animal of Manipur. That is one of the reasons that the conservation of the sangai and its habitat has been stressed upon by the local people. Another reason is that it is today a precious asset of the state, found nowhere else in the world. The sangai population had reduced to about 14 in 1974 in the state. According to a survey in February 2003 there are now claimed to be 180 of them.¹

The alarming results of the LHEP led to the initial stirrings of the need for conservation among some locals and environmental groups in the mid-1980s. They (mainly the meiteis) realized and decided to react to the undesired developments in the lake, which were detrimental to the health of humans, wildlife and the lake ecosystem.

In the years following the commissioning of the Ithai barrage of LHEP, the local people living in the lake area rose in agitation against the adverse impacts of the barrage, such as the artificial flooding of their settlement lands and loss of their paddy fields. This mass movement ultimately forced the Manipur government to set up the Loktak Development Authority (LDA) to address some of the problems. However, the government neither had a concrete plan for conservation of the lake ecosystem nor for the wildlife.

The vacuum created by the lack of a government policy on conservation of the wildlife was felt by the local people living in the immediate vicinity of the KLNP, where there were several cases of poaching and unnatural deaths of wildlife such as by drowning. This provided the impetus to the local people to do something positive for the deteriorating conditions of the lake and the wildlife.

Around 1991, some of the concerned individuals and non-governmental organisations met and decided to form a collective body for the cause of the lake and the wildlife dependent on the lake. They formed an association called Environmental Social Reformation and Sangai Protection



House on stilts, Loktak lake Photo: Ashish Kothari

Forum—known as ESRSPF, or sometimes simply as the Sangai Forum or just as the Forum—with an initial membership of around 30 local youth clubs and voluntary organizations based in the KLNP and Loktak lake areas.

The issue of protection and conservation of the much-revered sangai and the other wildlife living in KLNP including the migratory waterfowl, and the health of the lake, which is the source of life and reverence for the people, were the thrust of the campaign. The initiative progressed slowly yet steadily. It gradually picked up from a few individuals' concern to a mass movement all along the lake shoreline by the mid-1990s.

Grassroots-level public meetings, nature camps, workshops, etc. were organized by ESRSPF to spread the message of the need to conserve the Loktak lake biodiversity. The locals received help from Imphal-based environmental organisations, like the Manipur Association for Science and Society (MASS), and experts from the Manipur University, Dhanamanjuri College of Science and others. Efforts to highlight the plight of Loktak lake were made through various means like loud protests, writings in newspapers and magazines, projection in films and video, ballads, lectures, etc. at local, regional, national and international levels.

An annual 'Loktak Day' celebration is organised each year in October in places like Thanga, Komlakhong and Nongmaikhong to highlight the conditions of the lake and the need to conserve it. As a part of the celebration, meetings, seminars and cultural programmes are organised. Although organised at the people's level, this celebration has a political overtone in the sense that potential politicians based in the Loktak lake area take the leading part in the celebrations.

Important conservation sites were identified by the locals themselves and with support from the ESRSPF; these were subsequently decreed as 'protected areas' by a consensus of the local communities. Local youth clubs and voluntary organisations together decided to monitor the areas for possible violations, such as poaching, unauthorised entry into the national park, setting fire to dry vegetation, etc. ESRSPF also set up units in critical spots like Keibul Lamjao, Nongmaikhong, Thanga and Bishnupur. Since then, the entire locality, including youth, men and women, involve themselves in the conservation of the specified areas.

In this way, several of the villages located around the southern parts of the lake joined in a common effort to protect and conserve the KLNP and other adjoining areas that are important wildlife habitats. Likewise, villages like Khoijuman located in the upper portion of the lake, and Nongmaikhong-Khordak in the south-eastern part of the lake took up efforts to conserve the migratory waterfowl habitat in the Birahari Pat. Most of the conservation occurs on privately owned lands or water body area, not necessarily controlled by government agencies.

Local voluntary organisations under the banner of ESRSPF feel responsible for protection, conservation and preservation of the Loktak Lake and its biodiversity. Government agencies like the forest department and the Loktak Development Authority are much indebted to the services of the ESRSPF volunteers in the protection and conservation of the wildlife and their habitats in KLNP and surrounding areas.

In fact, where the forest department had failed to mobilise the locals for effectively controlling poaching in KLNP, it has been due to the untiring efforts of the ESRSPF volunteers that poaching in KLNP and in other parts of Loktak Lake has been greatly reduced in recent years.

On 19 January 2003, ESRSPF volunteers nabbed two poachers who had hunted sangai deer inside KLNP. They were apprehended with around 4 kg of chopped deer meat, which the poachers obviously intended to sell clandestinely. Both the poachers are from the Keibul Lamjao village. Both of them were later handed over to the Moirang police station and a criminal case was registered against them. Such activities serve to discourage potential hunters.

The conservation effort finds some amount of opposition from some of the primary stakeholders, such as the local women who gather edible roots, plants and fodder grass from within the KLNP, and fishermen whose fishing activities are restricted in those areas where the initiative is quite active, like in the Birahari Pat area.

Although the status of a national park restricts locals from freely entering the core zone area of KLNP, due to absence of proper demarcation of core, manipulation and buffer zones, some sort of compromise has been made with the locals who traditionally collect plants for food and fodder from

the KLNP, and certain concessions are granted to the local people to enter and collect dry vegetation and edible plants and roots from within the enclosure of the Park and in the surrounding areas.

When the national park came into force in 1977, there was strong opposition from the local people when they were not allowed to enter the Park area and continue with their traditional practice of collecting food and fodder plants. The tendency is still there in the sense that though there has been some amount of understanding between PA managers and local people, the people here, particularly the women, feel a certain resentment at the manner in which they are stopped from continuing with their traditional practice, even while the forest department does not have any management policy to regulate entry or allow people to enter up to a certain point in the Park. The author has seen forest guards challenging women who had entered right up to the core area to collect edible roots in March-April (this is the time when poaching inside the Park is most active). This sort of act also causes tension between PA managers and the local people. However, intervention by ESRSPF volunteers by way of organising meetings and talking to the people has helped to reduce such tensions as and when they arise.

In the Birahari Pat conservation site, there is a certain amount of opposition from local fishermen when they are asked not to disturb the migratory waterfowl, particularly during their winter resting months. The opposition, though minimal, has arisen from the local fishermen's need to cover a large part of the lake for their fishing activities. This has been because the fish catch seems to have gone down in the past few years. In fact, fishermen are resorting to the use of close-knitted nylon nets to catch small fish (even fingerlings) since they are unable to catch big/bigger fish in the lake.

There are also instances of conflict from adjacent communities who continue poaching/hunting avifauna and waterfowl. In some of the poaching cases, it was found that some of the poachers belonged to a different community from nearby Kwakta village, which is located about 4 km west of Moirang town. Poaching is carried out in connivance with a few local persons living in the KLNP area (e.g., the two poachers recently caught are both from the KLNP area). Poachers are known to hunt the birds (and animals) and sell them to vendors in places like Kwakta, Moirang Lamkhai and Imphal to supply restaurants, hotels, etc.

In the case of a poacher being caught red-handed by the locals in the KLNP area, he is immediately handed over to the range officer of the Keibul Lamjao Forest Office. Then a meeting of the locals from the village (Keibul Lamjao, and sometimes attended by villagers from neighbouring Chingmei village), including the *gram panchayat* members, ESRSPF, forest officers and other important persons in the village is held to discuss the situation. Normally the meeting is organised at the Forest Range Office in Keibul Lamjao immediately an offence takes place. In most instances, the cases are settled at the grassroots level itself without the intervention of the police or the district magistrate. The collective meeting of these representatives decides on the nature of the penalty to be awarded to the poachers.

The nature of penalty differs according to the extent of offence committed. The poacher is either given a good thrashing and let off after a stern warning not to repeat his crime again, or the poacher is made to pay a fine of Rs 10,000 (this amount was announced by the ESRSPF as penalty to any person caught hunting sangai). In some cases, depending on the seriousness of the crime, the poachers are handed over to the police for legal proceedings (but the locals are wary of such legal proceedings because they feel nothing comes out of it).

Sometimes the penalty is harsh. If the matter is taken up by an underground group² (it may be noted that a certain underground group had earlier announced that it would award capital punishment without trial to anyone found/caught hunting sangai), the poachers are liable to be shot. The two poachers caught by ESRSPF volunteers on January 19 were punished by being shot on their right thighs by the underground Revolutionary People's Front as a (last) warning to anyone daring to defy the group's decree. (This incident happened on February 5, 2003 after both the poachers were given bail by the Chief Judicial Magistrate of Bishnupur district). In 2003, another valley-based Meitei insurgent group announced prohibition on hunting migratory waterfowl. They also announced a punishment if the orders were violated.

In an incidence in 1999, a Kabui, also the headmaster of a local junior high school in Toubul village, was apprehended with a gun and birds in his possession by volunteers of the Global Science Club (GSC), Khoijuman. A meeting was held in Toubul village attended by the village authority, GSC and ESRSPF members. In the meeting, the headmaster confessed his crime. Later, he was pardoned on the condition that from that day onwards he would stop hunting birds and would become a member of the GSC. He thus became a converted wildlife activist. This was an achievement for the local conservationists.

The existing institution at the village level is the *gram panchayat* headed by a *pradhan* (village

head), assisted by the *upa-pradhan* (assistant to the village head) and members in the management and administration of the village affairs. It is an important instrument for garnering support of the local people and for dealing with matters concerning the activities of the local community as regards the conservation initiative.

As in Nongmaikhong area, the *panchayat* members (earlier headed by former *pradhan* Salam Budhi Singh) are quite active in the protection of the migratory waterfowl in the winter months and for securing the support of local farmers to conserve their habitat. In the process, the farmers are losing much of their source of income by letting the waterfowl feed in their fish farms while foregoing all activity of fishing themselves.

In fact, there is a perpetual question of who will compensate them for the loss they are suffering for the sake of the waterfowl. Farmers like Salam Budhi and a few others had voluntarily forsaken the use of around a hectare each of their fish farms so that the waterfowl are not disturbed. Currently they are losing fish yield from more than four hectares of fish farms in Nongmaikhong village area.

As so far observed, these farmers are sacrificing themselves purely for the sake of the birds, who, they say, are visitors from far-off places and who need their protection to feed and roost without fear and disturbance. So, for the best part of December, January, February and March, these farmers have to look for alternative sources of food and income while forgoing much of their fishing activities in this area.

The women usually make water-reed mats and smoke small fish for sale to earn a living, while the men engage themselves in farming activities or weaving bamboo baskets for sale, or go out deep into the lake to fish so that minimal disturbance is caused to the waterfowl habitat. However, during a visit in mid-January 2003, fishing activities were seen in the migratory waterfowl habitat. Although the activity was minimal, this is evidently a result of the pressure on the farmers for their livelihood needs.

For all the activities mentioned above, no formal rules have been laid down (barring the imposition of fine on killing sangai). The initiative is based on a mutual understanding of the different village communities and has been voluntarily taken up rather than through compulsion. Such a loose structure and informal understanding has its own drawbacks, as it creates confusion particularly when there is a conflict of interest and ideas among the different village communities regarding the handling of particular cases.

Disputes, offences and other matters are dealt with by the *panchayat*, and in the case of non-settlement of the issue at the village level the matter is recommended to the district magistrate for due settlement. In most cases, petty matters are settled at the village level itself and the villagers are 'urged' to comply with the *panchayat's* decision(s). However, in most cases, it is the collective decision of the villagers rather than the decision of the *panchayat* which is the final say.

This mechanism of governance at the grassroots is quite effective in the sense that the decisions are made by the people themselves for their own good. In case of disregard of that collective decision, the offender is likely to face pressure from the entire community.



Traditional fishing near Loktak lake
Photo: Ashish Kothari

There are also some Government interventions in the area. For example the Loktak Development Authority (LDA) was set up in 1987. LDA's effort has been to work on improving the water quality of the lake, controlling the ever-expanding vegetation matter, weeds, etc., and to establish rapport with the local communities in working out a common strategy for the overall conservation of the lake ecosystem. Earlier, LDA's activities primarily were mainly engineering related, like dredging of silt and clearing of vegetation matter from the lake. These activities initially attracted stiff opposition from the local people because there was no consultation with the local people. Ever since LDA has changed its strategy, it has received support from the local communities in

conducting public awareness campaigns, nature camps, workshops, seminars, etc. towards the purpose of conservation of the lake ecosystem.

Although the forest department (FD) also has jurisdiction in the area, they do not have any concrete comprehensive plans for the area.

Impacts of community conservation

Where the Government had failed to establish rapport and a meaningful control and management of the Park, the community was successful in bringing about a semblance of law and order in the protected area. There have been several occasions when the ESRSPF launched a local-level agitation against the forest department to protest against the inactiveness of the Department towards the conservation of the sangai habitat, or to protest Loktak Development Authority's undesired engineering activity in the lake. However, Forest department officials do get support from ESRSPF and other organisations during sangai census, control of poaching, etc.

There have been no direct benefits to the local communities as a result of their initiatives, except for the small financial assistance from LDA for public motivation campaigns and community welfare programmes like raising fish hatcheries, social forestry, community toilets, welfare schemes for women, etc. The only benefit gained is the sense of pride in achieving some degree of success in conserving the wildlife habitat and population, even though it is in the initial stages.

The initiative has been successful in achieving a more concerted effort towards preventing poaching of sangai and other wildlife in the KLNP area. Over the last five years an increase has been noticed in the numbers of migratory waterfowl coming to the area, and the population of wild boar in the KLNP has also increased.

Opportunities and constraints

Some initiatives create certain problems, such as the waterfowl habitat conservation in Birahari Pat and Nongmaikhong-Khordak areas, where the local fishermen have to stop their fishing, as it puts pressure on the conserved area. They then have to seek other alternatives to earn their living. Especially after losing their agricultural land as a result of the Loktak Project, the farmers find it hard to forsake their fish farms. For them, it is just like becoming landless.

In a sense, it is the Manipuri sense of hospitality to visitors that seems to be at work here. Despite the hardship of forgoing their source of livelihood, the farmers in Nongmaikhong say that it would be thoughtless and heartless for them to drive away these winged visitors from faraway places who had come to feed and roost here for the best part of four months. Although, as Salam Budhi says, their families have to suffer on account of the waterfowl, they will continue to provide shelter to the migratory waterfowl.

In the late 1980s the government set up a State Environmental Council chaired by the governor and members consisting of representatives from the various government departments with a few representatives from the public to look into the matter of environmental issues in the state. But the council got defunct in 1991, and has not been revived till date. In the absence of such a mechanism, initiatives by local communities for the conservation of Loktak lake's biodiversity has often clashed with interests of the government agencies like the forest department, LDA, Fisheries Department, Irrigation & Flood Control Department, etc.

Unauthorized *pattas* (land ownership deeds) have been given to some people by the Bishnupur District Revenue Office in areas which are part of the lake waterbody (i.e., the *patta* land is under deep water!). This has given rise to conflicts between local conservationists and local fishermen over the right of entry and activity in areas of waterfowl habitat (such as in the Birahari Pat area).

Another development has been the 'intrusion' of politicians to gain political mileage from the people's campaigns. In fact, ESRSPF's initiative recently took a political colouring with some activists harping on the people's movement to gain support for their elections to the state assembly. There have since been efforts to restrict such overtures by aspiring politicians, and care is taken to keep them at a distance.

Frequent fighting between wild boar and sangai (and perhaps hog deer too) for food and shelter has been reported by the patrolling forest guards (this is caused by the decreasing vegetation cover and edible plants, etc.). Sometimes, wild boars have strayed out of the KLNP area and caused havoc in the nearby villages, damaging standing crops and injuring people. The responsible government agencies have no management plans to prevent such incidents. The local youth clubs and other voluntary organisations under the banner of the ESRSPF have taken it upon themselves to keep a watch-out for such mishaps.

ESRSPF had assisted the LDA in conducting a 3-month-long flora study and data compilation of the vegetation mass in KLNP. ESRSPF, in association with environmental groups, conducts periodic monitoring and study of the wildlife including annual migratory waterfowl and sangai census. Other than this, local organisations like Global Science Club (Khoijuman), Generation De New Image

(Ningthoukhong), Loktak Lake Environmental Development Organisation (Thanga), etc. conduct periodic studies of the wildlife habitats, the lake's ecological character, etc. and interact with the local communities on their findings.

Conclusions and recommendations

Suggested recommendations for effective conservation:

- Government agencies such as the forest department, the Loktak Development Authority, the Fisheries Department, the Rural Development & Panchayati Raj Department, the Social Welfare department, the Health & Family Welfare Department, etc. should coordinate with each other to initiate welfare programmes for the local communities with the objective of encouraging the locals towards Loktak lake biodiversity/wildlife conservation.
- Set up scientific study cells to monitor the Loktak lake ecosystem, periodic and regular water quality monitoring, study of hydrology of lake and feeder streams, change in vegetation character, wildlife behavior, etc.
- Set up a coordinating body of the local communities and government agencies to work on a mutually accepted module of policy strategy and conservation methodology, and so on.

This case study has been contributed by Salam Rajesh, an independent researcher, in 2004.

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- iv) Oinam Birathoi (phum hut dweller), Birahari Pat off Khoijuman village, Bishnupur district.

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- iii) Nongmaikhong Youth Club, Nongmaikhong, P.O. Moirang, Bishnupur District, Manipur.
- iv) Global Science Club, Khoijuman Mamang Leikai, P.O. Bishnupur, Bishnupur District, Manipur.
- v) Generation De New Image, Ningthoukhong Bazar, P.O. Bishnupur, Bishnupur District, Manipur.
- vi) Loktak Lake Environmental Protection Organisation, Thanga Khunjen Leikai, P.O. Moirang, Bishnupur District, Manipur.
- vii) Phum Hut dwellers of Birahari Pat area, Bishnupur District.

Endnotes

- ¹ C. Duangel (2003), 'State Formulates New Forest Policy', *Sangai Express*, Imphal, 9 May 2003.
- ² The underground groups in Manipur are demanding political autonomy for the state and have gone underground to evade persecution.



Upper Ngatan, Senapati

Background

Upper Ngatan village is located in Senapati district of Manipur. The nearest town is Senapati. Since 2004, the village has been protecting about 4sq km (400ha) of dense tropical semi evergreen forest on lower altitude and sub-tropical on the higher altitude.

The protected forest was primarily a *jhum* (shifting cultivation) field where *jhuming* was heavily practiced. Because of large land holding per capita and less population the *jhum* cycle (returning to the same field for cultivation) was very long (20-25 years). The long *jhum* cycle ensured a high regeneration of the forest. The protected forests are therefore very rich in wildlife even today.

Ngatan is a very old settlement of the maram (naga) communities. The village is nearly 600 years old as per the oral history of the village. The first settlers to this village came from the Maram Khullen village in this region. Ngatan now has two localities, viz. Upper and Lower Ngatam with a total of about 90 households. The present case study is from the Upper Ngatam having about 50 households. Both the villages now have separate governance system.

Towards community conservation

Land pressure, increased population and economic upscaling of the community have resulted in the rampant extraction of forest resources in this area. The village had a traditional community-reserved forest which was seen as a common property resource reserved for people to use in emergency. But sustainable management aspects or conservation principles were not employed while extracting the resources. There were certain regulations but these were practically never enforced or implemented. Due to these social and other pressures, the local forests and community reserves were severely depleted in most of the accessible areas, except deep ravines and other difficult areas. It is in this context that NERCORMP-IFAD¹ came to this village in 2004.

NERCORMP-IFAD constituted a natural resource management group (NaRMG) from within the community. Orientation and sensitization programmes were organized, which included, need for revitalization of the village reserved forest, new challenges faced by the community, need for economic development through increased conservation, among others. The NaRMG leaders also attended a natural resource management (NRM) sensitization workshop conducted by Senapati District Community Resource Management Society (SEDCORMS), the project implementing agency of NERCORMP-IFAD in Senapati district. The leaders realized the importance of natural resource management. They then initiated a dialogue with the members of the traditional village institution, looking after the village land and all natural resources. All the members of the village institution were eventually convinced of the need and importance of revitalizing the village forest reserves.

During the resource mapping and land use planning exercise the community found that it was very important to have a certain portion of the forest as protected for future use as the forest resources are on the decline while population is fast increasing. The NaRMGs in consultation with the traditional village authority declared the following forests as reserve area and designated it as community conserved area (CCA).

1. Community reserve forest at Ting Ngai Vai Pou
2. Cane or rattan germplasm reserve at Tommaina river bank

According to the villagers the reasons for conserving these areas include the following:

1. The area has a good growth of cane or rattan which are becoming extinct in other areas due to overexploitation.
2. To gain respect from the surrounding villages for their reserve forest.
3. To regulate and prohibit indiscriminate cutting of trees by individuals without permission of the village authority.
4. To frame rules and regulations applicable to all the villagers irrespective of their position and status.



5. To regulate and prohibit hunting and fishing by outsiders in their area.
6. To conserve forest for future use.
7. To conserve water which is crucial for terrace cultivation.
8. To regulate collection of non-timber forest produce (NTFP).

The NaRMG and the traditional village authority constituted from amongst their members a reserve forest management committee (RFMC), which is empowered to settle forest related disputes.

The rules and regulations were framed on the basis of the customary laws and traditional practices, which are widely accepted by the community. The rules and regulations were passed in the meeting on the 10th of September 2004 along with the penalties and fines for violations. It was decided that, if need be, the rules and regulations could be amended during the village annual meetings. The fines and penalties in this NaRMG are very low as compared to other NaRMGs because of less conflicts in this village.

The fines and penalties on the defaulters as per their resolution no. 2, dated 10/9/04 are:

- a. Cutting of trees = Rs 500/-
- b. Setting of fire = Rs. 500/-
- c. Hunting of animal = Rs. 1000/-

However the forest management committee may increase or decrease the fines depending on the degree of violation and the intention of the defaulter.

The rules and regulations are pro-poor as they do allow poor families to collect honey, dead wood, mushroom, medicinal plants and collection of cane and rattan saplings for sale during the season.

Impacts of community effort

The conservation effort has strengthened the unity of the village. Despite being a small village they have managed to protect their forests and prevented hunting in the protected area. Till 2006, the forest committee had confiscated two guns from Sorbung villagers for hunting in their reserved forest. According to Hingba, a villager, "this programme is more powerful than hundred underground cadres." Another villager adds "this project has really helped us to remain united and protect our forest for future use." While another villager believes that, "The spirit of nature will strike on those who are too greedy."

As the area is now conserved the trees and bamboo are likely to mature within a decade or so, provide the villagers for their domestic and economic needs. An increase in wildlife especially deer, and birds within the last few years have also been noticed. There is increasing recognition of their efforts from the neighboring villages, which is a great source of encouragement for the community.

Opportunities and constraints

In due course of time, the community will require to prepare a working scheme for their forests, if and when they would like to extract timber from the area. They would require the help of the government to prepare such working schemes.

The major constraint is that such efforts of the communities are yet to have due legal recognition of the government. The communities also do not get any financial incentives for such efforts. Absence of these incentives could be one of the possible future reasons for their inability to expand the areas under conservation. The NaRMGs are constrained as these are only project-induced village institutions without any legal recognition (meaning not registered under any act). However, the village authority has fully empowered the NaRMG to be the key stakeholder in the management of their village reserved forest.

Conclusion

Conservation can be taken forward to benefit the communities socially, economically and environmentally. The government should recognize and give legal management rights of community reserved forests to the NaRMGs with financial support.

This case study has been contributed by Vincent Darlong, Mathias Kuba, Lokho Pfoze, and Tutumoni Lyngdoh, all with the North Eastern Region Community Resource Management Project of the International Fund for Agricultural Development in June 2007.

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Endnotes

¹ North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP) is a Joint Project of International Fund for Agricultural Development (IFAD) and the Government of India, Ministry of Development of North Eastern Region, North East Council, Shillong, Meghalaya. For more details on the programme, see www.necorps.org.





Khambi village, Ukhrul

Background

Khambi village is 4 km south of Phungyar town in Kamjong sub-division of Ukhrul district, roughly 70 km north-east of Imphal. This village is inhabited by the Tangkhul tribe. The village forest under protection comprises a hill south of the village and is nearly 300 ha in area.

Towards community conservation

Before the villagers' effort at conservation, the hill was largely degraded, with intensive use for firewood, timber, etc. by the villagers. Degradation of the forest resulted in drying up of the water sources in the village, which compelled the village to decide to relocate to another site. This decision was vehemently opposed by the village elders, who suggested that the catchment of the water source should be regenerated to bring water back to the village. Thus the village started protecting the degraded patch.

In an attempt to regenerate the degraded forest, the village authority strictly enforced a rule that no live trees should be cut in the forests without permission. It was decided that for every tree cut without permission, an initial fine of Rs 500 would be levied. A consecutive 'offence' by the same individual was punishable with an increase in fine. As the villagers could not afford to pay in cash, the penalty was imposed in kind – a pig. Thus a first offence would attract a fine of a small pig costing around Rs 500. The second offence would cost a juvenile pig costing around Rs 1000. The third offence would cost a mature pig costing around Rs 13,000¹. The villagers normally refrain from committing any offence in the protected forest, and if need be approach the village authority for permission. Permission is sometimes granted for cutting dead or mature trees. The authority does not allow hunting of wild animals in the protected forest area. If an animal being chased for hunting outside the protected forest takes refuge in this patch, it is spared.

Impacts of community conservation

The protection efforts started in 1990 and have paid off as the forest has now regenerated (natural regeneration plus a few plantation). The water source has revived and is protected strictly by the villagers. There are huge trees now, including planted local species like champaca and bonsum. The author of this study feels that this area is one of the best community conservation efforts that he has come across so far in Manipur.

This case study has been contributed by Salam Rajesh, independent researcher, in 2004.

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¹ The penalty in traditional form is in terms of a *wai* where a *wai* is a measurement by holding the two hands to measure the body circumference of the pig. So, one *wai*=a small pig, 1-3 months old. 3 *wais*=a juvenile pig. 5 *wais* (the maximum fine)=a mature pig that could cost anywhere between Rs 12,000 and Rs 15,000.





Mapum village, Ukhrul

Background

Mapum village is located at the eastern foothill of Shirui Kashong Peak which is 74km away from Ukhrul district. The village is constituted of 134 households. This area is the only corridor for animal migration from Ango-hill range (in Myanmar) to this district. *Jhum* (shifting cultivation) is the main activity in the village. The village is occupied by the tangkhul (naga) tribe. Like many other indigenous communities in this area, forest management has been basically for the purpose of shifting cultivation in this village. Hunting and selling of dry meat was one of their main sources of income in the village until recently.

The village is about 600 years old. Over the years the practice of *jhum* has become unsustainable due to reduced cultivation cycles (returning to the same patch before it could regenerate fully). Not only did food security become a problem, but water and firewood scarcity also became acute in the village. Villagers had to go as far as 4-5km for collection of fuelwood. The situation was particularly difficult for women. It was in this scenario that the IFAD-funded North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP-IFAD)¹ came to this village in the year 2001. Mobilization and capacity building for conservation started by forming a natural resource management group (NaRMG) and self help groups (SHGs).

Towards community conservation

The programme helped the NaRMG and village council (VC, the main decision making body in the village) members to create awareness and initiate discussions about revival of the traditional practice of protecting a patch of forest as village reserved forests. The problems faced by women in collecting drinking water and firewood and consequent impact on each household was deliberated upon to convince villagers of the importance and value of protecting a critical catchment area and water resource. The local NGOs facilitated this process. The NaRMG and VC jointly began discussing demarcation of the boundaries and drafting of rules and regulations best suited to their village.

One important rule was that the households could extract the natural resources for their own consumption but not for sale outside the village. Prevention of forest fire was another key area of deliberation, and stringent penalty for violators was decided. The village has formulated a perspective plan for biodiversity conservation in their protected forests and the surrounding area.

Impacts of community effort

NERCORMP-IFAD project in this village has brought in changes in the social, human, financial, physical and natural capitals or assets of the community. The project also brought in the idea of conserving part of their village forest as community forests or community conserved areas for their biodiversity and environmental values. Alternative sources of livelihoods have provided them opportunities to increase their income without having to cut their forest for *jhum* as was the practice before the project interventions. NERCORMP-IFAD also took up development of terrace fields in this village and now about 50% of the households have terrace fields for paddy cultivation and so practice settled agriculture. These activities have actually reduced their dependency on forest for livelihoods, consequently the conserved area is regenerating successfully. The villagers anticipate eventual ecological and economical benefits from the conserved area.

Opportunities and constraints

The village community is now well mobilized for conservation and is realizing and experiencing the benefits of their efforts. The area is rich in wildlife as it is contiguous with neighbouring Shirui forest area. The villagers report presence of leopard, bear, deers, slow loris, hoolock gibbon, tragopan, wild fowl, porcupine among others in their reserved forest and the neighbouring forest areas. The main vegetation is alder, pine, oak, taxus among others.

One major constraint to biodiversity conservation in this area is that the neighbouring villages are not covered under the NERCORMP-IFAD project. Many of the individuals in these neighbouring



villages continue to hunt and trap animals. Unless, these neighbouring villages are also covered under such project or massive awareness programmes, the isolated efforts of Mapum village may not yield desired results or conservation goals.

Conclusion

Biodiversity conservation will be much more fruitful if small incentives could be provided to the NaRMG. The forest committee members are safeguarding the village forest in every possible way without any honorarium. Several attempts to converge their efforts with some government programme have not yielded any encouraging results. If biodiversity conservation programmes have to be taken forward, forest-based livelihoods must be given priority by the government.

There are likely to be many endemic and endangered species in this area. There is an urgent need for proper survey of flora and fauna. However the community members do not have any expertise in this field nor do they have needed support to undertake such work. It may be mentioned that the famous shirui lily occurs in this area.

This case study has been contributed by Vincent Darlong and Tutumoni Lyngdoh of IFAD and Thingreiphi and Selim Keishing of the Ukhrul District Community Resource Management Society in June 2007.

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¹ North Easter Region Community Resource Management Project for Upland Areas (NERCOMP) is a Joint Project of International Fund for Agricultural Development (IFAD) and the Government of India, Ministry of Development of North Eastern Region, North East Council, Shillong, Meghalaya. For more details on the programme, see www.necorps.org.





Ngainga village, Ukhrul

Background

This village is located in the western part of Ukhrul district which is approximately 17km from the district headquarters. The total area of the village is 2348.17ha. Presently 170 households reside in this village. People of this village mostly depend on agriculture including shifting cultivation (*jhum*) and settled cultivation (terrace), forest produce and weaving. The village is occupied by the tangkhul (naga) tribe.

The village is about 400 years old. Conservation of a green belt at the vicinity of the village or surrounding the village is a common practice in most of the tangkhul villages since time immemorial. The forests around the village were protected basically for the security and safety of the village, either from fire and/or enemies during the days of head-hunting. But with increasing population and land pressure, the practice has been gradually eroding. In the recent times such safety forests have been converted to agro-horticulture plots or used for extraction of timbers for income generation. Ngainga has been no exception to this. This village is also known for notorious charcoal business. Due to proximity to the Ukhrul town, forest products like fuelwood, bamboo, bamboo shoot, timber, among others were over extracted. This was also due to weakening of traditional governance systems. All these activities contributed to destruction of forest and the village forests were left severely degraded by the late nineties. People of Ngainga began to experience acute shortage of water and the good quality firewood was not enough to meet the demands throughout the year.

Under these circumstances, the IFAD-funded North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP-IFAD)¹ came to this village in the year 2000. As part of the project NERCORMP-IFAD constituted a natural resource management group (NaRMG) from within the community. This group was given capacity building training and also awareness was raised about the importance of protecting biodiversity and natural resources. Under the project water supply was taken up in 2001-2002. Even with this development, the villagers could not get water throughout the year as the water sources would dry up in dry season. With the awareness packages provided to the community, they started linking non-availability of water with rampant deforestation. It was in this scenario that the villagers decided to conserve the catchment area of the water resources along with their traditional reserved forest. As a result the village is now protecting a patch of 142.92ha.

Towards community conservation

Mobilization and capacity building started with the entry of the NERCORMP-IFAD project in this village. The Ukhrul District Community Resource Management Society (UDCRMS) implemented the project. The process started with training on participatory rural appraisal (PRA) tools for community-led planning. The community-based institution called the natural resource management group (NaRMG) was set up in the village where husband and wife from each household were the primary members. The village has three primary NaRMGs under one common village NaRMG and five self help groups (SHGs) under a village federation. The NaRMGs meet at least once in a month. All meeting proceedings and resolutions adopted in the process are recorded. According to the NaRMG guidelines, a resolution can be adopted only when at least 70% or more members are present in the meeting. Thus, the process for conservation of forest and biodiversity were initiated by the NaRMGs, which were then nurtured and supported by NERCORMP-IFAD along with UDCRMS. The NaRMG also took into confidence the village council (VC), the traditional village decision making body, while taking the resolution about protection of the reserved forest.

Under the programme, awareness workshops and seminars have been conducted at the district level in order to re-enforce and strengthen such processes in the villages. The benefits of such practices are deliberately and purposefully discussed and taken up by the project at all level of community meetings and discussions. Saplings for plantations are taken from the state forest department (FD).

Like Ngainga, in many other villages both the NaRMG and the VC have decided to strengthen the process of community forest management and the governance systems. They have also constituted



a forest committee to manage the reserved forests. The village forest committee members take turns to inspect the forest. Customary rules and regulations have been revisited and re-written in most villages based on new learning and awareness through the NERCORMP-IFAD. All the rules and regulations, which are usually preventive, prohibitive and punitive in nature, are discussed in the NaRMG meetings for wider understanding and appreciation. Village youth are also informed about these rules and regulations through customary channels and procedures.

Impacts of community effort

The villagers in Ngainga are witnessing ecological benefits but they also anticipate some economic benefits. They are planning to keep their reserved forest as a wildlife sanctuary, which they feel will benefit them ecologically and economically as well. One of the major benefits of conservation has been the availability of water throughout the year to all the households in all the localities of the village. The households also extract edible plants for vegetables from the protected forests. Collection for sale or export outside the village is prohibited. The rules are more relaxed for the poorer in the community, who can harvest non-timber forest products (NTFP) and small timber for construction and repairs of their houses, without paying anything to the village authority.

Opportunities and constraints

The conservation efforts are yielding very quick results. The forest is regenerating very quickly, enhancing the ecological and economic benefits from these forests. There are a few mature trees that can be harvested now if the village prepares a working scheme (management plan) for the area.

Since the village is close to Ukhrul town, they can also benefit from sustainably harvesting and selling edible plants and vegetables. Socially too, the communities are now well motivated towards conservation of their forests.

The constraints are primarily elements of poverty and need for increased cash income for education of children and other human development requirements. Sale of forest products is one of the few means of income for many of the poor households, thus increasing the pressures on the forests. The other constraint is non-availability of planting materials, even if the communities would like to undertake plantations within and outside the protected forests.

Conclusion

The efforts of the villagers towards managing and protecting their reserved forests will be much more fruitful if small incentives could be provided to the NaRMG members. The forest committee is safeguarding the village forest in every possible way without any honorarium or additional incentives for such commendable voluntary activities. The youth and young children need to be explained the meaning and benefits of such conservation efforts by the elders within the village.

This case study has been contributed by Vincent Darlong, Thingreiphi, Selim Keishing and Tutumoni Lyngdoh from the North Eastern Region Community Resource Management Project of the International Fund for Agricultural Development in June 2007.

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Endnotes

¹ North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP) is a Joint Project of International Fund for Agricultural Development (IFAD) and the Government of India, Ministry of Development of North Eastern Region, North East Council, Shillong, Meghalaya. For more details on the programme, see www.necorps.org.





Shirui Hill, Ukhrul

Background

Shirui Hill, with an altitude of 2570 m, is located in Shirui village of Ukhrul District of Manipur. The rare and endangered siroy lily is the state flower of Manipur. Shirui peak (and the lily) are known by different names, each slightly different from the others: Siroy, Shiroy, Sirohee and Shirui, the last one being the local pronunciation. The hill is a part of the Shirui-Kashong range, which is proposed to be a national park under the Wild Life (Protection) Act, 1972. It is one of the only two places in Manipur that the Siroy lily is found, and even here only for a couple of months following mid-May every year. The area is also known to be inhabited by endangered bird species like the Blyth's tragopan and Mrs. Hume's bar-backed pheasant or nongyin, Manipur's state bird.

Such widespread flowering of lilies as is seen today could not be seen between 1994-5 and 1999-2000, when hardly 3-4 mature lilies were found in bloom. The huge numbers of visitors visiting the area during this season would flatten the beds and pluck and uproot the lilies. This resulted in a sharp decline of lilies in bloom.

Towards community conservation

Since the year 2000, the Shiroy Youth Club (a local club based at the Shirui village which is nearest to the site) has been tirelessly protecting the site. Among the steps that the youth club members took to protect the lilies were: checking the visitors, guarding the site as volunteers, putting up barbed-wire fencing around the site, levying a fine of Rs 50 for every lily plucked and Rs 500 for every lily plant uprooted. The hard work of the Shiroy Youth Club has borne fruit and after a gap of nearly 11 years widespread flowering of the lily can be seen again.

Constraints and opportunities

The greatest threat to this rare lily is from the large influx of tourists. In the flowering season there are busloads of young students or other tourists. Tourists are not only loud and rowdy but also end up trampling many budding lilies. Despite enough signs pointing towards the need to conserve and protect the habitat, many tourists deliberately pluck lilies to take back home for their 'loved ones'.

This case study has been compiled from information provided by Salam Rajesh, independent researcher based in Manipur (in 2002), and Kanchi Kohli, a member of Kalpavriksh Environment Action Group, based in Delhi (in 2004).

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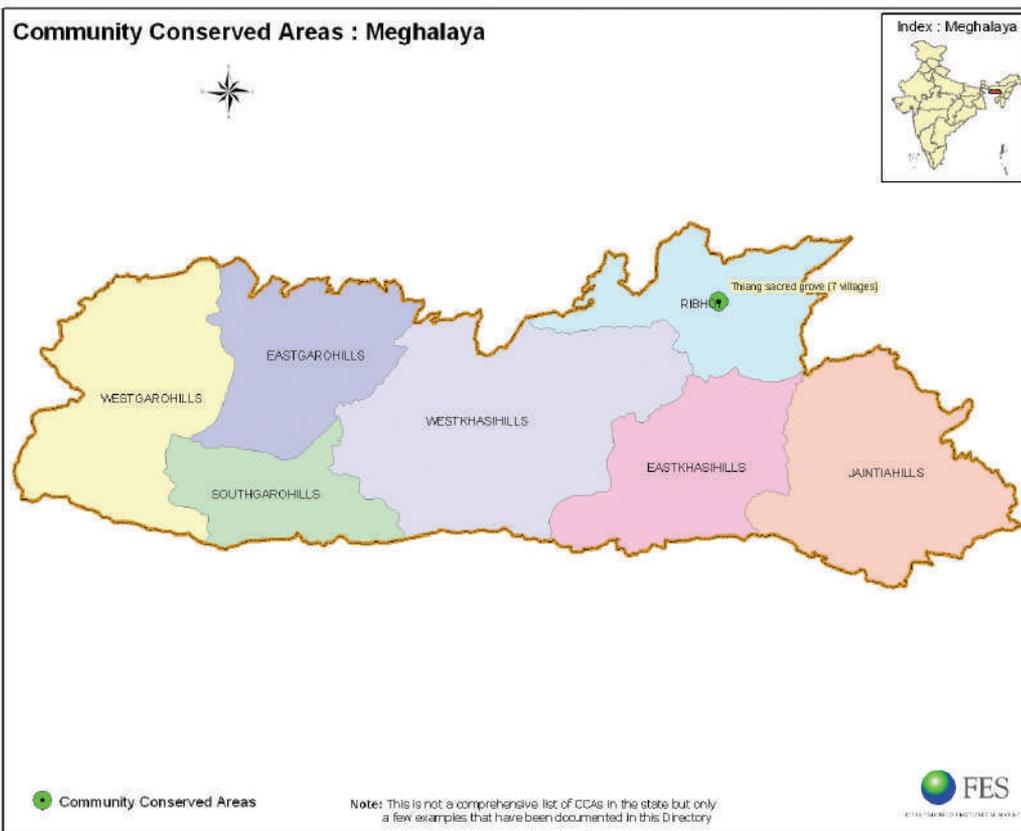
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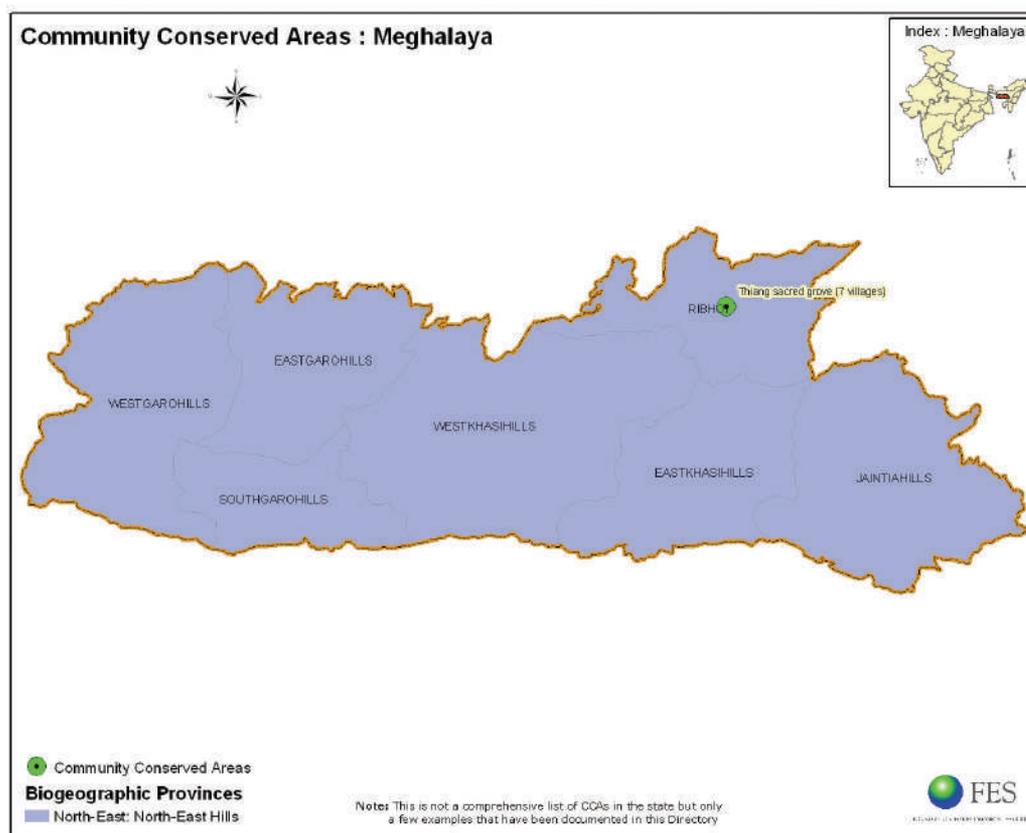
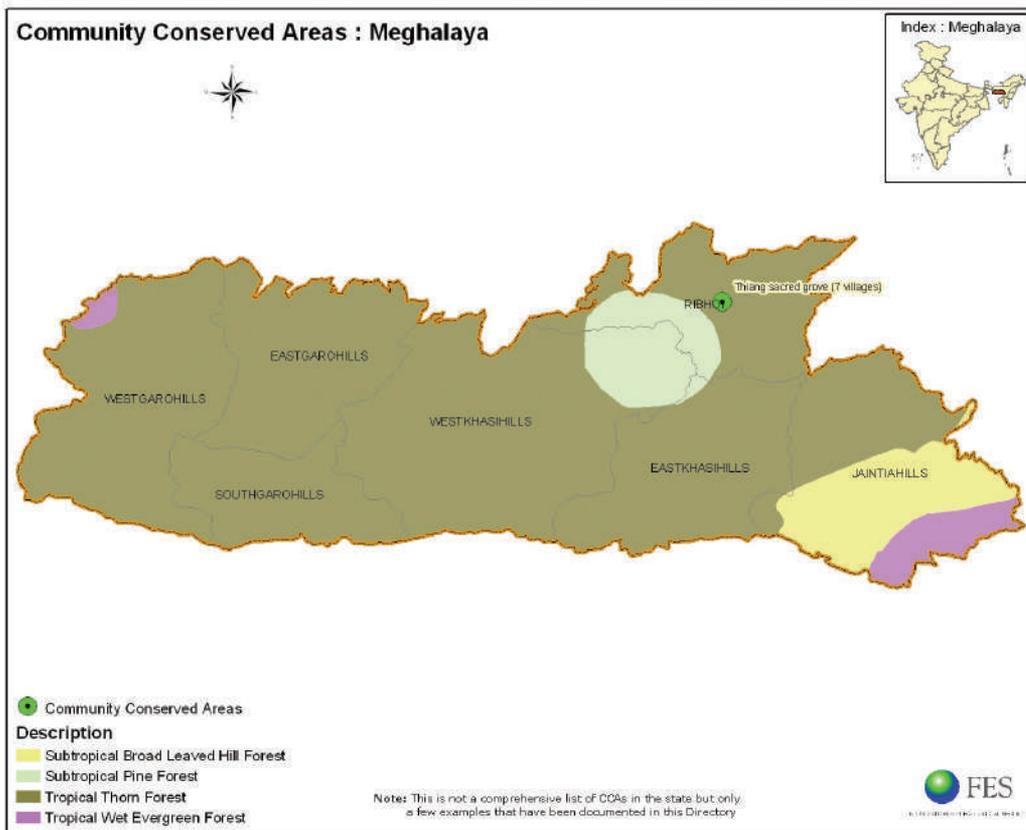


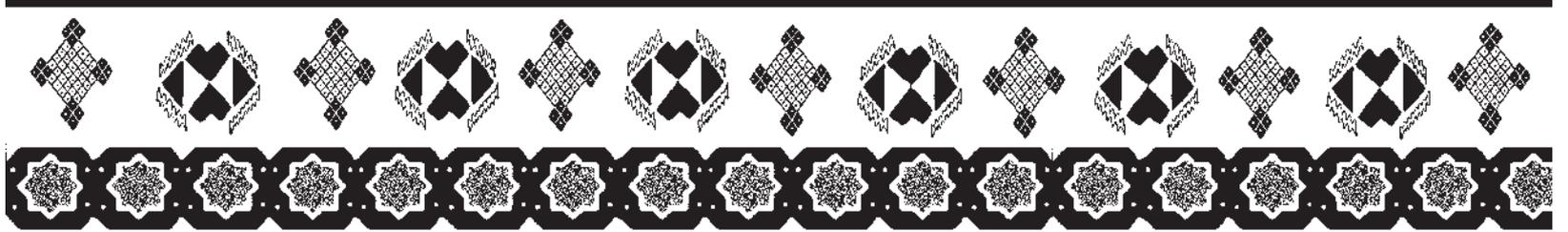
Siroy lily
Photo: Kanchi Kohli



Meghalaya







Meghalaya - an introduction

Location and biogeography

Meghalaya is a Sanskrit term; meaning 'abode of the clouds'. Meghalaya attained statehood on 21 January 1972. Meghalaya comprises the South Garo Hills, West Garo Hills, East Garo Hills, West Khasi Hills, East Khasi Hills, Ribhoi and Jaintia Hills districts lying between 25°47' to 26°10' N latitude and 89°45' to 92°45' E longitude, and covers an area of 22,429 sq km¹. It is bounded on the north, east and west by Assam and on the south by Bangladesh.

The altitude ranges from 50 to 1960 m. The highest peak is Shillong Peak. The climate of Meghalaya is very much influenced by its topography. The mean maximum and mean minimum temperatures are 24.3°C and 17.8°C respectively.

The average annual rainfall in western Meghalaya is 268.90 cm, with regional variations: south-east Meghalaya above 400 cm; in the north 250 to 300 cm; and in the Shillong plateau very high at 719.6 cm. Mawsynram, a village situated on a similar plateau as the Cherra plateau, about 16 km west to Cherrapunjee, records the highest annual rainfall in the world with 1,392.30 cm.

The important mineral deposits of the state are iron, limestone, coal, siliminite and uranium. Simsang, Manda, Damring, Janjiram, Ringge Gano Khri, Umtrew, Umiam, Umkhem, Umngot are the major rivers of the state.

Meghalaya is sub-divided into five agro-climatic sub-zones: i) Hills and northern slope ii) Central hyperthermic plateau iii) Central thermic plateau iv) Southern slopes and valleys (east) and v) Southern slopes and valleys (west). Some of the forest types are tropical evergreen, semi-evergreen, tropical moist and dry deciduous, bamboos savannah grasslands, temperate and pine.

The recorded forest cover of the state is 16,839 sq km, i.e., 75.05 per cent of the total geographic area as per the Forest Survey of India 2003. Out of this, Reserve Forest area belonging to the State Forest Department is only 981 sq km (4.37 per cent of the total area of the state). About 8503 sq km (37.91 per cent of the total area of the state) falls under the unclassified areas, belonging to communities, individuals and district councils. Meghalaya has nearly 40 per cent of its land under shifting cultivation.

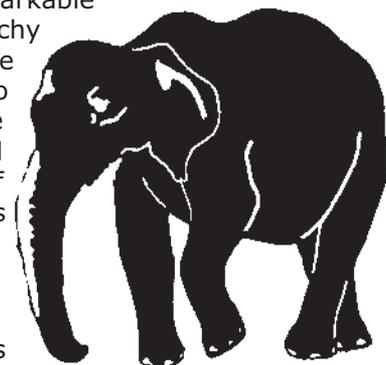
Biodiversity

Meghalaya has 139 species of mammals, 540 species of birds, 94 species of reptiles, 33 species of amphibians and 152 species of fishes. Of these, 35 species of mammals are endangered, vulnerable, and those about which there is insufficient knowledge to figure their status. Similarly 10 species of birds and nine species of reptiles are either endangered or vulnerable.

Socio-economic profile

The main inhabitants (85 per cent) of this region are the Indigenous tribes like the Khasis, the Garos and the Jaintias, but besides these tribes the Karbis, Mikirs and other smaller tribes like the Hajongs, Kochs and Rabhas are present. The most remarkable social institution of the Khasis and Garos is the system of matriarchy or matrilineality. A characteristic feature of this system was the succession of the youngest daughter, called 'Ka Khadduh', to the property of the family. Though a majority of the people are Christians, it is to be noted that there are sections of society that still follow their own respective traditional customs or 'Niam Tynrai' of performing rituals. Garo, Khasi and English are the main languages of the state.

The state has a population of about 2,318,822 according to the 2001 census. 85.9 per cent of the population belongs to Scheduled Tribes. Major parts of the population are rural folk. Meghalaya is



basically an agricultural state, with about 80 per cent of the total population depending entirely on agriculture for their livelihood. The other occupations in the state are cattle rearing, poultry, silkworm rearing, weaving and pig rearing. In the uplands, *jhum* (slash and burn) is the only method of cultivation. People employed in government or private service dominate the urban sectors.

The lands are broadly divided into two classes: *Ri Raid* (belonging to the communities) and *Ri Kynti* (belonging to the clan or individual).

Administrative and political profile

Meghalaya is covered under the Sixth Schedule of the Constitution of India (under Articles 244 (2) and 275 (1)) with special governance under three autonomous councils: the Garo Hills District Council (HDC), Khasi HDC and Jaintia HDC.²

The District Councils enjoy legislative, executive and judicial powers mainly over land and forest outside reserve forests, regulation of the practice of *jhum*, use of land or water-courses for agricultural purposes and other aspects of cultural importance. *Syiem*, *Lyngdoh*, *Wahadadar*, *Dolloi* and *Sirdar* are some traditional administration systems in the Khasi and Jaintia Hills.

There are seven districts, 32 blocks, 12 towns and 5,780 villages in the state. The urban local bodies in the state include municipal boards and town committees. Meghalaya is represented by two members in the Lok Sabha and by one member in the Rajya Sabha.

The major threats to the forests and water resources of the state are mining and quarrying, *jhum*, charcoal making, limestone- and coal-processing, fuelwood and timber extraction, construction of reservoirs and dams, pollution of streams and rivers, and poisoning of aquatic systems for fishing. *Jhum*, though in itself a sustainable form of land use, is now viewed as a major threat to the natural ecosystems, mainly due to reduction in *jhum* cycles³ and increasing population pressures.

Conservation

The conservation initiatives by forest department include two national parks (Nokrek and Balphakram), 3 wildlife sanctuaries (Siju, Jarain Pitcher Plant and Baghmara Pitcher Plant), 1 elephant reserve (Garo Hills) and 1 biosphere reserve (Nokrek 820 sq km, as part of Garo Hills).⁴

Nine sites in the state have been assigned a status of Important Bird Areas (IBA) by Indian Bird Conservation Network (IBCN).⁵ Also, Rit Khwan-Umiam Lake is a proposed Ramsar Site.⁶

There are about 101 sacred groves, spread over a total of about 10,000 ha, scattered all over the state (mainly in the Khasi and Jaintia Hills). The sacred groves of Meghalaya are located in the public lands set aside for religious purpose under the traditional land use system. Sacred groves enjoy adequate legal support as they are covered by the United Khasi and Jaintia Hills Autonomous District (Management and Control of Forests) Act, 1958.

Along with the conservation of sacred groves in the state, traditional institutions have taken up several initiatives for conservation. There are several self-imposed bans by local *durbars* (village councils) operational in the state: e.g., ban on the use of plastics, self-imposed moratorium on felling of trees, self-imposed moratorium on fishing, self-imposed moratorium on goat keeping, social fencing for conservation, etc.

A number of citizens' groups and non-governmental organizations are working in the state on environmental awareness, advocacy, conservation and capacity building.

Box 1

Some other conservation initiatives with and by people in Meghalaya⁷



Village reserves are commonplace among the upland communities (and some plains communities) of North-East India. Most communities traditionally earmark forests for various purposes: wild edibles, catchment, fuelwood, etc. Some villages have reserves for conservation of wildlife as well. For example, the Hoolock gibbon, the only ape found in India, is regarded as an omen of good luck and hence the Garo villages normally tend to conserve small patches of forests and trees

for the gibbons. Not very far from Selbagre is Chandigre (in the buffer of Nokrek biosphere reserve), where villagers have conserved a patch for the gibbons. However, in the recent past, there has been pressure on habitats, mainly due to the expansion of cash crop plantations and the shortening of the *jhum* fallow cycles (which do not leave sufficient time for the forests to regenerate), and such village reserves have also come under pressure. In recent times a few government projects such as the International Fund for Agricultural Development (IFAD) have worked towards reviving some such initiatives in Meghalaya. The IFAD project villages have conserved significant areas as catchment forests, elephant reserves and corridors, and fish sanctuaries on the Simsang river.

Conservation programmes with the local communities are also being initiated by other NGOs, for example the Community Elephant Conservation and Community Elephant Population Monitoring programmes of Samrakshan, based in South Garo Hills.⁸

A tribal village in Selbagre has been encouraged to revive their tradition of forest reserves for the Hoolock gibbons by the Wildlife Trust of India (WTI). The village, located about 20 km from Tura town, is an important Hoolock gibbon habitat.⁹ An area of 80 ha was set aside as a given reserve by the village in 2007 and registered with the Garo Hills Autonomous District Council.

This information has been compiled by Saili S. Palande largely based on North Eastern Biodiversity Research Cell, North Eastern Hill University, *Strategy and Action Plan for Meghalaya State*. Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests (Government of India, 2002). Other sources for specific information are given in the text.

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³ In the past a site was cut and burnt for cultivation, cultivated for three years and left fallow for 15-20 years to regenerate. This period of leaving land fallow has in some areas has been reduced to as little as 3-5 years.

⁴ Kalpavriksh and Technical and Policy Core Group (TPCG), *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan* (Prepared by the NBSAP Technical and Policy Core Group, Delhi/Pune, Kalpavriksh, 2005).

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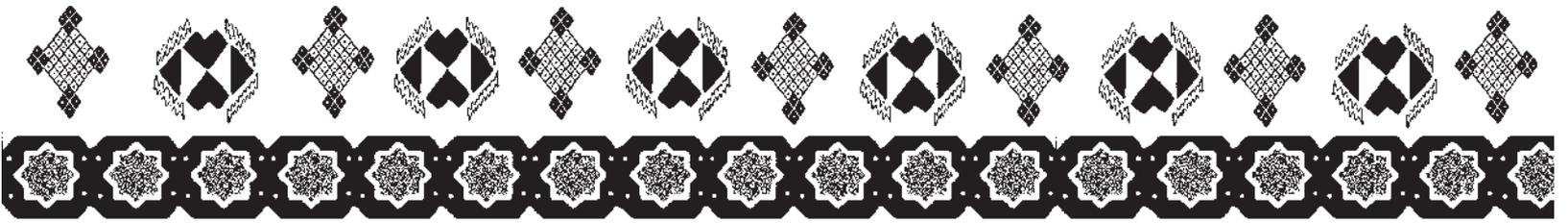
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⁷ Source: E-mail correspondence on forest rights list-serv (<http://groups.yahoo.com/group/forestrights>) on 23 April 2007. For more details, contact dhrupadc@yahoo.co.in.

⁸ Contact: Nimesh Ved, Samrakshan Trust, Meghalaya Field Office, c/o Dorikson, Rangdokram, P.O. Baghmara, District South Garo Hills - 794102. E-mail: nimesh.ved@gmail.com.

⁹ Contact: P.S. Easa, Wildlife Trust of India (WTI), A-220, New Friends Colony, New Delhi-110065, Tel: 011-26326025/26. E-mail: easa@wti.org. See also <http://wildlifetrustofindia.org>





CCA/Megh/CS1/Khasi hills/Thaiang/Revival of sacred grove

Thaiang sacred groves, Khasi hills

Background

Untouched patches of forest forming pockets of rich biodiversity mark the landscape of Meghalaya. These sacred forests are known as *law iyangdoh*, *law kyngtang* and *law niam* and have been protected by the Khasi tribes of the Khasi Hills. The sacred groves are integrated into the lives of the Khasis as a form of nature worship. The traditional Khasi religion is animist and to some extent monotheistic, with a paramount 'God the creator' (*u blei nongthew*), wherein the gods represent the natural forces of water, river, wind, etc. They worship trees, forests, groves and rivers as their deities or the abodes of their deities. They believe that the gods will be offended if their domain is disturbed and that 'those who disturb their forests will die'. This age-old ideology has saved many pristine forestlands from 'falling under the axe'.

During British rule, Presbyterian missionaries began in 1841 to spread their work in the hills, converting many people to Christianity. The decline in the form of nature worship, coupled with the increase in demand for timber for both local as well as market forces from outside resulted in the speedy felling of these sacred groves. The disappearance of these pristine sacred forests can also be attributed to the overpowering demand for timber from outside the state as well as the decline in number of Khasis who are strict followers of the Khasi religion.

After Independence, the Constitution of India made a provision (Schedule 6 areas)¹ that an elected body of tribes (Autonomous District Council) would take up the administration in their respective districts except in the case of Reserve Forests, which were to be managed by the State. However, the former rulers of the land and managers of the forests since the British Raj, who did not follow the traditional system of conservation and the rules laid down by the government, subsequently ravaged the forests, using them as a source for generating money. The depletion can also be attributed to the lack of vision and long-term aim on the part of the District Council, which caused maximum damage.

Towards community conservation

Close to the Assam border, in the Thaiang area (comprising seven villages) in Ri Bhoi district of the Khasi Hills, a large and magnificent sacred grove was sold and cut down thirty years ago. The people who were responsible for this were the village elders who had a critical role to play in the management of these sacred groves.

The people of Thaiang believe that due to the destruction of the forest by their forefathers, 'Good luck has left the area.' 'Good luck' or prosperity in these parts is represented by the tiger, who is the spirit of the sacred grove and protector of villages. The absence of 'good luck' leads to the suffering caused by the lack of availability of many forest produce such as medicinal plants, wood for religious occasions, along with scarcity of water and an increased rate of soil erosion.

Therefore, in 1992, at a suggestion from *Lyngdoh* (priest), the new generation finally decided to try and bring back the 'good luck' to their villages by reforesting the area of the former grove. This initiative was led by a Khasi poet and folklorist, Desmond L. Kharmawphlang, with help from a Swiss artists' association called Bureau 64.

In April 1997, the people of Thaiang celebrated the beginning of reforestation of their sacred groves with a ritual of *Knia Ryngkew*—the Ritual of the Tiger Spirit—which had not been performed for almost thirty years. After erecting a group of monoliths for future commemoration of the event, they entered the sacred grove led by dancers and drums. There was a celebration of the spring dance '*Shad Suk Mynsiem*' (Dance of the Happy Hearts), which was to be celebrated again regularly from then on.

A month later, at the end of June, the actual reforestation was performed in the community area. However, it is not known whether the species planted were indigenous or not.

In the winter of 1997-8, Desmond L. Kharmawphlang, along with some friends and a group of intellectuals from Shillong, founded Dalamariang (Protect the Earth), an association to serve as a coordinator for the Thaiang project. The *Syiem* (traditional head of the Khasi state) of Khyrim² acts as Dalamariang's president and the *Lyngdoh* of Nongkrem as the vice-president. In 1998, the



Thaiang spring dance took place a second time since its restoration work. With logistic help from Dalamariang and financial support from Bureau 64, 92 fishponds were dug.

Box 1

Sacred forests of Meghalaya: Biological and cultural diversity³

The Khasi Hills of Meghalaya are characterised by pockets of rich biodiversity that have been protected by the Khasis and form the basis of nature worship practices in the area, manifested in the trees, forests, groves and rivers. The Khasi people believe that those who disturb the forest will die, and that sacred animals such as the tiger bring about prosperity, happiness and well-being. These beliefs have resulted in the protection and continued regeneration of considerable forest land in the region. In fact, the people of Thaiang believe that the destruction of their forest by their forefathers has caused 'good luck' (i.e., the tiger) to leave, leading directly to suffering due to a scarcity of medicinal plants, wood, water and fertile soils. In the state of Meghalaya, 79 sacred groves have been recorded so far—15 in the Jaintia Hills, three in Ri Bhoi, 32 in East Khasi Hills, 13 in West Khasi Hills, eight in East Garo Hills, and eight in West Garo Hills. In size these groves range from 0.01 ha in Jaintia Hills to Maw Kyrngah in East Khasi Hills at 1200 ha. At least 40 of these range from 50-400 ha. Mawphlang sacred grove at 75 hectares is probably the best known of all of these because of its proximity to Shillong, the state capital. Many of these sacred groves have remained untouched since times immemorial because of the fear of the deities associated with them. About 1 per cent of these sacred groves remain completely undisturbed in their pristine form even today. 42 per cent are dense forests with a canopy cover of 100 per cent to 40 per cent, 26 per cent are under sparse forest cover (40 per cent to 10 per cent), and 30 per cent are open forests (less than 10 per cent).

Given the fast-changing social trends, it appears unlikely that religious belief will be able to protect sacred groves for long. If these repositories of flora and fauna are to be preserved, it is important to take some of the following steps:

- Legal backing, such that it is with the consent and acceptance of the local people.
- Strengthening the local management systems through appropriate financial or other intervention, aiming at improving the biomass requirements of the local people.
- Helping in the better management of the other village commons to meet local needs.
- Reviving the old custom of supply forests and sacred forests by treating buffer zones sacred groves as supply forests.
- Instituting awards for the best-managed and protected sacred groves.

Conclusion

Plantations in Thaiang sacred grove have reportedly been very successful. This example brings out the close relation between wildlife and local people in Meghalaya, with people believing in the tiger as their guardian spirit, and where the tiger is believed to bring prosperity, happiness and well being.

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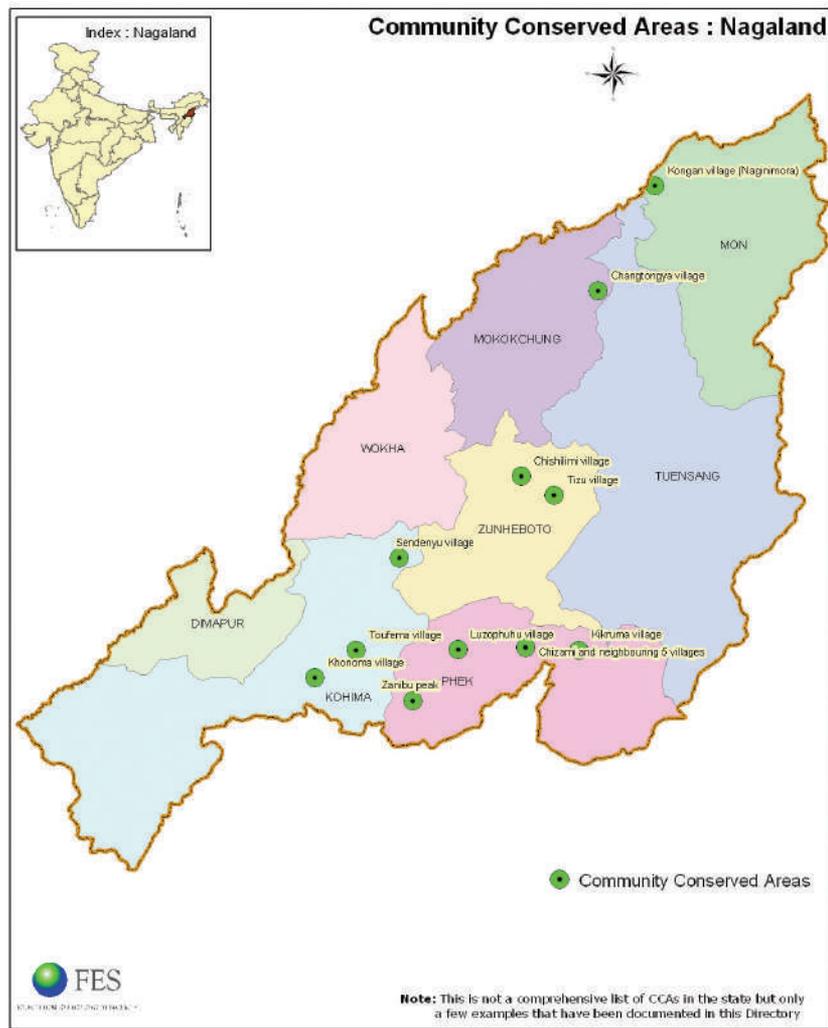
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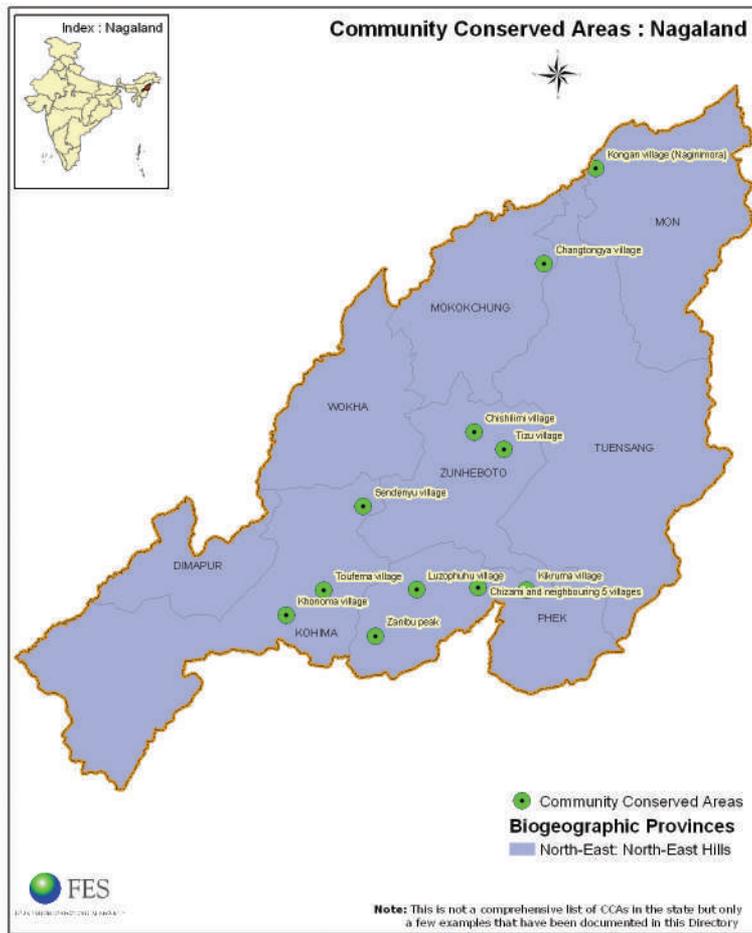
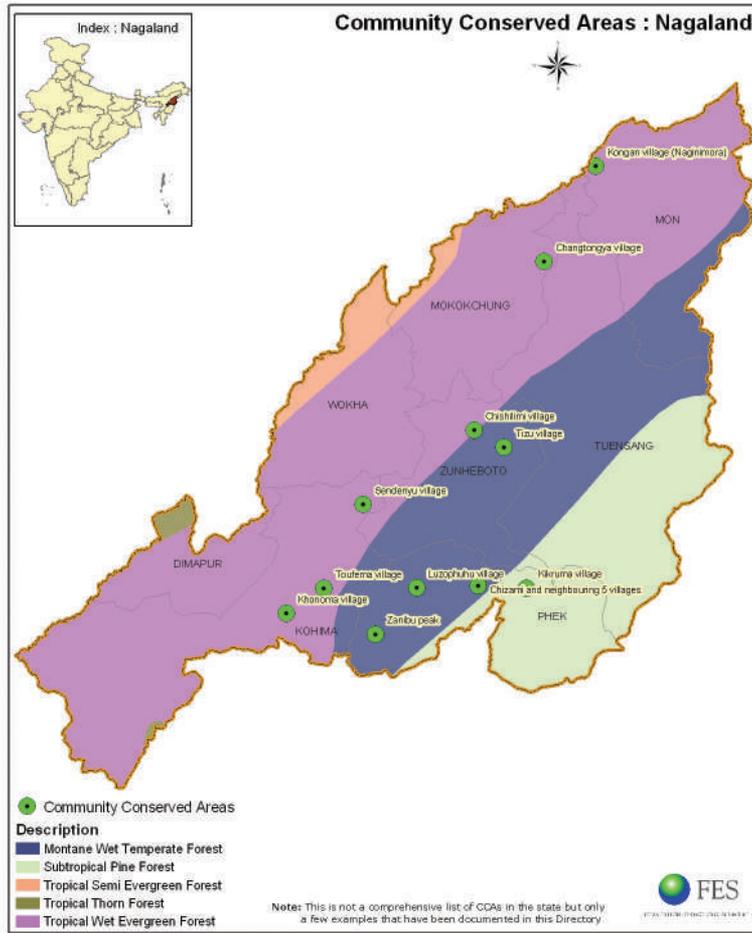
¹ Wherein Autonomous District Councils are given the sole authority of managing their own natural resources, except in the case of reserved forests, which are to be managed by the state government.

² Khyrim was a traditional Khasi state headed by the *Syiem*. Presently, its traditional status no longer exists, although many of the traditional practices continue.

³ Source: B.K. Tiwari, S.K. Barik and R.S. Tripathi, *Sacred Forests of Meghalaya: Biological and Cultural Diversity* (Shillong, Regional Centre, National Afforestation and Eco-Development Board, North-Eastern Hill University, 1999).

Nagaland







Nagaland: A quiet revolution

Neema Pathak and Ashish Kothari

In 1983, in a Chakhesang tribal settlement called Lozaphuhu, the local student's union (LSU), resolved to conserve a 500 ha (5 sq km) patch of forest above the village. The motivation was to protect key sources of water. In 1990, the LSU declared another patch of forest below the main village, between the settlement and paddy fields, as a wildlife reserve, with a total ban on hunting and other resource use (see Case Studies).

In 1988, the Village Council of Khonoma village, Kohima district, declared 2000 ha (20 sq km) of forest and grassland area as the Khonoma Nature Conservation and Tragopan Sanctuary (see Case Studies). Rules were formulated to strictly ban hunting of all species within the entire area of the village, to stop resource uses in the core area of the sanctuary, and to allow only a few benign uses in the buffer area.

Villagers in Sendenyu village (also in Kohima district) estimate the area they are protecting to be around 1000 ha (10 sq km) (see Case Studies). Tuophema village (in the same district) is protecting 1600 ha, linked to an ecotourism initiative, and in 1995, residents of Chishlimi, Zunheboto district, banned hunting in a designated forest area (see Case Studies). They also stopped the use of explosives to catch fish in the Tizu river, in order to help fish populations recover. In the same district, the Ghosu Bird Reserve in Gikhiye (Gukhui) was one of the first community protected areas to be declared. Gikhiye and five neighbouring villages are also regulating fishing in their river, by banning use of explosives, chemicals and electricity. Similar efforts at controlling fishing have been made by many villages in the state.

In 2004, the Chakhesang Public Organisation (CPO) comprising 80 villages in Phek district, resolved to stop indiscriminate forest fires and to ban hunting seasonally in their respective areas. Prior to this, 23 Chakhesang tribal villages had declared part of their land as strictly protected for wildlife.

These are but a few examples of a quiet and remarkable revolution taking place in this usually forgotten corner of India—Nagaland. This is a state in which several species of hornbills, primates, cats and other wild animals have been driven to extinction due to habitat destruction, indiscriminate hunting and other factors. In this context, therefore, what the examples above indicate is nothing short of a revolution. For village after village to declare no-hunting and no-deforestation zones, and for the local people to show that they can indeed sustain nature against all odds, is no mean feat.

1. An introduction

Nagaland became the 16th Indian state in 1963. Situated between the latitudes 25°6' and 27°4'N and longitudes 93°20' and 95°15'E, the total area of the state is 16,527 sq km. The state shares its borders with the states of Assam, Arunachal Pradesh, Manipur and with Myanmar. The forest cover of Nagaland, as per 2003 satellite data, is 13,609 sq km, about 82 per cent of the total geographical area. A little less than half of this is moderate to highly dense forest, whereas the rest is open or degraded forest.¹ Unlike in the rest of India, about 88 per cent of forests in Nagaland actually belong to communities or individuals, and not the government. Sporadic research on some flora species in some areas indicates a very high biological diversity, including a large number of endemic species.²



A diversity of fruits and vegetables being sold in a market near Dimapur *Photo: Ashish Kothari*

Nagaland's population in 2001 was 1.99 million, with over 89 per cent being scheduled tribes. Christianity dominates in the state, with almost 90 per cent of the people being of this faith, about 8 per cent Hindu, and very small minorities belonging to other religions.³ The predominant occupation is

agriculture, with over 85 per cent of the population directly dependent on it.⁴

Till the 19th century, the Nagas are believed to have lived a life centered around hunting, gathering and subsistence agriculture. They were never under outside rule prior to the British. The British managed to occupy Nagaland in the late 19th century. Being involved in a struggle for a separate nation for over half a century, Nagaland has had a troubled history. However, Naga groups are currently negotiating a peace treaty with the Indian government. There are 16 major tribes and a number of sub-tribes in Nagaland, each culturally distinct from the other. Nagas have been famous for their fearless and brave warriors, unique agricultural abilities, love of wild meat and head-hunting practices in the past. Traditionally, use of forests had certain taboos and restrictions, e.g., no resource extraction was allowed from the taboo forests, believed to be inhabited by evil spirits. Also during certain periods in a year, consumption of meat and salt and hunting was not allowed. Several local environmentalists feel that with the advent of Christianity, many of these belief systems broke down. The 'insurgency' or underground resistance movement over the last few decades and the occupation by the Indian army are also believed to have led to a major influx of firearms, transforming low-level traditional hunting into a much more destructive practice.

Box 1

Local administration and social organisation

Social organisation in Naga society has traditionally been very strong. Social ties were in the past further strengthened by traditions such as the *morungs*.⁵ Each tribe in the state had its own traditional systems of governance. In some villages, decisions were left to the great warriors. In others, hereditary village heads, or male-dominated village assemblies were the decision makers.⁶ Today, the traditional heads continue to be an important part of the decision-making processes in the village. Formally, the 1225 villages in Nagaland are administered by village councils (VCs) and village development boards (VDBs). VCs are constituted under the Nagaland Village and Area Council Act, 1978. This act gives powers to the Village Councils to formulate village development schemes, to supervise proper maintenance of water supply, roads, forests, education and other welfare activities. Village councils under this act amalgamate the traditional systems of decision-making as the traditional village heads, and the *gaon buras*⁷ (village elders) are the permanent members of the VC. The VC members are chosen by villagers in accordance with the customary practices and usages, and approved by the State Government. VDBs are constituted by the VCs to formulate schemes and programmes of action for developmental work in the village. All permanent residents of the village are the members of the VDB general body. An important provision in the Nagaland legislation is that the customary law has precedence in settlement of disputes (Article 371A of the Indian Constitution). Villages also have informal village-level organisations such as youth clubs, student unions, wildlife protection committees, etc. Each village may have all or some of these institutions. In addition to these village-level informal organisations, most tribes are structured at inter-village level as well. A group of villages occupied by the same tribe together forms a district-level organisation—for example, Chakhesang Public Organisation, which includes all 80 Chakhesang villages in Phek District, or Western Angami Public Organisation, Southern Angami Public Organisation and so on. All tribal organisations together form the Naga Hoho, which meets once a year. The Nagaland Village and Area Council Act also provides for area councils, which are expected to be federations of the village councils.

2. The present ecological context

There is very little in Nagaland that has not been affected by changes brought about during and after the British occupation. Rampant and unregulated hunting has seriously depleted wildlife populations. Many of the hills that were blanketed by thick forests have been deforested. The treasured hornbill feathers and beaks that wealthy people wore as head-gear have now become even more precious because of their unavailability. Fake feathers made of white paper with a band of black paint across the top are used when the real thing cannot be obtained.

Till 1996, timber extraction was a major source of income for many villages. According to some local people, this led to a rapid degradation of the virgin forests of Nagaland, particularly in privately owned forests. Under the Wild Life Protection Act, 1972, four protected areas have been declared: Fakim Wildlife Sanctuary, Intangki National Park, Rangapahar Wildlife Sanctuary and Puliebadze Wildlife Sanctuary. These sanctuaries together cover only about 2.6 per cent of the total geographical area of the state. Considering that most land is under community control,

implementation of this act does not seem to be very effective. In such a scenario the hope for the struggling wildlife population in the state would be bleak but for the new wave of people's efforts.

3. A wide range of conservation efforts

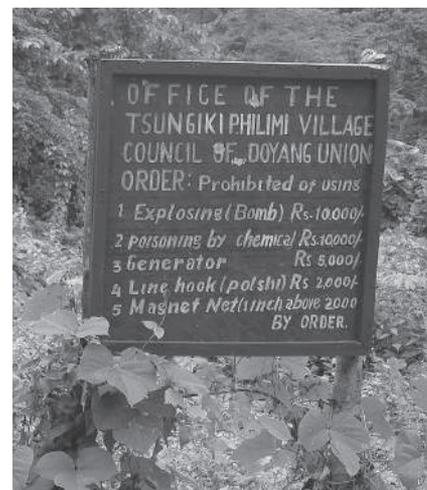
Different villages have adopted different systems for conservation. Their community conserved areas (CCAs) range from completely inviolate zones to multiple-use zones.

3.1 Forest reserves

Forest reserves are declared for various reasons: to preserve water sources of the village, to obtain a sustained supply of biological resources, or as buffer zones for a more strictly protected area. Hunting is allowed in some cases, not in others.

3.2 Wildlife reserves

In Phek, Zunheboto, Kohima and other districts it is common to come across signboards stating that a certain patch of forest is a wildlife reserve. Wildlife reserves are completely inviolate zones where all kinds of hunting, fishing and biomass collection is strictly prohibited. Most wildlife reserves can be easily distinguished from the other forests by their appearance, as well as the sounds and signs of birds and other animals.



Board indicating village resolution regulating use of Doyang river
Photo: Ashish Kothari

3.3 Wildlife reserves as core areas with forest reserves as buffers

One of the best-known examples of this kind of effort is Khonoma village. The village declared a 20 sq km area as a Nature Conservation and Tragopan Sanctuary in 1998, where absolutely no hunting or resource use is allowed. The sanctuary is surrounded by a clan forest, which is much larger in area and is considered as a buffer to the sanctuary. No hunting and extraction except wild fruits and vegetables and one truckload of firewood per family per year is permitted from this zone.

3.4 Wetland reserves

In some villages such as Gikhiye (Gukhui), Lozaphuhu and Chishlimi, villagers on their own, or with other neighbouring villages, have formulated well-defined rules and regulations for fishing in wetlands such as river stretches. These rules restrict use of explosives, chemicals and electricity for fishing.

3.5 Seasonal ban on hunting

Seasonal hunting bans, particularly during the breeding season, is another practice adopted in many districts. February to May is the most active hunting season, as agricultural responsibilities are few. Villagers in favour of a seasonal hunting ban feel that such bans are more effective to start with, as a complete ban would be difficult to adhere to and would antagonise people. Some villages such as Gikhiye (Gukhui) have selectively banned certain kinds of hunting tools such as air guns, which are considered to be more harmful when used irresponsibly.

3.6 Complete ban on hunting

Khonoma is probably the only known example in Nagaland where hunting is banned in the entire village through the year. There are occasional incidents when villagers go to other areas and hunt, but at the same time there is a growing realization that it is unfair to do so. However, one problem is that with a reported increase in the population of wild pigs, incidents of crop damage have also increased. In 2005, therefore, hunting of wild pigs that entered agricultural fields was re-opened in Khonoma village (see Case Studies)

Box 2**Threatened species protected in Nagaland's CCAs**

Nagaland's community conserved areas may be helping to protect several threatened and endemic species. For instance:

- The stretch of forest between Pfutsero and Chizami villages in Phek District has been identified as one of the Important Bird Areas (IBAs)⁸ in Nagaland due to the presence of endemic species, including birds like Blyth's tragopan, grey sibia, beautiful sibia, white-naped yuhina; and mammals like serow and spotted linsang.
- The community protected forests in Phek district may have some of India's last populations of the grey peacock pheasant, and of Mrs. Hume's pheasant.
- The Khonoma Nature Conservation and Tragopan Sanctuary is also among the IBAs for being home to Blyth's tragopan, grey sibia, white-naped yuhina, dark-rumped swift, clouded leopard, slow loris and Hoolock gibbon, among other species.
- Mount Zanibu, part of the forests being protected by Runguzu and other villages in Phek District, is another IBA in Nagaland, and harbours Blyth's tragopan, rufous-necked hornbill, Mrs. Hume's pheasant, and Austen's barwing. Zanibu still harbours a population of great pied hornbill, which has nearly disappeared in other parts of Nagaland.⁹

Other species reported by the villagers in their CCAs include tiger, leopard, wild dog, stump-tailed macaque, and Asiatic black bear. Though less focused upon, these reserves also contain significant population of reptiles, amphibians, fish, and invertebrate and floral diversity. The Khonoma Nature Conservation and Tragopan Sanctuary, for instance, contains the endemic Dzuku lily and as many as 25 species of amphibians.¹⁰ Urgent flora and fauna studies are needed to establish the full range of biodiversity in these CCAs.

4. Institutions and systems for CCA management

In most villages, decisions related to conservation of wildlife are taken after considerable discussion. Wildlife reserves or other measures are taken only after the approval from village elders and the village council (VC). For the day-to-day management, however, different villages adopt different measures. In some villages the management responsibilities are undertaken by existing groups such as the youth groups, while in others special committees are constituted for management of wildlife reserves. In the case of multiple villages, a committee is constituted, usually comprising the VC chairpersons of relevant villages. Whatever the institution for decision-making and management, in most villages the youth groups are actively involved in implementation of rules and collection of fines. The close-knit social fabric in villages ensures that rules are more or less adhered to by all. Members of youth organizations are certain that once a signboard declaring an area as protected has been put up by a village, even neighbouring villages would respect it (though this is not always the case). Rules and regulations imposed vary from being intricately formulated and written down, to general announcements by the VC with the assumption that everyone will abide by them. Violations are few but do take place. For violations, communities have worked out their own penal systems. For example, in 70 ha of protected forests of Kikruma, hunting and burning are strictly banned. A fine of Rs 1000-10000 is levied for felling trees, depending on the tree species. Similarly Rs 5,000 is the fined amount for extraction of orchids and for hunting birds. The VC is responsible to impose and recover the fines. If individuals do not pay, the Chakhesang Public Organisation (CPO) deducts the due amount from the funds allocated by the Deputy Commissioner for the village. In Sendenyu, the fines vary depending upon the species hunted. For instance, the fine for hunting a sambar is highest (Rs 5,000) as the sambar population is rapidly decreasing. In Chishilimi village, a major threat was faced from the neighbouring villages. The village therefore decided to confiscate and sell weapons used for hunting. 50 per cent of this money is given to the informer and the rest goes to the VC. This system of allocating fine money to the VC has been adopted by a number of villages. In some villages, however, the amount is shared between the VC, youth groups, women's groups and other groups involved with conservation efforts. In different places these community efforts have achieved different degrees of success. In some areas seasonal hunting is strictly adhered to, while in others it is not very effective. In some areas, fires are strictly controlled, while in others the ban is not very effective. Whatever the degree of success, these community initiatives face a number of challenges. There is little or no outside support, and little recognition for these initiatives, within or outside the state. Local community capacity to handle external or internal threats, or to conduct ecological and social studies, is limited.

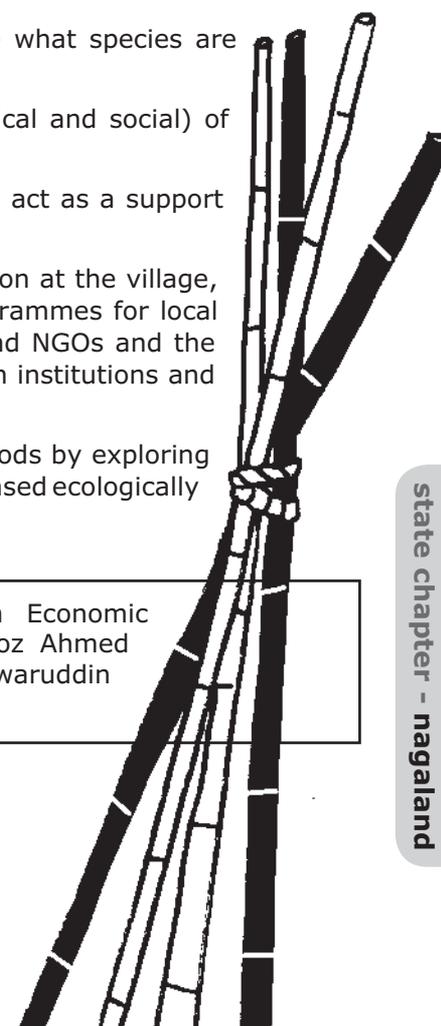
Some communities need basic resources, which are often not available, for employing watchmen or putting up signboards. Women still do not play a significant role in discussions, decisions or implementation of the rules and regulations (except to some extent behind the scenes). Also, increasingly the younger generation may want clearer links between the forests being conserved and their own livelihoods. It is in this scenario that the rest of the people in Nagaland, and the rest of the country, need to realize the critically important initiatives being taken up by these Naga communities. They need to extend necessary support and backing, in ways that are sensitive to the cultural and ecological contexts, the worldview and the desires of the communities.

5. The way forward

Communities in Nagaland have initiated a unique process that needs to be recognised and encouraged. Many of these communities are looking for some positive external inputs and support. Given that they have paved a way for drafting a unique conservation policy for the state, it would be crucial at this stage to take note of these initiatives and move ahead in the directions mentioned above. A lack of interest and enthusiasm from the government, academic and non-government agencies could lead to discouragement and disappointment among the local people. In many of these initiatives, youth are taking a keen interest in conservation activities. The youth are also faced with problems of unemployment and unrealistic aspirations. In this scenario, facilitating and guiding them to take a greater interest in conservation, and linking this in some way to livelihood options, can build a strong mass-based conservation lobby in Nagaland. The following steps, at the very least, are needed.¹¹

- A preliminary documentation of how many CCAs exist in the state and the kind of management systems and prescriptions that they follow. A mapping exercise would give an idea about their connectivity to other habitats of ecological importance.
- Developing a comprehensive biodiversity (including wildlife) conservation policy for the state. This policy should be developed with full participation of the representatives of CCAs, NGOs and individuals who are playing a key role.
- Conducting a needs assessment to understand what kind of support will strengthen a particular initiative without co-opting or destroying the existing systems.
- Conducting an assessment of whether these initiatives need legal backing, and, if so, what would be the most appropriate legal regime.
- Carrying out studies of the biodiversity status of CCAs to explore what species are found in the areas being protected by the communities.
- Carrying out studies of the positive and negative impacts (ecological and social) of community initiatives.
- Creating Regional/District Federations and institutions which would act as a support base for these initiatives as well as help with long-term monitoring.
- Building capacity to handle issues related to biodiversity conservation at the village, district and state level. This would mean appropriate training programmes for local youth, leaders and others, with help from academic institutions and NGOs and the government; conversely, it would also mean exposure trips for such institutions and NGOs and government officials, to learn from the villagers.
- Developing links between these conservation initiatives and livelihoods by exploring sustainable *jhum* cultivation, forest-based enterprises, community-based ecologically sensitive tourism, and so on.

With inputs from Nagaland Empowerment of People through Economic Development (NEPED) team, Kohima; Bibhab Talukdar and Firoz Ahmed (Aranyak, Guwahati); Joy Dasgupta (ICIMOD, Kathmandu); Anwaruddin Choudhary (Administrative Officer, Assam).



Endnotes

¹ Forest Survey of India, *State of Forest Report 2003* (available at www.fsiorg.net/fsi2003/states/index.asp?statecode=20).

² O.P. Singh and B.K. Tiwari *State Level Biodiversity Strategy and Action Plan of Nagaland*. In TPGC and Kalpavriksh, *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan*. Prepared by the NBSAP Technical and Policy Core Group. (Pune, Kalpavriksh 2005).

³ www.censusindia.net/t_00_005.html and www.censusindia.net/religiondata/Religiondata_2001.xls

⁴ www.nagaland.nic.in/profile

⁵ *Morungs* were traditional dormitories where young men were taught the virtues, culture and traditions of the tribe and clan by village elders.

⁶ S. Hazarika, *Strangers of the Mist: Tales of War & Peace from India's Northeast* (Penguin Books, Delhi, 1994).

⁷ To formalise the local governance somewhat and bring about some uniformity, the British introduced the system of *gaon buras* for local administration, where each clan and hamlet would select a respectable elder to represent them in village decision-making.

⁸ IBAs are sites of international importance for the conservation of birds and their habitats. IBAs are among the world's key sites for biodiversity conservation and the IBA concept developed by the Birdlife International Partnership facilitates their identification nationally, using data gathered locally following globally agreed and standardised criteria. M.Z. Islam and A.R. Rahmani. *Important Bird Areas in India: Priority sites for conservation* (Indian Bird Conservation Network: Bombay Natural History Society and BirdLife International (UK), 2004).

⁹ Islam and Rahmani. *Important Bird Areas in India: Priority sites for conservation* (as above).

¹⁰ Firoz Ahmed, Aranyak, personal communication, 2005.

¹¹ Some of these are taken from the Final Statement of a State-level Workshop on Communities and Biodiversity, organised at Kohima from 24-27 October 2005, by NEPED, Kalpavriksh and the Nagaland Forest Department.





Khonoma village, Kohima

Background



Khonoma Nature Conservation and Tragopan Sanctuary
Photo: Ashish Kothari Inset: Blyth's tragopan Photo: Jean Howman/WPA

Khonoma village is located about 20 km from the state capital, Kohima. The village, referred to as Khwunoria (named after the Angami term for a local plant, *Glouthera fragrantissima*), is estimated to be around 700 years old and is spread over an area of 123sq.km. The total population of the village is about 3000, settled in 600 households. Khonoma is famous for its forests and a unique form of agriculture, including some of the oldest terraced cultivation in the region. The terrain of the village is hilly, ranging from gentle slopes to steep and rugged hillsides. The hills are covered with lush forestland, rich in various species of flora and fauna. The state bird, Blyth's tragopan, a pheasant now nationally endangered, is reportedly found here.

Over a hundred years ago, advancing British troops found themselves facing a determined warrior tribe in the highlands of Nagaland. The Angami men of Khonoma, famed for their martial prowess and strategic skills, fought a resolute battle to safeguard their territory, inflicting heavy casualties on the foreign soldiers. The village is recorded to have resisted British rule in the region from 1830s to 1880. Finally a truce between the two stopped further bloodshed, but meanwhile Khonoma village had etched its name into the history of Indian resistance to the colonial invasion. Christianity was introduced in the village in 1890, and today most of the villagers are of this faith.

Preliminary ecological studies done so far record the use of about 250 plant species, including over 70 for medicinal purposes, 84 kinds of wild fruits, 116 kinds of wild vegetables, nine varieties of mushrooms, and five kinds of natural dyes from the surrounding forests in the village. Local people have recorded about 204 species of trees, nearly 45 varieties of orchids, 11 varieties of cane, and 19 varieties of bamboo. Villagers also record 25 types of snakes, six kinds of lizards, 11 kinds of amphibians and 196 kinds of birds (of which English names for 87 have been identified, including the grey-billed or Blyth's tragopan, a threatened bird mentioned in the red data book of IUCN). 72 kinds of wild animals have also been reported by the local people; however English and scientific names for all have not been recorded yet. These include tiger, leopard, serow, sloth bear, Asiatic black bear and common otter.¹

Today, Khonoma is witnessing another historic struggle. In an incident reminiscent of the British invasion, in the mid-1990s the villagers had to physically resist timber merchants who came with several dozen elephants to carry out logging, unfortunately aided by some insiders. Over the last decade Khonoma, inhabited by the Angamis, one of Nagaland's tribes, has made giant strides in establishing or strengthening systems of natural resource management, conflict resolution,



village administration and appropriate development, all coupled with a resolute will to conserve biodiversity and wildlife. All this is embedded in the traditional ethos of the village, without fighting shy of experimenting with new technologies and thoughts from outside. The results are impressive enough to warrant yet another key historic place for this village, this time in the annals of India's environmental movement.

Towards community conservation

Wildlife hunting is a way of life with the Naga tribes, and a large number of birds and animals are killed every year, including the endangered tragopans. In 1993, 300 Tragopans were reported to be killed for their meat in the village. This magnitude of killing concerned the more ecologically sensitive people of the village and they launched a crusade against hunting. These included some villagers and some who belonged to the village but now resided and were employed outside.

In 1998, the Khonoma village council declared its intention to notify about 2000 ha (20 sq km) as the Khonoma Nature Conservation and Tragopan Sanctuary (KNCTS). This was motivated by some of the village elders, notably Tsilie Sakhrie, who had in the 1980s been a contractor dealing with the Forest Department. During this time he had been having discussions with forest officer T. Angami, who motivated him to consider dedicating a part of the village forests to wildlife conservation. In the 1980s, Tsilie proposed that the village do something to this effect, but could not achieve a consensus. In 1995, he became a member of the village council. Concerned by the high number of birds being killed every year, Tsilie again broached the subject. A number of villagers were opposed to the idea, since hunting was so much a part of their culture. However, over the next three years, through extensive discussions in the village, the majority were convinced. The sanctuary's foundation stone was laid in December 1998; it was also decided to ban hunting in the entire village, not only the sanctuary area.

Not content with simple declaration of the sanctuary, the village set up a KNCTS Trust, with a formal set of rules and regulations. Office bearers were chosen from amongst the villagers; Tsilie was chosen the chief managing director. Rules were laid down for the management of the sanctuary, including penalties for violations, ranging from Rs 300-3000, depending on the seriousness of the violation. The village youth were requested to carry out monitoring and to levy fines, which they could then use for their own village-based activities. Villagers also selected some youth members to be the wardens for the sanctuary, to periodically check on the sanctuary. As the concept of a sanctuary was new to the villagers, they decided to seek help from the government, NGOs and other institutions in order to seek technical and academic support for protecting their sanctuary.

NGOs such as the Centre for Environment Education (CEE), North-east Regional Cell, assisted in spreading awareness about the conservation of tragopans. A six-member team of KNCTS was given an orientation about the sanctuary. A number of environmental awareness expeditions were organised for village members. The importance of having a village map, land records, and a survey of flora and fauna were explained to the villagers. Community members visited Chakrashila Wildlife Sanctuary² in Assam to share experiences with other similar efforts and visited Kaziranga National Park to understand the issues related to protected area management. NGOs like EQUATIONS (based in Bangalore) have helped the local Khonoma Tourism Development Board to carry out an Environment Impact Assessment (EIA) of tourism, in case the village goes in for a much larger visitor influx. Another NGO, Aranyak (based in Guwahati), has helped the villagers conduct a survey of fauna and flora in KNCTS.

Conservation is only one of the elements of social empowerment at Khonoma. Visitors to the village are confronted with a bewildering number of activities and processes that its residents seem to be engaged in. Some of these are new, some age-old. Khonoma may well be the only village in India that has a global citizenry with an active self-identity; every year, 1 September is celebrated as the village's 'birthday', with Khonomaians from far and wide coming to the village to celebrate, or carrying out celebrations wherever they may be. There are even Khonoma student unions in Kolkata, Mumbai and Delhi!

Given its historic past, Khonoma also plays host to many tourists; it is on the tourist circuit of those who visit Kohima. Some years ago the Government of India recognised the potential of the village to organise itself, and granted it a substantial Green Village fund through the Tourism Department of the state government. The money is being used to provide basic civic amenities and hygiene measures, reinforce community infrastructure, and prepare the village to receive and show visitors its past and present.

Khonoma is also well-known in agricultural circles for its sophisticated cultivation techniques. In shifting cultivation, farmers use Nepal alder (*Alnus nepalensis*) trees interspersed with the crops. These trees return nitrogen to the soil, thereby helping the land to rapidly regain fertility when farmers abandon it to move on to the next plot. The village overlooks a wide valley that

has been converted into terraced fields, made with such precision that their productivity has apparently remained stable over centuries. According to the villagers, Khonoma is also home to over sixty varieties of rice, and a diversity of millets, maize, Job's tears, citrus fruits and other crops (grown without using chemical pesticides or fertilizers). All this has made the village a model for emulation in many other parts of Nagaland through the efforts of the unique inter-departmental Nagaland Empowerment of People through Economic Development (NEPED) programme. This is especially useful where shifting cultivation has become unsustainable due to shorter cycles of leaving the land fallow after cultivation.

Amongst the factors that makes all this tick is the strong and clear ownership of land and natural resources within the village boundaries. Such ownership provides a strong stake in working out sustainable modes of land management. But this would not be enough in itself (for such ownership could also result in individuals destroying their lands), were it not coupled with very strong social and political organisations. The village is divided into three hamlets (*khels*), each with several clans, each clan comprised of several families. The clan is itself a decision-making unit, and selects members to represent itself in larger village-level bodies. These include the village council (which is overall responsible for all affairs), the Village Development Board (recipients of government funds for developmental purposes) and the *ruffono*, a recent innovation to bring all village institutions under a common umbrella. Traditional institutions such as decision-making by the *gaon buras* (village elders) have been integrated into the village council's decision-making. The youth are part of either a student union or a youth association; the women are members of the Khonoma Women's Organisation. In addition, all villagers are part of an 'age group'. Such groups are formed by boys and girls in the age group 12-15, and carry out social activities like construction of rest-houses and village paths, and formation of singing and dancing groups. The bond lasts a lifetime; members stick together till they are into their 60s and 70s!

Citizens of the village who move out in search of employment always remain connected to the village in some form and contribute to its well-being whenever possible.

Impacts of the initiative

The area included in the Khonoma Nature Conservation and Tragopan Sanctuary (KNCTS) is of outstanding value from a biodiversity, water security and aesthetic point of view. On the map it is about 20 sq km, but if the contours are accounted for, the area may be 70 sq km, comprising exquisite broad-leaved forests and dwarf bamboo grasslands. It is part of the Dzuku valley, which, though not many people would know this, was immortalised by Vikram Seth in his poem 'The Elephant and the Tragopan'. The poem is about how the wild animals of the valley try to stop a proposed dam that would drown out their valley, reflecting an actual movement by NGOs in Nagaland against such a proposal in the 1990s. The idea of the dam has been replaced by a pipeline proposal, to take water from here to Kohima, a project that would hopefully have little ecological impact.

Dzuku is home to a healthy population of the severely endangered state bird, the Blyth's tragopan (a pheasant). For this and other reasons, the Bombay Natural History Society considers it one of India's Important Bird Areas. Dzuku and surrounding forests also contain considerable other wildlife, including Asiatic black bear. There are over 40 species of orchids, apart from hundreds of other plant species, the endemic Dzuku lily, serow, sambar, leopard, and so on. Till recently, all these species had dwindled alarmingly due to hunting and habitat pressures. Villagers assert that they are now again increasing due to their conservation efforts; in fact crop damage by wild pigs has become a menace! The hunting ban seems to be highly effective; less than 10 violations have been reported in the last few years.

Tsilie and others are now proposing an extension of the sanctuary to neighbouring forests that are currently seen as a 'buffer zone'. Currently no hunting or extraction of timber is allowed in the buffer. If accepted by the council, the area (on map) would increase to over 3000 hectares (30 sq km), which on the ground would translate to over 10,000 hectares (100 sq km). And Tsilie in his capacity as the president of the Western Angami Public Organisation (an institution that contains the entire western Angami tribal population) is already discussing with the Southern Angami Public



Angami youth in traditional costume
Photo: Ashish Kothari

Organisation to declare their areas also protected. Work could also be done to convince Naga tribes in adjoining Manipur, since the Khonoma citizens have relations extending into those villages. If successful, the entire Dzuku and Japfu area could be declared a community protected area, extending to perhaps several hundred square kilometres.

There are, of course, blemishes aplenty. Women obviously do command a great deal of respect, and reportedly are very influential at the household level, or through their own committee, but they do not occupy formal positions in most of the decisive institutions such as the village council. Although villagers have stopped hunting in their own village, they still occasionally hunt outside, though apparently this too is on the decline. The capacity to handle tourists seems rather limited, and there is a worry that a large-scale influx could be counter-productive: hence the importance of the tourism EIA mentioned above. Ironically, the ban on hunting has created a problem of crop damage by wild pigs and other wildlife, for which the village is contemplating selective lifting of the ban, but residents are worried about whether this may have other negative consequences. An increasing tendency to plant cash crops in the *jhum* (shifting cultivation) and terraced fields is reportedly leading to loss of agricultural biodiversity. Documentation of the area's biodiversity is rather minimal, a start having only recently been made by the biologist Firoz Ahmed of Aranyak, in association with some of the village youth. Marvelling at the level of traditional knowledge, Firoz reports that of the 20 species of frogs and toads he found in Khonoma, 14 were already reported by villagers!

Conclusions

Khonoma's conservation initiative is all the more noteworthy if one looks at the enormous decline of wildlife across Nagaland in the last few decades. Hunting has been rampant, according to one resident perhaps fueled by the jump in firearms availability since a truce was declared between the Nagas and the Indian army in 1997. The tribes here eat virtually everything that moves, and though this may not have earlier damaged wildlife populations due to limited hunting technologies, it has of late assumed severely destructive proportions. Khonoma's effort assumes even greater significance because it is only one of dozens of similar initiatives across Nagaland. Many settlements in Phek and Kohima districts have displayed notice boards warning would-be hunters of severe penalties, declaring community forest reserves with stringent restrictions on resource use, and so on. Slowly but surely, wild animals are making a comeback, a phenomenon that even a decade back seemed virtually impossible (see other case studies on Nagaland in this volume for details).

This case study has been compiled by Neema Pathak, based on information sent by Tsilie Sakhrie, a social worker from Khonoma village; information collected during a field trip to Khonoma village by Ashish Kothari, Neema Pathak and Shantha Bhushan of Kalpavriksh in February 2005; A. Kothari, 'The Khonoma Magic: A Nagaland Village Leads the Way' *Hindu Survey of Environment 2005*; and Environment Impact Assessment Report, Khonoma Tourism Development Board, November 2004.

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Endnotes

¹Environmental Society Of Nagaland, 'Birds Of Nagaland' (unpublished, 2002); M.F. Ahmed, 'Biodiversity of Khonoma Nature Conservation and Tragopan Sanctuary, Nagaland', in Aranyak and KNCTS, *Environment Impact Assessment Report with reference to Eco-development, Natural Resource management and Social Capital for the village community of Khonoma, Nagaland* (Khonoma Tourism Development Board, 2004).

²A wildlife sanctuary in Assam, declared for conservation of the golden langur (*Presbytis geei*) at the behest of the local people.



Sendenyu village, Kohima

Background

Sendenyu village is located about 50 km from Kohima in Kohima district. The total population of the village is 2507 as per the 2001 census. The total area of the village is 80sq.km. About 70 per cent of the inhabitants are farmers by occupation. Most of the village land is privately owned. The land use in the area includes shifting cultivation, settled cultivation, and privately owned forest patches for biomass to be used for homesteads and commercially. Older members of the village recount the presence of species such as Hoolock gibbons (*Hylobates hoolock*) and great hornbills (*Buceros bicornis*), which are no longer found in the village.

Towards community conservation

The wildlife reserve in Sendenyu village, about 1 km down the hill, was formed as a result of discussions initiated in the village council (VC) by some village members who had studied outside the state and are currently serving as government officials. These members were good hunters themselves, but decreasing wildlife population became a grave concern for them. The village elders immediately understood their concern, as they had themselves witnessed a very sudden decrease in wildlife populations within their lifetimes. The discussions, therefore, soon resulted in the creation of about 10 sq km of wildlife reserve. The objective was to conserve and protect the rich wildlife heritage of the village and to maintain ecological balance as also to check local extinction of wild animals. The VC selected the land for the reserve based on its low productivity, high gradient and rocky geology. The land belonged to the individual owners and was used for timber and firewood collection. The owners originally objected to the plan but were persuaded by the VC to donate the land for the larger cause. In return, the owners received LPG connections from the forest department under Forest Development Authority (FDA)¹ funds. Similar other benefits for the landowners are being considered by the VC. Subsequently, the VC has passed a Sendenyu Village Council Wild Life Conservation Act, 2001 (see Annexure 1). The declaration of 'Sendenyu Village Wildlife Protected Area' was announced in a written resolution on 1 January 2001, along with a map specifying the boundaries of the protected area (PA). The Act specifies that the PA will be managed by a committee consisting of one chairman and one secretary, with *gaon buras* (village elders) and presidents of the Youth Organisation, Sendenyu VC and New Sendenyu VC as the ex-officio members of the committee. The committee also has some advisers. The Act is subject to make amendments from time to time with the approval of the maximum representation of Sendenyu general public.

Although the elders talk about a much thicker forest and an extensive diversity of animals in the past, the village still harbours some populations of barking deer, Asiatic black bear, sambar, wild boar and many species of birds. Villagers have taken up plantation of cherry trees to attract birds, and have fenced off a part of the area to prevent grazing. In addition, the villagers contributed to pay compensation to the church to move out their cattle camp from the wildlife sanctuary. Realising



Photo: Ashish Kothari

that animals cannot be protected in small islands, the village brought in an amendment in January 2005 to also declare the forests surrounding the hunting reserve (owned by individual families) as a no hunting-zone, although all other uses are allowed here. The period between February and the end of monsoons has been declared a 'no hunting' period in the entire village. Additionally, hunting of sambar is banned throughout the year within the boundaries of the village. Hunting in prohibited areas and seasons attracts heavy penalties. The fines vary depending upon the species hunted. For example, the fine



for hunting a sambar is highest (Rs 5000), as the sambar population is rapidly decreasing in the village. The village had a bounty on wild dogs or dhole (*Cuon alpinus*) for a year. Their contention was that wild dogs were responsible for decreasing the sambar population. However, they soon realised that wild dogs were very much a part of the ecosystem and the bounty was withdrawn.

The Wildlife Protection Committee has taken up a number of activities in the years 2004 and 2005. These include, among others, regular monitoring of the prohibitions, plantations of fruit trees to attract birds, fencing of some vulnerable areas, erecting signboards about the rules and regulations for the sanctuary.

Impacts of community effort

According to the villagers, protection measures are quite strong because youth are involved in protection. The extent of protection is obvious from the fact that in normally silent surroundings, as soon as one enters the wildlife reserve the ears are filled with a cacophony of birdcalls. In the absence of any assessments and studies either by the village community or outsiders, it is difficult to understand the exact impact of the conservation effort.

Conclusion

There are dozens of wildlife conservation efforts in Nagaland. Most villages have cordoned off portions of the village and left them completely inviolate. This clearly shows that village communities understand the need to create inviolate zones for biodiversity conservation. In Sendenyu, villagers are clear that the effort is not meant for any kind of recognition or gain, but just to ensure that there is wildlife for future generations.

This case study has been compiled by Neema Pathak based on a two day trip to the village by Neema Pathak and Ashish Kothari of Kalpavriksh, Pune; Feroz Ahmed and Bibhab Talukdar of Aranyak, Guwahati; and Joy Das Gupta of ICIMOD, Kathmandu in February 2005. Many thanks to Mr. G. Thong, a citizen of the village and a government officer in Nagaland. We are also grateful to all the villagers for making this trip possible and sharing information with the team.

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Endnotes

¹ Forest Development Authority (FDA) is a fund created by the Central Government on the lines of District Development Authority (DDA) where funds come directly to the Divisional or District level and can be given directly to the concerned villages, such that it eventually leads to forest regeneration and protection.

Annexure 1 Sendenyu Village Council Wild Life Conservation Act, 2001

**OFFICE OF
THE SENDENYU VILLAGE COUNCIL
H.Q. SENDENYU**

**AMENDMENT OF SENDENYU VILLAGE COUNCIL WILD LIFE
CONSERVATION ACT, 2001.**

In view of the need for extending the area of the Sendenyu Village Wild Life Protected Area as recommended by the Wild Life Protection Committee, the Sendenyu Village, in a public general meeting held in Sendenyu Village on 1st January, 2005 have unanimously decided to adopt the following amendments/extension of the Sendenyu Village Council Wild Life Conservation Act, 2001 as per details below ;

(a) The wild life Protected Area as demarcated in the Sendenyu Village Council Wild Life Conservation Act, 2001 will be extended to the adjoining area as follows:

- (i) From *Khonjukite* in the north along the New Sendenyu Road to *Zülvüchonrü*, from *Zülvüchonrü* down to *Nzü* River. From the confluence of the *Zülvüchonru* down to the confluence of *Güesherü*.
- (ii) This Act is in continuation of the Sendenyu Village Council Wild Life Conservation Act, 2001.
- (iii) Hunting, fishing and trapping in this area is totally banned.
- (iv) However, agricultural activities are allowed in this area.

(b) Hunting of *Teshon* (Sambar) is banned in Sendenyu land through out the year. Any violation of this ban will be fined Rs. 5000/-.

(c) This Act will become a Law under the Sendenyu Village Council.

Dated,
Sendenyu the 1st Jan.2005.

(*Ravolie Thong*)
Chairman
Sendenyu Village Council

**CHAIRMAN
VILLAGE COUNCIL
SENDENYU.**

Toufema village, Kohima

Background

Toufema is one of the larger villages in Kohima District, with a population of about 5000 (2001 census), and is well-known for being one of the two 'tourist villages' in Nagaland, the other being Khonoma. The village has received much attention in the past few years because it is the home of the current (2005) chief minister of the state, Neiphu Rio. Located at an altitude of 1800 ft, the village provides a panoramic view of the surrounding area.

Towards community conservation

Of the total area, 1600 ha is under community forest. In the 1990s, the Toufema Village Council (TVC) had orally pronounced a ban on hunting and felling in this forest reserve located on a hillside above the village. However, this ban was not very effective. In 2001 the TVC therefore passed a formal resolution re-affirming the ban, and stopping all kinds of resource uses (including firewood collection, grazing, wild food gathering, and hunting) inside the reserve.

This resolution came simultaneous to, and apparently motivated by, the declaration of this village as a 'tourist village', with investment from the state government into developing tourism cottages, a museum and other facilities for visitors. The village donated part of the land being used for shifting cultivation to be used for the development of a tourist complex in the village. The tourist complex has been designed based on the local architecture and construction style. Each hut for the tourists has been constructed by one *khel* (hamlet) in the village, based on their traditional style of construction.

In recognition of their efforts towards conservation of forests and wildlife, the state government has since 2003 also extended some financial assistance (through the Forest Department) for bamboo/wood fencing, patrolling, construction of a tourist reception centre, and other related works.

The motivations for declaring the reserve appear to be multiple. Foremost was an increasing concern over the rapid decline of wildlife and forest cover, as rampant hunting and tree-felling had taken their toll. Elders of the village were concerned that the younger generation would never know what it was to live with wildlife. The village intends this area to be a breeding centre from where animals can increase and spread outside too. Another motive was protection of water sources, as villagers had heard from 'learned people' that these would dry up if forests disappeared.

The land in the reserve is mostly community-owned, but there are also small patches of land owned by individual families, which have been donated by them to the village. Initially, they were allowed to continue using the area for some cultivation if they wanted, but over time they have been encouraged to give this up for forest regeneration and conservation. In return, they have been promised a share of benefits that may be generated from the conservation initiative, such as from ecotourism. It is not clear if they will get an extra share to compensate for their loss.

Since the forest is shared between Toufema and its offshoot settlement Botsa, a joint Forest Survey Committee has been constituted for monitoring observance of rules, looking after the forest and catching violators. Patrolling is done frequently in the non-rainy seasons.

Fines for violations range from Rs 1000 to Rs 5000, depending on the nature of violation. Since 2001, two cases have been dealt with. One (in 2002) involved the trapping of a squirrel and a wild cat, in which two persons were fined Rs 2000 each. The other (in 2005) was for cutting two trees, in which the violator was fined Rs 5000 and the timber was confiscated. The violators were all from Toufema itself; so far no violation by outsiders has been recorded. Village rules require that if offenders do not pay the fine, no benefits from the village would be extended to them, and, if they persist in committing offences, they would be chased away from the village.



Toufema village and surrounding forest
Photo: Ashish Kothari



Impacts of community effort

Villagers report that whereas most wildlife had disappeared earlier, the conservation initiative has resulted in its reappearance. Wild mammals that are increasing in number (or can once again be seen, even if only occasionally) include barking deer, Asiatic black bear, jungle bat, serow, wild pig, Himalayan crestless porcupine, slow loris and several squirrel species. Occasional leopard sighting or pugmarks are reported. There is also reportedly a marked increase in birdlife, including kalij pheasant and red jungle fowl. A checklist of over 100 bird species has been prepared by Kalpavriksh team during their field visit, based on observations by villagers. There is no independent checklist of flora and fauna, but the Tourist Village managing committee has initiated the process of making one.

The Kalpavriksh team observed that the protected forest appears to be quite diverse and very dense in patches. Some old trees seem to have survived the earlier deforestation, but most of the forest is young. Quite a lot of bird-calls (relative to other parts of Nagaland, where forests are quite silent) were heard on a very brief visit into the reserve area.

Economic benefits are being derived by the community from this initiative, though the extent is not clear. Water sources have reportedly become more reliable, but the initiative may be too recent to judge whether this is a direct cause-and-effect relationship. Villagers hope that if more people become aware about the tourist facilities and conserved forests, then ecotourism will bring in major resources to the village.

Opportunities and constraints

It is not clear if there are direct or indirect economic benefits linked to the conservation initiative, though of course this has not been a motivation for the initiative in the first place. Links between the conserved forest and the ecotourism initiative are made by villagers, though there did not seem to be many comments from visitors (in the visitors' register maintained in the Tourist Village) relating to the conservation work. The tourism committee is aware of the need to increase local capacity relating to flora-fauna identification, and of providing greater guidance on this to visitors.

Several families appear to have been adversely affected at the time the ban on hunting and resource use was imposed, as they lost out on collection of fuelwood, wild foods, medicinal plants and other resources, including some for sale. However, it is now felt that the negative impacts have lessened, as wildlife has spread to adjoining areas from where people can still collect/hunt it. In addition, many of the edible wild plants are now cultivated by villagers. This is an aspect requiring further study; in particular, the impact of the conservation initiative on poorer households needs investigation.

There is some discussion about wanting to reintroduce Hoolock gibbons and some monkey species into the conserved area, since these species were earlier found here. Expert opinion from outside may need to be sought before such a step is taken.

This case study has been put together by Neema Pathak, based on information provided by Kevilhousa Kense of the Toufema Tourist Village, and Thesuohie Kense, Head *Gaon Burra* of Toufema village, Nagaland, during a visit to the village by Ashish Kothari, Shantha Bhushan and Neema Pathak of Kalpavriksh in October 2005.

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Chizami and neighbouring villages, Phek

Background

As has been described in the case study on Luzuphuhu village (also in Phek district) towards the late 1980s and early 1990s, as the impacts of forest degradation in Nagaland began to hit people, a debate started independently in different parts of the state about forest conservation.

Phek was one of the districts where such debates resulted in many decisions and their successful implementation. The district is inhabited largely by the Chakhesang tribe, occupying 80 villages. All 80 villages have an umbrella organization called Chakhesang Public Organisation (CPO).¹ Although the idea about preservation of wildlife was continuously being discussed in annual CPO meetings, it was reinforced during the annual meeting in 1999 when Mr. Pusazo Luruo was the chairperson. After much discussion on the issue, the CPO general session adopted the following resolutions for all 80 villages to implement:

- Ban on buying pork (staple food along with rice) from outside the district. This was done with the intention of saving money and promoting the local economy.
- Seasonal ban on hunting all across the district between 1 February to 31 June (breeding season).
- Ban on fishing with explosives.
- Ban on indiscriminate burning of forests.
- Declaration of complete no-hunting zones wherever possible.

Till 2005, 23 villages had adopted the resolution for declaring inviolate wildlife reserves. In addition, all 80 villages in the district have accepted the seasonal restriction on hunting and prevention of indiscriminate forest fires. The village councils (VC)² are held responsible for penalising the offenders in case of violations. Fines are imposed on those found responsible for hunting and spreading fires. Of the total fine amount collected, 50 per cent goes to the informant and 50 per cent to the village body. If the VC fails to check these incidents within their jurisdiction after adopting the resolution, then the CPO penalises the VC for violations. The penalty could include reduction in the village development funds, as the CPO has a say in how the district-level funds should be distributed to respective villages.

A group of 6 villages (Chizami, Enhulumi, Mesulumi, Choba, Zelome, Thetsumi) is surrounded by a large patch of forest (area could not be estimated but covers many hills and valleys, seemingly extending to hundreds of hectares). There are differences of opinion among the villagers about the exact boundaries of all these villages. Probably because of this, or because of the distance from the respective villages, these forests have never been used for shifting cultivation and rarely used for forestry purposes other than hunting.

The stretch of forest between Pfutsero and Chizami villages has, in fact, been identified as one of the Important Bird Areas (IBAs)³ in Nagaland due to the presence of endemic species such as birds like Blyth's tragopan, grey sibia, beautiful sibia, white-naped yuhina among birds and serow, and mammals like the spotted linsang.

Influenced by the CPO resolution, the six villages have in the past tried to get together to declare this patch of forest as protected. However, the effort did not succeed and currently attempts are on to revive the initiative.

Towards community conservation

1990-91 Ezikerhiwu Committee (named after a lake, Ezikerhiwu, believed to be inhabited by an evil spirit, on top of the forested mountains) was constituted to protect the forests that form a compact block between the six villages. However, after 2-3 years the effort failed mainly for two reasons: inability to control the grazing of *mithun* (a cross between a cow and gaur, semi-domesticated by many communities in North-East India) by 3 villages (with about 25 households), and continued hunting by some villagers. Those violating the committee's rules were not fined, so other villagers were also encouraged to renew hunting and other activities that had been banned.



In 2004, the village council of Chizami resolved to restart the process, and has requested the Ezikerhiwu Committee chairman to activate the work. A letter has been sent to the remaining five villages about this. It is felt that if the majority of villagers agree, then those keeping the *mithun* or wanting to hunt will be forced to stop; the former could adopt controlled grazing of *mithun* or sell them off.

For the management of the jointly owned forests a two-tier system is envisaged. Each village has a committee of its own to protect the forests that fall within its boundaries, and all villages together have a joint committee to manage the forests which are disputed or jointly owned. Although the exact area is not known, it is estimated by the villagers to be over 100 sq km.

Impacts of community effort

Since the earlier effort did not last long, impacts cannot be told; however, the forest seems to be in good condition. The status of wildlife is difficult to tell, but according to Mr. Thopi, General Secretary, Chakhesang Public Organisation (CPO), wild animals that continue to be found include Blyth's tragopan, barking deer or chital, wild boar, and Asiatic black bear (very few), among others.

Opportunities and constraints

A key constraint seems to be the lack of unity amongst the villagers to deal with the problem of *mithun* grazing and hunting. The joint committee is attempting to deal with this.

This case study has been put together based on information provided by Mr. K. Thopi, Chizami village, Nagaland, during a Kalpavriksh visit to Phek district in Nagaland in February 2005.

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Endnotes

¹ Composed of the village council members, VDB members and youth Association members of all Chakhesang villages in Phek district.

² The first unit of decision-making in Nagaland. A VC is an attempt at amalgamating the traditional decision-making systems in Nagaland and the Panchayati Raj institutions of the Government of India.

³ IBAs are sites of international importance for the conservation of birds and their habitats. IBAs are among the world's key sites for biodiversity conservation, and the concept developed by the Birdlife International Partnership facilitates their identification nationally using data gathered locally following globally agreed and standardised criteria. M.Z. Islam and A.R. Rahmani *Important Bird Areas in India: Priority sites for conservation* (Indian Bird Conservation Network: Bombay Natural History Society and BirdLife International UK, 2004).





Luzophuhu village, Phek

Background

Nagaland is occupied by about 15 different tribal communities. Each of these communities is culturally distinct from the other and occupies different parts of the state. Nearly 90 per cent of land is under community ownership. About 85 per cent of the state is still under forest cover. Originally hunter-gatherers, these communities have an intricate land-use system, with land distributed between shifting cultivation (communal ownership of land), settled agriculture (private land ownership), and forest reserves (family-, clan- or community-owned) to meet food, fruit, fuel, timber and other needs. Wild meat is an integral part of tribal culture here. Most families own guns and go hunting regularly. Increasing population and heavy dependence on timber and forest produce for livelihood is also impacting the quality of forests. The combined effect of degrading forests and a high rate of hunting have led to a quick decline in wildlife populations, particularly of wild animals. Towards the late 1980s and early 1990s, some realisation about the degraded state of forests began to hit people. Drying up of water resources, declining availability of wild vegetables and declining population of wild animals were among some of the reasons that created debates among many tribal communities.

Phek District was one of the districts where such debates resulted in many decisions and their successful implementation. The district is occupied largely by the Chakhesang tribe, occupying 80 villages. All 80 villages have an umbrella organization called Chakhesang Public Organisation (CPO).¹ The idea about preservation of wildlife was continuously being discussed in annual CPO meetings. It was reinforced during the annual meeting in 1999 when Mr. Pusazo Luruo was the chairperson. After much discussion on the issue, the CPO general session adopted the following resolutions for all 80 villages to implement:

1. Ban on buying pork (staple food along with rice) from outside the district. This was done with the intention of saving money and promoting local economy.
2. Seasonal ban on hunting all across the district between 1 February and 31 June (mating season).
3. Ban on fishing with explosives.
4. Ban on indiscriminate burning of forests.
5. Declaration of complete no-hunting zones wherever possible.

By 2005, 23 villages had adopted the resolution for declaring inviolate wildlife reserves. In addition, all 80 villages in the district have accepted the seasonal restriction on hunting and prevention of indiscriminate forest fires. The village councils (VC)² were held responsible for

penalising the offenders in case of violations. Fines are imposed on those found responsible for spreading fires and hunting. Of the total fine amount collected, 50 per cent goes to the informant and 50 per cent to the village body. If the VC fails to check these incidents within their jurisdiction after adopting the resolution, then the CPO penalises the VC for violations. The penalty could include reduction in the village development funds, as the CPO has a say in how the district-level funds should be distributed to respective villages.



Community hall at Luzophuhu village Photo: Ashish Kothari



Towards community conservation

The resolutions of the CPO about seasonal hunting and declaration of wildlife reserves inspired about 23 villages to declare inviolate zones for wildlife. Luzophuhu village, along with Chizami, Runguzu, and Kikruma were some such villages.

Luzophuhu village is located about 16 km from Phek district headquarters. The village council of Luzophuhu decided to declare an area of about 500 ha as a Village Forest Reserve. The main objective of protecting this forest area, located at the highest point of the village, was to preserve the water source of the village. Villagers felt that clear-felling for *jhum* was gradually reducing the availability of water in the source and hence decided to forbid *jhum* in this area. To avoid serious economic impact of forgoing *jhum*, they decided to instead use this area for raising commercial plantations. Raising plantations, they believe, would ensure water security as well as provide economic benefits to the people. In the forest reserve all other kinds of uses are allowed. Hunting is also allowed except between January and June.

Inspired by the CPO resolution, the youth group in Luzophuhu discussed the possibility of declaring an area as an inviolate wildlife reserve. The VC decided to declare 250 ha as a wildlife reserve in 1990. A wildlife reserve is a much stricter category than the forest reserve, as no hunting or any other forest use is allowed. According to the youth club members, this patch of forests was selected because of its proximity to the village, making it easier to protect and also because they believe that this patch is a breeding ground for the deer.

The land under forest reserve as well as wildlife reserve was originally used for *jhum* cultivation. The forest reserve had an incentive of growing commercial plantations; however, the area under wildlife reserve came with no such incentive. According to the youth club members, some villagers strongly opposed this but had to eventually succumb to the pressure from the VC and the youth organisations. The impacts of this declaration on the people are not known. In Luzophuhu village, the protected area is directly under the supervision of the VC, while the responsibility for imposing rules and extracting fines lies with the youth organisation. 50 per cent of the fine levied goes to the informant, while the other 50 per cent goes to the student union. Depending upon the violations, the fines are in the range of Rs 100–200. Till the year 2005, 3-4 cases of violations had been recorded.

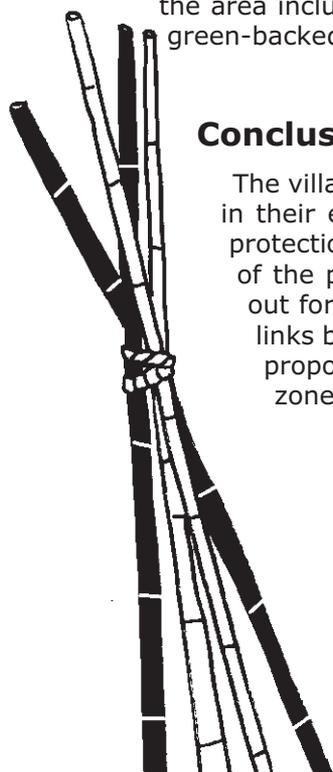
In addition, the village has also banned fishing and use of explosives in a 2-km stretch of Lanye River near the village. The primary reason for this protection is the fact that the villagers would otherwise no longer have a supply of healthy and big fish when VIPs visit the village. The fish in this stretch are now only caught when VIPs visit or for very special occasions, and never for commercial purposes.

Impacts of the initiative

In the absence of any studies, exactly how the initiative has impacted the wildlife or ecology of the area is not clear at this stage. However, the area still supports a population of threatened species, such as Mrs. Hume's pheasant and kalij pheasant, among others. Some other birds recorded from the area include ashy bulbul, orange-bellied chloropsis, grey-hooded warbler, whiskered yuhina, green-backed tit, chestnut thrush, silver-eared mesia and blue-throated barbet.

Conclusion

The village council and the student union members have expressed a desire to be supported in their efforts. This support could come as financial help to pay some wardens for forest protection, or as capacity building for the village youth to take on the ecological monitoring of the protected areas. The support could also be in the form of helping the village work out forest-based livelihood generation activities for the youth. So far there have been few links between the protection activities and possibilities of generating livelihoods. There is a proposal submitted by the CPO to the chief minister to declare Phek district as a tourism zone. Villagers hope that some amount of tourism will boost their economy.



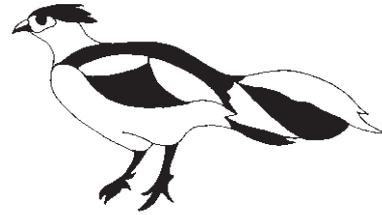
This case study has been compiled by Neema Pathak based on a trip to the village by Neema Pathak and Ashish Kothari of Kalpavriksh, Pune; Feroz Ahmed and Bibhab Talukdar of Aranyak, Guwahati; and Joy Das Gupta of ICIMOD, Kathmandu in February 2005. We are also grateful to all the villagers for making this trip possible and sharing information with the team.

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Endnotes

¹ Composed of the village council members, VDB members and youth association members of all Chakhesang villages in Phek district.

² The first unit of decision-making in Nagaland. A VC is an attempt at amalgamating the traditional decision-making systems in Nagaland and the Panchayati Raj institutions of the Government of India.





Other villages, Nagaland

Background

In addition to the detailed case studies presented in this volume, Nagaland is full of stories of different village communities having regulated the use of certain patches of forests in various ways. Some have declared hunting bans; others have prescribed no forest use at all; while yet others have declared seasonal ban on hunting or other uses. The degree of success in implementing the rules also varies from community to community. In Zonheboto and Phek districts, signposts have been put up along many roads by village youth associations, warning readers that the area is under strict protection. According to wildlife enthusiasts who visit the state regularly, these signboards are effective enough to deter hunters. In a state like Nagaland this is of great significance. These areas are among the few where one can see direct signs of any wildlife in the otherwise silent forests of Nagaland. Some of the examples on which we could not gather detailed information are briefly presented below.

Changtongya village, Mokokchung district¹

The village council of Changtongya village in Mokokchung district has declared the entire village as a no-hunting zone. The council resolved that no one would be allowed to kill wild animals or use poisons for fishing here. Those found violating these rules would be penalised. It was also resolved to plant wild fruit trees in the forest and *jhum* (shifting cultivation) areas. The council decided that the moratorium on hunting would initially be for five years, and would be extended further if animal and bird populations increase. It was also clarified that the ban was on hunting for commercial purposes or for sport, and that seasonal hunting with limited opportunity may be permitted.

Kongan (Naginimora block), Mon district²

Mon District is largely inhabited by the Konyak tribe. Konyaks are traditionally ruled by hereditary chiefs known as Anghs. The village council, which is called *Ching Woipa* in Konyak dialect, consists of representatives from each clan of the village; normally the heads of the eldest families of the clans are deputed to it. This august body handles the overall affairs of the village, and its functions may be classified into administrative, executive and judiciary functions. The village council formulates village policies and supervises forest use within the communities and between the clans. The village has community land, owned by the entire community; clan land, owned by various clans together; and private lands. The village council is responsible for management of the community land and resolving of conflicts as per the customary laws. The village council's mandate is to protect and conserve the forests in the village by issuing orders to protect forests from forest fires and encroachments. The Kongan Village Council has also issued orders banning hunting of wild animals and use of explosives and poisoning of the rivers for fishing. The private forests are taken care of by individuals. The usufructs (resources required for day-to-day use) from the community lands

are equally distributed among the villagers. The village is also part of the state government's Joint Forest Management scheme.



Elders of Kikruma village with community forest in the background
Photo: Neema Pathak

Kikruma village, Phek district³

In Kikruma village, after deciding on declaring a wildlife reserve the VC faced a challenge as to which land to declare as a wildlife reserve. The land in the entire village is individually owned, and villagers were not

ready to part with their land. The VC then decided to buy the land from those who were ready to sell it. Since water conservation was one of the main objectives, the land on the top of the ridge was selected. The VC lobbied with the local MLAs and managed to get sufficient resources to buy all the land covering the top of the ridge, which was being used for *jhum* cultivation. This area covers about 70 ha. Subject to availability of funds, the village elders intend to buy off more land along the same ridge. This forest is currently being used to meet the firewood requirements by the villagers and hunting seems to be still prevalent here.

Zanibu Peak, Phek district⁴

Typically whenever a very large patch of forest (sometimes extending to a few hill ranges, covering possibly over a hundred sq km) was under no-use zone, it indicates possibilities of ownership conflicts between two or more villages. This appeared to be the case in the forests being protected by Runguzu village along with Thevopitsu, K.Basa, K.Bave, Thiphuzu, Phesachadu, Porba, Sakraba and Pholami. Zanibu peak and surrounding mountains protected by these villages are considered an area of biodiversity significance by conservationists working in Nagaland.⁵ They have also been declared an Important Bird Area (IBA) by Bombay Natural History Society, following the BirdLife International indicators. During our visit it was very obvious that this patch of forest was having an ownership dispute among these villages. However, there also was a management committee, which consisted of the VC chairpersons of all these villages, for the management of these forests. We could not get a better understanding of how this committee functions or how the individual VCs coordinate with each other on matters related to these forests.

Chishilimi village, Zonheboto district⁶

According to K.N. Chishi from Chishilimi village in Zonheboto District, in 1995 the villagers realized that they had nearly destroyed the environment. The village council decided to protect wildlife in the village. The village has 100 households with a *jhum* cycle of 18 years. Villagers decided to protect area falling under two *jhum* cycles on the western part. There are no fixed laws and regulations for protection, except for a resolution passed by the village council. The responsibility to protect wildlife rests with the entire village. No collection of forest produce and hunting is allowed in the Protected Area. Villagers continue to hunt in areas outside the reserve. However, if the animal enters the reserve then it cannot be hunted. In addition, hunting through ambush has been banned in the entire village. The major threat in the village is from the neighbouring villages, which continue to hunt in the Protected Area. After the hunting by neighbours continued, Chishilimi villagers decided to confiscate and sell the weapons used for hunting by the offenders. 50 per cent of this money is given to the informer and rest goes to the village council. Some violations by local villagers themselves have been brought to the notice of the VC. The VC has recently re-affirmed the resolution.

Tizu river, Zonheboto district⁷

In another initiative in Zonheboto district, the fish population in Tizu River had reportedly declined due to the use of explosives and other destructive means of fishing. Villagers around the river decided to come together and ban the use of explosives in the river. Violation fines are shared with 50 per cent going to the informant and the rest to the *gaon bura* (GB) Union. In 5-6 years fish population has increased substantially. According to the villagers the effort was initiated out of a concern for the fish population and with no other objective.

As mentioned above Chakhesang Public Organisation has declared a seasonal hunting ban in Phek district. Seasonal hunting bans are also in operation in Sendenyu village and some other villages across the state. Hunting bans are largely in the breeding season, which is from February to May. This is also the most active hunting season, as agricultural responsibilities are few. As Pusazo Louru of CPO said, 'Seasonal hunting ban can restrict hunting. One cannot impose a complete ban, this would antagonise people and the effort would backfire.'

In all the efforts mentioned above whatever the institution for decision making and management, nearly in all villages the youth groups are responsible for implementation of rules and extraction of fines. In many cases part of the fines thus generated goes to these groups for various activities. Youth, therefore, are very actively involved in these protection initiatives.

Endnotes

¹Source: Anon., 'Nagaland village declared no-hunting zone', *Sentinel*, 29 January 2002.

² Source: Hockto Sema, Divisional Forest Officer, Dimapur and M.Lokeswara Rao, Conservator of Forests (NTC), Kohima, 'Community Forestry in Kongan village: A Case Study', undated.

³ Source: Field visit to Phek District by Kalpavriksh team in 2005.

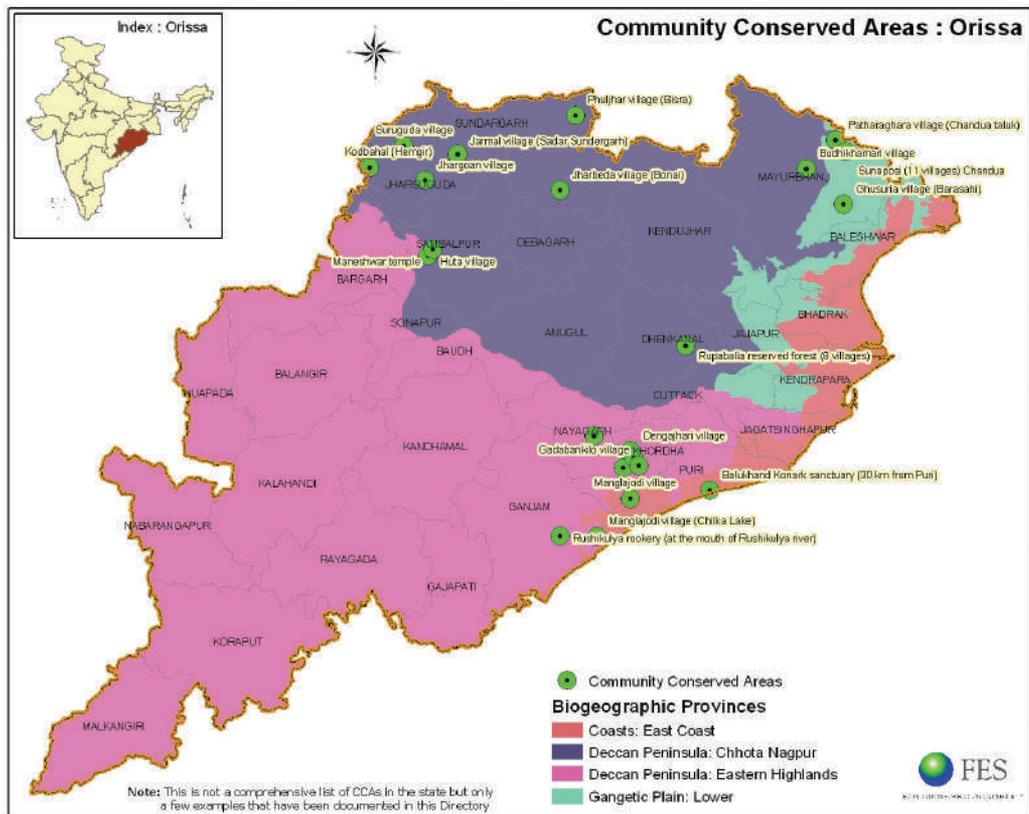
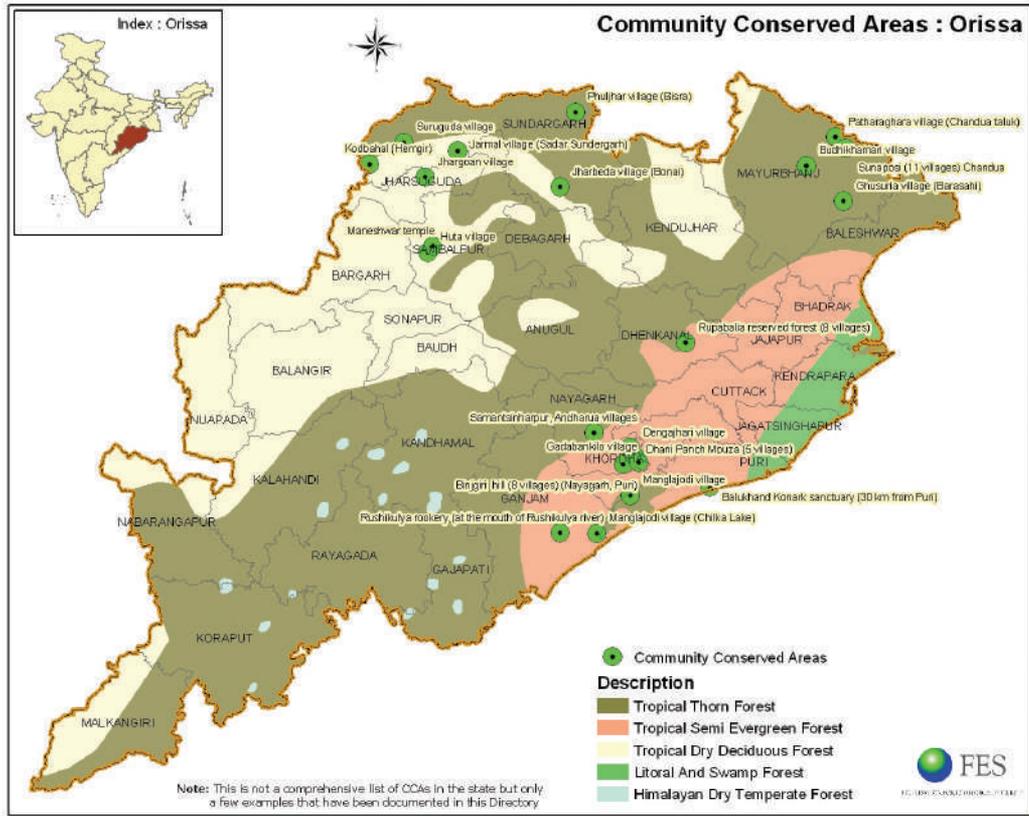
⁴ Source: Field visit to Phek District by Kalpavriksh team in 2005.

⁵ Personal conversation with Dr. Anwaruddin Choudhury in March 2005.

⁶ Source: Presentation by K.N. Chishi (also Additional Secretary in Department of Law and Justice, Nagaland) during a workshop on Biodiversity and Communities in Nagaland, organised by Kalpavriksh, Nagaland Empowerment of People through Economic Development (NEPED) and ICIMOD at Kohima on 24 February 2005.

⁷ Source: Presentation by K.N. Chishi during a workshop on Biodiversity and Communities in Nagaland, organised by Kalpavriksh, Nagaland Empowerment of People through Economic Development (NEPED) and ICIMOD at Kohima on 24 February 2005.







Community based forest and wildlife conservation in Orissa

1. Background

1.1 Location and biogeography

Orissa is located between 17°50' and 22°30' N latitudes and 81°24' and 87°28' E longitudes, on the east coast of India. It covers an area 1,55,707 sq km. The average minimum temperature is 2.6°C and the maximum temperature is 49.6°C. The state has a 482 km-long coastline with the Bay of Bengal on its east. It receives an average rainfall of 127.98 cm.

The state is drained by major rivers like Mahanadi, Brahmani, Indravati and Kolab with a river basin catchment of 20,000 sq km and above. The area is characterised by discontinuous hill ranges extending from the Similipal hill ranges in the north and the Eastern Ghats in the south, and interspersed with rivers flowing in the eastward direction in the central tableland and coastal plains region.

According to the 2003 Forest Survey of India records, the total recorded forest area is 5.81 million hectares, which constitutes 37.34 per cent of the geographic area of the state¹.

The state can be divided into four distinct physiographic regions: Northern Plateau, Eastern Hills (Ghats), Central Tableland and Coastal Plains. The northern plateau is undulating with masses of hills with steep slopes to east and north. The Eastern Ghats stretch in NE to SW direction south of the Mahanadi River. The central tableland is intersected by the river valleys of the Baitarani, Bramhani and Mahanadi rivers. The coastal plains are very narrow along the Bay of Bengal, which stretch for about 482 km out of the country's coastline of 7,516 km. The waters of Bay of Bengal along the coastline create a network of estuaries and lagoons.

As in other states in peninsular India, in Orissa too forests are now mostly relegated to the hills, with the plains and flat grounds having been put under plough for agriculture and other non-forestry practices. The forests broadly fall under five out of the 16 groups differentiated by Champion & Seth: i) tropical semi-evergreen, ii) tropical moist deciduous, iii) tropical dry deciduous, vi) subtropical broad-leaved hill, and v) littoral and swamp.

1.2 Biodiversity

The number of plant species occurring in Orissa has been estimated at 2754. In all 86 mammals, 473 birds, 110 reptiles and 1119 amphibians have been reported. Out of these 23 species of mammals, 16 species of birds and 17 species of reptiles are considered threatened. The important mammals in the state are spotted deer, nilgai, blackbuck, four-horned antelope, sloth bear, elephant, tiger, leopard, gaur, sambar, barking deer, wild buffalo, among others. The notable aquatic fauna in the state are saltwater crocodile, olive ridley turtle, fresh- and brackishwater terrapins, a diversity of waterfowl, king crab, and marine mammals like dolphins. The state has an important population of the endangered Irrawaddy dolphin.

1.3 Socio-economic profile

The population of Orissa is 36,804,660 (2001 Census), accounting for 3.57 per cent of the population of the country.² Scheduled castes (SCs) and scheduled tribes (STs) constitute 16.5 per cent and 22 per cent respectively of the total population of the state. Scheduled areas cover nearly 45 per cent of the total geographical area. Orissa's tribal population comprises 62 different ethnic communities, classified into six groups according to their traditional practices: hunting, collecting and gathering; pastoralism and cattle-herding; artisanal occupations like basketry and blacksmithry; shifting cultivation, terrace farming; and settled cultivation. Agriculture continues to be the main occupation along with others like fishing, livestock rearing, and small-scale and cottage industries.

The total livestock population in the state was 250.20 lakh (25.02 million) as per the livestock census of 1995. The state is endowed with vast mineral deposits like coal, iron ore, manganese ore, bauxite, chromite, etc. Other important mineral resources of the state are limestone, china

clay, quartz, precious and semi-precious stones, copper, vanadium, etc.

Orissa occupies the tenth position in the country both in terms of territory and population. The state is divided into three revenue divisions and 30 districts. Parts of Orissa state (the predominantly tribal areas) are under Schedule V of the Constitution. Seven districts, six tahsils and three blocks are Schedule V Areas, covering 69,613.8 sq km, with a population of 88,70,884. The Tribal Sub-Plan approach was adopted in the Fifth Plan of the state and the Special Component Plan for SCs was adopted in the Sixth Plan.

1.4 Conservation



Statue of a fisherwoman, Humma temple, Sambalpur district
Photo: Smita Ranjane

Demographic changes, urbanization, vehicular traffic, and industrial and mining activities are reported to be causing depletion of natural resources in the state. 24,124.20 hectares of forestland have been diverted to non-forest use as on 31 January 2000, for a variety of reasons.

The state has two national parks (NP) (parts of Bhitarkanika and the core of Similipal) and 18 wildlife sanctuaries (WLS), covering a total area of 7,959.85 sq km. Similipal, in Mayurbhanj district, has been declared a biosphere reserve. Similipal was also till very recently the lone tiger reserve in the state, while parts of Mayurbhanj, Mahanadi and Sambalpur have been declared elephant reserves.³ Other relevant projects and programmes in Orissa are wetlands, mangroves and coral reefs conservation (WMCC), joint forest management (JFM), eco-development in and around national parks and sanctuaries, project turtle, and biodiversity conservation.

Chilika is Asia's biggest brackishwater lake. A narrow isthmus separates Chilika from the waters of the Bay of Bengal. Spread over an area of about 1100 sq km, the lagoon is an internationally important wetland and Ramsar site⁴. It is also a hotspot of biodiversity including phytoplankton (43 species), algae (22 species), vascular plants (150 species), protozoa (61 species), nematode (37 species), platyhelminthes (29 species), polychaetes (31 species), brachyura (28 species), decapoda (30 species), mollusca (136 species), fish (225 species), amphibians and reptiles (37 species), birds (156 species) and mammals (18 species). The lagoon is also identified as a priority site for conservation and management by the National Wetlands, Mangroves and Coral Reef Committee (NWMCC) of the Ministry of Environment and Forests (MoEF), Government of India. The Chilika Development Authority (CDA) received the Ramsar Wetland Conservation Award in 2002 for the efforts to revive the lake, which had begun to die in the 1980s as a result of several factors.⁵

The other Ramsar site in the state is Bhitarkanika, spread over 65,000 ha. It harbours 63 species of mangroves and is classed as a reptilian paradise. It is home to the world's largest saltwater crocodile (upto 6.8 metres length) whose population stands at more than 1200. It also holds sizeable populations of smooth-coated otters and fishing cats. More than 190 species of birds have been recorded. The area is internationally famous for harbouring the largest rookery of olive ridley turtles, on the seashore flanking the Gahirmatha marine sanctuary.

Four additional Ramsar sites are proposed in the state.⁶ There are also seven Important Bird Areas (IBAs) recognized by the Indian Bird Conservation Network (IBCN).⁷

2. Community-based conservation⁸

Orissa has a long tradition of community conservation, as also a number of more recent community initiatives. These range from forest conservation to the protection of specific wildlife populations.

2.1 Community forestry⁹

Traditional practices, some of which continue, include the protection of sacred sites (see Box 1), and a number of spiritual and cultural beliefs that help in conserving nature across the landscape (see Box 2).

Box 1**Sacred groves¹⁰**

The institution of sacred groves in the state is recognized by various names like *jahera*, *thakurnama*, etc. Ecologists believe that these groves are repository of gene pools and act as reservoir of biological diversity because these are protected since ancient times, and act as "climax forest", which harbour variety of flora. Such islands of climax vegetation amidst a degraded landscape can be seen in many parts of Koraput and Kalahandi districts. The maximum number, 322 sacred groves, were recorded from Semiliguda block of Koraput district.

The concept of *sarna dharma* originates from the common traditional religious institution of "sacred grove" found in the tribal villages, which is regarded as the seat of one or more than one important village level deities including the village tutelary designated differently among various Mundari-speaking and Dravidian tribes of Chhotanagpur and surrounding regions, comprising a large contiguous tribal belt covering parts of the states of West Bengal, Jharkhand, Orissa and Madhya Pradesh. Literally, the term *sarna* is a Mundari word meaning sacred grove and the term *dharma* is an Indo-Aryan linguistic term, ordinarily meaning religion. A tree in a *sarna* may not be damaged or felled without the leave of the *pahan* (village priest) who however, would first offer a sacrifice in the *sarna* where the trees stand.

Noted ethnographer S.C Roy observed that every Oraon (a tribe) village has the supernatural institution of *sarna* or grove of sal trees dedicated to their mighty tutelary deity Chhala Pacchho (or the old lady of the grove) who is also known by other names such as *sarna burhia* and *jhakra burhia*.

The munda, an important Kolarian-speaking major tribe of Orissa, who are also the immediate neighbours of oraons, share the common institution of *sarna* with the latter, though there are differences in their nature of religious beliefs, rituals as well as orientations. The Munda pantheon is composed of their supreme deity, Sing Bonga (The Sun God) at the apex, followed by the nature gods, ancestral spirits, village deities, etc. These deities or gods save the village from diseases and calamities and bring prosperity.

The concept and practice of *sarna* extends to another major and important Mundari-speaking tribe the santal, living in the same habitat and eco-cultural region as those of the oraon and munda. This holy institution in a santal village is called *jaherthan*, or *jahera* in short (holy grove). The santals believe that deities residing in the holy grove do welfare for the santal villages.

Despite carrying a great tradition behind them sacred groves today are facing various threats. Change in the values, change in the living styles and certain economic forces have greatly contributed to the decline in the status of the sacred groves, particularly in tribal areas of Orissa. Large-scale land conversion is seen in many sacred groves. Even though the sacred groves have established their virtue as a rich repository of ecological, cultural and sociological information they are not being given enough attention by the government agencies.¹¹

Orissa stands apart from other states for providing numerous examples of community-based and self-initiated institutional arrangements for protection and management of forest resources. Popularly known as community forest management (CFM), such initiatives are found in almost all the districts of the state, with higher concentration in Nayagarh, Bolangir, Mayurbhanj, Koraput, Dhenkanal, Nabarangpur and Phulbani districts. Thus, a large forest area in Orissa is now *de facto* a common property managed by communities, though these are *de jure* state property.¹² Community forestry initiatives are manifestations of rural communities' response to forest denudation. Usually, the leading role is played by the poorer and marginalised sections of society, whose lives and livelihoods are embedded in forests. Besides livelihood concerns, ecological effects of forest degradation—loss of soil fertility at the foothills, erratic rainfall and drying-up of streams—have also played a significant role in inducing forest protection by local communities. CFM initiatives have brought recognition and pride to many villages and have been a strong driving force motivating the non-protecting villages in the neighbourhood to undertake protection and regeneration of degraded forest patches. CFM has thus resulted from a desire to save forest patches for posterity and also quite strikingly from an urge to assert the villagers' control over the forest patch that is otherwise open to all.¹³

The existence of about 10,000 forest protecting communities protecting around 10-12 per cent of the total forest area in the state is strong evidence of extensive spread of CFM which has evolved over a period of time. The factors that played a key role in facilitating CFM in the state are:¹⁴

- Presence of strong informal village organizations

- Ambiguous status of protected forests
- Regeneration of forests being a 'gain-gain' situation (i.e., all stand to gain) for all the sections of the community.

Box 2

Nature and tribal spiritual beliefs¹⁵

"...Most tribes believe that the sun god is the creator and master of the universe and call it by many names. The Juangs and Bhuyans call it Dharam Devta, the Kohla and Santals Sing Bonga. Other tribes worship other deities from nature as the creators of the universe. The worship of the earth is common. Called the Basumata by Santals, Bhuyans and Juangs, Dharani by Kandhs, and Basuki Thakurani by Kolhas, the worship of the earth goddess acquires special significance, for a good harvest starts every cultivation.

`Food for the tribals consists of roots, leaves, flowers and fruits that they get from the forests. They therefore, not only worship the forests, but also revel in religious ceremonies and festivals connected with it. Bhinjals and Parajas call their forest god Danger Devta, Bandas call it Uga and Remngbori, Kolhas call it Bura Bonga, Khandhs call it Laipenu and so on. Considering nature as their creator, sustainer and provider, the tribals have imbibed a deep love for nature that is primeval and instinctive....

`...Sal, neem and asan trees are considered sacred, Zahira by both Santals and Kolhas, because their village deities dwell in it. Rivers, streams and hills are also the objects of tribal worship. Bandas call their stream deities Kapur Chuan and Doliang, and Kandhs Gungipenu. The deity is variously called Buru Borga by Santals, Vinding by the Bandas, and Bhinapenu by the Kandhs.

Karma is a beautiful example of tree worship among the tribal people in central and eastern India. Karma festival, though it is more a tribal festival, is well within the fold of the Sambalpur folk tradition. The numerous tribes of the states, namely, Bihar, Madhya Pradesh, Orissa and West Bengal celebrate the festival. The adorable deity of Karma festival is Karamsani who is represented by a branch called Karma Dal. This type of personification of a branch as *devi* is not surprising as trees have held a special place in the spiritual tradition of ancient India. Karam Sani has been regarded as the goddess of vegetation, fertility and destiny. It may be noted here that Karam Sani can be identified with a twig branch of different trees in the same or different places. For example, in Sambalpur, a branch of the sal tree represents the deity. The Nagesia from Chhattisgarh and the Oraons, Mundas and Santals of various places worship *Adina cordifolia* (kurum).

`Forests are not only one of the major sources of their subsistence, but are also significantly related to their religion and mythology. The Kandhs of Ganjam claim descent from a woman, whose body parts are supposed to be made of *bel* fruit, sandalwood and *kawal* mushrooms. Tribals of Kalahandi believe that their ancestors survived by drinking the juice of "Salap" tree after a catastrophe of "Ban Devta" the forest as a god to be appeased ensures the renewal of the species while working as a self-imposed law against the destruction of forest....

`...But there are also some aspects of tribal culture which adversely impact biodiversity – tribal annual hunt (*Sandrakarka*) and *podu* cultivation. In the past when there was immense forest coverage and unlimited wild forest animals, these did little harm. But in the present context these aspects of tribal culture are to be restrained, maybe through persuasion and awareness-raising.

`The symbiotic relation between the tribals and natural environment is disappearing fast due to the loss of beliefs, change in crop as well as food patterns. Tribals were well acquainted with medicinal plants in forests and were depending on these herbal medicines for treatment of all kind of ailments. But with rapid change in their behaviour and attitude they moved from indigenous herbal practices to modern medicines; hence those indigenous practices as well as the list of priceless ethnomedicinal plants have been lost. In addition to that, weakening of religious beliefs and the changing attitude of the communities are adversely affecting the traditional ways and means of effective conservation practices. That leads to extinction of more rare and endangered flora and fauna."

A historical trail (see also Box 3): The history of forest protection by local communities dates back to the pre-independence period in Orissa. In fact, in some of the tribal-dominated areas, such as Nabarangpur and Keonjhar, forest protection initiatives have been reported in the pre-1900 and

1900-1930 periods respectively.¹⁶ Further, the oldest recorded CFM case—Lapanga in Sambalpur district—exhibiting strong traditions of forest protection has been in existence since 1936. By the 60s, as a spontaneous response to forest degradation, many villages in Western Orissa took to forest protection on their own. The 1970s and 80s experienced extensive spread of community forestry efforts in different parts in the state. The forested regions, which witnessed degradation and the resulting implications earlier, were the first to take to CFM. Over the period, the communities in the neighbourhood of forest protection villages, moved by the gains of protection, joined in the movement. Another factor which triggered the movement has been increasing hardships faced by the local communities in meeting their subsistence needs (such as firewood and small timber) because of declining forest resource as well as due to curtailment of access to community protected forest areas.

Box 3

Timeline of CFM in Orissa¹⁷

1900-40	Initiation of forest protection by communities in Sambalpur and Nowrangpur
1941-50	Forest Protection initiatives in Koraput, Keonjhar and Mayurbhanj regions
1951-60	Forest Protection initiatives in Nayagarh, Cuttack, Bolangir
1970-80	Initiation of forest protection initiatives in massive scale in Dhenkanal, Keonjhar, Mayurbhanj, Phulbani, Deogarh and Sundergarh regions

Diverse institutions and practices: CFM embraces creativity, flexibility and diversity in institutional arrangements and protection and management practices. The local institutions engaged in forest protection include village councils, youth groups, women groups, etc. Protection system(s) comprise one or a combination of arrangements, such as merely keeping an eye on the forests, *thengapalli* (i.e., voluntary patrolling on rotation basis) or paid watchmen. The customary practices of *thengapalli* and household contribution facilitated involvement of all the people in protection efforts. This popular patrolling practice of *thengapalli* has received accolades at the international level. *thengapalli* has been introduced as an innovative method for forest protection and social mobilisation in the cross-cultural curriculum for the students of the 6th standard under the new education policy in Britain in the year 1988.¹⁸

Similarly, punitive measures also vary, such as social pressure or monetary punishment, and are decided taking into account the nature of the offence. Elaborate rules and regulations based on local experiences and common prudence are evolved, addressing a wide range of issues such as forestry conflicts, benefit sharing, protection systems, management, equity, and social capital. These characteristics are evidence of the participatory and democratic spirit of CFM. The CFM movement is, thus, driven by the basic philosophy outlined below:¹⁹

- Draw a balance between conservation and livelihoods
- Forest needs to be sustainably managed for succeeding generations
- No timber harvesting
- Stress on minor forest products for livelihoods

Over time, CFM has evolved as a socio-cultural movement and is not restricted to forest protection alone. In certain areas communities engaged in forest protection named themselves as 'forest caste' to strengthen the relationship existing with the forest. CFM in many cases also helped the local communities in establishing new relationships through marriage. Some communities prohibited marriage of their children in non-protecting villages. An interesting practice is followed in some CFM villages, particularly in Nayagarh district, where every newly wedded couple during marriage goes for planting trees to mark the beginning of their conjugal life.²⁰

Perspective of forest management – Moving towards self-sustenance: CFM groups have different views and thoughts about policy contours and principles of forestry policy for the state. In this context, at a state-wide consultation process during the period 1997-99 facilitated by the NGO Vasundhara and the NGO network Sanhati, CFM groups designed an alternate policy framework for community forest management.

This people's charter on forestry contained the following principles:

1. Give primacy to local needs over national needs; and seek to take steps in the direction of establishing forests as a local resource.

2. Environmental stability and services and local needs fulfilment should be the primary objectives of forest management; revenue objectives for the State should take a back seat.
3. Local communities should be the basic unit for management of forests. Most forest areas should be brought under community-based management, including Wildlife Sanctuaries and National Parks.
4. Conceptually, local communities that take up protection and management responsibility should be viewed as trustees for managing the forests on behalf of the larger human community. Local communities should however have clear management rights over the forests they are entrusted with managing.
5. The local rural population depends critically on forests for subsistence and livelihood needs. This dependence becomes especially critical in case of NTFP. NTFP policies should be guided by welfare considerations and should seek to maximize gains to primary gatherers instead of being guided by revenue considerations.
6. While pursuing the goals of social justice and equity, mechanisms to safeguard the interests of weaker sections, including women, in forest management have to develop. Community institutions that take up management of forests should have representation of all sections and should have mechanisms to ensure that interests of all sections are reflected in forest management after a fair negotiation process.

Combining the twin objectives of resource sustainability and livelihood security: In most of the areas forests had reached a denuded condition and were left with only root-stock when protection was initiated. The collective actions of local communities have resulted in regeneration of good forest stock leading to revival of the lost biodiversity. According to a study undertaken by Ashoka Trust for Research on Ecology and Environment (a national-level NGO) on impacts of CFM in Kandhamal district which comes under Schedule V area (consisting of high tribal population), forest cover shows an increase from 53.7 per cent to 67.2 per cent in the study area between 1991 and 2001. The study findings attribute the increase in forest cover to protection of forests by local communities. A similar observation has also been made in the State of Forest Report (1999) published by the Forest Survey of India showing a remarkable increase in forest areas in Mayurbhanj and Balangir districts to the tune of 90 sq km and 10 sq km respectively between 1997 and 1999 because of existence of protection efforts by the villagers. Besides improvement in forest conditions, it has led to improvement of water regimes, enrichment of soil nutrients, reduced soil erosion, and ensured regularity in rainfall, thus contributing to strengthening of forest-agriculture ecological linkages.

Strengthening collective power through networking and alliance building: Community forestry institutions operate at different scales in terms of their spatial dimensions. These operations can be found in the form of individual efforts or collective efforts by federating together at different levels. Federation building emerges out of the need of building up collective strength, enhancing cross-learning, improving resilience to deal with externalities, resolving intra- and inter-community conflicts and, more importantly, to act as a pressure group for establishing community rights over forests.²¹ In Orissa, such federations have evolved over the years and a state-level federation named Orissa Jungle Manch has been formed since 1999 (see Box 4).

Box 4

Community forests in Ranpur block²²

In the Ranpur block of Nayagarh district itself there are 180 villages protecting several sq km of contiguous patches of forests. Gadabanikilo, situated in Khairpalli Gram Panchayat, started protection in 1940. This village has today developed a scientific management system, including zoning to serve different purposes. Years of protection has resulted in well-stocked forests and excellent plant diversity. In Gundrubari and Degajheri villages, women have formed little patrolling groups to regularly check any illegal activities in their forests. Interestingly, many forest protecting villages in Ranpur are now reporting the presence of elephants in their forests. There is a possibility that with disruption of elephant corridors in other parts of Orissa, elephants are now turning towards the regenerating or old-growth community forestry sites.

Today all 180 villages, some with multi-caste and -class composition and some homogenous, have come together to form a block-level federation. The federation provides technical support, a forum for discussions, facilitation of dialogue with politicians and government agencies, and conflict resolution.

Impacts of joint forest management: The Orissa state government introduced joint forest management in 1993, as part of its commitment to move towards participatory forestry. Theoretically, the JFM resolution looked upon the local communities as equal partners with the FD in protection and management of forests and seemed to be more progressive in comparison to earlier policies.

The period following 1993 witnessed the constitution of *van samrakshan samitis* (VSS) as one of the main activities of the FD. A close look into the JFM trend in the state reveals a sudden increase in number of VSSs in the year 1999. As a result of mounting pressure from the ground for legal recognition to the protection efforts, the then Chief Minister made a commitment to constitute VSSs in all the forest-protecting villages.

Following this, the VSS formation process was carried out hastily by the FD in different parts of the state. The FD claims to have constituted 9,606 VSSs, undertaking protection of 8,518 sq km of forest areas in the state till September 2005.²³



Villagers meet with NGOs at Dengajhari village, Nayagarh Photo: Ashish Kothari

These forest management systems were meant to include and empower the community but the nature of empowerment remained very limited.²⁴ Joint forest management has been in the state for more than a decade but it has simply refused to take off. JFM is facing strong opposition from community forest management groups in the state. This is primarily because of the fact that in reality JFM has failed to yield 'devolution' in forest governance. Furthermore, JFM has reportedly been used as a strategy to co-opt CFM and to enable the FD establish and expand its control over the forest areas which are under the de facto control of local communities. In this context, a basic question arises: where does JFM stand in terms of devolution?

JFM has not been successful in achieving the stated objectives of decentralisation and democratisation of forest governance. JFM was supposedly to be a 'process', but it has been implemented in a programmatic mode, placing the FD as a donor and the people as beneficiaries. This hardly makes for a relationship of equality and trust between the two partners.²⁵ This has been one of the major factors leading to emerging tensions between JFM and CFM. As a result, in many instances CFM communities have simply rejected JFM.

Some of the major disjuncts between CFM and JFM are described as under:

- **Uniform organizational structure vs. diverse local institutional arrangements:** The recently enacted JFM resolution of 2000 by GOI talks about facilitating a uniform structure for JFM committees: formation as a society in all the states and registration of all JFM committees under the Society Registration Act, 1860. This is in contrast to diverse institutions and organizational arrangements under CFM, which undergo changes in response to internal dynamics, local situations and context. Moreover, local communities also find the limit of forest area to be allocated to a joint forest management committee unacceptable.
- **Unequal power relationship:** JFM, though it professes to treat local communities as equal partners, structures an unequal power relationship, putting the authority of decision-making in the hands of the FD. Forest officials have done very little to address equity and gender issues. On the contrary, in certain cases forest officials' support to the elite sections has resulted in appropriation of benefits by the latter. JFM has also failed to promote equitable and democratic participation of all sections. Despite the provision for 33 per cent representation of women in the Executive Committee, this hardly takes place. These processes have resulted in marginalisation of forest-dependent people, particularly women.
- **Benefit sharing – Local needs vs. timber orientation:** The most contentious issue in JFM has been that of benefit sharing. This system reflects the 'timber/revenue-oriented' attitude of the FD, whereas local communities have initiated forest protection with the primary objective of ensuring a sustained flow of forest products (especially NTFPs) and commercialisation of forest resources has never been in their protection agenda.

Recent state government moves: In 1996, the Orissa Ministry of Forest and Environment came out with another resolution seeking to declare community-protected forests as 'Village Forest'. The resolution provided for considering the village as the unit for management of forest resources. This has been considered a progressive resolution as it talked about the tenurial rights of the forest-protecting communities. The implementation of the resolution however, witnessed lack of political will and interest on the part of forest officials, and it remained as a dead letter in

the official records.

In contrast, the Orissa Forest (Amendment) Bill 2000 came as a result of advocacy by the FD for stringent laws and enhanced penal powers by bringing in necessary amendments in the Orissa Forest Act 1972. However, the introduction of this bill was carried out without undertaking any public debate or consultation with forest-protecting communities. This evoked strong criticism from CFM groups and they argued that legal recognition to their protection efforts and tenurial rights was necessary for ensuring sustainability of ongoing protection efforts.

Another response to the forest crisis was the central government's National Afforestation Programme (NAP). Despite good intentions of promoting decentralization and enhancing people's participation in forest governance, the NAP has failed to achieve desired results. This has been primarily due to the approach and the process of implementation, which continues to be centralized in nature. The new institutional structures created under the NAP—the forest development agency (FDA) at a divisional level and *van suraksha samitis* at the village level—were implemented in a top-down manner.

The implementation of the FDA programme has adversely affected the locally evolved processes established for ensuring transparency in CFM. The local CFM groups were accountable to the public for giving details of local contribution collected for development of forests. However, following the conversion of CFM to VSS under FDA, these processes were disrupted. Under the changed situation, community members were generally not kept informed about financial matters.

The FDA has emerged as a classic example of co-opting community forest management groups and bringing them under JFM. The communities were promised tenurial rights over protected forest patches and huge funds for developmental activities in return for constituting VSSs. This led to a rush among the local communities to form VSSs, even at the cost of the disintegration of the self-initiated institutional structure. The selective approach of the programme and funding to limited groups promoted friction within the local communities and resulted in breakdown of collective protection efforts going on for a long period.

The self-initiated community forest protection arrangements thrive upon equal participation, equity, transparency, accountability, etc. The community-based forest protection arrangements ensured participation of all sections through adopting *thengapalli* (voluntary patrolling) and token household financial contribution for protection and management of forests. This upheld the collective spirit of the community. These processes however, suffered a heavy setback following the implementation of FDA programme. The flow of FDA funds resulted in abandonment of the *thengapalli* system and there was an increased preference by VSS members to replace the voluntary patrolling system with a watcher appointed on FDA money. Further, the FDA programme showed a marked departure from the processes of democratic participation by nurturing the leadership of powerful vested interest groups. The implementation of FDA also affected the established processes of transparency maintained in CFM practices. These processes, along with the conflicts perpetuated by inequity and lack of transparency, severely undermined the ownership of communities over the forest protection initiatives. This is best illustrated by the feelings of an old man from a Gadabanikilo village in Nayagarh district that represents a case of old CFM converted to VSS under FDA. 'We had been protecting forest for years but there were never any differences among the people. Our village was a model village. People of all religions, Hindu, Muslim, collectively observed the local religious functions. However, formation of VSS along with flow of money skilfully divided the village into factions.'²⁶

Furthermore, policy-level processes—such as the Orissa Forestry Sector Vision process with Winrock International India, and the Orissa Forestry Sector Development Project seeking a loan from the Japan Bank for International Cooperation (JBIC), have taken place without any consultation with CFM groups. For these reasons CFM groups under the banner of Orissa Jungle Manch protested against the JBIC loan. Despite this, the proposal got approved in the state legislature in May 2006.

2.2 Coastal and marine conservation

Orissa's coastline of 480 sq km supports amongst the world's largest turtle nesting and waterfowl wintering grounds, along with considerable other wildlife. Community efforts are visible at various points here too.

Mangalajodi is one of the many villages located along the banks of the Chilika Lagoon. Thousands of migratory waterfowl visit or breed in the wetlands around this village. Till the year 1996-97, killing the birds and selling in nearby areas was one of the major sources of income for the villagers.

A proficient poacher would earn up to Rs 40,000 in a month! Members of an NGO called Wild Orissa got involved with the village since the year 1996 and began to talk to the villagers about protection of birds. Initially they faced serious difficulties but eventually, with the help of enthusiastic and knowledgeable individuals in the village, the Sri Mahavir Pakshi Suraksha Samiti (Bird Protection Committee) was constituted in 2000. Its efforts have almost completely eliminated bird poaching here, and some of the ex-hunters have become die-hard conservationists. In 2007, the state government awarded the Pakshi Bandhu Award to the committee.

Olive Ridley turtles nest in tens of thousands on the Rushikulya, Gahirmatha and Bitarkanika beaches. While the latter two are under official protection, Rushikulya is protected by the local community. This site was unknown to the scientific community before 1994. At that time, fisherfolk from Purunabandha, Palibandha, Gokharkuda and Nuagaon, who are entirely dependent on the estuary and the offshore waters for their livelihood, used to collect and eat or sell the turtle eggs. It was through the involvement of researchers from the Wildlife Institute of India during the early 90s that some youth from Purunabandha became aware of the threatened status of the turtles and the need for their protection. In 1998-99 the youth formed a group of their own (Rushikulya Sea Turtle Conservation Committee) and started creating awareness about turtle conservation in the area. The Committee has built an interpretation centre with support from the Vasant Sheth Memorial Foundation, and they are now trying to earn a livelihood through regulated tourism in the nesting/hatching season. Similar initiatives have now been taken up by the youth in Gokharkuda, Pallibandha and Nuagaon villages. Gokharkuda village has constituted the Matsyajivi Kaincha Suraksha Sanghathan (Fisherfolk Turtle Protection Committee). These villagers not only protect the turtles on land but have special fishing norms during the mating and nesting times to avoid turtle deaths in sea. These norms, about the kind of nets and fishing boats used and the fishing zones, have been developed with the help of outside experts.

2.3 Conservation of other species

Most of Orissa's public probably first heard the name of Buguda village when it was awarded the first Biju Patnaik award for wildlife conservation. Located in Ganjam district, this village has been traditionally protecting a large population of blackbuck. Documentary evidence traces this protection at least as far back as 1918. However, in the last fifty years the protection measures have been further strengthened as the population of this animal was dwindling because of poaching and other reasons. As a result, villagers report that the number has risen from about 100 to over 500. Reportedly about 60 per cent of the village has been left fallow due to lack of water, and crop damage by blackbuck. Yet anyone found hunting the animals is apprehended by the villagers. The protecting villagers believe that these antelopes are devotees of Lord Rama and Lord Krishna and that it is a sin to kill them.



Blackbuck conservation in Buguda village, Ganjam District *Photo: Ashish Kothari*

2.4 Government-initiated community-based initiatives

Orissa has also witnessed the substantial spread of government-initiated participatory processes such as joint forest management. As of early 2000, there were 6,686 *van samrakshan samitis*, involving 6,346sq km forest land. Similarly, 4,928 village forest protection committees (VFPC) had been formed, who now protect 10,077.05 sq km of degraded forests, mostly secondary natural forests of coppice origin. The wave started in 1988 and picked up momentum in 1993 because of government facilitation (see Table 1). The growth of secondary forests through protection from felling, fire and grazing resulted not only in generation of adequate biomass (fuel and fodder) for the villagers, but also contributed to increasing the diversity of plants and animals. Village doctors throughout the state's tribal belt have testified that medicinal plants which were thought to have been wiped out from their areas have reappeared after such protection.

However, civil society organizations have pointed to two serious problems with JFM and other participatory forestry initiatives by the government. First, these initiatives retain substantial control and power in the hands of the FD. Second, they have often led to the undermining of existing self-initiated community forestry initiatives (see next section).

2.5 Threats faced by CCAs

Despite occasional awards, a majority of community conservation efforts in the state remain unrecognised by the state government. They find no place in laws, policies, administrative programmes or budget allocations. Although many of the initiatives exist on government lands, villages often find it difficult to solicit support from the government while discharging their duties. For example, women in Dengajjheri village have expressed disappointment that when culprits are apprehended, they keep waiting for forest officials to turn up to carry out the necessary procedures. Such lack of support dampens the spirit of the communities.

On the contrary, at times governmental intervention has disrupted community initiatives.²⁷ There is no learning from the community forestry initiatives in the state-run JFM scheme, which continues to be top-down. JFM functions with pre-prescribed, strait-jacketed and rigid institutional set-up and decision-making processes. This conflicts with the self-initiated adaptive management system. Institutions formed under JFM create new centres of political powers in the village which often have vested interest and clash with the traditional forest protection mechanisms in these villages. A number of NGOs in the state have been demanding that community forestry initiatives should be recognised as a system of forest governance, and financial and other support should be extended to them as and when required rather than them having to convert to JFM. There has been widespread protest against the government taking loans from donors like the JBIC (Japan Bank for International Cooperation) within the current institutional framework. Under such loans, the government is under greater pressure to show successful JFM sites, leading to more and more community forestry sites getting converted to JFM.

Often community conservation sites are threatened by 'development' projects imposed by the government. For example, the proposed Utkal Coal Project at Rajjharan for open cast coal mining is in an area densely covered with sal forests, under protection of Rajjharan, Nandijhor, Goalgadia and Similisahi villages. In fact these villages were even brought under the official JFM programme. In a public hearing held in September 2005, more than 1500 people from 22 villages gathered and strongly opposed the project as it would destroy the forests that they have worked hard to save. Similar leases are currently under consideration in Sundergarh, Sambalpur, Jharsuguda, Koraput, Malkanagiri and Raygada districts at the time of going to the press.

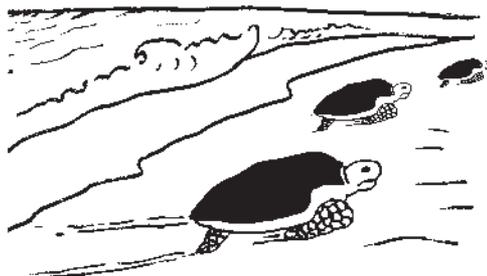
In many instances internal politics and local dynamics itself threatens the initiatives. Some initiatives are quite resistant to such changes and keep switching from low-protection phases to high-protection phases. Appropriate external guidance and support in these cases can help. Such help can come in the form of self-evolved federations as exist in Ranpur Block, or sensitive governmental or NGO interventions.

Some sensitive interventions have indeed helped. The Chilika Development Authority, for instance, has built a walkway and watchtower at Mangalajodi, which would help in generating some tourism revenue for the village. NGOs like Vasundhara, Wildlife Society of Orissa, Wild Orissa, and forums like the Orissa Marine Resources Conservation Consortium initiated by ATREE and others are providing critical support.

3. Conclusion

Clearly villagers are doing much for biodiversity conservation in Orissa, even if unrecognised. But they need urgent help, especially if they are to survive the current phase of destructive industrialisation that Orissa is going through. Many community initiatives are struggling trying to create livelihood options linked to their conservation efforts. For example, youth in Rushikulya region as also in Mangalajodi are hoping for ecotourism-based livelihoods. In Buguda village, villagers could do with some help towards water harvesting to irrigate the fields they still cultivate. In many community forestry initiatives, villagers are seeking help in creating some natural resource-based enterprises or increase in agricultural productivity. Appropriate help at the right time and in consultation with the local villagers will help create a long-term stake in conservation of biodiversity in the state.

The fact that many of these conservation efforts have held on for so long against all odds is enough to indicate what they can achieve given an appropriate policy environment. Equally important, they could provide critical lessons for how to manage the official wildlife sanctuaries and national parks of the state, in a way that integrates the livelihood requirements and rights of



local people with the needs of wildlife conservation.

Table 1: Information about formation of VSSs, VFPCs and unregistered groups in forest management in Orissa

Sr. No.	Forest Division	No. of VSSs	Area protected (in ha)	No. of VFPCs formed	Area protected (in ha)	No. of unregistered groups	Area protected (in ha)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Angul circle							
1.	Angul	256	37586.18	98	17751	28	NA
2.	Athamalik	84	7017.36	155	26254	0	0
3.	Athagarh	77	7349.59	76	7207	0	0
4.	Dhenkanal	112	13774.98	148	30550	68	3996
5.	Keonjhar	201	16322.14	197	20697	4	0
	Total:	730	82050.25	674	102459	100	3996
Berhampur circle							
6.	Puri	28	5580.0	83	17507	10	2003
7.	Nayagarh	5	585.0	55	10824	44	7049
8.	Ghumsar North	22	702.0	55	28617	0	0
9.	Ghumsar South	85	13489.3	160	35058	0	0
10.	Parlakhemundi	518	46639.0	106	10237	0	0
11.	Phulbani	473	29504.0	214	54237	143	5102
12.	Baliguda	206	10378.0	56	34280	0	0
13.	Boudh	162	52222.6	150	5260	10	760
	Total:	1499	159099.9	879	196020	207	14914
Sambalpur circle							
14.	Sambalpur	423	58941	11	1615	0	0
15.	Rairakhol	97	9676	111	45986	11	425
16.	Deogarh	62	3103.96	222	34477	188	30308
17.	Bamra	256	22396.66	138	26349	0	0
18.	Sundargarh	437	48110.17	59	11715	10	489
19.	Bonei	119	8496.452	145	32016	0	0
	Total	1394	150724.24	686	152158	209	31222
Koraput circle							
20.	Jeypore	466	27628.24	139	10058	196	58493
21.	Nawarangpur	371	31995.06	503	115796	0	0
22.	Rayagada.	748	48133.55	586	105464	0	0
23.	Balangir	325	36882.31	457	98351	38	6216
24.	Kalahandi	669	52840.00	551	164115	12	0
25.	Khariar	270	21268.00	81	8276	0	0
	Total	2849	218747.16	2317	502060	246	64709
S.T.R. Baripada							
26.	Karanjia	22	2164.2	220	36729	7	0
27.	Baripada	191	21822.37	152	19372	0	0
	Total	213	23986.57	372	56101	7	0
Grand Total:		6685	634608.12	4928	1008798	769	114841

Source: State Level Steering Committee (SLSC) and Nature & Wildlife Conservation Society of Orissa (NWCSO), 2003. *Orissa Biodiversity Strategy and Action Plan*. Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests (Government of India).

Put together by Ashish Kothari, Kalpavriksh; Information for Section 1 compiled by Saili S. Palande, Kalpavriksh. More information on community conservation initiatives in Orissa is available in a brochure "*Surakshya se Samrakshan: Few Unacknowledged Struggles for Nature Conservation in Orissa*", produced by Vasundhara (see www.cci.org; contact: Y. Giri Rao, ygiri.rao@gmail.com).

Endnotes

- ¹ <http://www.fsi.nic.in/sfr2003/orissa.pdf>
- ² The source for figures in this paragraph is *Primary Census Abstract: Census of India 2001* (www.censusindia.net/t_00_005.html)
- ³ Ministry of Environment and Forests, Government of India, *Annual Report 2002-2003* (New Delhi, MOEF, 2003). In early 2008, a new tiger reserve (Satkosia) was declared, over an area of 963.87 sq km, with a Critical Tiger Habitat of 523.61 sq km.
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- ⁵ A. Kothari, *Birds in our Lives* (Hyderabad, Universities Press, 2007).
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- ¹⁰ Paraphrased from: State Level Steering Committee (SLSC) and Nature & Wildlife Conservation Society of Orissa (NWCSO), 2003, as above; and K.C. Malhotra, Y. Gokhale, S. Chatterjee and S. Srivastava, *Sacred Groves in India: An Overview* (Bhopal, Indira Gandhi Rashtriya Manav Sangrahalaya, 2000).
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- ¹² Sashi Kant, Neera M. Singh and Kundan K. Singh, *Community Based Forest Management Systems (Case Studies from Orissa)* (New Delhi, IIFM, SIDA and ISO/Swedforest, 1991).
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- ¹⁴ Kant et al. (As above).
- ¹⁵ State Level Steering Committee (SLSC) and Nature & Wildlife Conservation Society of Orissa (NWCSO), 2003. (As above).
- ¹⁶ *Community Forestry*, RCDC, Vol. 1/Issues 1 & 2, January 2002; Vol.1/Issue 5, September 2002; Vol. 2/Issue 3, February 2003; Vol. 2/Issue 4, May 2003; Vol. 3/Issue 3, February 2004.
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- ¹⁸ Kant et al., *Community Based Forest Management Systems*.
- ¹⁹ RCDC, 'Community Forest Management: Agenda for the Future', Background note shared in state-level workshop on 'CFM: Ways Forward', 2005.
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Rupabalia reserved forest, Dhenkanal

Background

Dhenkanal district is known to have the highest area of forest under protection and management of local villagers in Orissa. The total area under protection is estimated to be 56,500 ha, protected by 264 village communities. The protection extends to 4.67 per cent of the total reserved forests in the state, and to 18.7 per cent of the other categories of forests.¹

Rupabalia reserved forest (RF) is located in Dhenkanal district near Joranda town, which is at a distance of 24 km from the district headquarters. Rupabalia is a hillock surrounded by eleven villages, out of which eight villages—Atinda, Mahapada, Vejibolua, Nathua, Chattia, Birikhunti, Bhatkatni and Barahota—are managing the entire Rupabalia RF. These villages have divided amongst themselves over 900 ha of Rupabalia RF and about 700 ha of surrounding khesra² forest for use and management.

The current human population of these eight villages varies between 160 (Vejibolua) and 1185 (Mahapada). In three villages—Chatti, Barahota and Bhatkatnim—the dominant section of the community are the SC/STs. The other five villages are more heterogeneous. Economically, except Mahapada and Birikhunti, in all the other six villages almost the entire population is below the poverty line. The majority consists of the landless, who survive on agricultural labour and other day-to-day means of income. Even in the other two villages, the percentage of such population is high.

Rupabalia hillock contains two types of forests: mixed forests on hilltops and upper slopes, and sal forests on lower slopes and foothills. The common species in mixed forests are shalmali or red silk-cotton tree, amaltash, dhaoda, jamun, amla and *Bridelia retusa*. The sal associates are beheda, hirda, mahua, kendu, haldu, etc.

Prior to independence, this area was under the princely state of Dhenkanal. The demarcation of Rupabalia hill was complete in 1933, and it was declared a reserved forest in 1959 by the state forest department.

The local people enjoyed the privileges and concessions in accordance with the Dhenkanal and Hindol Forest Rules and Durbar Declaration of 1939. Scientific management of forests in Dhenkanal state was started in 1929. This compartment was prescribed the Coppice Working Circle. The working plan of 1978-98 admits that this was a complete failure and mentions: 'The following blocks probably didn't contain good forest growth with adequate coppice vigour and contained steep hills which could have been excluded from coppice working...Rupabalia...The hilly areas including steep slopes which had been allotted to coppice working circle have been completely devastated and probably the adoption of this faulty system of management is primarily responsible for this calamity which could have been averted.' Subsequently, Rupabalia was put under Rehabilitation and Plantation Working Circle. Till 1982-3, about 172 ha was treated by the forest department by digging trenches, protection from grazing, and artificial regeneration. Since 1982, the department has not taken on any forestry operation in this forest, possibly because by this time the communities had taken over the responsibility of protection and sustainable use.

Towards community conservation

It is not clear exactly how the protection of forests by the local villagers began. It is believed that protection started spontaneously in some villages and then spread to others. Initially only the khesra Forests were taken up but later the protection extended to the reserved forests too.

The conditions which seem to have encouraged community protection and management of forests include:

1. High scarcity of fuelwood and construction material;
2. Almost uniform dependence of all sections of society on forests, particularly for fuelwood and construction material;
3. Possibility of uniform distribution of material benefits;



4. Mutual trust in each other;
5. Common expectations of people; and
6. The impacts of awareness camps.

In the early 80s, a workshop on forest protection was organised at Nathua village by Professor Radhamohan in collaboration with the People's Institute of Participatory Action and Research (PIPAR). This workshop left a major impact on the villagers and some more villages took up forest management.

Village organisations for forest management

Generally, informal village committees are responsible for forest management. In a few cases, either the sahi committee (committee of a particular caste) on its own, or together with the informal committees, manages the forests. For example, in Birikhunti, a sahi known as Nuasahi has a separate patch of forest, which is managed by the Nuasahi Committee, while the other patch is managed by the informal committee for the rest of the village.

The informal committees in Mahapada have become defunct after a series of conflicts. Presently four sahi committees are managing their individual patches of forest. Generally, the informal village committees and sahi committees together manage the village ponds, temple, village common agricultural land and schools. However, in Vejibolua (a hamlet of Mahapada), villagers formed a forest protection committee in 1972 exclusively for the management of the forest. Now this committee is also taking up other developmental activities.

In the cases of Birikhunti, Chattia and Nathua, the informal committees have merged with village developmental committees to avoid duplication of committees.

Generally, an informal forest protection committee consists of a general body, an executive body and office-bearers. The general body has representatives from each household of the respective village. The sahi committees are generally caste-homogeneous, though sometimes a few families of different castes may also stay in a sahi and participate in the sahi committee. Normally the office bearers belong to the dominant caste, except in Bhatkatni, where the secretary of Saurasahi is a Brahmin. Sahi committees function in a more informal manner compared to the village committees.

The tenure of committees is normally not fixed except in Nathua (three years) and Bhatkatni (one year). The general body, if not satisfied with the functioning, can change the executive body and the office-bearers at any time.

Meetings of the committee are normally arranged as per the requirements except in Vejibolua, where the committee meets every month. The working of village committees and informal forest protection committees is more systematic than sahi committees. Normally the minutes of the meetings of village committees are recorded and signed by the members present. Every committee has funds under its control, which is kept with the secretary or the treasurer, except at Atinda where it is kept in a bank. All accounts are kept open to villagers and are presented at the annual general body meeting.

The working of informal forest protection committee of Vejibolua is highly systematic and at every meeting all details of participation, accounts and activities are recorded.

In addition to the informal forest management systems mentioned above, the forest department has also constituted official forest protection committees (FPCs) under a Government Resolution of 1988. As per available information, Rupabalia RF has been allotted to ten villages. All revenue villages, except Chattia, which are managing Rupabalia for the last few years have been included in these ten villages. In addition, five villages which are not among the villages informally protecting the forests (some are not even close to these forests) have also been included. Except in Nathua and Birikhunti villages, the villagers are not even aware of the existence of such a formal committee. In Nathua, since the Sarpanch is also the head of the formal committee, the formal committee is functioning in the village.

Forest management system

Even though legally these forests are categorised as Class B Reserved Forest, which demands strict administrative prohibitions, local villagers exercise significant control over these forests. Local villagers have framed their own rules and regulations relating to:

1. The composition, functions and duties of the committees and the office bearers;

2. Villagers' roles in protection, extraction and distribution of forest produce;
3. Conflict resolution; and
4. Penalties for defaulters.

The system of resource use is based on the sense of reasonably balanced sharing. All community members have relatively equal access to resources, calculated according to the needs and supply from the existing forest. Each member is assured that others will not take undue advantage at their expense. Penalties are strong disincentives for using forest resources in a manner not sanctioned by the community.

Each committee has its own set of rules, which change and evolve over time and are often based on the same guiding principles of equity and sustainable use. The set of rules for one of the villages, Vejibolua, are given below.

Box 1

Rules in Vejibolua village

- A. Rules related to composition and functioning of the forest protection committee
 1. All villagers have an equal right to become a member of the committee.
 2. An executive committee, consisting of four members and five office-bearers, will manage the forests on an everyday basis.
 3. The executive committee shall be selected by consensus.

- B. Rules related to forest management
 1. Only members of the general body have equal rights to the forest. Any outsider will have to approach the committee for permission.
 2. Each member will protect the forest on the days allocated to him in the system of thengapalli³. If any member fails to do so, he will be required to compensate for that day by two days of patrolling and pay a fine of Rs 10.
 3. On receiving information regarding theft in the forest, the palia (a person who has the responsibility of protecting the forest) has to go to the forest. If he fails to do so, he will have to pay a fine of Re 1 and apologize publicly.
 4. A member can go into the forest for collection of material allotted to him only after paying the money as per the scheduled rates to the concerned office bearer. Violation of this rule results in a fine of Rs 2.
 5. No one can sell the forest produce from the protected patch to any outsider.
 6. If somebody requires more wood than he is entitled to, he will have to take permission of the committee and pay thrice the scheduled rates.
 7. If anyone wants to give his share to another person, he can do so at double the rate and after taking the consent of the committee.
 8. Forest produce can be collected only from the area allocated by the committee. If someone collects from any other area, he would have to pay a fine of Rs 2. The same rule applies for tree-felling.
 9. It is mandatory for all members to attend the general body meeting. Absentees have to pay a fine of Re. 1. If a person remains absent from three consecutive meetings, he will be removed from the committee.
 10. If someone does not pay the fine, he is excluded from forest benefits.
 11. Material brought from the forest cannot be used unless checked by the committee.

The forests are protected through either thengapalli or through paid watchers. In some cases, during the months of the kharif crop, the thengapalli practice is discontinued. The community takes up important operations like cleaning and coppicing voluntarily, and the resulting material is used for fuelwood as well as poles.

Conflict resolution

A number of conflicts have been reported in this area. In Mahapada village, conflict arose due to perception of unequal and favoured distribution of benefits to different castes. The non-Brahmins alleged that the Brahmins were violating the rules and cutting trees, while not discharging their forest protection responsibility. This conflict was resolved by dividing the forest patches among the caste committees for management.

A major conflict and physical clash occurred between Kendupada and Atinda over the latter's protected forest patch. The residents of Kendupada tried to cut and take away the sal trees which were protected by Atinda. This fight was resolved only after the intervention of government officials and PIPAR.

In Vejibolua, two villagers felled some trees against the rules and challenged the authority of the committee to punish them. At that juncture, the concerned police officer passed judgement in favour of the committee.

It is seen that the forest officials also support this system of forest management, even though it is not in keeping with the Indian Forest Act. In a number of cases, communities have resolved conflicts through their own innovative approaches. In Joranda village, the inability to resolve a conflict led to the cutting of a large patch of sal forest. Now this village has no forest left.

Impacts of community effort

Regeneration of forests has ameliorated the fuelwood situation in the villages. Earlier the villagers would obtain fuelwood from the Kapilash Reserved Forest, which was time-consuming and expensive as it had to be carried in carts, with the cost amounting to Rs 100-120. Now, except in Bhatkateni and Barahota (which have smaller patches of forest and are still regenerating), the villagers get ample fuelwood through cleaning of forest patches every year for a nominal cost of Rs 2-5 per cartload.

Non-timber forest produce, including fruits like bel, aonla, and baheda, has significantly increased. Tribals in particular have benefited from this as they often depend on collection of tubers, stems and leaves of various plants from the forest for food, particularly in times of scarcity.

Regeneration has also led to increased employment opportunities. The tribals of Chattia village get full employment for 45 days of the kendu leaf season and for 15 days of the sal season and earn about Rs 15-20 per day. Opportunities for leaf plate making and *chatai* (mats) making also provide tribal women and children employment for about six months.

Generally timber is not harvested but if needed for purposes such as construction of schools, emergency house construction, etc. then it is available at a nominal price.

Forest management has also led to a certain degree of empowerment of the poor.

Opportunities and constraints

In most villages, harvested forest produce was being distributed equitably. Since there is no restriction on collection of fuelwood (dry and fallen) by headloads and non-wood forest produce, the poorer sections seem to have benefited more. Equity seems to be more in cases where patches of forests are being managed by caste-based committees.

However, in areas where village committees are managing the forests, the higher castes are often perceived to be gaining more, as they can afford to take cartloads of wood out as compared to headloads by the poorer sections. This has sometimes caused tensions. In Mahapada, this has resulted in the division of the common patch and management of separate patches by SCs and STs.

During the time when community forest management was being taken up, the villages who began protection first took over a large area of forest for management, while the other villages were left with little or no area at all. These imbalances put pressure on the excluded groups and in some places like Atinda and Kendupada, the villagers were not able to prevent outsiders from coming and exploiting the forest. This pressure is bound to grow once the trees, mainly sal, become older. In addition, Kapilash Reserved Forest, which is a source of timber and fuelwood to all the villagers in the area, has recently been closed by the forest department. It is inevitable that those people earlier dependent on Kapilash would now turn to Rupabalia. This is bound to significantly increase the pressure on the protected forests. Pressure may also increase in areas where a large

population shares a small forest patch.

The major driving force behind community protection was the scarcity of forest produce. In the event that such a scarcity arises once again, there will be great pressure exerted on the forest.

Pressure is also bound to grow when the sal trees mature, as the older these trees become, the more expensive they get. This could put much pressure on the conserving community, considering the lack of freely available timber and fuelwood in the market. A positive external intervention may be needed in these areas; however, any government intervention unless well designed and properly implemented may upset the fragile equilibrium within and among the villagers.

This case study has been compiled from: S. Kant, N. Singh and K. Singh, Community Based Forest Management Systems –Case studies from Orissa (Bhubaneswar, Vasundhara). We are extremely grateful to Vasundhara, a Bhubaneswar-based NGO, for their helpful contributions and comments on the first draft.

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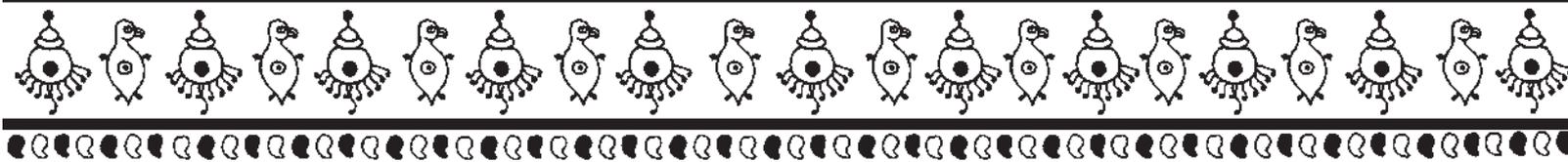
Endnotes

¹ Project Corporate Consultants (PCC), 'Report on the Study on Enumeration of Forest Patches Protected by Villagers in Orissa and Mechanism and Motivation behind such Protection' (Bhubaneswar, unpublished, 1990).

² Patches of forests assigned to villages to meet their bonafide requirements.

³ In *thengapalli*, the household assigned the patrolling duties for the day is given the intimation by means of the *thenga* (wooden stick) placed at its door on the prior evening. Subsequently, the *thenga* is passed from household to household. The number of *pallis* (persons on duty) per day is determined by the village council depending upon the forest area and the external pressure on the protected patch.





Mangalajodi village (Chilika lake), Ganjam

Background

Chilika lake situated in the state of Orissa in India is a haven for birds both resident as well as migratory. Interwoven in an intricate human-nature pattern, Chilika lake is the country's largest brackish waterbody. Every year lakhs of migratory waterfowl descend on these wetlands coming from far-off countries.

Poaching of birds in the Chilika lake has been going on for hundreds of years. Different forms of killing have been practiced, which include use of nets, traps, guns, poisoning, etc. The method of poisoning employed in these wetlands has been responsible for maximum deaths. Poison is placed inside the tubers/roots of a few varieties of aquatic plants, which form a regular diet of the waterfowl. Upon feeding, thousands of birds die.

Although poaching is practiced in almost all villages around Chilika Lake, the extent of poaching has been maximum in certain villages like Sorona, Mangalajodi, Bhusandpur, Kalupada, Chilikasahi, Jatiapatna, Satpada, Sundarpur, Kumandala and others. Each of these villages is inhabited by 20 to 80 poachers, proficient in the use of various techniques which have been passed down the generations. Birds are considered a major delicacy and a good quantity are consumed locally. The bird meat is sold in the open market, at rates varying from Rs 20 to Rs 60 a piece, depending on the species and method of kill. This income attracts many poachers. A proficient poacher could earn anything between Rs 10,000 and Rs 40,000 in a year.

Chilika also harbours many waterbird breeding habitats, where many species of birds lay eggs. Collection of bird eggs from areas such as Mangalajodi and Sundarpur for consumption and sale in the open market was another major source of income for many villagers. The government authorities were helpless in dealing with this situation because of the sentiments of the local people as also high-level political patronage.

Towards community conservation

In the year 1996-7, an environment group called Wild Orissa was constituted by a number of residents from around Chilika Lake. These residents were concerned about the incidents of bird hunting and their impact on the bird population. Those who initiated and registered the group hoped that involvement with the activities of this NGO would bring many others out of poaching activities. The beginning was difficult but slowly Wild Orissa managed to involve persons who were concerned about the birds. Slowly the group managed to get a toehold in Mangalajodi village, sharing the villagers' grief and happiness, solving their small day-to-day problems, and discussing sundry matters with them for many hours and days.

In the early part of the year 2000, the then Divisional Forest Officer of Chilika Wildlife Division, Anoop Kumar Nayak, invited Wild Orissa to involve its members in controlling poaching/hunting of waterfowl in Chilika Lake. In this programme, the *sarpanches* (*panchayat* heads) of many villages were involved. This cooperation of local village heads in controlling poaching continued for a few months.

In December 2000, a bird protection committee, Sri Mahavir Pakhshi Surakshya Samiti, was constituted in Mangalajodi. Consequently, from the winter season of 2000-01 till this case study was written, there has been a drastic fall in poaching activities. This samiti involved some of the leading poachers/hunters of the village, which has helped tremendously in curbing the poaching of waterfowl, prevention of poaching of bird eggs for human consumption, etc. The members, who once hunted birds, now participate in the activities of the NGO and undertake surveillance and patrolling, on their own or in co-ordination with members of Wild Orissa and the state forest department (FD) staff.

In 2001 the Chilika Development Authority (CDA) for the first time got involved in these bird protection activities, and undertook a survey of the waterfowl breeding habitat in Mangalajodi along with members of Wild Orissa and Sri Mahavir Pakhshi Suraksha Samiti.

Some of the activities of Wild Orissa and Sri Mahavir Pakhshi Suraksha Samiti include:





Wintering water fowl at Mangalajodi *Photo: Ashish Kothari*

1. Monitoring the lake, especially in the poaching-prone areas adjoining Mangalajodi.
2. Patrolling during odd hours against poaching of bird eggs.
3. Holding regular meetings of members of the bird protection committee of Mangalajodi.
4. Holding meetings with the forest staff of Tangi Wildlife Range and Mangalajodi Section.
5. Outings with visiting scientists from the Bombay Natural History Society to the breeding habitats.
6. Involvement of school children in boat excursions to the bird-breeding habitats.
7. Organising competitions on Chilika Lake and its birds amongst school children of the area.
8. Seeking interventions of the chief wildlife warden, irrigation department, Chilika Development Authority, etc., on the more fragile waterfowl breeding habitats.
9. Ensuring some income generation for the poachers-turned-conservationists, which could help mitigate the poor economic conditions of these people, and ensure their continuous involvement in waterfowl conservation.

Impacts of community effort

A unique initiative in involving one-time poachers to undertake wildlife conservation, Mangalajodi has attracted the attention of many people from far and wide. This experiment at Mangalajodi was recognized by the state government of Orissa when the Chief Minister of Orissa awarded the Pakshi Bandhu Award to the Sri Mahavir Pakshi Surakshya Samiti of Mangalajodi during the wildlife week celebrations of 2001.

Wild Orissa helped in procuring small wooden boats, which are being utilised for patrols and monitoring, as well as by two erstwhile poachers for income generation. This second facet is worth noting, because, through only a small expenditure, these poachers-turned-conservationists



Members of Wild Orissa and Mahavir Pakshi Surakshya Samiti, Mangalajodi

Photo: Ashish Kothari

could use these small boats for monitoring the bird breeding habitats as well as engage in fishing, which provided them with a certain amount of income. As per calculations, each such boat enabled a poacher to earn Rs 25 worth of fish per day, which comes to about Rs 9000 per year. This step therefore helped in bird conservation/preservation and was also a small step towards rehabilitating the people whose income had been impacted because of giving up hunting. Wild Orissa has also helped in attracting visitors to this area to enhance the income of the villagers through eco-tourism. Additionally, relatives of the members of the bird protection committee have also been provided employment opportunities outside Orissa since 2006.

Members of Wild Orissa and the samiti are currently involved in wildlife awareness and education in local schools to sensitise children towards the birds that visit Chilika Lake.

Mangalajodi villagers now attach great importance to conserving and preserving Chilika as a waterfowl-breeding habitat. Along with the members of Wild Orissa, villagers have identified an area, locally called Mangalajodi Ghera (an area of Chilika Lake of about 1.5 sq km adjacent to the Mangalajodi village, and enclosed by the construction of an earthen embankment), as the area of prime importance for protection. This area retains water for much of the year, and the protection activities of the villagers has ensured that this site is safe for birds. Wild Orissa is helping the villagers in negotiations with the state wildlife wing as well as the irrigation department, to ensure that water after the rains is retained inside this closed embankment at least till the month of March every year. Part of this area is used by the villagers for agriculture; however, the villagers have resolved to use methods of agriculture that would not harm the birds.

The monitoring of this area has shown that in the dry months, the dried-up bed was being profusely used by the Oriental pratincole, red-wattled lapwing, yellow-wattled lapwing, etc. to breed; while during the monsoons months, the purple moorhen, Indian moorhen, bronzed-winged jacana, pheasant-tailed jacana, common coot, water cock, spotbill, large whistling teal, etc. laid eggs in big numbers.

Participation in protection of birds and involvement with the local NGO has encouraged the local villagers and has also lead to self-belief and self-esteem. The members of the bird protection committee learnt the English names of the birds found in Chilika Lake. They already had immense traditional knowledge about the birds, their habitat and habits. Their knowledge helped the members of Wild Orissa in identifying some previously unknown nesting and breeding sites of many uncommon birds that visit Chilika. This information has been shared with the state wildlife department and the Bombay Natural History Society (BNHS). Information on the breeding habits of the following species of birds was obtained through their help: little cormorant, Indian cormorant, grey heron, purple heron, great egret, intermediate egret, little egret, cattle egret, heron, Indian pond heron, cinnamon bittern, black bittern, yellow bittern, night heron, painted stork, Asian openbill, lesser whistling teal, fulvous whistling teal, cotton pigmy goose, white-breasted waterhen and brown crane.

These activities have attracted the attention of many government departments towards Chilika Lake. Many government officials have visited Mangalajodi in recent times. Members of the bird protection committee take the visitors around the area. Certain rules and regulations have been laid down jointly by the protection committee and Wild Orissa to ensure that some areas remain inviolate and the number of people visiting does not exceed a certain number, so as to avoid excessive disturbance to the birds.

Support from outside

By participating in programmes like the IBAs in the year 2002 and the BNHS project for conservation of Mangalajodi waterfowl breeding habitat, Wild Orissa has been able to procure some funds for its own activities and supporting the activities of the bird protection committee.

Since 2001 the CDA has also been closely involved in the bird protection initiatives in the Mangalajodi. CDA has financially assisted for continuing bird protection activities, including the construction of a building at Mangalajodi for bird conservation and bird interpretation work. CDA

has also initiated dredging operations to deepen the channel connecting Mangalajodi with the main Chilika Lake in order to enable easy movements of boats. Plantations have also been earmarked by CDA at Mangalajodi. In 2006, as part of an Indo-Canadian Environment Project, CDA assisted Wild Orissa in publishing an information brochure and organizing a boat rally on World Wetlands Day.

Opportunities and constraints

The following factors identified by Wild Orissa could be detrimental to the Mangalajodi wetland:

1. Increased human movements leading to disturbances to nest-building and nesting/rearing. The bird protection committee is so far ensuring that these places are not overused by visitors.
2. Possibilities of causing disturbance while monitoring the nests and eggs, by boats or on foot, especially inside the Mangalajodi Ghera area. Once the nesting birds get disturbed, they leave the nest leaving the exposed eggs to the mercy of the crows (ravens). This problem could be solved by minimizing the movements of boats/people inside the Ghera area to the bare minimum level.
3. The increased population of crows is one major threat to the population of birds. The crow menace is less seen in waters outside the Ghera, as crows probably do not find a suitable perching place to poach.
4. Increased cattle movement as the dried lakebeds are browsed upon by buffaloes and goats, which stamp upon the nests. The members of the bird protection committee have already been successful in controlling this cattle movement to a small extent, after successful interventions through the village *panchayat*.
5. Oil spills from motorboats. A number of boats are plied in these waters all the year round by the villagers for fishing as well as transport. Care should be taken to ensure that when eco-tourism takes place in a bigger manner, eco-friendly modes of transport should be resorted to. The area is prone to ill-directed developmental activities like well digging, artificial fish feeding, etc., which would cause demise of this habitat. It is imperative that only such activities should be encouraged which do not cause any harm to this fragile wetland.
6. The involvement of the local people, most importantly the poachers-turned-conservationists, in all aspects of bird conservation is a must, as this would keep their involvement intact as well as ensure them a say in decision making. But many members of the bird protection committee have had to give up their major source of income. It is important that attention is paid that they could earn some livelihood while protecting the birds. Wild Orissa has already addressed letters to the authorities concerned for involving these persons in the eco-tourism projects, so that they could earn a livelihood as well as monitor this bird habitat. It is important to understand that without this the future of this wetland would be bleak.
7. Both Wild Orissa and the bird protection committee face a resource crunch to undertake many activities like regular patrolling, awareness campaigns for the inhabitants of Mangalajodi and nearby villages, etc. Many schemes and programmes are not able to take off due to this financial crunch and lack of boats, binoculars, documentation equipment, etc.

Box 1

Eco-Tourism Project at Mangalajodi

An eco-tourism project has been started at village Mangalajodi since October 2002 for the benefit of those involved in the conservation activities. An advertisement and write-up was inserted in the daily newspapers. This project has already drawn a good response and since the winter of 2002-3 about 500 people have annually visited this village and availed of the meagre facilities offered. For the benefit of the tourists, the villagers have taken the following steps with help from Wild Orissa and CDA:

1. In 2004 a bird interpretation centre has been constructed for visitors to Mangalajodi.
2. CDA, Directorate of Tourism Orissa, etc. have undertaken steps to impart eco-guide training to about 50 persons from Mangalajodi and Sundarpur villages.

CDA has constructed watch-towers, nature trails, benches, jetty, etc. for visitors.

Conclusion

Mangalajodi presents an excellent example of how local people, if taken into account, can turn into the best protectors of an ecosystem and its non-human inhabitants. If convinced, they can undertake conservation even at tremendous personal and economic costs. However, sustaining any effort at a loss is unrealistic. It is therefore imperative that the members of Mangalajodi bird protection committee are supported in their efforts through working out ecologically sensitive livelihood options. As reported by Ashish Kothari of Kalpavriksh, 'In the winter of 2005-6, two of the ex-hunters rowed us through the marshes, proudly gave us the names of various birds (in English and Oriya), and explained their motivation for protecting the birds. A part of it was ethical (they had earlier sworn by the Chilika lake deity, Maa Kalijai, not to harm nature), a part of it was pride in being able to harbour such a spectacular assemblage of birds, and a part was the hope that visiting birdwatchers would bring some income their way.' Mangalajodi's villagers, Wild Orissa, and the Orissa Forest Department are now trying to see if this initiative could spread to neighbouring villages, which would help spread a ring of protection around Chilika.

It is also important that some legal protection is offered to this area. However the legal support would need to take into account the fact that the Mangalajodi birds would not be safe but for the efforts of the local villagers. In any decision that is taken about the area, the consent of the local villagers is a must.

This case study has been compiled based on information provided by Nand Kishore Bhujbal of Wild Orissa and Ashish Kothari of Kalpavriksh in November 2006.

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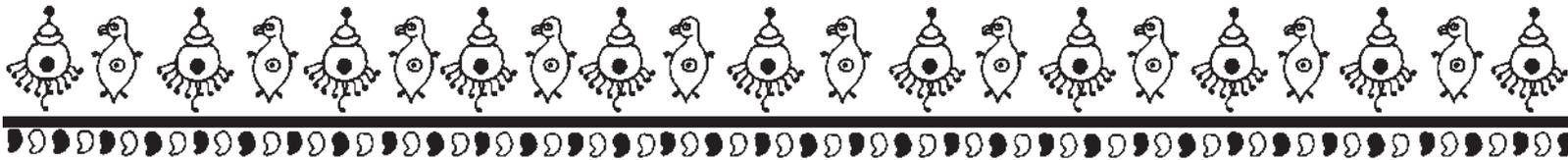
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Rushikulya rookery, Ganjam

Background

In the winter of 2005-06, one of us saw several hundred thousand waterbirds and waders in the wetland around Mangalajodi. Two of the ex-hunters who rowed us through the marshes proudly gave us the names of the birds (in English and Oriya), and explained their motivation for protecting the birds. A part of it was ethical (they had earlier sworn by the Chilika lake deity, Maa Kalijai, not to harm nature), part was pride in being able to harbour such a spectacular assemblage of birds, and a part was the hope that visiting birdwatchers would bring some income their way. Mangalajodi's villagers, the NGO Wild Orissa, and the Orissa Forest Department are now trying to see if this initiative could spread to neighbouring villages, which would help spread a ring of protection around Chilika.



Olive ridley turtles mating at sea
Photo: Ashish Kothari

Rushikulya rookery is one of the examples where the community is playing crucial role in conservation of Olive Ridley sea turtles. The Rushikulya sea turtle rookery came to the knowledge of the scientific community in 1994, when the Wildlife Institute of India discovered this place as the third largest rookery for Olive Ridley sea turtle nesting. The rookery is situated on the sand-pit of Rushikulya estuary near Ganjam. The fisherfolk from Purunabandha, Palibandha, Gokhurkuda and Nuagaon are entirely dependent on the estuary and the offshore waters for their livelihood.

Now Rushikulya is becoming famous due to effective conservation of Olive Ridley turtles by communities, and the degradation of other two major turtle congregation areas—Devi and Gahirmatha—where mass nesting is rarely taking place due to massive killing of turtles by illegal fishing activities. Thus the people at Rushikulya play a vital role in protecting this globally threatened species.

Box 1

Basic information on olive ridley sea turtles (*Lepidochelys olivacea*)¹

Olive Ridley are the smallest of the sea turtles, weighing about 50 kg, and measuring about 60-70 cm. They are named after the olive colour of their heart-shaped shells. They nest between November and April, when they must have access to undisturbed beaches where sand is deep and loose above the high-tide line. Generally Ridelys prefer wide beaches and sandbars at the river mouth. Their diet consists mainly of jellyfish, prawns, crabs, sea urchins, fish and other creatures. They help in increasing shrimp catch by preying on jellyfish that eat shrimp juveniles.

Turtles migrate several thousand kilometres from their feeding grounds to the nesting ground. The males and females court and mate in the water off the breeding grounds. Olive Ridelys start migrating during September, and start nesting during November. The nesting season goes on up to March-April, and even up to May. The females come ashore to nest mostly at night. They find a suitable nesting site, clear away the sand, and dig out a flask-shaped nest with their hind flippers. The nest may be 2-3 ft deep, depending on the turtle's size. Each female lays 60-150 ping-pong-ball-sized eggs. The eggs are about 4 cm in diameter. Once the turtle starts laying eggs, she goes into a 'nesting trance', and usually cannot be disturbed. After laying the eggs, she uses her flippers to fill the nest with sand. She then throws sand around the nest for camouflage, and returns to the sea. Olive Ridley nest 2-5 times (on average twice), and the time span between each nesting ranges from 46-58 days. After the season is over, the turtles migrate back to their feeding grounds until the next breeding season.

Hatchlings develop in the next 40-50 days, and generally hatch during the night to avoid predators like birds, dogs, crab, etc., and scouring heat. Hatching at night also helps the hatchlings to find the path towards the sea, as hatchlings select the brighter horizon on the



surface of sea due to reflection of the stars and move towards the sea. They enter the sea and start swimming against the waves. During this process, the hatchlings get imprinted with the earth's geo-magnetic field, which helps them return to their 'natal' beach when it is time to breed. The hatchlings' growth to adulthood may take 15-20 years. Experts have estimated that only one hatchling in a thousand survives to adulthood.

Status and threats

Though there are various natural enemies of Ridleys, like jackals (*Canis aureus*), kites, gulls, crows, dogs, etc., there are also other menaces like predation upon turtle eggs and hatchlings and other natural causes like delayed mass nesting, high waves, heavy rain, strong winds and erosion of nesting beaches that destroy thousands of eggs each year. However, Olive Ridleys are now endangered because of human activities like uncontrolled fishing and destructive developmental activities along coastal areas. Ridleys are also a Schedule I species according to the Wildlife Protection Act, 1972. Between 1960 and 1970 there was an organized trade of live turtles and their eggs. This trade was brought to an end because of conscious efforts of the Wildlife Department and the support of other related departments. In the mid-70s trade became more difficult due to the Wildlife Protection Act, 1972, whereby trade in live turtles and their body parts was made a punishable offence. However the scenario now is different. The present causes of concern are:

- Marine fishing-related incidental mortality: Thousands of Olive Ridleys are washed ashore along the Orissa coast every year, which is the single greatest cause for declining sea turtle population. Orissa coast is becoming a mass graveyard of Ridleys, indicating that these fabulous guests of Orissa migrate thousands of kilometres to die. Since the last 13 years, more than 1,27,000 turtles have been found dead on the coast of Orissa and as per experts' estimates 2,50,000 have been washed out into the sea during this period. These deaths are attributed to illegal exploitative fishing activities by trawls and gill-netters. Being air-breathing animals, the turtles are unable to breathe under water. In most cases, turtles get trapped in trawler nets and drown to death. The Turtle Excluder Device (TED) enables them to escape if they are trapped accidentally. But not a single fishing trawler in Orissa uses TEDs, though they are legally bound to use them. Hundreds of turtles get entangled in floating gill-nets laid by gill net fishing boats and die after a tough struggle. There are incidents in which the death toll due to entanglement in a single gill-net is as high as 1500. The illegal fishing in turtle congregation areas in the turtle season leads to massive turtle mortality.
- Bright lights from buildings in villages, towns, roads, highways, lighthouses and houses along the coast disorient the hatchlings, which lose their way: instead of entering the sea they go towards the land and die.
- Plantations along the coastline destroy nesting beaches, especially casuarina (*Casuarina equisetifolia*) plantations raised by the forest department along the coast of Orissa to reduce the impact of cyclones.
- Coastal pollution by industries and coastal cities.
- Various destructive activities like sand mining, coastal aquaculture, etc.
- Upcoming projects like oil refineries and port construction are posing a major threat by destroying major nesting grounds of Olive Ridleys.

Towards community conservation



Signboard announcing community turtle conservation effort Photo: Ashish Kothari

As described earlier, the Rushikulya rookery was unknown to the scientific community before 1994. Local people were knowledgeable about the nesting of turtles, as about 50-60 per cent of the local people are fishermen. Before 1970 local people ate and traded turtle eggs. Local people however never ate turtle meat. Turtle meat was transported to the Kolkata market. After the implementation of the Wild Life Protection Act (WLPA), 1972, it became very difficult for people to transport live turtles and eggs, as sea turtles are included in Schedule I of WLPA. Local people also consider turtles as a religious taboo, since the turtle is considered as one form (*avatar*) of Lord Vishnu.

In 1990 some local youngsters got involved in a study conducted by a researcher, Dr. Bivash Pandave from Wildlife Institute of India (WII), and were inspired to conserve turtles. They had begun to campaign against use of turtle eggs, trade of eggs and live turtles, and for provision of penalty for use and trade of turtles in WIPA, 1972, among local people. Owing to this awareness and religious beliefs, people stopped consuming eggs and engaging in trade of live turtles. Slowly they developed an attachment to the turtles and started protecting them, their nests and hatchlings. According to the Sarpanch of Purunabandha, 'People of Rushikulya became more conscious after one particular incident which touched everyone. A live female turtle was being transported to Kolkata by train from Rushikulya when the eggs started dropping from the gravid female. People felt sorry for torturing the sacred animal and slowly stopped consuming eggs of turtles and selling eggs and live turtles. Now different NGOs and the Wildlife Wing also started to work with community, on turtle conservation. In 1998, the Rushikulya Sea Turtle Protection Committee was registered by the youth from Purunabandha village. The committee has 27 members, all boys from the village. The committee has now established an interpretation centre with the help of funds donated by some well-wishers. The group was also helped financially by a local NGO called Wild Orissa for some activities. The members of the committee protect the beach and clean it before the hatching season.



Youth of Gokhurkunda and Purunabandha villages involved in turtle conservation

Photo: Ashish Kothari

After the committee's recognition in 1994, the forest department has been conducting annual counts of the nests. During the nesting and hatching period about 10-20 youth from the village help the FD with protection of the nesting site. Even those who do not get paid by the department often come forward voluntarily to help with turtle protection. The FD also appoints 3 guards during the nesting period (November-March) from among the local youth. Once the eggs hatch, many community members participate in the process of releasing the hatchlings into the sea.

As mentioned earlier, female turtles have to come on land to lay eggs, where they come in direct contact with humans. Therefore in this phase of life, the turtles require protection. The people in Rushikulya have already stopped consumption and trade of turtle eggs and live turtles. Furthermore about 10-20 youths in each of the four villages (Purunabandha, Palibandha, Gokhurkuda and Nuagaon) are involved with the Wildlife Department in the turtle census and protection during nesting. Earlier this was done voluntarily by local groups; and now in return for this these youth get a honorarium on a daily-wage basis.

For protection of nests, villagers avoid walking on the nesting beach during the hatching period (March-April), so that the eggs are not damaged. At the time of hatching, villagers protect hatchlings from their natural predators and collect disoriented hatchlings to immediately release them in the sea. For this the people discovered a method in which a 'zero' net was used to fence the mass nesting area; now the forest department is providing this net along the nesting beaches. The disoriented hatchlings get aggregated on the edges of the net and are collected in the early morning and released in the sea by the volunteer. In this process all the villagers, including women and children, are actively involved in protecting hatchlings.

The community is not only involved in giving protection to turtles on land but is also taking measures to avoid turtle deaths in the sea. Community members have been practicing different norms for fishing during the turtle season, like the use of specific type of nets, types of fishing boats used, assigning fishing zones, and so on. These norms have been developed over last few years by the experts working on turtles along with the local fisherfolk. Ashoka Trust for Research in Environment and Ecology (ATREE), an NGO based in Bangalore, has helped develop one model for fishing in the turtle season in village Gokhurkuda. According to one local conservation activist, the community, especially the fisherfolk community, has to pay the cost for turtle conservation, as in the peak turtle season, turtles break traditional fishing nets, the costs of which are very high for these marginalized people. At the time of nesting, female turtles congregate near the river mouth (estuary region), where they get food and suitable conditions for 10-15 days.

This is a difficult period for the fishermen of Purunabandha, who fish exclusively in the mouth of the river. Since turtles break fishing nets, fishermen have to stop fishing for the period of 10-15 days, which is a heavy loss for them. At the time of hatching too, hatchlings congregate in the river mouth, which also affects local fishery activities. However fishermen are ready to accept this loss in return for turtle conservation, which indicates a deep desire within the people to protect turtles.

This may be the reason why out of the three major Olive Ridley mass nesting sites in Orissa, Rushikulya is the only one where mass nesting has occurred in the last four years.

Another reason for fishermen to be able to participate in the protection efforts is the fact that the fishing rights of traditional fishermen are protected in this area. In other areas in Orissa, traditional fisherfolk are under grave threat from the trawl fishing industry, which has depleted the resources on which traditional fisherfolk depend. Due to the depth of the sea in this area, along with the presence of INS Chilika (a naval base) close by, illegal trawling has been controlled here to a certain extent. This gives the traditional fisherfolk a greater stake for conservation of turtles.

Impacts of community conservation

As explained earlier, Rushikulya rookery is becoming one of the vital sites for Olive Ridley conservation. The protection given to this species at Rushikulya is therefore contributing immensely towards the long-term survival of this endangered species.

However, one question remains: what is the community getting in return? Mr. Rao, secretary of the Jiva Sanrakshk Samitee, Gokhurkuda, says that turtles feed upon jellyfish. Since jellyfish feed upon shrimp and fish hatchlings, where there are turtles there are ample fish, and turtle conservation is consequently beneficial to fisherfolk. Besides, the community has now developed a symbolic relationship with the Ridelys, and the outside world relates their area to the turtles, which they are proud of. Such pride is intensified by their village featuring on television, radio and newspapers because of their efforts at turtle conservation.

Opportunities and constraints

Eco-tourism

Regular visits to the site by scientists and tourists, along with being featured on TV, has enthused the village community to extend protection to the nesting turtles. They also see it as a major opportunity and hope that this will create some local employment because of increased eco-tourism to the site. However, they have so far not received much support on this from the FD, which is officially in charge of the turtle conservation in the area. In fact, one big hotel worked out a tourism programme for Rushikulya but kept the village and the villagers out of it. The package included bringing the tourists to the site, showing them turtles and taking them back to the hotel, without any financial or other benefits trickling to the community. This was vehemently opposed by the local people and was consequently shelved by the hotel. Villagers are disappointed that there have been no efforts so far to develop a similar plan with them by anyone, be it NGOs or commercial set-ups. The FD prohibits local youth from entertaining tourists. They do not facilitate any regulated eco-tourism programme in which the youth could take an active participation without affecting the safety of the turtles.

Trawlers

One of the major threats to the turtles that come here to nest is the trawl fishing (as explained in Box 1). Trawlers have resulted in the death of hundreds of turtles every year along the coast of Orissa. Traditional fishing in this area ranges from simple boats to mechanized boats, but these are known not to harm the turtles to the extent that the trawlers do. The Orissa Marine Fisheries Regulation Act, 1982 (OMFRA), along with the Orissa Marine Fisheries Regulation Rules, 1983, sets sustainable fishing standards, limiting both the number of mechanized fishing boats and the area open to them for fishing. Non-mechanized traditional fishing boats are allowed to fish unrestricted. No mechanized fishing is allowed within 5 km of the entire stretch of the Orissa coastline. Only mechanized boats with a length less than 15m are allowed to fish the stretch from 5-15 km. All mechanized boats above 15 m length are allowed to fish only beyond 20 km of the shoreline. The use of TED is also mandatory under OMFRA. Additionally, in December 2000, the government of Orissa also prohibited mechanized fishing within 20 km from the high-tide line along a 150-km stretch from the mouth of the Jatadhar river to the mouth of the Devi river, and from the mouth of Chilika lake to the mouth of the Rushikulya river. This ban is from 1 January to 31 May every year. Local fishermen support this move, since, in addition to being a threat to the turtles, trawling also impacts local fish catches. Despite all the laws, however, illegal trawling has not stopped and continues to threaten the turtles, marine life and the livelihoods of the traditional fisherfolk.²

Depleting marine resources and the inability to control trawling has caused dissatisfaction among the traditional fisherfolk, as they see trawlers continuing while they cannot fish in the turtle season because of the fear of nets being torn. The loss of income to traditional fishermen has often meant that they have turned to the illegal practice of casting zero-mesh nets along the beaches and river

mouths for shrimp seedlings. This results in further deaths of turtles, who cannot come out of these nets.³

Lack of support from FD

A lack of support and difficult communication and interaction with the forest officials in charge of turtle conservation is another major problem faced by the villagers. According to the local youth, the FD has a tendency towards creating plantations along the coast. Such plantations are detrimental for nesting sites, as dunes are required for nesting. Some plantations done in the village Gokhurkuda have reduced the area available for nesting.

Youth also feel that the FD should involve the local youth more actively in the protection activity and the funds thus saved could be used for the overall development of the village community. But they claim that the FD, on the contrary, is late in doing what is mandated to it. For example, nowadays the nesting beaches get very dirty, which the youth claim directly affects the temperature required for hatching. The FD is supposed to clean the beaches, which they do not carry out in time. The local youth then take an initiative to clean the beach but are not paid anything for this. The greatest problem that the youth face is a lack of communication with the FD, a lack of any forum that can be the interface between the people and the FD.

Conclusion

Considering that Rushikulya is now among the few safe nesting sites for the Olive Ridley, government should make it a priority to start a dialogue forum with the local people and recognize, facilitate and support their initiative at conservation. There is also a possibility of the area being declared a Conservation Reserve under the Wildlife Amendment Act, 2003, which needs to be explored. However the declaration should be done only after absolute consent of the local people and after taking into account all their concerns.

This case study has been contributed by Smita Ranjane, Rabindranath Sahu and Neema Pathak in December 2006 with the help of Vasundhara, Bhubaneswar and the Rushikulya Sea Turtle Protection Committee, Purunabandha, Ganjam, in April 2006.

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Endnotes

¹ Source: B. Pandav, and B.C. Choudhury, 2000, Operation Kacchappa leaflet; leaflet of World Turtle Organization intended for Olive Ridley Conservation awareness.

² B. Wright, and B. Mohanty, 'Operation Kachhapa: An NGO Initiative for Sea Turtle Conservation in Orissa', in K. Shankar, and B.C. Choudhury, (eds.), *Marine Turtles of the Indian Subcontinent* (UNDP and Wildlife Institute of India, Dehradun, (2006).

³ (As above).

Jhargaon village, Jharsuguda

Background

Jhargaon is a large village which is on the border between Orissa and Madhya Pradesh. Forest conservation is being practiced here for several decades now. According to the people the village is more than 300 years old. It has two main hamlets: Jhargaon and Dayadera. Jhargaon hamlet is further sub-divided into Kulitapada, Harijanpada and Gond Pada hamlets. Dayadera has four sub-hamlets: Kulitapada, Khariapada, Gond Pada, and Bhuiyan Pada.

The protection efforts of the people go way back in time. They are said to have started when the village itself was established. Despite internal differences between the two main hamlets, the village has always stood together for the protection and the management of the forest.

The forests of this area were under the Zamindar till 1950. After the abolishment of the Zamindari system,¹ the forests were treated as an open access resource, which led to indiscriminate felling of trees. Further destruction was caused by coupe-cutting (clear-felling of forests in patches) by the forest department.

Jhargaon has 100 households and nine caste groups: kulita, goud, khariar, bhuinya, bhuinhar, kondh, gond, harijan and brahmin. The major economic activities are agriculture, wage labour and headloading. Kulititas are the largest landholders; they are also economically and numerically dominant in the village. They are, however, not considered big farmers by many people, as they manage to produce only for self-consumption and do not employ any regular labour. There are only three landless families in the village. Few villages possess fields outside the village. Besides the kulititas, the goudas, gonds, brahmins, bhuinyas and bhuinhars are dependent on agriculture for sustenance. The harijans and the khariar people own less land. The latter depend on share-cropping within the village and go for casual labour jobs in the neighbouring areas. Harijans are mostly dependent on headloading. Barring two households, all are engaged in kendu leaf collection, which is the major occupation of the women members of these families. Two Khariar families are engaged in leaf-plate making throughout the year. People also collect mahua and char or charoli seeds from the forest. Out-migration rarely occurs these days.

History of forest protection and management

This village was part of the Chandrapur (40 km from Jhargaon) Zamindari till 1950, when the Zamindari system was abolished. Thakur Birendra Singh of Chandrapur controlled the village and had allocated 159.60 acres of *gochar* (grazing) land to be used by the villagers. Proper use and management of the *gochar* land over the years led to a good forest cover. Low human pressure ensured that forests were dense and met all the local needs. Other forest areas surrounding the village were reserved by the Zamindar (designated as protected reserved forest by the government after abolishment of *zamindari*). Forest guards were appointed to look after the other *zamindari* jungle.

Kulititas played a major role in the management of the forest allocated to the village. They prevented people from cutting green trees, while ensuring access to all in the village. Underprivileged communities like the Harijans and tribals were given special forest rights and concessions by the Zamindar, and were exempted from giving gifts and free labour. While the Jhargaon villagers were allowed to collect forest produce without permission, the neighbouring villagers had to take a license from the Zamindar, under the supervision of the villagers from Jhargaon.

The rules for the management of the forests included:

1. Rs 3 for getting wood to make a plough.
2. A license was required to get wood or fuelwood from the forest.
3. No such license was required for the collection of NTFP.
4. In case of offences, the landless had to pay through their *malgujari* (free labour) while the rest were asked to pay fines in cash.
5. Forest fires were controlled with the help of villagers who were compensated with a payment of



2 sers paddy (worth Rs 2–5) for half a day's work.

6. Hunting was strictly restricted. Only the Zamindar hunted and was accompanied by villagers beating drums to chase the wild animals.

Many of the elaborate management practices established during this time are in fact still in existence.

Towards community conservation

With the abolishment of the Zamindari system, deterioration of the forest began. Soon after these forests were taken over by the government, they turned into an open access regime with no rules and regulations. Under major settlement in 1976, they were given the status of *khesra* forest (meant to meet local needs). Relaxation in forest rules post-independence, withdrawal of forest guards, urbanisation, etc. opened the forest to logging. Harijans made a shift from contract labour to forest-based livelihoods. The *khesra* forest was indiscriminately exploited during this period. It was during this period that the Kultas motivated other caste groups to initiate collective protection. In the meantime the government undertook forestry operations and timber felling in the surrounding reserved forest, leading to major destruction. It became difficult to control indiscriminate exploitation of the forest. By 1961, the forest was reduced to bushes.

For the first time, in 1970-1, sixty households, who were members of the forest protection group at the time of the Zamindar, formalised the institution with the appointment of an executive committee (EC) comprising eleven members. These members were selected from all castes (but mostly from the Kulita caste) and no women were involved. The protection effort continued for five years with an informal set of rules. The villagers paid one *tambi* (approximately 900 grams) of rice to the paid watchers, which was contributed by all member households in the village. Every member household was to get an equal share in the forest produce. This was the only formalized rule. A fine between Rs 5 and Rs 15, depending upon the type of tree and the degree of offence, was fixed.

Despite this protection effort the pressure from other villagers did not reduce. The offences were in fact on the rise. The situation became worse when one of the members of the EC was found guilty. This general dissatisfaction amongst the villagers led to the breakdown of the protection efforts. The paid watchmen also failed to perform their duty and did not show any personal interest.

Subsequently a second attempt was made in 1981, and a new committee was formed by the youths of the village. They started keeping rough written records, which were not systematic and eventually got destroyed. The rules were:

1. The *palli* system was introduced, wherein a stick is kept in the evening at the doorstep of the person who has to go patrolling the next day.
2. One person from each hamlet was to go for patrolling.
3. Every member who had a share in the forest produce would have to contribute towards *palli*.
4. In case a member could not go for *palli*, he would have to ask someone else to go or would be fined a day's wage.
5. A watcher could be excused from duty in case of any emergency.
6. *Char* collection was allowed for only two days in a year. The committee would decide which these two days were to be and announce it a day before the collection.
7. Cutting of fruit and timber trees like sal, shishu, mahul, gamhar and char were strictly prohibited.
8. Other species could be cut for wood and other purposes.
9. An individual found felling fruit trees would be penalized with an amount between Rs 50 and Rs 100. If the offender refused to abide by the ruling, then social pressure was applied.
10. For house repair, dry wood and bamboo was given, subject to the permission of the EC, which would verify the need.
11. The products from the cleaning-up and thinning activities in the *gochar* plot were distributed to all members irrespective of their economic status.
12. Since women were not allowed in patrolling, the households headed by women had to pay one day's wages for hiring labour during their patrolling turn. On not doing so, that household was debarred from the share of forest produce.

In 1986, a more systematic attempt was made with the intervention of the forest department (FD). The villagers were asked to maintain records more properly. In 1990 the forest department made the existing EC into a forest protection committee (FPC). Some women were included at the behest of the FD, but their participation remained token. The composition of the committee changed after nine years. An eight-member advisory committee was formed and new rules were added to the old ones to suit the prevalent situation. These included:

1. Patrolling members could not return with any fuelwood, only brush-sticks and leaves were allowed.
2. An offender caught for the second time would be fined double the amount.

Much later, in May 1999, the committee declared a total restriction on collection of forest produce from the Khesra forest. This decision was taken due to increased illegal cutting of trees. No specific rules exist for grazing, except that cattle are not allowed into the forest area during the regeneration of young bamboo shoots.

The formation of the VSS took place in 1994 under the joint forest management scheme of the government and a micro-plan was prepared in 1996. In 1997, Jhargoan and its neighbouring village in MP, Ektaal, decided to strengthen forest protection. They forged an agreement for the reciprocal exchange of protection and punishment processes to check wood theft. According to the agreement, the two villages help each other in catching the offenders and keep a watch on the entire patch. The punishment is administered promptly irrespective of it being day or night. The agreement goes to show the foresight of the villagers of Jhargaon, which has heavily contributed to substantially reducing the threat to the patch protected by Jhargaon.

Impacts of community effort

Protection efforts brought back the biodiversity in the degraded forest. A wide variety of plant species can now be seen in the forest; wild animals have also increased. There are many incidents when sloth bears destroy the sugarcane fields. Wild boars and monkeys are now in plenty. Villagers are facing great difficulty in growing crops because of the increase in wildlife. According to the villagers, the regeneration of forests has brought back many medicinal plants that were lost during degradation and the local *vaidyas* (traditional healers) are able to get raw material for their practice. Sal leaves are also available throughout the year now, thus providing sufficient materials for the two khariar households for leaf-plate making.

Though there is a long-standing conflict between Dayadera and Jhargoan hamlets, forest protection has enabled them to build bridges and work together. They come together for patrolling, apprehend and punish the culprits. Matters relating to forest management are decided together. Thus the protection effort has strengthened the institution of the village community as a whole and added to its cohesiveness.

One negative impact of this initiative has been on those people, especially women, who are dependent on collection of bamboo and fuelwood for sale. Now they have to walk longer distances to collect firewood. Due to increased forest protection and awareness, they have to face many problems. They are also unable to get bamboo shoots either for self-consumption or sale. Khariars and Harijans earned substantial income from the sale of *kardi* (bamboo shoots), which is not allowed any longer, impacting their livelihood. Although even those who have been negatively affected by these bans feel that banning the sale of bamboo shoots is good for the forests, they do feel that collection for self-consumption should be allowed. Now that the villages in the neighbouring state of Madhya Pradesh (where they were collecting wood from after the ban) have also started forest protection, they have to secretly bring wood from these areas. The pressure from the committee, they say, increases when there are increased incidents of tree-felling.

Opportunities and constraints

Jhargaon was the first village in the entire Belhapad range where a VSS was formed.

For the villagers, the formation of the VSS under JFM is a security against the constant fear of this area being brought under mining. They believe, and were apparently also told by the FD, that creation of a VSS would protect against such threats.

On the other hand, a number of promises were made to the villagers at the time of formation of the VSS and the micro-plan by the FD.



Among other things, they were promised:

1. A sum of Rs 60 lakhs, to be spent in the course of 7 years.
2. Construction of a community center .
3. A metalled village road to link up to the main road.
4. A reward of Rs 10,000 for those working well towards forest protection.

Thus the expectations of the villagers were raised but none of the promises were fulfilled. On one occasion money was used to fund the picnic of the forest department personnel who had camped in the village for preparing the micro-plan.

The villagers allege that the FD used to forge accounts and ask them to sign on false muster rolls. The funds that came under the micro-plan were misappropriated by the FD, and people were kept in the dark. The strictness of the protection did not receive any support from the FD, and in many cases the offender was let off easily or a lighter deal cut. There was no transparency, and hence the faith of the people in the community institution also declined. According to some villagers, the feeling of belonging is also not the same. In any case, villagers also feel that making the micro-plan has been a good step. It has resulted in the planned work getting completed in the first phase of the planning period.

The role of women in protection and decision-making is minimal. The two members appointed in the committee are mostly for name's sake. Most of the times their husbands represent them in meetings. The committee is not making any efforts to promote women's involvement. The institution has failed to create a suitable environment to foster the active participation of women.

According to forest rules, families contributing to the patrolling duty are entitled to a share in the benefits, but any new member can also avail benefits by contributing either in cash or performing extra patrolling duty to compensate with labour. The amount varies depending on the financial position of the family. While the rules for benefit-sharing of the forest produce apply equally to all individuals and families, this kind of arrangement regarding benefit-sharing can also be a hurdle, when despite having an interest one is unable to perform extra patrolling or pay a heavy compensatory amount.

Conclusion

It is not as if Jhargoan village never knew the importance of the forest. The villagers say that they are protecting the forest to meet their day-to-day needs. But the forest department has sent out wrong signals in terms of magnifying the benefits. If this trend continues, it is definitely going to put sustenance at stake for such community institutions.

This case study has been compiled from information contained in N.M. Singh, R. Panigrahi, R. Roy, C. Behra, and R. Dash, 'Devolution of Forest Management: Creating spaces for community action for forest management. A case study of Jhargaon village, Jharsuguda District, Orissa' (Bhubaneswar, Vasundhara, 2001).

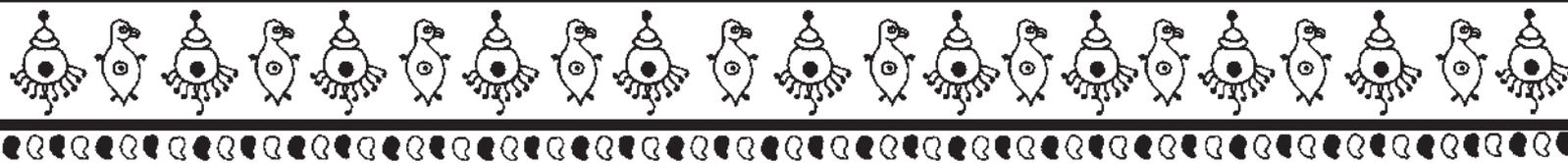
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Endnotes

¹ Feudal system that existed in this area prior to the Independence of India.





Budhikhamari village, Mayurbhanj

Background

The exploitation of the dense sal forests of Mayurbhanj began during British rule when the British set up a railway station at the district headquarters Baripada in 1921. From 1952 to 1972, Budhikhamari's Reserved Forests were managed under the working plan system prescribing clear felling. Commercial exploitation combined with continued fuelwood hacking and grazing constrained the restoration and by 1980 the forest was badly degraded. The emergence of timber mills around Baripada town created much of the pressure as it gave rise to illicit felling and timber smuggling. By the late 1970s, forests around Budhikhamari were decimated. In 1975, the forest department officially declared about 10,000 ha patch of forest land as nonexistent and the entire forest was clear felled in no time. Ninety-five villages in the periphery of the forest lost their only source of income.

Towards community conservation

There are two schools of thoughts about exactly how the forest protection began in Budhikhamari. According to Mahapatra (1999) the initiative in the village started on its own in 1983 when, after years of drought, a herbal medical practitioner proclaimed at a village gathering that the village would not survive if the forest was not regenerated. Gorachand Mahato, the current President of the Mayurbhanj Forest Protection Committee (FPC), and some of his friends took these words seriously. He, along with three other friends, started making rounds of the 90 households in the village to convince them to protect the forest. They realised that protection would not be an easy task as the forest was huge, and that if they did protect the forests there would be many people to destroy it.

Soon after this first step was taken, all extraction from the forest was banned. Villagers were permitted only to take broken twigs and dead branches from the forest. Five to seven people started patrolling the forest everyday, each armed with a stick (thenga). Each family in the village supported the initiative by sending at least one family member for protection. A FPC was set up. Its members travelled by bicycle and on foot to other villages surrounding the forest and persuaded them to protect the same patch of forest. Within one year, 15 villages were protecting the forest.

The villagers of Dubhiya caught and fined some villagers smuggling timber from the regenerating forest and the money collected gave birth to the institution called Purti Society, which now leads the FPC activities in the village.¹ In 1986, the Budhikhamari Joint Protection Party (BJPP), aided by Range Officer K.C. Mishra and Gorachand Mahanto, was formed. By 1998, BJPP had grown to include 95 villages and extended its protection to over 3,247 ha of forest.

On the other hand Poffenbueger (2000) states that the efforts for conservation date back to 1983 when the then Range Officer Mr. K.C. Mishra encouraged and supported the involvement of the local villagers in the forest protection. He started approaching communities and spoke to their leaders about severe shortages of fuelwood, fodder and other forest resources. Gorachand Mahanto agreed with Mishra and he formed a FPC in his village. Slowly with the support of the forest department other villages were also encouraged to form such committees. Villagers were initially sceptical but slowly they understood the importance and benefits of forest protection. In 1986 an association of the FPC was formed. In 1987 a meeting of 50 villages was called, in which many agreed to protect a 50 ha forest patch close to their village. They also agreed to select four young men from the village for the protection. After seeing the results of protection, 15 more villages joined the initiative in 1988. In the same year a multi-village mobile force was formed for patrolling a greater area of the forests.

Whatever the origin, the protection efforts progressed gradually and eventually representatives from participating villages formed an apex body called BJPP comprising the president and secretary of each member FPC, with all the positions elected by the members. In 1999, a woman extension worker was hired and has joined the executive committee. BJPP helps the member FPCs to resolve the disputes and liaison with the FD and outside NGOs. It also oversees the multi-village mobile squad for forest protection. The BJPP executive committee meets weekly; however, emergency meetings may be held whenever needed. The finances for the FPC are derived from various sources.



These include fees, fines, permits for collection of the forest produce, etc. BJPP also received rewards and grants, which take care of expenses.

BJPP is active in creating awareness among the villages. It often conducts environmental marches and has provided a unified front through which villages can deal with the forest department as well as the more powerful timber smugglers and fuelwood middlemen.

Budhikhamari, therefore, appears to be a good example of the forest department and the local community working actively together to protect, conserve and manage forests.



Impacts of community effort

The villages that are involved in the protection of the forests have benefited substantially. In first few years of protection, the availability of sal and tendu leaves rose markedly. Seed production has been improving gradually. In 1992, 78 tons of sal seeds were collected, generating an income of Rs 97,500. Similarly, production of karanj seeds and mahua flowers has also increased. Prior to the protection, a number of villagers were engaged in fuelwood collection and charcoal-making. Their livelihood was seriously impacted by the protection activities. These villagers have now switched to collection of sabai grass for rope-making as an alternative occupation.

According to the residents of Budikhamari village, the regenerating forests provide some kind of employment to every villager. Villagers are also free to collect the NTFP. Besides, the agricultural production seems to have increased because of the increased availability of water and increased fertility of land due to reduced soil erosion. Availability of fodder and fuelwood is also much higher than before. Thus the initiative has offered many opportunities as far as resource availability and livelihood options are concerned.

No biodiversity assessments have been done to ascertain the quality of the forests although visual impressions indicate a good regeneration.

Opportunities and constraints

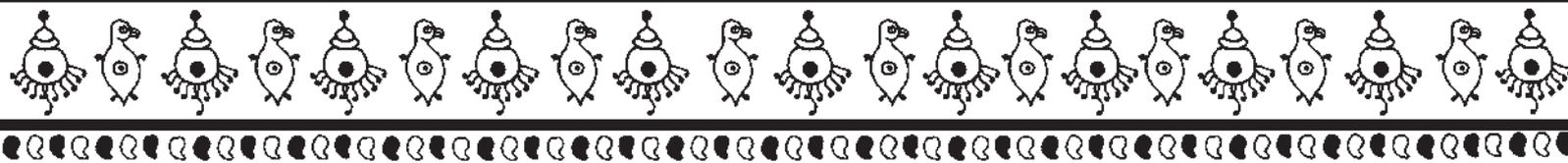
- Future leadership is one of the main worries for the continuation of this effort. Gorachand Mahanto is already a septuagenarian. Other local leaders in the area have not managed to draw the kind of respect that Mahanto commands within the community.
- Forest patrolling responsibilities seem to affect the economically poor people much more than the well-off families. Those heavily dependent on daily wages have to forego their days earning while discharging forest protection duties; on the other hand well-off families can afford to send someone not otherwise engaged in generating the households' livelihoods.
- The forest staff keeps changing every few years. New staff members bring in new ideas and often different from the previous officials. Since such initiatives rely largely on the personal relationship between forest staff and villagers, the villagers find it difficult to cope with the changes.
- Those involved with the mobile protection team feel a need for equipment such as flashlights and uniforms.

This case study has been compiled from the following three documents: M. Poffenberger, 'The Resurgence of Community Forest Management in Eastern India', in D. Western, M.R. Wright, and S.C. Strum, *Natural Connections: Perspectives in Community Based Conservation* (Inland Press, 1994); M. Poffenberger, 'Communities and Forest Management in South Asia, A regional profile of the working group on community involvement in forest management (WG-CIFM)' (World Conservation Union (IUCN) 2000); R. Mahapatra, 'On the War Path', *Down To Earth*, Vol. 8, No. 9 September 30 1999.

Endnotes

- ¹ R. Mahapatra, 'On the War Path', *Down to Earth*, Vol. 8, No.9 Sep 30, 1999.





Ghusuria village, Mayurbhanj

Background

Ghusuria village is located at a distance of 37 km from the headquarters of Mayurbhanj district at Baripada in the Barasahi block of Orissa. The *gram panchayat* of this village is at Kochilakhunta, about 3 km away here. Legally the forests around the village are reserved forests under the jurisdiction of the forest department. The village hastribal communities like the Bhumija, Bhuyan and Jogi Majhi, and non-tribals like Bindhani, graziers and peasants.

Before 1971 the forest near the village, known as Jagannathpur Reserved Forest, was very dense. Eventually, deforestation started and the green cover was reduced. The whole forest was turned into bushes and the villagers of Ghusuria and its neighbouring villagers started encroaching on the land for cultivation. The villagers of Ghusuria realized the situation. They were concerned about the encroachments in the area for agricultural purposes.

Towards community conservation

The conservation initiative began in 1973. Initially, the village formed an informal group, which included one member from all households in the village, to discuss about and conserve the forests. This group started meeting regularly, at least once a month or more, depending on the need of the community.

Through these discussions the villagers realized that one of the major causes of forest degradation was gradual encroachment of these forests. In 1975, the entire community decided to protect the forest from encroachments and consciously try and keep a check on deforestation. Two respected people in the village, Sunaram Singh and Gour Mohan Singh, initiated this process and took a lead in implementing the decision of the village. The villagers decided to patrol the forest on a rotation basis. Each day 10 persons patrolled the forest from morning till evening.

Gradually, the forest began to regenerate and encroachment stopped. Unauthorised felling of trees, however, could not be stopped completely. The leaders in this process received support from the FD in their conservation efforts. However, consistent negative interference of neighbouring villages demoralized the villagers. After 12 years of strict protection, the conservation effort slowed down. The people felt helpless as they could not check illicit felling. This slow phase continued for another three years.

In 1992, Sunaram Singh took the lead again and boosted the morale of the villagers. This time he tried to do it an organised manner, and the village constituted a village forest protection committee, with a president and a secretary as office-bearers. The office-bearers were selected unanimously by the entire village. This sincere effort has continued since then. The decisions related to conservation and management of the forests are taken by the entire village. In 1997, with the intervention of the NGO Mayurbhanj Swechhasevi Samukhya (MASS), a woman's committee was formed in the village.

In the year 1998, the Orissa Forest Department proposed this area for joint forest management. The local range officer of Betnoti Range formed a committee called *van samrakshyan samiti* (VSS) with representatives from the FD and the community. The rules and regulations formed by the committee are applicable to all members and forest users. Any violations get documented in a register and punishments are given to the offenders. The FD's role is mainly supportive and involves administrative and policing work. The villagers hand over offenders to the FD if conflicts cannot be resolved among themselves.

Impacts of community effort

The conservation initiative has helped in the regeneration of many species in the ecosystem which were endangered. Whether and how this initiative has affected the wild animals in the area is not known.



One clear economic benefit to the local communities from this forest is the availability of non-timber forest produce (NTFP). Sale of NTFP such as sal leaves, different kinds of mushrooms, resins, etc. brings substantial income to the villagers.

Opportunities and constraints

Out of the 185 households of Ghursaria, only 145 households are involved in the initiative. The villagers who are not involved are of a comparatively higher income group, educated and well established in society. They use resources from the forest through their labourers, but don't normally contribute to the process either in cash or through labour. Hence the village is clearly divided into two groups: the poor are conservationists and the rich are the non-contributing users.

Inhabitants from surrounding villages like Punasia, Junda, Belpal and Jalpada also collect subsistence materials from these forests, but do not contribute towards forest protection activities. The neighbouring villagers often encourage unauthorized felling and are the main buyers of smuggled logs and poles.

According to the villagers, the Lodha community living in Punasia village contribute to the illegal activities the most. Lodhas are entirely dependent on forests for their livelihood, and sale of logs, poles and timber is their mainstay.¹ Conservation activities directly impinge upon their livelihood and hence they have consistently refused to take part in the conservation initiative.

This case study was contributed by Deepak Pani in the year 2000, when he was working with the organization MASS (Mayurbhanj Swechhasevi Samukhya). He now works with Gram Swaraj.

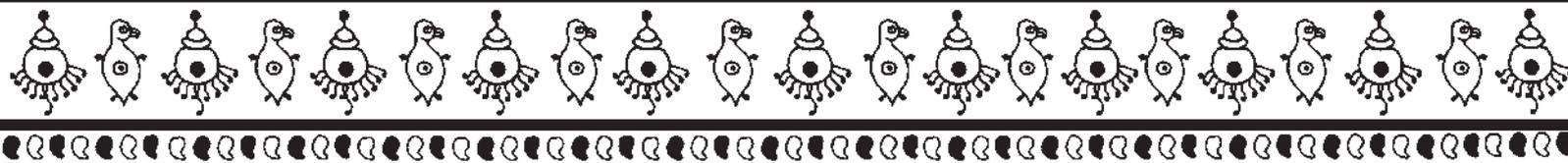
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Endnotes

¹ Editors' notes: It is not very clear from available information how this effort has impacted the lodhas, as they are the forest-dependent community and any kind of restriction would have a negative impact on their livelihood. It is also not very clear whether any kind of compensation was offered in exchange for loss of livelihoods as a result of conservation activities.





Kalikasole village, Mayurbhanj

Background

Sunaposi forest is a patch of forest located in the Chandua block of Mayurbhanj District in Orissa. This area comes under the Deuli Forest Range of Baripada Forest Division and has 11 villages situated surrounding it. This 5-sq km spread of forest is the main source of subsistence use and livelihood support of these villages and is legally classified as reserved forest. The ownership of this forest lies with Orissa Forest Department. Kalikasole village, inhabited mainly by the Santhal tribe, is the first village around this patch of forest where the conservation initiative began. The village is located 24 km from of Baripada, the Mayurbhanj district headquarters, and 7 km from the block headquarters, Chandua.

Towards community conservation

In 1979, there was a severe cyclone in Orissa. Powerful wind uprooted thousands of trees in the Sunaposi Reserved Forest. The forest department gathered these trees and sold them in the market. Taking the cue, the villagers illegally started cutting down living trees and soon the entire forest was reduced to nothing.

During that time, NTFP still did not have a big market. Collection of sal seeds was not introduced yet. The local tribals did collect some NTFP for self-consumption and sale in the local market. Income from this sale sustained them for about 3-4 months a year. In the lean period, the forest was an important source of food for them. These people were therefore severely hit by deforestation in the area.

Two villagers, Makardhaj Marndi and Ranjan Murmu, took the lead for conservation of one portion of Sunaposi forest adjacent to Kalikasole village. Six persons were selected to patrol the forest on a rotation basis.

The villagers soon realised the difficulties of protecting one patch of the forest without the cooperation of the neighbouring villages. They then initiated discussions with the neighbouring villages. Over a period of time five other villages started conservation activities.

Subsequently, in 1983, joint forest management (JFM) was introduced in these villages and a forest protection committee was officially constituted with the help of forest department for the management and protection of the forest. The committee in its general body meeting decides all rules and regulations, which every member is bound to follow.

The main community involved in protection are the Santhals, although the benefits are now being shared by all. The forest department largely plays a supportive role.

Impacts of community effort

The forest has regenerated considerably since the protection started. The villagers now derive substantial income from the forest. Besides meeting livelihood needs, they also extract food items and medicinal plants from the forest.

Opportunities and constraints

Although decisions relating to the daily management of the forest lie with the committee members, they are not consulted on policy-related matters, which are taken by the state government. The communities do not get the opportunity to express their views on policy matters, and are not even informed about the decisions taken unless they find out on their own or through the NGOs working in the area.

Differences between the conserving communities and the user communities seem to be gradually increasing, as is the inequity in relation to forest use and contribution to the conservation process itself.



The major thrust on regeneration, development and harvesting of *sal* trees has led to the neglect of other flora and fauna in this area. Recently, the villagers have decided to adopt systems of management such that contribute to the conservation of all elements of biodiversity and also contribute towards the adjoining wildlife sanctuary. The decision is too recent to assess its implications and efficacy.

This case study was contributed by Deepak Pani in the year 2000, when he was working with the organization MASS (Mayurbhanj Swechhasevi Samukhya). He now works with Gram Swaraj.

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Patharghara village, Mayurbhanj

Background

Patharghara village is located in Chandua block of Mayurbhanj district in Orissa.

This village is adjacent to a patch of forest legally classified as village forest and falling under the jurisdiction of the revenue department.

The tribal communities residing in the village are mainly the santhal, bhuyan, dehuri (kharia) and kudumi people. The village is divided into three hamlets and falls under Patihinja Panchayat. Cultivation, daily wages and NTFP collection are among the main sources of income for this village.

The villagers of Patharghara have traditional access to the surrounding forests. Besides collections for subsistence, the villagers' also use the forest for sericulture, which is a major source of income for the villagers. Over the years, with unregulated usage of the forest, coupled with the loss of forest cover in the neighbouring areas, much pressure was being exerted on this forest, and by 1986 the forest had already reduced to a few trees.

Towards community conservation

In 1986, the forest department conducted a thinning and coppicing exercise in the forest area. After the thinning, the forest stood bare, and the villagers actually realized how little forest was left in the area.

The village then decided to initiate conservation of the forest. Initially, the two members from each hamlet were selected to patrol the area regularly. After some time this patrolling system weakened. Villagers then decided to form a forest protection committee and started protection with more enthusiasm.

The village forest protection committee was established in 1988 and a secretary and a president were elected. The committee has been functioning well since then. One person from each family is on the general body of the committee. This 66-member general body meets at regular intervals and takes all decisions related to forest protection and management. All regulations and rules are recorded by the committee in the Resolutions Register.

Decision-making is entirely male-dominated, while the involvement in protection varies from hamlet to hamlet. Benefits of protection are shared with all villagers equally, though those more dependent on the forest put in more effort towards protection. This creates slight inequity within the community.

Impacts of community effort

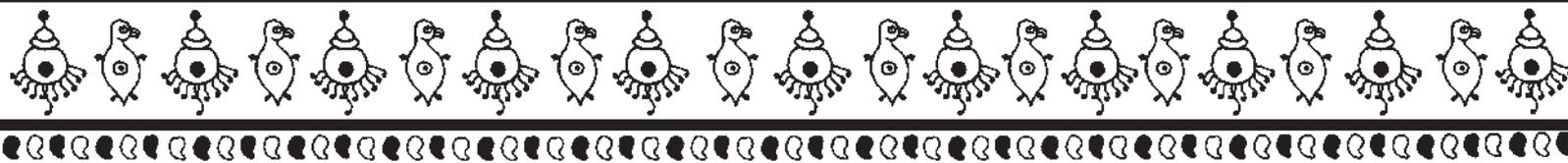
The local community has benefited by the increase in income from NTFP and subsistence collection. The forest continues to be used for sericulture. Fire protection measures have helped many species to regenerate and enriched the ecosystem.

Opportunities and constraints

Equity in benefit-sharing has not been achieved among different communities. In order to bring in gender equity, a women's self-help group has recently been formed with help of an NGO. This group is gradually beginning to take an active part in village meetings.

This case study was contributed by Deepak Pani in the year 2000, when he was working with the organization MASS (Mayurbhanj Swachhasevi Samukhya). He now works with Gram Swaraj.





Binjgiri hill, Nayagarh

Background

Binjgiri hill is located 14 km southeast of Nayagarh, a sub-divisional headquarter of Puri District in Orissa State. The hill is surrounded by eight villages, including Kesharpur, Nagamundali, Binjgiri, Puania, Angasingi, Badagorada and Sanagorada. The hill has a dry mixed deciduous forest, with species like mahua, amla, babul, dhobein or passi, bael, purple orchid tree, tendu or kendu, spinous kino tree and palash.

The total area of the hill is 360 ha. Prior to independence this area was a part of Nayagarh princely state. After independence it has come under the jurisdiction of the state and has been ascribed Protected Forests category, locally called *khesra* forest. The local people have rights for bonafide use of wood, e.g., wood for agricultural implements and house construction, fuelwood, etc.

The population of these villages varies from 182 to 1281. Badagorada has the maximum human population of 1281 and the minimum population of 182 is in Binjgiri. There is no tribal population in these villages and in most villages the khandais community is in the majority and hence in a dominant position. Puania and Sanagorada have a large scheduled caste population and there is no clear dominant caste as such. The main occupation in all villages is cultivation with the majority population consisting of small, marginal farmers and landless labourers.

The ecology, flora and fauna of the hill were virtually undisturbed until 1940. Older people remember a number of streams flowing through the forests in the hill. The scenario however changed after independence, when massive deforestation took place. By the late 60s, Binjgiri did not have any forest left.¹ The streams dried up and the surrounding villages that depended upon these forests faced scarcity of fuelwood, water for irrigation and threat of loss of soil fertility because of increased soil erosion.

Towards community conservation

In the 1970s Prof. Narayan Hazari from Kesharpur village, who was teaching in Utkal University, started writing letters to the villagers of Kesharpur expressing a strong concern about the degraded forests and urging them to act. Gradually this made an impact on a few of the perceptive villagers. Mr. Joginath Sahu, the headmaster of the middle education (ME) school got involved and started an environmental campaign.

As a result of this, the villagers of Kesharpur decided to protect a patch of Binjgiri in 1976. As the regeneration came up, the threat of pilferage from the neighbouring villages around Binjgiri increased. The villagers realized that in order to protect these forests they would have to involve other neighbouring villagers in the protection activities.

The environmental awareness campaign, already initiated in the early 70s in other areas through *padayatras*, slogans and meetings, was further strengthened and made action-oriented. This had an impact on other villages on the periphery of Binjgiri Hills and resulted in seven other villages also taking up forest protection.²

Before 1982, the protection was informally done. In 1982, a workshop was organised under the auspices of the National Social Service (NSS) in three villages—Gamei, Nagamundali and Kesharpur—which was attended by representatives from 22 villages of the area. At this workshop, 'Brikshya O' Jeevar Bandhu Parishad' (BOJBP) (Friends of Trees and Living Beings), a voluntary organisation consisting of members of these 22 villages, was formed. The leadership of this organization was in the hands of Joginath Sahu, Udayanath Khatia (a marginal farmer, Kesharpur) and Vishwanath (a schoolteacher). This led to the active management of Binjgiri hill by the eight villages and fourteen other villages provided support by restraining themselves from exploitation of the Binjgiri hill forest.



Brikshya O' Jeevar Bandhu Parishad and village governance

Brikshya O' Jeevar Bandhu Parishad (BOJBP) is an organization based on Gandhian philosophy and uses Gandhian tools like *padayatra*, fasting and *satyagraha* for averting threats to the forests. Villages that adhere to the BOJBP ideology follow an informal village governance system.³ The structure of these informal village institutions is almost the same in all the villages. Each village has a general body (GB), which consists of one member from each household in the village. The GB then elects members of the village council, which consists of 5 to 10 members. The office bearers of the council are president, secretary and treasurer, and are selected by the GB. The village council members are not elected but selected by common consensus. The process of selection of village council members is different in Kesharpur village. Here the villagers have evolved an innovative system of annual elections to reduce the possibility of nepotism. In this system, there are no candidates for any post. Villagers above the age of 18 years cast their vote by secret ballot bearing the names of five persons on it. The five persons whose names occur the maximum times are requested to become office-bearers.

Village council meetings are held regularly in all villages. The office-bearers do not hold the post by tenure; instead they are removed from their post as and when the villagers lose faith in them. Except Anasinghi and Binjgiri villages, none of the other villages maintain minutes of the meetings. However, all councils maintain accounts and the details of expenditure and receipts are presented to the GB at least once a year.

Management of common property resources by the village councils

The village councils have been traditionally managing the village schools, temples, village common lands, ponds etc. as common resources. Village ponds are mainly used for bathing and more significantly for pisciculture. The village council manages the pisciculture in the ponds and pays fees to the *panchayat* (an administrative requirement for obtaining the rights to practice pisciculture) from the village fund and arranges for seed collection, distribution and sale of fish.

Village common land is cultivated by the village council on a share-cropping basis. The council selects the person for this purpose and the village share goes into the village fund. In some villages, the village temple and its land are also managed by the village council. Councils in these villages also organize village festivals.

Forest management

The eight villages protecting Binjgiri have only a rough idea about their respective portions in the Binjgiri hills. There are no clear demarcation lines. They have framed a set of rules, defining the rights and duties of villagers, which include:

1. The forest is to be protected by voluntary patrolling on rotational basis following the system of *thengapalli* (stick rotation). In *thengapalli*, the household(s) assigned the patrolling duties for the day is given the intimation of the same by the '*thenga*' (wooden stick) placed at its door on the prior evening. Subsequently, the *thenga* is passed from household to household. The number of *pallis* (persons on duty) per day is determined by the village council, depending upon the forest area and the external pressure on the protected patch.
2. It is mandatory that every household participates in *thengapalli*. In case of inability to go on duty, mutual exchanges of duty or adjustments are allowed. Refraining from the duty without informing or without adequate reason invites compensatory duty on two days instead of one.
3. No one is allowed to cut any tree from the forest without permission. In case of an emergency, the village council can allow such permissions.
4. Dry twigs, fruits, seeds and flowers can be cut. Some shrubs specified by the village council can be cut for fuelwood.
5. The area is closed for grazing until natural regeneration or plantation gets established. In some villages, rotational grazing is practiced.
6. Nobody is allowed to enter the forest patch with an axe, except with prior permission of the village council.
7. The villagers can collect the stones for construction from the forest area for bonafide use only.
8. In case of threat to forest from outsiders, every villager is to help the *palli* on duty.

9. The person who violates the rules is fined. The fine depends upon the village council. Normally the offender is asked to apologize publicly.

During the initial years of protection, a few villages decided to disallow goat rearing. All the goats in these villages were sold off. Village councils allowed goats to be kept only after some regeneration took place. *Thengapalli* is generally discontinued where regeneration has been established, and the system of community vigilance is followed in these areas. Even the villages that still practise *thengapalli* discontinue during the agricultural season.

Kesharpur has another significant rule for the trees on the riverbank. It has been decided that the farmers who own adjacent farmlands will look after these trees. When a tree matures, the council takes the decision to fell the tree. The wood is then equally shared between the caretaker and the village. The caretaker also has full rights over the fruits and flowers from these trees.

Conflicts within or between villages are mediated by BOJBP. This body tries to resolve these differences through emotional appeals, tolerance and understanding. It discourages monetary fines or coercion, and promotes local arbitration at community level instead of external intervention to resolve conflicts.

Relationship with other organisations

Some forest officials express doubt about the success of such a management system. Various forest officials have however cooperated with the villagers on various occasions. Social forestry taken up by the FD on 44 ha of the hill has led to close interaction between the two. There has also been interaction with other government officials, such as the Sub-Divisional Magistrate and District Magistrate, who helped in stopping quarrying that was happening the forests. The National Social Service (NSS) organisation has also played a vital role as an external facilitator. Plantations on barren hill areas with the help of college students and environmental awareness campaigns formed a major part of these NSS camps.

Impacts of community effort

Kesharpur has become extremely green with a large number of trees in the forest and the village. Even small children can give detailed accounts of the trees they have planted. In this area, there have also been cases of demands for seedlings in dowry and plantations of trees as a part of death ceremonies instead of feeding Brahmins.

Forest protection and regeneration has become an end in itself instead of being merely the means for economic gain or for fulfilling the needs for forest produce. Nobody in the villages speaks of cutting of trees. Production of poles and timber which requires a longer gestation period seems to be of less immediate relevance.

However importance has been given to the production of fuel, either in the form of fuelwood or leaves and fodder. Since protection, the availability of both has increased. In Kesharpur, after the goats were given up, a large number of babul trees came up, particularly on the foothills and banks of ponds and river. This wood is now used for making agricultural implements, fencing and as fuel. Availability of fuel sources like leaves and twigs has increased. Increase in the availability of non-timber forest produce such as nuts and berries and their sale is now providing an additional income to harijan (Scheduled Caste) women. In addition, many kinds of roots, leaves, tubers, bamboo shoots, etc. are collected by the people for self-consumption.

With increase in vegetation, wild animals such as wild boar, sloth bear, black-naped hare, macaques, reptiles like Indian rock Python and many kinds of birds have returned to the forests.

Other benefits from the protection include prevention of soil erosion, increase in soil fertility, rise in water table and increase in rainfall. A number of streams that flow in Kesharpur now have water much after the monsoons.



Opportunities and constraints

Equity Issues

All residents of the village have equal access to the forest and rights to collect dried twigs, leaves, etc. are equal. But it has been observed that it is the poorer sections that mainly practice gathering, which is a time-consuming

process. The rich generally have trees on their farmland and sufficient agricultural residue as fuel, or else they purchase fuelwood. Thus it seems that the increase in NTFP and fuel materials of the forest benefit the poorer sections more, whereas the richer persons have benefited by way of better agricultural yields.

In *thengapalli*, it has been observed that the poorer sections suffer more, since due to their turn at patrolling they have to fore-go one day of labour, which would mean going hungry on that particular day. The richer sections often send one of their hired labourers when their turn at *thengapalli* comes.

The issue of equity also arises in terms of inter-village distribution: the area managed by the villages is not in proportion to their population and other villages which are at the same distance from Binjiri as the protecting villages do not get a share of its produce. In such cases, even when there is no equity the tradition survives.

Leadership issues

At present the people have faith in the BOJBP and the general feeling is that the organization is working for the common interest. Loss of faith in this institution may lead to the crumbling of the system.

Another factor, which may affect the sustainability, is the possible non-availability of the credibility and devotion of leaders like Mr. Joginath Sahu in future. The organization may not be able to survive without strong leadership.

This case study has been compiled from: S. Kant, N. Singh and K. Singh (1991) *Community Based Forest Management Systems- Case studies form Orissa* (Bhubaneswar, Vasundhara). We are extremely grateful to Vasundhara, an NGO based in Bhubaneswar, for the helpful contribution and comments on the first draft.

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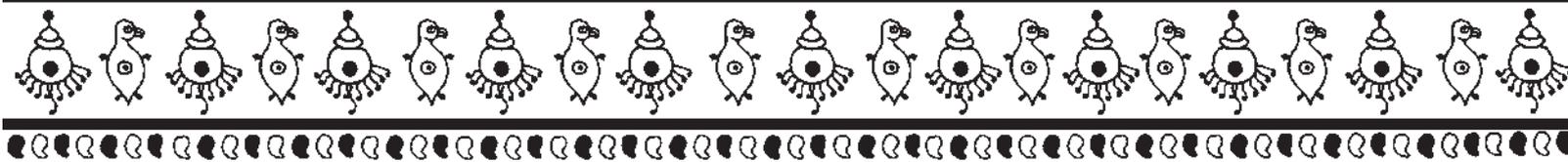
Endnotes

¹ The reasons for such massive degradation after independence are not very clear. However, it is possible that it happened after abolition of the landlord system in India in the 1950s, when the forests under the Princely States became open-access forests because of the estate losing authority over these forests and villagers not having any authority over them.

² Meanwhile other hills, like Malati near the village Manapur, were also protected and plantations were undertaken in other villages.

³ The village governance system appears to be working along with the official Panchayati Raj system in these villages. However, the exact working relationship of these village institutions with that of the *panchayat* is not very clear from the existing information.





Dengajhari village, Nayagarh

Background

Dengajhari village is situated in Nayagarh district of Orissa. The forests of Nayagarh were once dense, but they were plundered due to the setting-up of heavy industries and the pressure on the forest resources due to population explosion. The road from Bhubaneswar to Ranapur in Nayagarh district bears testimony to Orissa's desperate efforts to join the list of so-called 'developed' states. The road winds along barren and quarried hillocks, trees either felled or covered in dust and struggling to breathe. Burning *bhattis* (brick kilns) line the road to some of Orissa's well-protected forests. It is not long however, before the barren hillocks begin to give way to green ones, some lush with thick standing forests, others not quite there but definitely on their way. Ranapur range is known for two completely conflicting traits: on the one hand, hundreds of households derive their income from sale of illegally collected timber from the forests, and on the other, hundreds of villages successfully regenerate once-barren lands or protect still-standing natural forests.

The story of the people's conservation movement in Ranapur began sometime in the mid-1970s. More and more forests were crumbling under smuggling of timber, heavy industrialisation and increasing biomass requirements of the local people. Sources of water were drying up, women had to walk as far as 12 km daily to collect firewood for their hearths, and villagers began migrating for employment. Faced with an impending ecological disaster, many villages in Ranapur initiated forest protection and regulated use of resources within and around their villages. By 1990s, almost all the forests in the area were under protection by one village or another. There were few open-access forests left, leading to consequent clashes between the protecting communities and the illegal users. The need for a conflict resolution body and a support structure to fight against external pressures resulted in an organic grouping together of neighbouring villages into small clusters. Gradually, facilitated by some NGOs, including Vasundhara, various clusters came together to form a *parishad* (federation). Today, Maa Maninag Jungle Surakhya Parisad (MMJSP) stands strong as a composite body of 190 member villages. The federation helps villages with forest-related inter-village conflicts; interface with the forest department, other government agencies, NGOs and politicians; struggles against strong external pressures; and assessment of the ecological status of the protected forests. For example recently, Adivasi and Dalit women of the area have pressured the federation into taking up with the state government their demand for opening *kendu* (*bidi patta phadis*). Together these villages are conserving a contiguous patch stretching over many hill ranges. No assessment has so far been made of the actual area under such protection.

The villages that constitute the federation vary in their character and composition, some being multi-caste, while others are predominantly occupied by a single tribe. Some were once completely dependent on timber smuggling; some still remain so, while others have now gone on to other sources of income. Yet their stories are similar. Stories of forest destruction, realisation of the loss, community mobilisation and, finally, success—in some cases in the face of life-threatening clashes with the timber mafia.

Towards community conservation

Dengajhari is one village where the able support and intervention of the federation resulted in successfully thwarting external pressures. With that emerged a unique and powerful initiative by the women to become the caretakers of their forests. Dengajhari consists of 30 households dominated by the Kand tribe. The success that women here have achieved in regenerating and protecting their forests has come after a long struggle.

Like in the rest of Ranapur block, the once well-forested hillocks around Dengajhari had become barren by the mid-1970s. For local villagers, degraded forests meant walking much longer distances to meet their requirements and constant harassment by other villagers and the forest department. It was then that the villagers decided to regenerate and protect their forests. Two neighbouring villages, Lonisai and Madakot, joined in the effort. The three villages organised regular patrols to the forests and their efforts paid off as the forests started regenerating well. This lasted for about a decade, after which internal conflicts resulted in the breach of trust amongst the three villages. Each village then decided to protect its own forests independent of the others. Lonisai





Members of all-women's forest protection committee
Photo: Neema Pathak

and Madakot, being politically stronger and larger in size, could sustain their protection efforts. However pressure started mounting on Dengajhari, which was a small and politically weak village. Patrolling parties, all men, began to face serious threats from the timber mafia and villagers were demotivated and discouraged. Additionally, time spent on patrolling started affecting the daily wages and to compensate for the loss men were often compelled to fell a tree.

In the meantime Ranapur Federation, with the help of an NGO named Vasundhara, started convening monthly meetings of the women from the member villages. The objective was to elicit better participation of women in the decisions related to forest protection. Women from Dengajhari regularly participated in such meetings. It was in one such monthly women's meeting in 1999 that women from Dengajhari expressed their disappointment at the situation in their village. They were also concerned for the safety of their men involved with forest protection. After some deliberations, the women decided to take on the responsibility of forest protection. Around the same time, on 26 October 1999, 200 people with 70 carts were seen entering the forest. The village men rushed to the forest department but received no help from them. All the village women gathered at the village temple, divided themselves into two groups, waited at the paths leading to the forest and besieged the offenders with spades and sharp weapons. The offenders, all men, were scared of retaliating because of social reasons. They feared that they could get charged with violence against women—that too, tribal women—which was legally a serious offence! The men ran off. Women then sent for members of the federation and forest officials. The felled timber was confiscated and sold by the villagers, and the money was deposited in the village fund.

After this incident, women started patrolling the forests regularly. Maa Ghodadei Mahila Samiti, a committee consisting exclusively of women, was constituted with help from Vasundhara. Although all meetings about village protection are open to all villagers, women are the main decision-makers. In a state like Orissa, where women's participation in decision-making is negligible, Dengajhari is among the few villages where even the monthly general body meetings of the Ranapur Federation are attended by women. The Federation has been a constant source of support and inspiration for these women.

The women have adopted the *thengapalli* practice for forest vigilance. Every day four women patrol the forest and by the evening the *thengas* or batons are placed in front of the houses that should take over patrolling the next day. The women's committee has also laid down certain rules for collection of forest resources. The small population of the village, which makes for a high amount of transparency and visibility of each other's activities, ensures that people abide by the rules. Timber is extracted only when it is required for agricultural or building purposes. A few other forest products such as date palm leaves, bamboo, etc. are extracted for crafting small articles, such as baskets, mats, grain stores, and so on. Commercial extraction of timber is strictly prohibited. For fuelwood, villagers are allowed to collect dry and fallen wood only. Poor families dependent on firewood sale for survival are also allowed to collect dry, fallen wood for sale. Hunting is strictly forbidden.

The Dengajhari women realised that the timber mafia often operates through local people of other villages. Therefore, those caught felling wood are tied to a tree in the village, and the president and secretary of their respective forest protection committee (considering that most

villages have one) are called to bail them out. Fines for stealing wood often depend on who the offender is. For examples, habitual offenders are charged much more than someone caught the first time; poorer offenders are let off with smaller fines.

Impacts of community effort

As a result of the protection by the villagers, the forests have regenerated and fulfil all the biomass requirements of the villagers. Dengajhari itself protected about 80 ha of lush green forest and, if seen in association with protected forests of adjoining villages, the green patch is considerably larger, and possibly contains significant wildlife populations. Villagers report leopard, sloth bear, mouse deer, even Asian wild buffalo (which needs to be confirmed), and a rich bird and insect life. In fact the villagers proudly claim that they now have elephants in their forests. It is indeed possible that the regeneration of the entire Ranapur range by hundreds of villages has created a corridor for species like the Indian Elephant to re-establish their migration, though it would require a scientific study to establish this.

The regeneration of forests has had many other non-tangible benefits, such as securing catchments for the water sources in the village. Probably among the greatest benefits has been the surging confidence among the women. This confidence is evident in the eyes of the women when they are recounting their experiences to the visitors. This confidence is infectious too: women from many smaller villages in the range, facing similar problems as Dengajhari did, are now in the process of organising themselves for forest protection.

Conclusions

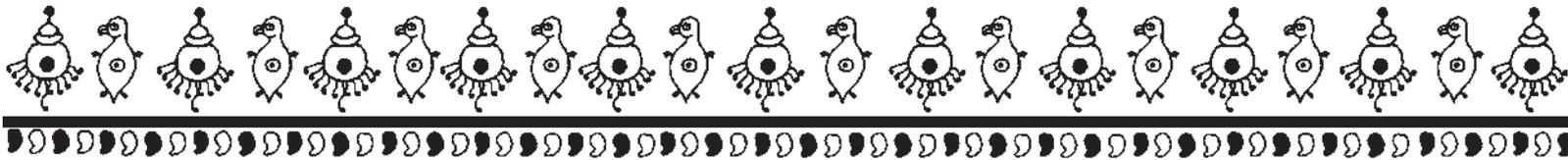
Much can be learnt from an assessment of what has driven these villages to start a conservation movement and move towards a district-level federation without much external input, or how women can be empowered enough to take on the threats that men cannot. These community initiatives can be supported by helping the villagers assess the biodiversity value of their protected forests. A range-level mapping exercise could also help in understanding the extent of area under such conservation and its value as an effective corridor for larger species like elephants. Strong encouragement would also come from recognising their efforts and ensuring a long-term custodianship over the forests that they are conserving, and generating innovative livelihood options.

This case study has been compiled by Neema Pathak, based on a field trip to Dengajhari by Neema Pathak, Ashish Kothari and Tasneem Balasinorwala of Kalpavriksh in January 2005. Prashant Mohanty of Vasundhara, Tasneem Balasinorwala of Kalpavriksh and Kundan Kumar from Orissa provided inputs for writing this case study. Information was also taken from Satyasunderam Barik, 'Woman Power', *Down to Earth* Vol. 10 No. 21, 31 March 2002.

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Dhani Panch mouza, Nayagarh

Background

Dhani Panch Mouza Jungle Surakshya Samiti is a case of collective forest management system, where five villages have come together to manage a forest as a common resource. The Dhani forest protection effort is one of the several thousand similar forest protection and conservation initiatives by communities in Orissa. Many forest-dependent communities have responded to the process of forest degradation by evolving local arrangements to conserve and manage forests. These local arrangements seek to regulate access and control over neighbouring forest patches and in effect bring open-access forests under the common property regime (CPR) regime of the communities.

Dhani forest is located in the Ranpur block of Nayagarh district in the south of Orissa. It is situated at a distance of 73 km from the capital city Bhubaneswar. It is a large tract of reserved forest having mixed dry deciduous type of forest vegetation. Dhani forest has an area of about 2200 hectares, out of which 839.75 hectares is being protected by a group of five villages since 1987. The five villages (Barapalli, Arjunpur, Kiyapalla, Balarampur and Panasdihi) have formed a joint forest protection and management committee called the Dhani Panch Mouza Jungle Surakshya Samiti. The population of these villages consists of Brahmins, Khandayats, Harijans and tribals. The tribes include Saoras and Kandhas, who are forest-dependent communities. The Brahmin and Khandayat (farming community) castes are the influential people. Of the five villages, Kiyapalla and Panaspur are purely tribal settlements. The village Balarampur has a significant tribal and Scheduled Caste population, while in Barapalli and Arjunpur the dominant caste is the Khandayats.

Dhani Reserved Forest was historically part of Ranpur *gadajat* (Princely State), which had a semi-independent status during native Hindu rule and in the subsequent British period. Under British influence, Ranpur estate also initially categorized its forests into two formal forest tenures: Reserved forest (RF) and village forest. RFs were further categorised into A class reserves and B class reserves. In A class reserves, people had no rights, but there were special considerations for the poor in the estate and they were allowed to collect fruits, roots and fibres for their own use without any payment. The B class reserved forests were used to meet the needs of the tenants, from which people got timber of reserved species at half the schedule rates and that of unreserved species at one-fourth of the rates for bonafide purposes. The second major category was the *Khesra* Forests or the Village Forests, which was differently known in different localities. Till 1918, the forests of Ranpur estate were under the Police Department. In 1918, after the forest department was established in the estate, the forests came under the forest department. Within the *Khesra* forests the tenants were allowed to collect bamboo and timber for agricultural implements and house repairs by obtaining permits from the king. Certain species could be taken freely from the *Khesra* Forests for their domestic/agricultural needs. At times people were allowed to collect their forestry requirements free of cost in lieu of *bethi* and *begari*.¹ Every year the king issued permits for a period of one month for collection of timber etc. for bonafide purposes. The Kandha and Saora tribes of this area enjoyed special concessions on use of various NTFPs for own use. Yet, Ranpur estate had strict rules and regulations, which prevented the people from exploiting the resource with full freedom. Offences such as collecting unripe fruits or hunting of wild animals were strictly dealt with. More than thirty tree species were declared as reserved, which were reduced to nine in the early 1940s. People were not allowed to cut these species without permission; they could however be cut for self-consumption on obtaining permission. People were free to collect fruits and flowers of the declared reserved trees without permission except for mango, jackfruit, tamarind, kamlagundi, kochil, harida, bahada and aonla. But there existed strict restrictions on selling or exporting trees without a permit.

During the royal period, the forest was abundant and local people did not face any scarcity of forest produce despite strict restrictions on access to the forest. After Independence, as the estate was taken over by the Indian government, pressure on forests for forest produce as well as on forest land for conversion to agricultural land began mounting. In the late 1950s the FD also gave permits to the local contractors to harvest timber. The local people also accelerated tree felling in a rush to get some wood/money while they could. By the mid-60s most of the low-lying forest areas were completely devoid of large trees. The forest department took up a teak (*Tectona grandis*) plantation in the area harvested by the contractors. This teak plantation as also Dhani Reserved



Forests had completely degraded by 1980. Apart from the above-mentioned reasons, disinterest of the forest department, rapid urbanisation in the nearby areas, illicit smuggling of timber and the extraction of rootstock contributed to this degradation.

Towards community conservation

Degradation of the forests seriously impacted the villagers. People had to traverse long distances to collect fuelwood and timber. A variety of food items such as fruits, tubers and leafy vegetables that supplemented food, especially during the lean season, disappeared gradually. The impact of drought and crop failure became more acute in the absence of the life-sustaining food-flow from forests. Forest degradation had other implications too. The stream originating from Dhani started disappearing. Soil erosion in the upper reaches of the hills affected soil fertility in neighbouring fields. Out-migration of people in search of work intensified. Droughts became frequent, which brought in the feeling that forest degradation was one of the main reasons for such recurrence.

Villagers realised that forest degradation affected them the most, and hence the initiative to reverse the trend of forest degradation would have to come from them. Since the above-mentioned five villages shared traditional socio-cultural ties and were dependent on the forest, they decided to join forces to protect the forests. In successive combined meetings between these five villages (facilitated by some notable individuals) during 1985-7, a decision was taken for joint protection of the Dhani South Reserved Forest. A set of rules and regulations were framed to ensure smooth management of forest protection, the umbrella rule being that 'the entire forest area is declared restricted and nothing is allowed free from the forest.' Initially, a lot of effort had to be put to contain the pressure on forest from the other villages. Five persons from each village formed squads for patrolling the forest. As the pressure on the forest reduced, the number decreased to two persons per village.

Formalisation of forest protection and management happened on 10 September 1987 with the formation of a forest protection committee, named as Dhani Panch Mouja Jungle Surakshya Committee. The committee discussed extensively the various problems relating to forest, their causative factors, and ways to tackle these. The committee identified *taila* cultivation,² rootstock extraction, heavy grazing and fuelwood extraction as sources of heavy pressure on the forests. A process of negotiation was initiated with the *taila* cultivators, and the committee gradually convinced them to stop cultivation. Similarly, notices were issued to all villages in the area intimating them about forest protection. Strict rules were laid down for dealing with the pressures. The committee apprehended the offenders and imposed fines on them. In the initial days of protection, conflicts were rather frequent. Even though there was significant external pressure prior to forest protection, the patrolling arrangements kept forest offences under check.

In 1991, there was a sudden rise in the number of offences. This coincided with the regeneration of the forests and the fact that the protection arrangements were beginning to become lax since the poor and landless sections found it difficult to spend the entire day in the forest at the cost of their daily wages. Other than the outsiders who were illegally accessing the forests, villagers of Panch Mouja were also getting restless and wanted some product flow from the forests. With the regeneration of the forests there was no corresponding change in the rules, and the initial expectation of people that forest protection would fulfil their needs was not met. This led residents of Panch Mouja to get involved in breaking rules and become offenders in their own forests.

Due to this pressure and the growing resentment of the villagers, the committee was forced to accede to changes in the forest rules. They modified the rules to include annual cleaning and thinning operations before the rainy season, thus ensuring a steady supply of fuelwood to the villagers. However, felling of green trees for fuelwood was not allowed. The cleaning material was to be shared equally among all the households of the five villages. Collection of dry and fallen twigs and branches, leaves, fruits, climbers, berries and tubers was allowed without any cost or permission. Tribals and Harijans were allowed to collect dry, fallen twigs and branches and *siali* (*Bauhinia vahlii*) leaves to earn their livelihood. Poles for household construction could be obtained with a nominal fee and permission from the committee. The villagers were allowed to take 100 poles of bamboo at Rs 30 for their needs. But this bamboo could not be sold or bartered outside. The villagers could take wood for cremation purposes free of cost and without prior permission of the committee. Similarly the neighbouring villages could get bamboo and timber from the forest only after seeking permission of the committee and paying a certain amount. Special concessions are made when the material is needed for community festivals if a particular village does not have any forests, and in case of individuals who require wood for repairing their houses after instances of fire or accidents. The committees also appointed two paid watchers on the condition that the villages would provide all the help possible. They were initially paid through household

contributions, but with the increase in income through cashew harvesting rights, the system of household contributions was discontinued.

While dealing with offenders, the Panch Mouza Committee decided on appropriate action depending on the nature and gravity of the offence. During the initial years of forest protection, no major decision regarding forest offences could be taken by the committee. However, with the growing number of offences, imposition of fine became a standard penalty. The fine amounts varied depending on the value of timber species. Fines imposed on offences were highest during 1991. This also marked the beginning of referring cases to the forest department. It was noticed that with the increase in actions on offences the number of offences dropped in subsequent years.

Addressing livelihood and development needs

The committee made several efforts to develop alternate sources of income for the headloaders. The committee, with support from the forest department, arranged for leaf-plate stitching machines and provided training to women's group for processing of *siali* leaves. Some of the forest-dependent households are now dependent on the milk business because of the schemes brought in with help from government agencies. A few other forest dependent households were allotted small patches of degraded forest land by the committee, which they have brought under grass cultivation. Grass from the fields is supplied to the dairy project, thus benefiting the cultivators. A school has been set up by the villagers through the forest protection initiative. Regular environmental awareness building activities are taken up through celebration of Environment Day, *van mahotsav* (forest festival), etc. Renovation work of a dilapidated pond near the forest has been undertaken by the committee to provide irrigation facility to the agricultural land.

Villagers have placed great importance on making their children realize the importance of forests. The children are involved in actual forestry operations like nursery-raising and plantation. The children are also involved in environmental debates and discussions. Rallies are taken out during celebration of World Environment Day, *van mahotsav*, etc., and are led by the children. Once every three months or so the children accompany the forest watcher in his rounds to learn about the forest. The watcher guides them through the forest and familiarises them with the various plants, their uses and locally known silvicultural/religious significance. Children from other villages are also brought to Dhani under various awareness campaigns. The children are also maintaining a local biodiversity register that lists the biodiversity in the forest.

Institutional set-up

The success of Dhani forest protection is based on a sound institutional mechanism. In the initial years the Executive Committee was basically concerned with the protection of Dhani forest. But as forests regenerated profusely there was manifold increase in the other forest-related activities. The growing forest now required efficient management. The committee was expected to perform in a more diversified way in order to cater to these needs. The 10-member committee formed in 1987 had remained unchanged till 1992. Now, with the growing number of forest offences, the leaders recognized the shortfalls in the forest protection committee and felt the need to reform the institutional arrangement.

As a first step, the forest protection committee was reconstituted in 1992. By 1991, to check irregularity in attending meetings, attendance was made mandatory and a rule was made that members absent in three consecutive meetings would be dismissed. Similarly, fines were to be imposed on members who either left the meeting halfway or did not attend even if they were present in the village. In the same year an advisory committee and a working committee were formed in order to guide and facilitate the functioning of the executive committee. An audit committee was later formed to look into the financial matters of the forest protection committee. The income of the committee had increased through collection of fines, forest products and occasional grants from the forest department. The audit committee consisted of educated persons of the Panch Mouja. In order to increase transparency, this separate group did not consist of members of the Forest Protection Committee. In 1995, Panch Mouza Committee was formalised as a *van samrakshyan samiti* (VSS) under the joint forest management programme of the state. As a VSS, the membership of the executive committee increased to 21 and women members were included in the committee for the first time. In the same year a squad party for wildlife protection was formed keeping in view the increasing instances of poaching.

Impacts of forest protection

The forests protected by Dhani Panch Mouza Committee had its root system intact at the time when protection was initiated. Mere protection led to profuse regeneration. Most of the trees and shrubs reverted back. The continued conservation activities brought back the lost wealth of flora and fauna, but the intensity with which they occurred in the past has changed. As people report, the present forest ecosystem of Dhani has more than 250 plant species, 40 birds, 19 reptiles and a number of insects. Besides the natural forest, new plant species of mixed variety (*Acacia* sp., *Eucalyptus* sp., *chakunda* (*Cassia siamea*), cashew (*Anacardium Occidentale*) and teak (*Tectona grandis*) have been added through plantations. With the regeneration of forests and the reappearance of various forest products, the forest-dependent villagers were able to revert back to forest based livelihoods: fuelwood sale; collection of *kendu* (*Diospyros menaloxylon*) leaves, *siali* leaves for leaf-plate making, tubers for both consumption and sale, creepers, medicinal plants, etc. Fuelwood gathering is also allowed to people from other villages but on the condition that no one can enter the forest with any cutting instrument. Apart from the benefits to the directly forest-dependent population, the villagers have benefited from the checking of soil erosion and recharge of streams flowing through the forest. In fact the initial step towards forest protection in Dhani, as in many other villages, came from farmers having their agricultural fields at the foothills.

Opportunities and constraints

Role of the forest department

In the initial years of protection the Dhani Panch Mouja Forest Protection Committee (FPC) was in desperate need of help from the forest department (FD) to deal with forest offences. According to the FPC, at that time the FD did not come forward to support them adequately. Consequently, over the years the committee become more self-reliant and came to depend on local actions, dealing with offenders through social sanctions, etc.

The success of the effort drew the FD's attention towards Dhani Panch Mauja and it was selected as an ideal site for JFM. In 1993, with the state entering into a joint forest management agreement with the Dhani villages, their support has been more forthcoming. After formation of the VSS, the FD has been providing legal and technical support to the protection efforts. In 1996, a management plan was drawn up, and Rs 33000 were allotted for forest management work. This fund was used by the VSS for different forest development activities like construction of waterbody inside the forest for wild animals, plantations, etc. The FD has made an assessment of the bamboo availability in the forest and is facilitating the administrative clearances to allow bamboo harvesting by the VSS. Initially the forest was degraded forest; now, due to the community's efforts the forest has good bamboo growth, but the community has to wait for government clearances for its harvesting, which is creating tension between the community and the FD.

Dhani's experience with the state machinery has been better than most, although certain issues such as sharing of forest produce between the state and the people are still unresolved. Also, there is considerable tension in the process of devolution of power to local communities under the joint forest management framework. JFM has uniformly prescribed institutional arrangements, rules and regulations for all sites. This ignores the vast array of institutional arrangements that exist in Dhani as well as in other self-initiated efforts for protection and management of forests. This is causing problems in Dhani. The Working Plan prepared by the FD defines the rights and access of the people of the adjoining villages over the forest protected by Dhani Mauza. This has created misunderstanding between protecting and non-protecting villages. This has also discouraged the villages which have been protecting these forests for decades. The protecting villagers feel a need to clarify the legal rights of the communities and ensure better tenurial security. Additionally, as JFM is conceived and implemented by the forest department, the balance of power is skewed in favour of the department. This lopsided power dynamics has created considerable tension in the process of devolution of power to the local communities under the JFM framework.

Internal community dynamics

A source of internal conflict arises from the social structure of the community itself. Local forest protection programmes are stuck in highly stratified and inequitable social context. Thus, caste and gender inequities become significant friction points. In the case of Dhani, the impetus for forest protection had come from the farming community/landed persons to 'protect' their lands from the adverse effects of soil erosion. These sections are less dependent on forests and therefore less affected by decisions that restrict access to forests. But it is important to note that in Dhani's

case, the forest protection committee tried to deal with these equity issues by allowing greater concessions and also alternate income sources for the poorest members of the community, in order to reduce tension on this front. Likewise, the Dhani villagers have had to wrestle with gender issues. Since 1995 three women have been included in the committee, but more to satisfy the requirement under JFM. Their participation as largely token and they are rarely consulted for any important decisions.

Conflicts with neighbours

Conflicts with outside villages have also been part of the mix with which the Dhani villages have had to deal with. Kadamjhola, another village bordering Dhani forest, declined to participate in the original forest protection plan but now wants the share from the forest. Other neighbouring villages have also sought a share of the replenished flow of forest products. In earlier years, these villages regularly infringed on the protected forest patch, causing many disputes.

Conclusion

Dhani has inspired other villagers in the neighbourhood to take up forest protection. It has offered the community—as well as the world—some basic lessons in the value, degradation and restoration of forest ecosystems. The reward for their efforts has been tangible and significant for the economy of the community as well. It has added money to the common village fund, and brought economic opportunities to the poorest and most forest-dependent villagers. The residents were hit hardest by the original decision to limit access to the forest, and the forest protection committee has always realized they were an essential element in the long-term success of the restoration. Special efforts were made to compensate the directly forest-dependent sections. The case of Dhani shows that local natural resources can also be used for sustainable economic development of the village.

This case study has been compiled from: R. Panigrahi and Y. Giri Rao (eds), *Conserving Biodiversity: A Decade's Experience of Dhani Panch Mouja People* (Orissa, Vasundhara, 1997).

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Endnotes

¹ Free labour for the king.

² Clearing the lower regions of the hills for cultivating brinjal (*Solanum melongena*) and mandua/ragi (*Eleusine coracana*).



Gadabanikilo village, Nayagarh

Background

Gadabanikilo village is situated in Khairpalli Gram Panchayat in the north-west corner of Ranpur block in Nayagarh District of Orissa. This village lies two kilometres away from the state highway linking Chandpur and Rajsunakhala, and is surrounded by a dry peninsular forest on three sides. The other villages within a radius of 3-4 kilometres from Gadabanikilo are Khairpur, Badapathuria and Kila. The village inherits its name from having been one of the four *gadas* (forts) of the rulers of Ranpur kingdom.

Gadabanikilo has 143 households with a population of 1500. The main caste groups are Brahmin, Malli, Bhandari, Khandayat, Sundhi, Dalit and Muslim. The village consists of seven *sahis* (hamlets) in close proximity to each other. It is a well-knit village with strong social bonds despite the heterogeneous ethnic composition. Agriculture is the main occupation and the villagers depend on forests for their subsistence. The secondary and tertiary occupations are extraction and processing of non-timber forest produce (NTFP). Other occupations include agricultural labour, pottery, carpentry and animal husbandry.

Towards community conservation

The initiative began in 1940 when forest degradation had reached its peak and the villagers began to feel acute biomass shortages (including firewood, leaf manure, fodder and other NTFP). According to the village elders, there was no fuelwood available even for igniting a funeral pyre. A group of people who realized that the community's lives were threatened started protecting the forest informally. This 10-member committee took over the management of the forest and declared certain patches (such as Belabani, Khandiabandha, Jharitaila, Gadabandha Mundia areas) as restricted areas. The mohul Dunga forest area was declared a free access area to meet the firewood requirements of the village. Each household was asked to contribute 2 paise towards the salary of the forest guard appointed by this informal committee.

Till 1954, strict protection was carried out in all restricted areas except in Mohul Dunga, where a separate set of rules was formed for extraction and sharing of products. In 1954, the old committee was dissolved and a new committee of seven members was established. The new committee decided to carry out thinning and clearing operations in different protected patches on a rotation basis to meet the fuelwood demands of the village (see later in this study for details). Since then cleaning operations have been conducted regularly.

The village is protecting a total area of 60 ha. The forest protection system has evolved over the years and the rules have been amended from time to time to suit the needs of the community. Now there are rules not only for forest protection but also for selection or election of the members, penalties for offenders, firewood collection and other NTFPs and their equitable distribution.

In 1973, a seven-member committee which acted as the executive body (EB) of the forest protection committee was formed. The general body (GB) comprised all the adult members of the community. Over a period of time both these institutions have also evolved. Presently there is no restriction on the number of members in the EB. However, there is no place for women either in the EB or the GB. Both these bodies do not have a fixed time for meetings: they meet any number of times in a year whenever the need is felt. There is no fixed tenure for the EB members. They are free to resign whenever they choose, or are ejected from their posts whenever the GB decides. The criteria for selection of EB members is capability, credentials and leadership qualities. If a committee member is unable to attend a meeting, a one-rupee fine is imposed on him; and if a member fails to attend for three consecutive meetings, his membership is terminated. The EB works effectively and resolves internal conflicts amicably without the involvement of external agencies such as the FD and NGOs. This village forest protection committee has over time also become responsible for socio-economic and cultural activities as also the village *jantala* (mass feast).



Systems of protection

For protection of the village the committee appoints forest guards, who keep a strict vigil on the forests. At the time of collection of mohul and during cleaning operations, the guard plays a major role in selection of patch and keeps a watch on the entire operation.

Offenders are excused or fined depending upon the extent of crime, and records of offenders are kept with the committee. According to the offences record, firewood offences are prominent, which indicates that the firewood requirements of the villagers are not met. Offences for cutting big trees are not many.

The management practices followed by the villagers are different for different forest patches. Separate rules are laid down for collection and sharing of mohul flowers and mohul *tola* (seed) from the mohul patch and from other patches under clearing, *padar* (open space) patches, grazing or cremation patches, free and regulated access patches and species of trees for logging. The salient rules for each are discussed below.

Mohul forest

The mohul forest is legally a reserved forest and is spread over an area of 30 ha to the west of the village. The mohul flower is available in December and January and the mohul *tola* is ready for collection by April/May. All households are free to collect *mohul* flowers in the season, but only the ones fallen to the ground.

The collection of *tola* (seeds) is systematically organised. One member from each of the 143 households is selected and they are further divided into 4 blocks; each block gets its turn in rotation. The collection time is from 6-11 am, after which half the members of the block stay back to patrol the forest. The remaining members undertake patrolling duty on the next collection day. The amount of *tola* to be collected per person and the date of collection is decided by the committee. The quantity is decided as per the flowering that season. The committee also decides the amount each person can take home; the surplus is deposited with the committee. If the amount collected by an individual is the same as the quantity to be taken home, then the individual has to give a fourth of the amount to the committee. At the end of the season, the *tola* deposited with the committee is equally distributed among the households.

In 1996, the GB decided to lease out the *tola* collection as the quantity of flowers was decreasing and would not be enough for all households to collect. The forest guard got the lease and entered into partnership with 14 other villagers for collection.¹

Cleaning patches of forest

Cleaning is twice in a year: before the rains and immediately after the harvest. Cleaning basically means removal of thorns and bushes from the understorey. Different patches are cleaned on a rotational basis. Rules for benefit sharing and cleaning are different for different patches.

Two persons from each household in one block go for cleaning on the days allocated to their block. Specific and separate plots are allocated to each block. Collectors are allowed to cut wood from 7 am to 12 noon and are free to take home the quantity cleared.

On the fifth day, persons of the block who have not got their turn at cleaning are allowed. If they fail to go on this day, they have to forfeit their turn. Since 1996, the Committee collects Rs 15 per cartload of harvested material to pay the forest guards' salary.

Padar patch of forest

Padar means open space without any dense vegetation. Gadabanikilo has 22 acres of such a patch at a distance of half a kilometre from the village. The *padar* patch is full of thorny bushes and shrubs with a sparse concentration of mohul and mango trees (1000-1200 mohul trees and 500-800 mango trees). 10-12 of these trees belong to the forest department; the rest are private trees over which owners have exclusive rights.

The shrubs and thorn trees are used for firewood by the villagers. Cleaning is done on a rotational basis and rules pertaining to cleaning and distribution in other forest patches are applicable to the *padar* area. According to the villagers, till 1995 the cleaning operation had been undertaken thrice: in 1970, 1980, and 1985.

Grazing systems

Grazing is a year-long activity which begins in Holi. There are four cowherds and three shepherds in the village. Though grazing is not a caste-bound activity, generally Gouda and Sahara castes take up this activity in this village. There are about 500 cows and 250 goats and sheep in the village that depend on the forest for grazing. The time for grazing is 9am to 5pm. The grazing charges are payable in instalments in *gounis* (equivalent to approximately one kilogram) of grain. The charges vary from 3-8 *gounis* depending upon the cattle to be grazed.

There are four routes through which the cattle are taken for grazing into different forest patches. There are no fixed rules as to which route/direction should be taken. It depends on the herd that comes first and the direction it takes. The other herds automatically take other directions. This system is based on mutual understanding. The herds of goats and sheep go to the *tangi* (barren land) because it is full of thorny shrubs (*budubudukia kanta*). Besides they also go to the *Belabani* and *Padar*. Apart from the fixed route, the cowherds also take the cattle to the fields immediately after the harvest: to the *ammtota* (mango groves) during midday in summer, and sometimes to the nearby forests of Kochitarna, Khuntabandha, Durgapur, Aamjhara, Sanakila, etc. The village forest supports approximately 2500 cattle with varying levels of dependence. This includes about 1000 cattle from the villages of Aamihara, Sanakila, Gouda-Patna, Dobha, Sanapathuri, Gunduria and Khairpalli.

Sanskara system

Species such as narigini are exclusively dedicated to cremation, as they have the potential to burn immediately after they are cut. Anyone from the village requiring wood for a funeral can take wood from these tree species without prior information to the village committee. Nearby villages can also take wood for funerals but with the permission of the committee.

Impacts of community efforts

The village has consciously followed a system of multiple zone management. The four zones in the forest are uncleaned forests, left with least interference for regeneration of resources; cleaned forests, from where fuelwood is collected twice a year by undertaking cleaning and thinning operations; mohul collection forests; and free-access forests meant to meet the day-to-day biomass requirements of the villagers. When the research was carried out by Vasundhara, the conservation initiative was already in operation for over 5 decades. Despite this length of protection, theft of resources by neighbouring villagers is a frequent occurrence. Not being able to control such incidents has negatively impacted the quality of the forests. However, protection efforts have definitely improved the quality of the forests from what it was before when even the rootstock was finished. The effort has also prevented further degradation, which would have happened if these forests were subjected to open and unregulated access.

The villagers understand the importance of forest for ground water and agriculture. Awareness about the beneficial impacts of forests on the local agro-ecology has been one of the reasons to maintain the motivation to protect the forests. Continuous protection has brought the forests to a stage where different types of NTFPs are now available to meet the various requirements of the villagers and have become a good source of income for them. Income generated through NTFPs like mohul *tola* (seeds) and firewood helped the villagers in financing some of the community development work in the village, such as construction of a college in the village.

Ecological studies have indicated that if all management zones are compared, then the best regeneration has occurred in the uncleaned patches. Since the *padar* and *mohul* forest patches are reserved for meeting the daily biomass requirements of the villagers, regeneration observed here is much lower. The villagers need to use the results of this study to check degradation in these two management zones.

Available information does not indicate the extent of impact of this protection on wildlife populations.

Conclusion

One thoughtful action that the initial forest protection committee took was to set aside a patch of forest for extensive use in the initial years of strict protection in other patches. This helped the villagers overcome the restrictions while the resources were regenerating.

The forest protection effort has been carrying on since 1940. During this time the institutions, rules and systems have remained dynamic, changing with the changing circumstances and needs. The larger lesson from Gadabanikilo seems to be that each habitat, species, and human community requires different location-specific management practices. Thus uniform management prescription as adopted by the government may not be appropriate in all local contexts, where the villagers have rich knowledge about forest ecosystems, their characteristics, local cultures and their interaction with the ecosystem. This knowledge base needs to be tapped to develop effective, site-based management practices in the country. There is a need to disseminate the approach, method, practice and institutions adopted in villages like Gadabanikilo to other villages and state- and national-level policy makers.

This case study has been compiled from: A. Rai, A. Nayak, M.R. Mishra, N.M. Singh, P.K. Nayak, S. Mohanty, and G. Rao 'Gadabanikilo - An Example of Community Forest Management with a Difference' (Bhubaneswar, Vasundhara, 1995-6). Also in N.H. Ravindranath, K.S. Murali and K.C. Malhotra, *Joint Forest Management and Community Forestry in India: An Ecological and Institutional Assessment*. (New Delhi, Oxford and IBH Publishing , 2000).

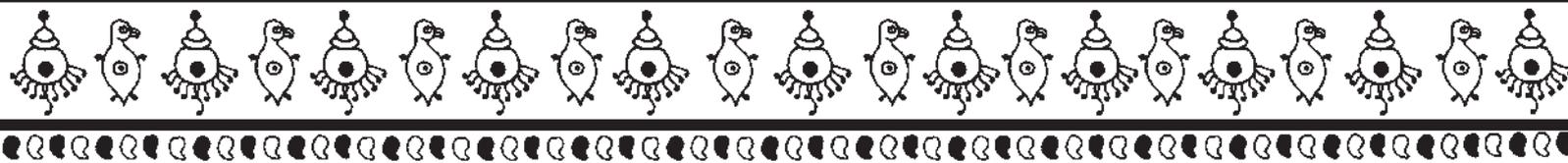
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Endnotes

¹ Editor's note: This case study was written in 2000. Updates could not be obtained for most of the information, so current status is not known.





Samantsinharpur village, Nayagarh

Background

Samantsinharpur is the only hamlet of the revenue village Andharua Samantsinharpur under the Gopalpur Panchayat that is protecting its forests. Having felt the consequences of forest degradation in terms of acute shortage of forest produce and the fear of complete destruction of the natural forest cover, they started protecting the forest in 1985. Samantsinharpur has two sub-hamlets: Khandayat *sahi* and Harijan *sahi*. While the Harijan *sahi* comprises only Harijans, the Khandayat hamlet has a more heterogenous composition, with Khandayats in a majority. There are a total of 65 households belonging to various castes and the total population is around 700.

Occupation and livelihoods

Cultivation is the main occupation that creates employment opportunities for the people here. Out of the 65 households, 50 have their own land. Families without land get employed as labourers in the fields during the agricultural season. The Khandayats are mostly agriculturalists. Gaudas are basically pastoralists, their traditional occupation being rearing cattle and dealing in milk products, but of late they have also taken to agriculture. Telis earn their livelihoods by trading and extracting oil from oilseeds using indigenous methods. As the oilseeds are no longer available, the family is now dependent on labour and selling of firewood. Gudias traditionally make confectioneries but they too have now adopted agriculture.

Harijans are the second largest group in the village and their traditional occupation varies according to their sub-caste. They are involved in weaving of bamboo and cane baskets, drum-beating during social functions, headloading, collection and selling of NTFP's and agricultural labour. During the lean season they also migrate outside the state as bonded labour. Unlike the other castes, Harijan women also play an important role as bread-earners. They collect siali leaves, firewood, climbers, broom grass, khajur (date palm) leaves, fruits, tubers and berries and sell them at the Gopalpur market near the village. Some of the collection is seasonal and occasional.

During British rule, Samantsinharpur was under the control of the Ranpur king. During this period this area was covered with dense forests. The king allowed people to extend agricultural lands but with some regulation, wherein a distance of 10 feet from the forests had to be maintained for cultivating land. With the increase in population and a consequent demand for land, the forest was eventually cut for growing crops and settlement. Gradually the forest disappeared from the vicinity of the village.

When in 1947 the princely state was merged with Orissa state, the forest also came under the control of the forest department (FD). The lower areas of the forest were degraded by then and widely used for cultivation. As forests were seen as the richest source of revenue by the government in those days, they were leased to private contractors for timber-coupe-felling. In the year 1960, the forest close to Samantsinharpur was also given for coupe-felling, which resulted in the felling of all the big trees. The FD saw the potential and declared it as a Reserved Forest (RF) in 1966 to commercially exploit the resources.

During 1966-7 the FD conducted sagan or teak plantation. At that time they permitted the villagers to cultivate crops inside the plantation area on the condition that they will protect and nurture the teak plantations. Encouraged by this, the villagers cleared the remaining species in the lower areas for growing crops like ragi, brinjal, black gram, etc. This resulted in the forest area becoming a monoculture of teak plantations. The FD also was lax in forest protection and control. Only one Range Officer existed for the entire Tangi and Ranpur area; this was obviously not enough to keep a watch over the forest. There was heavy extraction and smuggling of teakwood from the area. By 1980s the forest was completely destroyed. Rubber plantation by the Orissa Forest Development Corporation (OFDC) during 1984-5 also acted as a stimulant to take up protection efforts. With rubber plantations in the forest, the villagers became extremely concerned about the future availability of firewood for their needs.



Towards community conservation

With the loss of forest cover came the inevitable loss of other ecological and economic services, resulting in irregular rainfall, decline in agricultural yield, etc. Scarcity of firewood was the biggest problem faced by the village. Women could no longer procure twigs and branches. Having no other alternative, they started using *poksunga* herb, a non-timber species also considered as a weed, which was never used earlier. Womenfolk suffered as they now had to spend long hours in cooking food for the family, which affected other household work. Sitting in front of a smoky *chullah* was not an easy task. People also faced difficulty in getting wood for cremation. Some villagers started working out solutions to these problems and came to the conclusion that they had to protect and regenerate the forest. Many discussions and debates ensued as to how and what needed to be done. In 1984, the process of forest protection began, but it was limited to discussions and meetings as the villagers were much clear about how to protect the forest.

In 1985 the villagers, in a common meeting, finally took the decision to protect the forest patch of Haripur Mundiya close to the village. Haripur Mundiya is an RF and is approximately 300 ha in area.

In the beginning two members from the village committee were given the responsibility to look after and manage the protection of the degraded forest patch. These members, supported by the village committee, handled the forest protection till 1988. As the forest infringements increased along with other conflicts, a change was brought in the system. In 1988, a separate forest committee called the Ranbijuli Jungle Surakshya Samiti was formed. This committee was constituted of active villagers but with the participation of the entire village. An informal system with certain rules, regulations and adoptive measures was developed. To begin with, strict regulations were framed to protect the stumps and the roots. Outside intervention of any kind such as cattle grazing, felling and root extraction was completely banned. Even after forest regeneration, nobody was allowed to cut trees in the forest. In 1995, this informal system gave way to a formal *van samrakshyan samiti* under the joint forest management scheme of the FD. The new committee was called the Ranbijuli Van Samrakshyan Samiti. The committee plays an important role in conflict resolution.

Over a period villagers have developed mechanisms to improve protection and make it more effective. The villagers adopted a voluntary patrolling system, which is continuing till today, to keep a close vigil over the protected forest area. Two men, one from each of the sub-hamlets, move around the forest everyday. In the night three persons, two from Khandayat *sahi* and one from the Harijan *sahi* keep watch over the forest patch. Patrolling is done on a rotational basis involving each household. The forest watchers on patrolling duty are called *palias*. When any offender is caught, he is taken to the village and in cases where the watcher is unable to deal with the offender alone, he asks the villagers to come to the forest. Social pressure is first exercised over the offender. Yet if the offender keeps repeating acts like cutting trees etc., then he is penalized with a monetary fine. The fine is fixed at Rs 50 for all types and size of trees. In extreme situations, a case could be filed against the individual with the Range Officer, but this has not yet happened so far.

The villagers cite examples of people from other villagers committing offences. One such example is from 1993, when the villagers caught hold of a person from Bimbadharpur village cutting a teak tree to repair his house. A meeting with the elders of Bimbadharpur was called and the case was discussed. They found that the need was genuine, but the committee was not informed, and therefore the committee decided to punish him. Instead of a monetary fine they asked the person to return the wood by carrying the log of wood on his head back to Samantsinharpur.

Besides the forest, the village has also been managing the common resources of the village collectively. Several informal committees have been formed to serve this purpose. There is a village orchard that was earlier managed by the entire village. Now some trees are divided among households, whereby every house in the village has two big trees and three small ones. The remaining trees come under the management of the village committee. There is a stone mine, to which people have free access to collect stones for construction. There is also grazing land which all families are free to use.

Institutional set-up of the forest protection committee

The committee at present has a two-tier structure, consisting of the general body and the executive or working body. The working body is the functional unit, which looks after the forest protection and management activities. The general body comprises one male member from every household in the village. The general body selects working-body members every year on the last day of *Ram Navami* (a Hindu festival). The composition of the working body varied in different

years. In 1985, the body comprised 3 members from the Khandayat caste. In the following years the membership increased and at present there are a total of ten members, with representatives from both the Khandayat and Harijan castes along with some women representatives. The working body is the main functional unit and the implementing body. The general body is basically involved with the major decisions related to the rules, penalty system, forest activity etc. All these get recorded on a resolution register that is maintained by the working body.

The working body is selected for one year; however the period of an individual's tenure is not restricted. A member can continue in his/her post for more than one year if the work is satisfactory. In case it is not, then the members can be dismissed, and a general body meeting is called to select a new member. But this has never happened so far.

In the initial days the committee convened meetings every month to discuss rules, regulations, possibilities of stopping infringements, improving the system, etc. As the committee strengthened and the protection activity continued smoothly, the frequency of the meetings decreased. In case of an emergency, the general body or the working body can be quickly convened. Information about the meeting is intimated to the hamlet through a *dakua* (one who spreads the word by beating a metallic instrument). This person is compensated with paddy.

Role of the forest department

In the initial years there was not much support from the FD, but some forest officials did help and encourage them at a personal level. During the period of rubber plantation, the local range officer cooperated with the villagers in taking up plantations and promised to give employment to local youths in the plantation. After the intervention of Vasundhara, an NGO, in 1995, there has been a good interaction between the FD and the villagers. Vasundhara helped the people to become aware and update their knowledge about forest policy, government resolutions and goings-on in the forestry sector.

Impacts of community conservation

Besides the availability of firewood and other NTFP, the benefit of community conservation can be gauged from various indications. Watchers no longer go on night visits regularly, as the trees have grown and, with the forest cover getting dense, entering the forest has become difficult. During the years 1986 and 1996 when the FD carried out silviculture activities in the lower forest area, it was done under the close supervision of the committee. Villagers got labour work on a daily-wage basis and the work was distributed on a rotational basis so that one individual from each household got labour. Rough estimates state that each household must have received at least 4 quintals of harvest. When forest protection started, the access by neighbouring villagers was prevented. This resulted in conflicts on a daily basis. However trespassing and conflicts hardly take place any longer.

Due to regeneration, the people of Samantsinharpur have also begun to enjoy some benefits from the forest. They are free to collect dry, fallen twigs and branches of dead trees. They can collect berries, tubers and edible leaves. The committee permits them to take bamboo for construction and repairing house in case of fire accidents. Individuals from the village or from neighbouring villages can obtain certain products though the committee after paying a nominal price. Cattle-grazing is also allowed and so is the extraction of bamboo on an annual basis during the celebration of village festivals. Villagers are however not allowed to extract timber wood for self-use or sale. Yet mostly people are able to meet some of their needs from orchards, personal plantations and their *gramya* jungle, and prefer to avoid the long distance travel to the protected forest patch. Twigs and branches and other NTFPs derived from cleaning and thinning under silviculture operations are distributed equally among all households.

Opportunities and constraints

The people's institution has developed to resolve smaller disputes with outside villagers, though the Samantsinharpur people see a possibility of conflict with their neighbouring village Krushnapur over sharing an area of the protected forest. According to Samantsinharpur, Krushnapur village has initiated protection process of an adjacent patch. Now these villagers are claiming a part of the area being protected by Samantsinharpur, which, however, is not ready to share a portion with the other village.

Arguments are gradually coming up regarding using certain forest produce, especially by the forest-dependent groups, who meet their needs from distant protected and unprotected forests. Moreover the community has also started raising tenure-related issues, questioning the ownership rights over the protected patch. They aspire for support from the FD to encourage their efforts and sustain their interest in forest protection and management.

In 1997, the villagers were involved in conflict with the OFDC, which, when carrying out the rubber plantation in the forests, had promised jobs and benefits to the local youth if they helped in the protection of the plantation. This was an informal arrangement between the villagers and OFDC. Villagers protected these plantations for over a decade. However, when the plantations were raised and it was time to extract the sap, OFDC brought in contractors and hired specialised labour. This led to an agitation and eventual stoppage of work by the dissatisfied local youth. The conflict was not resolved till the time that this case study was written. Current status is not known.

Conclusion

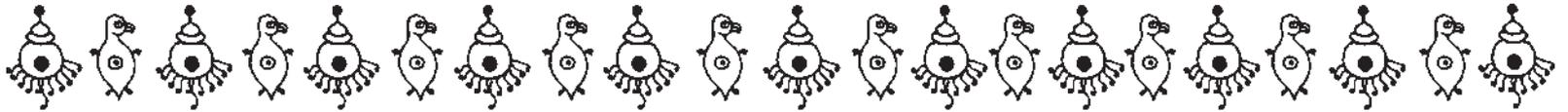
The sustainability of forest protection has been largely due to strong leadership and the integration among different castes in the hamlet. In all these years the community has developed a strong protection and management system. They have also developed a unique system of decisions being taken by the entire village together, but implementation is done by various sub groups set up by the village. This fact, along with the capability of the committee to handle various dynamic issues successfully, has united Samantsinharpur for a common concern.

This case study has been compiled from information contained in R. Panigrahi and Y.G. Rao, 'A Case of Community Forest Protection, Samantsinharpur Village, Nayagarh District of Orissa'; as part of Collaborative Research Project undertaken by The Natural Resources Institute (NRI), United Kingdom and Neera M. Singh, Vasundhara, Bhubaneswar, 1998.

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Balukhand Konark Sanctuary, Puri

Background

The Balukhand Konark Sanctuary, stretching over an area of 71.72 sq km, is located in Puri district between 85° 52' to 86° 14' longitude and latitudes 19° 48' to 19° 54'. Balukhand- Konark was declared as a sanctuary on 23 April 1984, vide notification no. 9013, which was further revised on 1 September 1987, vide notification no. 15216. Though final notification has not been issued till date, it is being considered as Deemed Wildlife Sanctuary as per the provision laid down in 1991 amended Wild Life Protection Act (WLPA). The sanctuary comes under the administrative control of Puri Wildlife Division, Puri district.

Floral and faunal diversity

Balukhand-Konark sanctuary was established on the sandy tract covered by plantation of casurina and cashew trees, along the coast between Puri and Konark. Apart from cashew and casurina plantation, Australian acacia and eucalyptus plantation has also been done. Jamun, ficus, neem, karanj and polang trees are also found, mostly along the course of the Khushabhadra and Nuanai rivers.

The region is famous for the occurrence of a large number of blackbucks and spotted deer. Stripped hyena, jungle cat, jackal, etc. can also be spotted in the area. According to the villagers, as the plantation cover became dense and luxuriant, the blackbuck and deer population also increased. These animals are believed to have migrated from the adjoining Mal reserved forest. The rivers Khushabhadra and Nuanai cut through the sanctuary and are major freshwater sources for the adjoining villages.

Towards community conservation

There are 45 villages along the stretch of Balukhand-Konark Sanctuary. The villagers have been actively protecting the forests and wildlife of the sanctuary. The good protection work of the villagers in preventing the poaching of animals has also led to the steady improvement of the habitat and wildlife of the said sanctuary, in which the main species are spotted deer and blackbuck. The DFO, Puri Wildlife Division, Mr. Sarat Mishra, acknowledges that due to the active protection activities of the villagers, the number of blackbuck and deer have increased significantly. According to him, in the last census held during 2005 the number of blackbuck recorded were around 110 and the number of spotted deer recorded were more than 2000. The good protection work done by the committees has been acknowledged, for which the villagers have also received several awards, testimonials and certificates from the forest department and other government departments.

The cashew and casurina plantation was done by the forest department around 40 years ago, much before the area was declared a sanctuary. Initially the protection activities were not carried out in an organized way by the villagers. The drive of the people to protect the forest started after a massive cyclone in this area in 1980-1. According to the villagers, the 1980-1 cyclone was an eye opener for them. Due to the casurina plantation, the villagers felt that the impact of cyclone was highly reduced. These villages therefore experienced much less damage as compared to many others, which were devastated by the cyclone. It was since then that they started protecting these plantations. This relationship of the villagers took on a greater significance once the cashew trees grew and started yielding fruit. The people even felt the importance of the forest in their daily life as they could get fuelwood, wood for construction purposes (like doors, roofing, etc.) and even for occasions like marriages, festivals etc. from the forest.

The protection activity started with a group of enthusiastic people like Benudhar Pradhan, Bhagirathi Babu, Okilya Swain and others, who motivated the villagers to protect the forest patch adjoining their respective villages. A few villages then got together and formed the Sri Sri Belaswar Belabhoomi Bana Suraksha Samiti (named after local Belaswar temple) and elected Benudhar Pradhan as the president of this *samiti*. This committee works as an apex body of the individual committees that exist in all the villages. 90-year-old Benudhar Pradhan is an energetic man, still



stands tall, and holds the post of president till today. Nearly 25 villages of the Balukhand area are a part of the Belaswar Belabhoomi Bana Suraksha Samiti. The respective village leaders are generally the representatives of their villages and the committee generally meets once in a month. Today the committee is part of the Jungle Manch Federation, a larger forest protection group at state level. In terms of representation, there is no representation of women in any of the committees. The Harijan community, though it accepts that it has also benefited from the initiative, has no say in the decision-making process.

At individual village level, *gramya* committees are formed which take up the protection activities. During the 80s, *gramya* committees undertook the protection activities in an organized way. The *thengapalli* (protection by rotation) system was adopted by the committee, wherein a group of people from every household has to go to the forest for protection on a rotational basis. In 1992-3, *van suraksha samitis* (VSS) or forest protection committees or *gramya* committees were formed, but the *thengapalli* system continued.

The *gramya* committee holds the strongest position amongst all the institutional set-ups existing in the village. It consists of group of elderly and respected people, and persons having leadership qualities. All the major decisions of the village are taken by the *gramya* committee in the village meetings, in the presence of the entire village.

In lieu of protection activities, the villagers have been collecting the cashewnuts from the sanctuary through the VSS. The cashewnuts were directly auctioned by the forest department and the VSS received some funds from the sale/auction of the cashewnuts, which were used for community welfare and other village developmental works. Examples of activities undertaken in one of the (Bhuan) villages, include:

- Construction of village road
- Construction of tube well
- Construction of temple
- Construction of road in Harijan Sahi
- Repair of school building

The villagers said that the decision on what activities are to be undertaken is taken in the village meeting with consensus of all the villagers. The sale from cashewnut annually has been around Rs 30 lakhs.



Members of Balukhand Konark Forest Protection Committee, inspired by their 80-year-old leader (inset)
Photo: Neema Pathak

Opportunities and constraints

Impact of the sanctuary status

Because of the changed status of the area the VSSs in the villages were dissolved in 1996 and eco-development committees (EDCs) were formed. Till date 25 EDCs have been formed in different villages in the Balukhand- Konark area. In the Balukhand area, which comes under Puri Sadar and Gop blocks of Puri district, nine EDCs have been formed. The remaining 16 EDCs have been formed in the Konark area. The villagers agreed to this decision. Before the formation of the EDC, the forester and the range officer had conducted meetings in every village explaining about the dissolution of the VSS and the formation of EDCs. In most of the villages there was no change in the members of VSS and EDC. The executive members of the VSS automatically became executive members of the EDC. However the EDC mandated at least seven members from the village (two female and five male) and one forester as the secretary.

According to the villagers, till 2002-3 cashewnuts were being auctioned from the sanctuary. The villagers were engaged in the collection of the cashewnuts as wage labourers. Women and children of the marginalized and Scheduled Caste families and the landless families were primarily engaged in the collection activity and were earning Rs 5 per tin of cashew. In a particular day they were able to earn around Rs 15. Their monthly income came to around Rs 4500-5000 per family from the two months of cashew collection.

The order of the Supreme Court in IA No. 548, dated 14 February 2000, prohibited the removal of dead, diseased, dying or wind-fallen trees, driftwood and grasses, etc. from any national park

or sanctuary. The direct implication of this blanket ban order was a ban on the collection of cashewnuts by the villagers from the sanctuary area.

The collection of cashewnuts has been stopped from the sanctuary since the year 2002-3. According to the DFO, Puri Wildlife Division, despite the ban, during the years 2002-3 and 2003-4, the quantity of cashewnuts collected was 953.37 quintals and 515.75 quintals respectively. These collections were seized by the FD and disposed off through the Tribal Development Cooperative Corporation Ltd (TDCC). The revenue released and remitted to the government is as under:

	Year	Auction remitted to the Government (Rs)
Auction Sale of lots	2000-2001	30,74,200
	2001-2002	34,00,900
Disposal of seized cashewnuts	2002-2003	18,79,242
	2003-2004	19,32,344

Interim application filed in the Supreme Court

In response to the Supreme Court order, the local people of the Balukhand-Konark sanctuary area have filed Application No. 604 in the Supreme Court regarding the collection of the cashewnuts by the villagers from the Balukhand-Konark Sanctuary in Orissa in relaxation of the court order dated 14 February 2000 passed in IA No. 548.

Application was filed by Shri Benudhar Pradhan, President of Sri Sri Beleswar Belabhumi Banasuraksha Samiti, Balukhanda, Puri, Orissa State and the other villagers had also signed the application.

The main submissions made by the applicant are as under:

1. That several villages which are located close to the Balukhand- Konark Sanctuary have been helping in protecting and maintaining the forest and wildlife of the sanctuary from 1996 to 2002, when the *van suraksha samitis* (VSS) were dissolved and Eco-development Committees (EDCs) were set up;
2. That because of good protection work done by these committees in preventing poaching of animals, there has been steady improvement of the habitat and the wildlife in the said sanctuary in which the main species found are blackbuck and spotted deer.
3. That the villagers have been collecting the cashewnuts from the sanctuary, which are not consumed by the animals; in fact they are harmful to the animals. Besides being harmful, if the nuts are not removed there will be more regeneration of cashew plants, which is not good for the sanctuary and the animals inhabiting it.
4. That as a result of the stoppage of the collection of the cashewnut from the sanctuary, no funds from the sale/auction of cashewnuts have been received by the EDCs, due to which their community development and other works have suffered.

The Orissa Forest Department supported the Applicant's Application and has observed that cashew being an exotic species, its nuts are not eaten by the wild animals. In fact they are harmful to the animals if they eat them. There are about 1,12,245 cashew plants growing in the sanctuary, and if the collection is stopped there would be profuse regeneration of these plants, which will be detrimental to the habitat as well as to the wildlife of the sanctuary. On the other hand, large quantities of cashew if not removed will lead to the entry of the unscrupulous elements which could not be prevented by the Department due to shortage of staff.

Further the removal of cashewnuts is also permissible under Section 29 of the Wildlife (Protection) Act, 1972, as it would help benefit the wildlife and habitat of the sanctuary. The said provision prohibits removal and commercial exploitation of any forest produce from any National Park and Sanctuary but since cashew is a peculiar forest produce and cannot be used for the personal bonafide needs of the local people, the Orissa Forest Department urged the Centrally Empowered Committee (CEC) (set up to deal with forest related cases by the Supreme Court) to relax the order of Supreme Court passed on 14 February 2000 and authorize the Chief Wildlife Warden to issue necessary permit for the removal of cashewnuts from the said sanctuary.

The Orissa Forest Department has definitely taken a positive move by supporting the community in front of the Supreme Court. The application filed by the villagers under the leadership of Benudhar Pradhan was done under the guidance of Mr. Chhadda, the then DFO, Puri Wildlife Division.

After its observations, the Centrally Empowered Committee (CEC) recommended that the Chief Wildlife warden, Orissa, may be permitted to allow collection of cashewnuts by the villagers adjoining the Balukhand–Konark Sanctuary through their respective Eco-Development Committees under the supervision of the Orissa Forest Development Corporation Ltd (OFDC) or the Tribal Development Corporation Ltd (TDCC). The sale proceeds should be utilized in improving the protection and management of the sanctuary and also for creating community assets through the EDCs in the respective villages on a pro rata basis.

The CEC recommendation came on 30 August 2005 and the orders of the CEC will come into force from the forthcoming season of cashew collection, i.e., April-May 2006.

While discussing the case with the DFO, he agreed about the ongoing cashew collection inside the sanctuary and said that on record the Department shows certain amount of cashew collected by the villagers as being seized by the Department, which is disposed off through TDCC. The revenue remitted to the government in the last two years has been shown in the table above. Such an arrangement, though not on legal lines, has served not only the benefit of the poor people but also the wildlife and the sanctuary.

Conclusion

The forest department acknowledges the role and efforts of the local people in the protection of the forests of the area and is hence supportive of their activities. The case of Balukhand–Konark Sanctuary stands out to as an exemplary case towards co-management in protected areas.

In Orissa, Balukhand-Konark sanctuary stands out as an exemplary case, where

- The communities have got their rights of cashew collection and, more important, the FD has supported them in their struggle.
- The FD acknowledges the fact that communities have been actively protecting the forest in and around the sanctuary and there has been not yet been any incidence of poaching or man-animal conflict.
- The activities undertaken for sanctuary development are carried out in consultation with the respective villages.

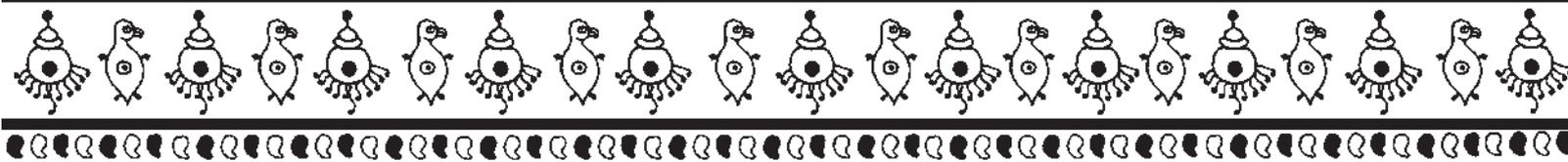
Thus it definitely reflects a case of co-management, but there still is space left where both FD and the communities can coordinate and work together for better management of the sanctuary.

This case study has been written by Sweta Mishra, Vasundhara, in 2007

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Huta village, Sambalpur

Background

Humma, a renowned historical monument, is situated on the bank of the river Mahanadi, about 40 km from Sambalpur city. This important religious place for Hindus is famous for an ancient temple of Lord Shiva, which has a unique architectural importance due to its slanting structure, otherwise known to be present only in the Leaning Tower of Pisa in Italy. Another differentiating feature of this place is reverence of kado or mahaseer fish as an incarnation of Lord Vishnu in his *Matsya avatar*.

The best season for sighting kado fish is between the winters (around November, after *Kartik Purnima*) and till the beginning of the monsoon in June. This is the time when the water is clear and quiet.

Box 1

Basic information on mahaseer¹

Mahaseer is an endemic fish species of the river Mahanadi, from which it has got its scientific name of *Tor mahanadicus*. This is a trout species confined to rocky upstream portions of the river; it generally prefers 'lentic' water habitat (i.e., rocky and swift hill streams with flowing water). Mahaseer is a *Phytophagus* species, feeding on phytoplankton and algae growing on rocks submerged in water.

Status and Threats

However the species is under threat and is endangered. The major threats faced are:

1. Illicit and exploitative fishing practices resulting in depletion of fish stock,
2. Habitat destruction due to pollution caused by industries and domestic effluents released in the river that destroy spawning grounds of the species, and
3. Changes in drainage patterns because of natural and human activities.

Mahaseer is a commercially important fish for its good food value, but the stock of this species is declining day by day. Now the Fisheries Department is also proposing a project for artificial rearing of this species for commercial production in Sambalpur.

Towards community conservation

Humma is a very distinctive place where the community is protecting an endangered, endemic and commercially important fish species due to religious beliefs. A stretch in and around the temple is protected by the villagers of Huta.

Humma is a very dynamic system, due to the continuously flowing river stream. Though we are concentrating on efforts taken by community in conservation of mahaseer, the area seemed to be important as a suitable habitat for other wild animals too. Local people indicated occurrence of jungle cat, Indian otter, jackal and various water birds.

The stretch of Mahanadi in Humma in particular represents a suitable habitat for trout like Mahaseer owing to rocky streams with flowing waters. Local people relate an ancient folk tale of a fisherman and his wife who turned into stone while cutting the kado fish. There is a monument on an island opposite the temple, where statues of this fisherman and his wife are present. The discussion with local fishermen revealed that fishermen generally avoid catching these fishes. If they do get any kado fish, they release it back into the river. Catching or hurting these fishes is considered a sin.

The most important role played in conservation is that of the fisherfolk in the village who do not fish for mahaseer, despite its commercial importance. The entire village through the temple committee



is involved in decisions about the river stretch and the temple. Since Humma temple is a monument of archeological importance, the Department of Tourism and Department of Archeology are also concerned about the conservation effort. Considering that the high concentration of fish is one of the major attractions for the devotees visiting the temple, the Tourism Department is interested in retaining this traditional practice. The devotees feed *bhog* (temple offerings) to these fish, considered an act of virtue. The best season for sighting kado fish is from winter (after *Kartik Poornima*) to the starting of the monsoon, when the water is clear and quiet.

In addition to the mahaseer fish, this area also harbours some rare species like Indian otter. The local people, especially the fisherfolk community, are closely associated with the otter, since otters help them to catch fish. Therefore it is important to map the status of otters in this area.



Historical temple of Huma, also famous for its mahaseer fish.
Photo: Smita Ranjane

Opportunities and constraints

However, the observation of local people, especially fishermen, is that the population of kado fish is declining. Therefore the question is how population of this species is declining, despite these protection efforts. According to them the main reason for fish population decline is overfishing in upstream and downstream areas where these fishes move. In Humma there is no demarcation zone for protection: the fishermen in this village generally avoid catching mahaseer, while the fish in the part of the river in front of the temple are considered as sacred.

The state government is also interested in declaring this area as a sanctuary for mahaseer. The Deputy Director of Fisheries had shown interest in this; however the role of the key actors— the local fishermen community—in this system has not been sketched out. The state government is also interested to develop this place as a potential tourist spot; the proposal for development of a tourist park is already sanctioned.

This case study has been contributed by Smita Ranjane of Vasundhara and Jigyasu Panda of MASS in October 2006.

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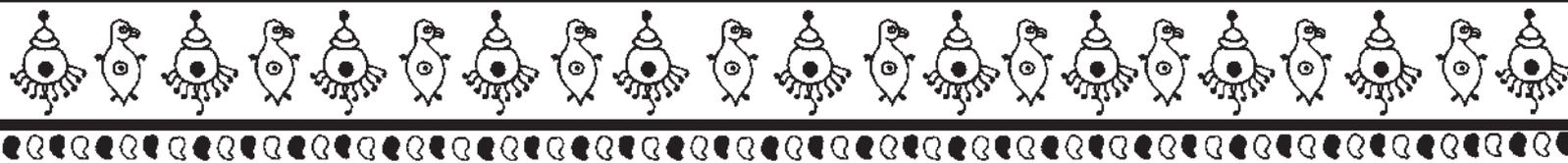
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¹ Source: Personal communication with Dr. G.B. Parida, Deputy Director, Fisheries Department of Orissa, and Shri P.K. Dar, Research Officer, Fisheries Department of Orissa, in October 2006.





Maneshwar village, Sambalpur

Background

Maneshwar village, located 10 km from Sambalpur, is a distinctive place where we can observe an intricate relationship between nature and man reflected in local culture and traditions. Maneshwar is famous for its three-century-old Shiva temple, supporting a small population of a globally threatened species, the Indian soft-shelled turtle.

Box 1

Basic information on Indian soft shelled turtle¹

Indian soft-shelled or Ganges soft-shelled turtles are distributed in large river systems like the Mahanadi, Ganges and Indus. They also occur in large ponds and water bodies. These turtles are often kept in religious establishments in Orissa and Assam, where they are nurtured as an incarnation of Lord Vishnu.

This is a carnivorous species, especially attracted towards rotting flesh. It is also known to be fairly adaptable and adapts to an array of food including cooked food.

This species breeds two times a year; pre-monsoon (i.e., May-June) and post-monsoon (i.e., November-December). They generally prefer sandy, loose soil, 200-300 m above the water level of a river or a wetland for egg-laying. The clutch size is generally more than sixty (i.e., they lay sixty eggs at once). The exact hatching period is not known. Hatchlings crawl out during night to avoid predators.

Status and threats

The Ganges soft-shelled turtle is endangered mainly due to illegal, uncontrolled poaching and trading. The meat of this species is devoured inside and outside Orissa as a delicacy. This high demand is posing an immense threat to this species, so much so that in areas where it was once present in thousands, it is now difficult to sight a few individuals. Though this species is included in Schedule I of the Wild Life Protection Act, 1972, the illegal poaching activities are threatening the existence of the species.

Habitat destruction is known to be another major cause of its disappearance, as more and more wetlands are being built over or getting dried.

Towards community conservation

The temple at Maneshwar has a *pokhari* (traditional water tank). According to the local people, there are about one thousand adult turtles and innumerable juveniles in the *pokhari*, which covers about 2.5-3 ha. This water tank is attached to the temple and fulfils all the water requirements of the temple and other domestic needs of surrounding population. The water tank is surrounded by the temple on one side and an earthen bund on three sides, with stone made embankments at two places for use. However, there are some submerged rock surfaces inside the water tank specially favoured by turtles for sunbathing. During winters, decreased water level exposes the surrounding surface and hundreds of basking turtles can be observed. This three-century-old temple was built by King Balaram; the present population are the descendents of a few turtles released by King Balaram at the time of the temple construction.

Though turtles are protected through religious belief, many people love them and want them to live safely in the pond. The turtles are an important component of the pond freshwater ecosystem, as they feed on decaying material, thereby cleaning the water. They are an important link in the food chain. In these tanks there is a symbiotic association between turtles and humans, where turtles get protection and in turn keep the water clean.



The people of Maneshwar have played an important role in conservation of these turtles. Here turtles get religious importance, affection, devotion and protection. Though this is due to religious beliefs attached to this species, it is proving effective in conservation of this otherwise vulnerable species. People believe that whoever kills or eats turtles from the temple *pokhari* will suffer misfortune, and therefore nobody dares to hurt them. Instead people feed these turtles on temple *bhog*, puffed rice, biscuits, etc. The turtles are a special attraction for devotees coming here. Some regular visitors and permanent residents of the temple have developed a deep understanding of the turtle behaviour, which could help in scientific assessment and conservation of this species.



Temple tank at Maneshwar, harbouring the Indian soft-shelled turtle Photo: Smita Ranjane

The banks of the *pokhari* work as a nesting ground for the turtles, ensuring survival of the population. The banks of this *pokhari* are also devoid of disturbances like cattle-washing, which ensures protection of eggs. This *pokhari* is connected to the river Malatijhor by water channels. A water canal adjacent to the *pokhari* is attached to the river. There is a network of water canals meant for irrigation in the village. This network allows movement of turtles outside the tank during the rainy season when the water level is high. This also ensures exchange of the gene pool, as the turtles are not confined only to the *pokhari*. If anyone finds a turtle in the nearby area (generally in rainy season turtles disperse in nearby agricultural fields), they come and release them into the temple tank. The tank is facing a natural aging process through accumulation of silt and debris; this is resulting in reduced water-holding capacity. The temple committee is proposing renovation of the tank by removing accumulated debris and silt. However the renovation work is pending, as the committee is concerned about the well-being of the turtles. They fear that cleaning and excavation operation will cause harm to the turtles and their breeding grounds. They are considering a phase-wise renovation of the tank in order to ensure minimal harm to the turtles.

This case study has been contributed by Smita Ranjane of Vasundhara and Jigyasu Panda of MASS in October 2006.

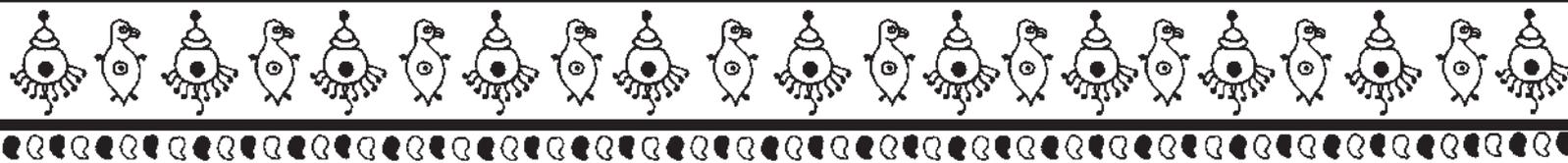
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Endnotes

¹ Source: J.C. Daniel, *The Book of Indian Reptiles* (Mumbai, Bombay Natural History Society, 1983).





Jarmal village, Sundargarh

Background

'The forest will be of great help to our children if not to us.' These words effectively voice the concerns of the villagers of Jarmal for future generations. 'If the forests can give so much with simple protection, then they would save us from poverty and hunger. It is our duty to protect the forest from all evil.' Forest protection in Jarmal is one of the earliest community forest protection initiatives in the state of Orissa. Jarmal comes under the Birbira Gram Panchayat of Sadar Sundergarh block in Sundergarh district. Forest protection has now been initiated in more than 15 surrounding villages.

Jarmal is divided into 3 hamlets: Kalupada, Telipada and Khadiapada. With the total number of households being 158, it has a diverse caste composition: bhuiyan 50 households, khadia 60, brahmin 1, keuta 5, marbari 20, gauda 5, lohar 3, harijan 11 and babu 3 households. Around a fourth of the households are landless, and earn their livelihood primarily from wage labour. These households get labour work in the agricultural fields during the season, or in neighbouring cement factories and coal mines (at a distance of 30 km from the village). Else they migrate to cities like Surat (in Gujarat) and other places for employment. Some landless households take up land from landed households on a share-cropping basis. Apart from labour work these households also depend on the collection of various seasonal forest products for livelihood. A third of the remaining households are marginal farmers with up to 2 acres of cultivable land. They generally grow two crops a year, which includes vegetables. In addition to cultivation, they also depend on wage labour during lean periods. Even though their primary dependence is on agriculture, a majority of the households in this category collect forest produce both for sale and household consumption.

The rest of the households are economically better off, having 10-12 acres of cultivable land. These are usually households whose members are engaged in government and private service. The rich households engage wage labourers for collection of forest produce such as mohua flower and fruit, tamarind, etc. from the trees on their agricultural land. Paddy is the main crop cultivated during the *kharif* season. The cultivators grow wheat, groundnut and vegetable during the *rabi* season. The village is well irrigated with a minor irrigation project and a few wells in the fields. According to the villagers there has been a marked increase in the livestock population over the years. A rough calculation indicates that there are about 1000 cattle and 500 goats in the village. The forest provides the grazing space for the entire cattle population. The forest has been declared free for grazing. However, agricultural fields are used for grazing immediately after the harvest.

History of forest protection and management

Prior to independence these forests and their resources were under the ownership of the king of Sundergarh. The forest was divided into various blocks and put under the charge of the local *gauntias*, who were appointed by the king. The king's permission was required for use of any forest produce. But, in practice the *gauntias* issued passes to the people for obtaining forest produce. In turn, they were required to keep a record of the quantity of forest produce taken by each individual family. In return for forest produce, the villagers were required to provide free services to the king. They used to carry wood to the king's palace at Sundergarh. The villagers were also engaged in chasing the animals in the forest when the king came for hunting. Disobedience of the king's rule was met with severe punishment.

At the time of independence, the forest had been transferred to the forest department. The villagers were being granted periodic rights for using the forest. For four days during April-May, the forests were kept open for villagers to collect fuelwood. The forest guards regulated such operations. During other seasons of the year, the villagers had to approach the forest department through the ward member. Unlike the king's period, people were not fearful about the forest department. There was enormous rise in fuelwood extraction from the forest. As a whole, the pressure on forest gradually mounted. Inadequate protection arrangements by the then forest department and the demands of the timber business were some of the other causes of forest degradation. The situation was so bad that towards the end of the 60s people even started taking out rootstock from the forest.



Towards community conservation

By the beginning of 1970, people began to face enormous problems in obtaining their daily forest-based needs. Daily household necessity items such as leaf plates and cups (*khali* and *dana*) could only be procured from far-off places such as Manamunda village at a distance of 12 km or had to be purchased from the market. The same hardship was involved in collection of fuelwood. Items like mushrooms, which were earlier easily available during rains, slowly became scarce. Shortage of forest products seriously impacted the poor who depended on them both for self-consumption and sale. Agriculture was seriously affected when leaf litter from the forests, which was used as green manure, reduced considerably. Acute scarcity of fodder forced people to either sell off their cattle or graze in the forest area of other villages. The other effect was that grazing in distant places resulted in harassment to the villagers at the hands of outside villagers. But the most disturbing for the villagers was when rootstock was beginning to be extracted from the forest. Realizing the gravity of the situation, the villagers decided to initiate forest protection.

The villagers had a series of meetings where people expressed concern and anxiety over forest degradation. Everyone in the village considered protection of the forest as the only alternative. A village meeting was called wherein the modalities of protecting the forest were discussed. 179 acres of reserved forest was declared as restricted. Four persons from four different households went on forest *palia* (rotational patrolling) each day. A detailed list about who would go on which day was made and circulated. The nearby villages were also intimated and their help and cooperation was sought. However, there was no formal protection committee formed during this time. The lead role in the entire process was taken by two elders: Shri Sasidhar Sa and Shri Madhusudan. The *palia* system continued for only one year, after which it broke down, as a few households were irregular in going on *palia*. Some of them did not go at all. So those who were regular in *palia* gradually lost interest. Consequently, the protection arrangement became ineffective in 1971.

In 1971 a watcher system was introduced. A paid watcher was appointed for regular patrolling of the forest. Two *ser* (approximately 1 kg) of paddy per household per month was fixed towards the salary of the watcher by all households. The watcher was paid eight *khandi* (1 *khandi* = 12 kg) of paddy per month as salary. In 1976 this arrangement also broke down. A few households stopped contributing paddy, causing discontent among the others. These households were mainly the landless, who found it quite difficult to contribute. It was a critical phase in forest protection. After a series of consultations, the *palia* system was reintroduced as an alternative to the watcher system. Two persons from different families went on patrol each day on a rotation basis. In 1988 a five-member forest protection committee was formed in the general body meeting of the village.

Rules and regulations

At the start of forest protection there were no systematic rules set, except for the one-line norm "No one can cut anything from the forest or enter into it with any sort of cutting instrument." Collection of fuelwood was allowed only with the committee's permission. The villagers had also sent letters to the neighbouring villages informing them about the initiation of forest protection. The entire forest was declared restricted for grazing. Besides felling of green trees or branches, carrying fire or setting fire within the forest was disallowed. Collection of mushrooms was free for all. A fine amount of Rs 51 was fixed as penalty for forest offence cases. In case the offender was unable to pay the fine amount, he was required to request the committee for a total exemption from the fine amount. The committee has also developed a need-based utilisation system, whereby it provides forest products to the households that need them the most.

The FPC occasionally assesses the need upon receipt of a request. The committee sells the surplus forest products in the village at a very nominal price. A stock register is maintained by the committee to record the use and availability of the forest produce.

Institutional set-up

A formal forest protection committee (FPC) was set up in the village with the help of forest department after the joint forest management (JFM) resolution was passed in the state in 1988. Jarmal was one of the first villages to be brought under JFM in Orissa. Once selected, the members of the forest protection committee (FPC) continue as long as they are managing the affairs of the forest properly. The general body (GB) of the village is free to select new members and terminate existing members. As long as there is no specific complaint against any existing member, he is allowed to continue in the committee. In case of a need to change any of the office-bearers, the village would assemble to decide the matter on a consensus basis. The GB of the village sits at

least once a year to review the performance of the FPC. The secretary and president of the forest committee are continuing in their positions since 1988.

The committee earns its income through contributions from villagers, sale of deadwood, income from forest development work undertaken through contribution of free labour by the villagers, and through the support from the *panchayat* under various development programmes. Besides looking after protection and management of the forest, the committee takes a special interest in popularising the forest protection movement in the area. This is done, for example, by organising a football tournament on World Environment Day each year. They invite football teams from more than thirteen neighbouring villages and educate them about environment and forest protection. On the final day of the tournament, higher officials of the FD, local political leaders and other government officials are invited. The committee has also made provisions for distributing prizes and certificates of merit to the participants.

Impacts of community conservation

By 1975 the number of wild animals like deer and wild pig had started increasing in the forest.

In recent times the committee has started annual cleaning operations in the forest, which is able to provide for the fuelwood requirements of the entire village for about two months. For the rest of the year the villagers meet their fuelwood requirement from other sources. Those who can afford to buy fuelwood from outside the village do so; others regularly collect leaves from the social forestry plantation. The use of electric heaters or kerosene stoves is common in most landed rich households. *Bhusee chullaha* (paddy husk) and sawdust are also burnt in a controlled *chullaha*, which is used by a majority of the households. *Priyagni Chullaha*, distributed through the District Rural Development Agency, is another fuelwood efficient *chullaha* used by the villagers. However, in spite of this wide range of fuel sources, some villagers, particularly the poorer households, also depend on the protected forests of Manamunda and Khajurijharan villages for fuelwood.

After the initial strict protection and once the forests regenerated by 1975, they were opened up to villagers for regulated use. For example, the villagers can now collect dry, dead and fallen wood freely. Villagers are also free to collect non-timber forest produce (NTFP). Increase in the availability of NTFP has particularly benefited the landless, who depend on the sale of NTFP to a great extent. The forests are now also opened up for grazing. Villagers could procure free branches with leaves for raising platforms on festive occasion. The forest streams now provide water for agriculture, which is an added incentive for the landed households.

Even though people avail a number of benefits from the forest, the committee has not yet started issuing house construction materials to the villagers. In the opinion of the committee members, 'Once we start allowing such materials everyone in the village would need it which, in turn, would be adverse to the growth of the forest.'¹ In its present condition, the forest can provide facilities for house construction materials at a low level, but the forest protection committee is not prepared to take the risk at this stage. It is planning to convene a meeting along with the district forest officer (DFO) to discuss the matter before taking a final decision on this. The current status on this decision is not known.

Income generation activities undertaken by the forest department contributed to the well-being of the village. In 1998, the forest department started making a trench around the forest. That was a major employment generating activity. A large number of people got employment for quite a long period. This was considered as a welcome step as it saved the forest from cattle. This prolonged work also strengthened the relationship between FD and village.

In 1995-6, under the provisions of JFM, micro-plan plantations were taken up in the forest gaps by the FPC. In 1997, detailed forest demarcation work was initiated by the forest department in order to indicate the boundary of reserved forest.

Opportunities and constraints

With the regeneration of forests, the wild animal populations also increased. This in turn increased the instances of poaching, particularly by the neighbouring villages. After the initiation of JFM, the FPC has sought help from the local forest guard to control hunting. One of the first cases of hunting occurred in 1975, when villagers from Birbira killed a wild boar from the forests. The committee members apprehended the offenders and filed a case against them. However, they could not prove in the court of law that poaching had indeed happened. The offenders were acquitted and this demoralized the villagers. Finally they took to case to the respected elders of the community. In

this trial, however, the crime was confirmed and the guilty had to offer a public apology. Thus a compromise was finally reached.

In 1991 the forest protection committee entered into a major conflict with the village youth club. The youth club was formed in 1991 and organised a meeting in the village. The DFO was invited as the chief guest in the function. The conflict started when the president of the youth club claimed in the meeting that the forest was being protected by the youth club. They also requested the DFO to issue a written document to this effect. The claim of the club disturbed the members of the FPC. A conflict between the youth club and the FPC members continued for a few months. The committee members met the DFO several times. The DFO asked them to produce proof of their protection. The FPC members could produce all necessary documents, including resolutions of the meetings, to prove that they had been protecting the forests for last two decades. Finally the conflict was resolved.

The village had a social forestry plantation in 1989 of around 33 acres on village revenue land. A number of traders from outside the village are interested in purchasing the poles from the plantation. But, the villagers are not agreeing to the idea of selling plantation due to the following reasons: leaves and fruits of acacia serve as a major source of fuel especially for parboiling; the trees have created a better environment in the village; money from plantation might lead to conflicts in the village.

Interaction with the FD

The villagers in general and forest protection committee in particular have established a very good relationship. The forest protection initiative has constantly been supported by the FD staff. Though the interaction started several years after the actual initiation of forest protection by the villagers, the FD support has gone a long way towards revitalizing the spirit of forest protection. Involvement of the FD in facilitating the protection activities of the villages has greatly motivated the villagers. In addition, with the implementation of JFM, forest development work was regularly undertaken by the FD with the help of the villagers, which contributes to the income of the villagers. The committee also organises an annual feast in the forest, which is attended by forest officials of the division. Such occasions have created opportunities for healthy relationships as well as better understanding between the village and the forest department. Participation of the higher officials in the village functions has tremendously boosted the morale of the villagers.

Conclusion

The villagers realised that pressure from the dependent communities will mount on them if there is acute scarcity of forest resources with only one available source. They believed that all the forest adjoining villages should be involved in protection and regeneration of degraded forest from where they can meet their basic needs. Indirectly pressure on their forest would be reduced in addition to general well-being of the area. They had distributed a 1988 government resolution among the forest-protecting villages and those who could be motivated to take up protection with a supportive forest policy. The villages which were directly or indirectly influenced by the Jarmal villagers to take up forest protection are Badakachhar, Amashranga, Majhapada, Birbira, Bijadihi, Talasara, Salipali, Ghantabuda, Lahandabuda, Kumutumunda, Manamunda, Duduki, etc. Thus Jarmal was able to positively influence its neighbours as well.

This case study was provided by Vasundhara.

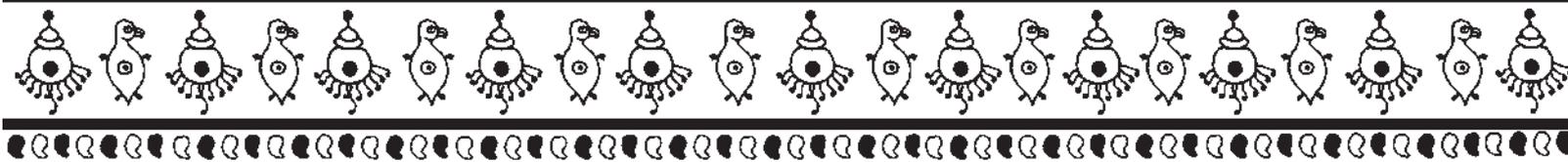
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Endnotes

¹ Editors' note: It is unclear where the villagers meet this requirement from. Whether the forests surrounding the protected forests have to provide for this need, and are hence negatively impacted by the conservation effort, is also unclear.





Jharbeda village, Sundargarh

Background

Jharbeda is a unique case of community forest protection insofar as the strength of such self-initiated systems is concerned. Situated in the Bonai block of Sundargarh district, the village stands as an example of how community-level forest management systems could sustain the worst impacts of the rural social and caste structure. From the forest protection and management point of view, the village started forest protection in 1980. But the mechanisms adopted by the villagers for forest protection failed frequently, leading to rearrangement of the protection system. Jharbeda has about 142 households and a population of 700 people. There are 5 behera households, 10 rana, 30 teli, 70-80 scheduled tribe households and 17 households of the scheduled caste. Traditionally, the village is divided into two groups: the tribal and dalit group and the general caste group. The teli caste is economically well off. The other general caste people are mostly identified with the teli caste.

Towards community conservation

By 1980 the forest cover had decreased drastically. It was full of thorny bushes and shrubs. Big trees had totally disappeared from the forest. Small animals like rabbit were visible in the forest only from a long distance. The causes of degradation were stone quarrying; forest fires, mostly during the kendu leaf season; pressure from nearby villages, smuggling of trees/wood by the villagers as well as outsiders; and internal conflicts which led to one party indulging in destroying the forest. The tribals and the harijans (SC) were the worst affected, as they depended on the forest for a majority of the months in a year. Even though many of them have land, they earned a major part of their livelihood from the forest. Forest degradation led to scarcity of essential forest products like leaves, fuelwood and brush sticks. It led to dependence on other villages' forests and frequent humiliation, travelling to far-off places for collection of forest products and the thought that their children would not get anything from the forest and face innumerable problems if the forests were gone. The tribals and the landless poor were the worst affected people due to forest degradation.

The initial phase (1980 to 1988): By the tribal and harijan (SC) groups

The intimate relationship between the tribals and the forests was gone with the degradation of the forests. This became the important reason because of which the tribals in Jharbeda initiated protection. A few leaders like Thither Kerketa, Ramchandra Behera and Khageswar Rana took the initiative and called for a general meeting of the villagers. The meeting was attended by 70-80 tribal and Harijan households. The general castes, especially the Telis, did not attend the meeting as they were not on good terms with the organising group and the issue of forest protection did not attract them much. The meeting was attended by tribals and Harijans only. The leaders explained about forest protection and its benefits to the people. A consensus emerged from the meeting to protect the forest. A committee was formed to look into the matter. The office-bearers included Ramachandra Behera as president, Thither Kerketa as secretary, Bandhua Rana as the treasurer, and a number of other members. The members demarcated the forest area to be protected. It was decided that the committee would meet once a month to discuss and review the forest protection activities. The day and time of the meeting was being fixed as per the convenience of all the members. The *Behera* (who belongs to the milkman community) circulates the notice for the meeting and informs all about it. The forest protection committee generally discussed about the protection activities and other emerging issues concerning the forest. There were two things about which the people were thoroughly convinced:

1. Since they were protecting government's forest, they would one day be rewarded by the government.
2. Even if they were protecting unofficially they have to secure the support of the forest department; else it would not be possible to maintain the forest.



The *thengapalli* (voluntary patrolling by rotation) system was adopted as the protection mechanism. Two persons were required to patrol the forest each day. In case of need the entire committee went to the forest for protection. Two kg of paddy per household per year was collected towards the salary of the *Behera*. A set of rules and regulations was framed for managing the forests. It was decided that two persons from different households would go on *thengapalli* to the forest. Unauthorised entry into the forest, both by villagers and outsiders, was prohibited. Collection of forest products could be done from outside forest areas. The committee would impose penalties on the offenders. The fine amount was to be decided by the committee. Once the forest regenerated, the committee would give permission to the villagers for obtaining forest products. Entering the forest with any cutting instrument was considered an offence. Grazing and collection of dry branches were however allowed.

The committee undertook cleaning in the forest with the support of the forest department. The villagers contributed free labour and deposited the wage money given by the FD in the common fund. The committee also made a stone boundary wall around the forest, money for which was also given by the FD.

In the initial years of protection there was no major conflicts concerning forest. The forest was so degraded that everyone had stopped depending on it. As a result, forest protection activities continued uninterrupted. Problems started cropping in with regeneration of tree species. Pressure on the forest by both the outsiders and the insiders mounted.

The committee gradually found it difficult to manage the conflict situations arising out of offence cases. It sought help from rest of the village and invited the other group (general caste) to join their efforts in protecting the forest. Instead, the general castes indulged in destroying the forest. Even though the committee somehow contained the outside pressure, interferences from inside the village were not within its control. The general caste group claimed that the forest belonged to the government and the tribal group had no rights to stop them cutting trees. Nine years of undisturbed protection suddenly entered into a phase of chaos and confusion. A general body meeting of the committee was organised to discuss the problem. There was a common feeling that the forest could not be protected in an atmosphere of confusion. Repeated requests to the other castes in the village to participate in forest protection had not yielded any significant results. The committee decided to discontinue formal protection of the forest. However, considering the importance of forests in their lives, a final request was sent to the villagers for taking charge of forest protection.

Second Phase (1989): By the teli community

After a series of consultations, the teli community took the responsibility of the forest. Lalit Sahu became the head of the committee. This was not a very formal arrangement, as most of the households were not part of it. The earlier group of tribals and harijans did not participate in the protection. There were only 30 teli households, and they found it difficult to protect the forest. There was tremendous pressure on the forest not only from Jharbeda village but also from the surrounding villages. In the meantime, the youth club members had informed the FD about the illegal storing of trees by some of the households. The FD conducted a house-to-house search operation during this period. However, the original culprits could not be apprehended; instead those who occasionally bring wood from the forest were caught. The incident brought a lot of opposition to the teli group. The villagers asked them to immediately withdraw from forest protection. Unable to contain the pressure, the group abandoned forest protection within a few months.

Third Phase (1989 to 1992): By the youth club

Before the teli group took over, many people in the village were in favour of the youth club getting involved in protection of the forest. The youth club was involved in *palli mangala* (Welfare of the Village). In 1987 the *yubak sangha* (the youth club) developed a mango orchard for the village. They also organised a cycle rally to spread the message of forest protection and environmental conservation. After the failure of the teli group, the youth club took the initiative.

In 1989, after a gap of about one year, Jharbeda started formal protection of the forest once again. The transfer of the forest to the youth club was considered the best alternative at that point of time. Two members went patrolling the forest on rotational basis. Gradually the number of members increased. They declared that entering the forest without sufficient reason would be considered an offence and the person would be penalised. Since the group was active, they closely monitored the protection activities. With the involvement of the *sangha* in protection, the pressure, both from outside as well as inside the village, suddenly came down.

The *yubak sangha* got registered as Bapuji Club in the same year. This brought them legal recognition and they started implementing a number of developmental programmes of the government. The opposition group in the village (mainly the teli group) slowly became active and started interfering in the forest. They also instigated the nearby tribal villages of Goudapada and Badapada. These two villages, on the pretext of *thekua paridhi* (a customary tribal hunt), destroyed the forest. The offenders were brought to a central place in the village. After prolonged discussion, the offenders confessed their offence and vowed not to get involved in the Jharbeda forest in future. In January 1990 the *sangha* found that pressure on the forest was mounting. The rival groups in the village were clandestinely involved in destroying the forest. The *sangha* brought a brahmin, who declared with chanting of *mantras* that anyone who destroys the forest would lose his son. For about one year no one even entered the forest in fear. However, the opposition was in search of an opportunity to defame the *sangha*.

In December, one person found a poisonous snake in his house. The opposition made an issue out of this. They declared that the number of poisonous snakes and other harmful animals were increasing due to the density of the forest. They started blaming the club and appealed to the people to cut the forest in order to save their own lives. They also demanded an immediate cleaning and thinning of the forest. Accordingly, the youth club took a decision to undertake cleaning operations in the forest. The forest was declared open for cleaning. The opposition exploited this opportunity and started cutting big trees. They also facilitated the nearby villages in taking out trees from the Jharbeda forest. This resulted in serious destruction of the forest. Once the cleaning was closed, the club immediately brought the forest under its control. In 1991 the club made efforts to popularise forest protection by attaching it to the District Literacy Mission. Their slogan was: 'If the people become literate they will grow friendly towards the forest.'

But destruction of the forest by the opposition group continued. This was the time everyone felt that the forest had once again entered into another phase of confusion. In 1992 Antaryami Rana, the club secretary, took up a government job. Consequently, he started giving less time to the activities of the club. There was no one in the club who could provide leadership to the ongoing activities, especially forest protection. This provided enough opportunity to the offenders to destroy the forest. Disgusted with the perennial conflict, the club decided to abandon forest protection. During the club's period no specific rules and regulations were framed concerning the forest. Except for one-time cleaning material, there was no direct benefit to the people from the forest.

Fourth Phase (1992 to 1993): By small groups

This brought about a situation where no group in the village was in a position to take over the responsibility of the forest. It was not even possible for the village to unite for the cause. This resulted in rampant destruction of the forest. This was the phase when small groups, on a hamlet basis, started voluntary protection of the forest. There was no formal committee or similar arrangement, but hamlets took the responsibility out of their own interest.

The Kisan Sahi, Odiya Sahi and Ghatipir hamlets individually protected parts of the forest from 1992-3. It was not a joint or concurrent protection by these hamlets. Rather, one hamlet took over when the other left protection after a brief period of time. However, such efforts could not bring stability to the forests. Forest destruction continued and there were also opposition to these groups' efforts from within the village. The phase ended with all three groups getting frustrated and abandoning forest protection. During this time, the women started going to the forest and their pressure on the forest was considered to be the greatest threat.

Fifth Phase (1994 to 1997): By women

In 1993 the DFO visited the village and explained about forest protection. With the initiative of the DFO, a local voluntary organisation took the responsibility of restarting forest protection in Jharbeda. A *mahila samiti* (Women's Group) was formed in 1994 and the group was motivated to take up forest protection. The women were involved for three basic reasons:

1. According to the villagers, the women who formed the *samiti* were involved in cutting the forest. These tribal and SC women depended on the forest for their livelihood through fuelwood sale.
2. The women's group would be able to check the women coming from outside villages.
3. There were no other groups in the village to take up forest protection. So people felt that it was worth experimenting with women taking the responsibility.

Four women from four different hamlets went to the forest for patrolling on rotation. They declared the forest as restricted. Taking earth from the forest for *khapara* (roof tiles) and stone quarrying were prohibited. Grazing was allowed and so was the collection of dry fuelwood for 3-4 days during the summer. In the same year the *mahila samiti* took up gap plantation work with help of the FD. The women also raised a nursery. They contributed labour and deposited the wage money in the common fund. The *samiti* requested the FD to help them to undertake cleaning in the forest. The decision for cleaning was taken because of two important reasons:

1. The forest had an unhealthy growth of thorny bushes, which hindered the regeneration of trees.
2. The *samiti* decided to give some benefits to the villagers in terms of fuelwood.

The FD released a grant of Rs 1000 for cleaning operations. The *samiti* invited the villagers to participate in the cleaning, and collect the materials for fuelwood purposes. The villagers responded positively and contributed free labour for cleaning. The Rs 1000 was deposited in the *samiti* fund. A total of 60 households participated in the operation and each got half a cartload of cleaning material free. This activity of the *mahila samiti* was commended by the villagers and they now reposed faith in the capabilities of the women.

In the beginning there were only 10 households that were members of the *samiti*. Gradually the number of members increased. However, the 30 households of the Teli caste did not become members. The women's group repeatedly invited the opposition group to get involved in the activities of the *samiti*, but without any result. Some of the general caste women also became members of the *samiti*. The Teli caste women neither became members nor opposed the activities of the *samiti*. However, in spite of everything the women were successful in effectively protecting and managing the forest wealth of the village.

The *samiti* had played an active role in taking up fire-fighting measures in the forest. There have been three major fires in the forest since the *samiti* has taken charge of the forest. Soon after the women's group took over, the opposition had set fire to the forest in 1994. The women's group immediately went to the forest for extinguishing it. Their request to the male members for help was rejected and not a single male helped them in fighting the fire. The males in the village said that since women were protecting the forest, it was their responsibility to extinguish the fire.

The *samiti* took account of various forest offences and decided the cases. In the initial days of protection by this group, the women were insulted by the male members several times. The offences included the case of stone quarrying by Tikiraposh village, fuelwood selling by women of Kinjirikela village and similar cases. The group successfully resolved all such cases. It also collected fines up to Rs 100 from many of the offenders. Though the instances of forest offences were frequent, one positive development came up remarkably during the *samiti's* time. The interference from the Jharbeda villagers drastically came down during this phase. With the women taking charge, the opposition groups in the village did not want an open fight.

There were some things which added to the strength of the women:

1. The activities of the *samiti* were staunchly supported by a majority of the villagers.
2. The FD also supported the women's group and there were regular visits by the FD staff to the village.
3. It became a prestige issue for the males in the opposition not to have conflicts with the women, as in the traditional social structure, women are considered unequal to males.
4. People had grown sick of prolonged conflicts (for about 14 years), since the start of forest protection by the tribal and Harijan group.

The support of the FD had strengthened the forest protection activities of the *mahila samiti* in Jharbeda. However, there were situations when the women's group had felt frustrated and demotivated by the responses of the FD. Once the *samiti* sent a written application to the DFO informing him about the rampant felling of trees, and requesting him to take quick action against the offenders. But there was no definite action taken by the FD; nobody from the FD even ever came to enquire about it. The offenders challenged the women's group, saying, 'Your FD did not come to help you. So no one is going to come to rescue you even if we kill you.'

In 1997 the women's group apprehended 6 carts in the forest which had come to take trees from the forest. They rang up the DFO immediately and asked him to send his staff to decide the case. The women held the carts for a long time but nobody from the FD reached them. The women were thoroughly frustrated when, being unable to fight against the offenders, they had to set them free. Slowly faith in the FD started declining and all future hopes rested in them were gone.

The women also expressed doubts about the role of the present forest guard. They complained that the guard neither helps them at times of need nor does he act against the forest offenders. In 1997 a contractor, in connivance with the forest guard, took trees for 30 Indira Awas Yojana houses which he had taken on contract. Repeated information to the FD did not yield any result.

A state-level award for forest protection was conferred on the women group in 1995. The representatives from the *samiti* were selected to go to Bhubaneswar to receive the award. The *samiti* granted money from its own account for the travel and other expenditures. However, the representatives returned back to village as the award ceremony was postponed. The *samiti* incurred an expenditure of Rs 300. Again in 1996 three members were sent to Bhubaneswar for receiving the delayed award. Unfortunately, due to the death of a national leader the programme was further postponed. The entire group was dissatisfied over the award issue. A small fraction of the *samiti* withdrew from membership and indulged in destroying the forest. They accused the representatives of misappropriation of the money which was given to them for travel and other expenditure. Meetings could not be organised regularly, as many of the women did not attend any longer. In June 1996 the women who attended the meetings regularly formed a new *samiti* and invited the breakaway group to join. This confusion continued till 1997. The internal conflicts resulted in loosening of the protection system, and destruction of forest by others started once again.

Sixth phase (1997 to date): By *van samrakshyan samiti* – by the entire village

As the problem intensified, the *samiti* stopped forest protection in 1997. It was emphasised that people dared to destroy the forest because there were no male members in the protection arrangement. One month after this incident, the Forester came to the village and formed a village forest protection committee. He included members from all the hamlets. Four male persons from the four hamlets went on patrolling on rotation basis. Later the FD formed a *van samrakshyan samiti* (as per the provisions of the joint forest management (JFM) resolution) and 2 members (one male and one female) from each household were taken as members.

Opportunities and constraints

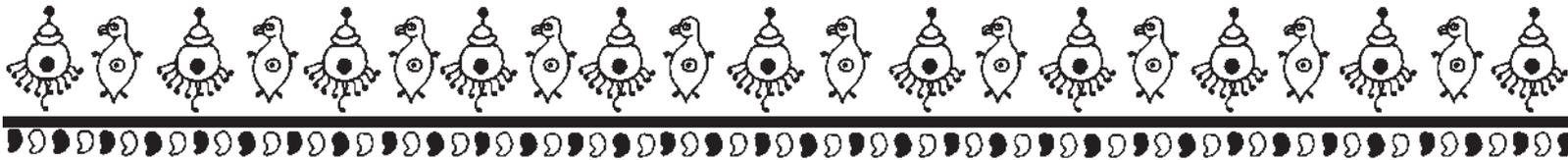
One important feature that stands out in the case of Jharbeda is that forest protection went through a number of important phases. It has been either a caste group or a cultural group or a similar group that took on the role for forest protection. Despite the various internal conflicts and despite repeated failures of the various groups in doing so, there was never a period of complete breakdown of the system, as informal protection/understanding among the people kept the system alive.

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Kodbahal village, Sundargarh

Background

Kodbahal village in Hemgir block of Sundargarh district in Orissa is a unique example of a small population of spotted deer being protected by the village community. The villagers consider deer protection their prime responsibility in addition to the protection of the forests in their surrounding. The villagers have not only given protection but also sacrificed part of the agricultural yield, which is lost due to deer depredation. The people at Kodbahal consider the deer their associate in nature, with whom they have to share resources.

Kodbahal is largely agrarian. Along with agriculture, forest products like sal leaves and seed, mahua flowers and fruits and other items provide livelihood security for the lean period. Almost all the villagers depend upon the forest for fulfilment of their daily needs.

Towards community conservation

Spotted deer are the natural inhabitants of this area. People relate that in the pre-independence era, the people of Kodbahal used to accompany *zamindars* (landlords) and rulers in their hunting games; however this practice stopped after independence. In 1945 there was a massive degradation of the forest because of contracts being given to fell the forest by the state. This reduced the habitat for the deer and their population also declined. The villagers started protection of deer about 20 years ago. The protection measures became intense after 1998, when villagers also started protecting the forests, although villagers earned their livelihood as daily-wage labourers through the contractual logging. On the other hand, logging caused degradation of resources and ultimately caused scarcity of the resources on which the villagers were dependent. This resource crunch led to the realization that they needed to protect their own resources. Despite taking a decision to protect the forests, internal conflicts between the two hamlets in the village prevented them from being able to implement their resolve. Eventually, the forest department and the district administration took a lead to resolve these conflicts through bilateral talks, leading to the formation of Kodbahal Van Suraksha Samiti (VSS) in 2000. After this the deer got better protection due to regular patrolling by villagers, and this also led to habitat creation and improvement.

The Kodbahal VSS comes under Kodbahal beat in Hemgir Range of Sundargarh Forest Division. The VSS was formed on 29 January 2000. There are 205 members in the VSS, out of which 28 are Scheduled Castes and 42 are Scheduled Tribes. The area assigned to the VSS is 200 ha, part of which is reserved forest and part comes under Revenue Forest. The mixed deciduous forests are dominated by sidha, karala and sal. Villagers categorize their forest into four categories: *patra* jungle (scrub forest), *gramya* jungle (village forest), *sal* forest and bamboo forest. These categories are assigned depending upon the type of vegetation present in that area. Some parts of the forests are assigned particularly for grazing and are called *gauchar* land. Grazing is therefore prohibited in the rest of the forest. This ultimately promotes forest regeneration and increases availability of resources for wild herbivores.

Villagers are very vigilant about controlling poaching of chital. Whenever there are incidents of poaching, villagers quickly inform the FD. The local forester, along with villagers, moves to the place and takes necessary action against the poachers. This system is proving efficient in reducing the poaching cases.

The deer prefer to come into the habitation area and agricultural land since they feel safe in the village, where nobody tries to hurt them. Villagers look after any animal that gets injured. They also try to avoid man-deer conflict by using indigenous techniques like hanging clothes (mostly *saris*) in agricultural fields to keep the deer away from the crop. In Kodbahal deer damaging agricultural fields is a common sight. Local people have been tolerant of this so far.

The villagers have evolved the agricultural system in accordance with the behaviour of their wild companions. As the deer prefer to stay in the uplands, the upland is generally kept fallow or is cultivated with crops like saru or taro, chilli, etc., which are not eaten by the deer. The villagers are well accustomed to the lifestyle of the deer: they are well versed with resource-use pattern of deer, can easily predict the presence of the deer and have a deep knowledge of their behaviour such as diet, seasonal migration and breeding, and understand all the requirements of the animals like the need for dense cover to hide, water and food availability, salt leaks and fawning grounds.

According to the villagers, the hilly upland area forms the best habitat for deer; this area harbours



scrubland with patches of grassland. In this area the deer get food and vegetation cover to hide. It is also inaccessible and is protected from grazing. Last year the village committee had planted edible grass for deer in the season of food scarcity (i.e., summer) that solved many problems like straying of animals outside the secure area, crop depredation and many others. Earlier villagers were protecting the forest through *thengapalli* (rotational patrolling). This was done by four members throughout the year, while in the peak season of theft—the *karadi* season (the season of bamboo sprouting)—eight members were involved in patrolling. In this year the VSS has employed three watchers for daily patrolling through the FDA fund. However in the peak season of theft, villagers assist the watchers in the patrolling.

Protection of the forests is also economically beneficial for the villagers. About 236 people in the village are engaged in the collection of non-timber forest produce (NTFP). NTFP collection and sale is therefore one of the mainstays of the village community. When the forest got degraded in the past, limited availability impacted the communities economically. Regeneration of forests has not only provided a good habitat for wild animals but has also increased the availability of NTFP for the villagers.

Opportunities and constraints

However this attachment with deer is becoming a factor of distress for the people from surrounding villages. The Kodbahal villagers are facing the ire of other villages, who are interested in deer poaching and logging. According to the VSS president and other VSS members, deer are safe in the area of Kodbahal VSS, but straying into the surrounding areas is risky.

It is evident that availability of agricultural land is very low in the village; the irrigation facilities are also very limited. In this situation, people in Kodbahal are ready to sacrifice part of their crop to the deer, indicating their dedication towards protection of the species.

Due to protection and regeneration of the forest, the deer population is increasing. This trend is providing space for natural predators of the deer like tiger, leopard, hyena (Hyena hyena) and jackal (*Canis aureus*). According to forester Mr. K.C. Panda, sighting of Royal Bengal Tiger (*Panthera tigris*) in this area is very frequent. This forest is also a shelter of other wild animals like barking deer (*Muntiacus muntjak*), four-horned antelope (*Tetracerus quadricornis*), sloth bear (*Melursus ursinus*), Indian wild boar (*Sus scrofa*), and forest and water birds.

Seeing such dedication, one wonders what is the motivation behind such an effort? What do the villagers get from this protection? The explanation given by one of the villagers is: 'We believe that the trees/ bushes eaten by deer sprout more efficiently, ultimately increasing the productivity.' He adds, 'Deer eat grass, fruits, etc., which helps in forest regeneration.'

Conclusion

To enhance the efficiency of the protection measures, the villagers are hoping for formal recognition of their efforts through inclusion of this area in official protected areas, as they could get funds for better management of the deer habitat. The forest department is also showing interest in this process; however, it is not clear whether the department is going to declare this area a sanctuary, where people have to face restrictions on their fundamental rights, or a community reserve, where people could exercise their rights along with a stake in management of wildlife.

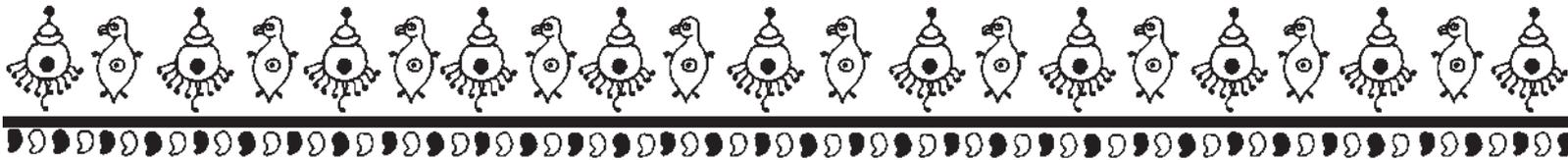
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Endnotes

¹ Sources: S.H. Prater, *The Book of Indian Animals* (Mumbai, Bombay Natural History Society, 1971); S.H. Deal, *Wildlife & Natural Resource Management* (Thomas Delmar Learning, 2002); <http://www.haryanaonline.com/fauna/chital.htm>.



Phuljhar, Sundargarh

Background

Phuljhar is situated in the Bisra block/range of Sundargarh district in Orissa on the borderline between Orissa and Bihar. Phuljhar is a case which reflects a never-say-die attitude in the protection of its forest resources. Since 1965, protection has been jeopardized and revived many times. The forest adjoining the village is a sal forest, which cannot cater to all the forest-based needs of the people. The villagers therefore depend heavily on other forest areas to meet the other requirements. Yet the realization that the forest is a village property mustered the support of the villagers to protect it. With more than 100 ha of area under protection and over 30 years of protection, Phuljhar stands as the only forest-protecting village in the entire *panchayat* of nine revenue villages. Lindra, another village in the *panchayat*, has recently started protection (in 1997).

There are 120 households in Phuljhar. There are various community groups, including the orang tribe, Muslims, sahoos and scheduled castes. Ten households have no land, 20 are involved in business (grocery, cloth and dairy), 20-25 are dependent on wage labour, 10-15 households are engaged in regular service, while the rest are cultivators. While some households cultivate vegetables, paddy remains the single most common crop grown here. Only five households sell paddy and the rest of them use it for their own consumption; the paddy may or may not meet their needs for the whole year. Those depending on labour for their livelihoods work in a brick kiln for ten months (September to June) in a year and as agricultural labour for the remaining months. There is also seasonal migration outside the state, the intensity of which increases during crop failure.

Before 1960 Phuljhar was surrounded by dense forest with no roads and infrastructural facilities in place. Along with sal, other species like mahua, char and sissoo were also available. Though the village heavily depended on the forest, its importance was realised only after the forests were gone. The forest in discussion is the *khesra* (revenue) forest, which is within the village boundary. There is however no clarity of whether the revenue forest belonged to the village or not. The density of the forest allowed people to have a self-sufficient life with absolutely no dependence on the outside world. Collection of sal seeds, mahua flowers and seeds, mushrooms (from fields and forests), berries and sal leaves provided alternate sources of livelihood in case there was a crop failure. There was no formal committee or rules governing the affairs of the forest.

Towards community conservation

Trouble began after a railway line from Rourkela to Ranchi was operationalised in Dec 1965. The work of the railway line took away all the valuable forests. All sal trees were felled and used as railway sleepers. In retrospect some villagers feel that they were fortunate that only one railway line was laid. Initially people were supportive of the railway line as it meant more connectivity, labour opportunities in the construction of the line, and employment in the railways. These kept the villagers from resisting or opposing the project. At the end of 1965, when they felt the scarcity of forest resources to meet their requirements, the villagers started feeling the pressure. Procuring sal leaves even for daily use (used for making plates) became difficult and the thick forests became lengthy patches of cleared forests. The Phuljhar villagers then realized that they were in deep trouble and that it was impossible to live without forests.

First phase of protection

In December 1964 some villagers—Ratia Orang, Rama Bhagat, Sakarati Puja and Jinat Mian—came together to protect the forests. Many of the villagers were not interested, as there was no forest remaining to protect. However a general body meeting was organized to discuss the possibilities of forest protection, and after prolonged discussions the entire village unanimously agreed to initiate forest protection. One reason that they initiated protection of the *khesra* forest was that they could not heavily depend on the adjoining reserved forest which belonged to the forest department (FD). During this time there was no forest committee and these four people were given the main responsibility for forest protection.



Two watchers called *moharirs* were appointed, though they were not required to follow any regular system of watching and guarding the forest. They initiated a flexible system of protection and went patrolling whenever they had time from agricultural or personal work. Each *moharir* was to be paid either Rs 5 or given 5 kg of paddy, which was collected from each household. The *moharirs* were supposed to patrol the forests and inform the leaders in case of forest offences or irregularities. Once the offender was caught, the cutting instruments would be seized and the villagers would decide the penalty accordingly. Only after the penalty was collected was the cutting instrument returned. In case the same person repeated the offence, a severe penalty was imposed.

Second phase of protection

In 1981, after 17 years, the forest protection system broke down. This was mainly due to the death of both the watchers, Sukhei Orang and Mahadev Mahali, in 1981, who were, the villagers say, extremely committed to safeguarding the forests. They had taken selfless initiatives for the same. As they grew old they began spending the entire day in the forest. The villagers say that their contribution to forest protection was supreme and that the village was not able to find equally committed watchers on a full-time basis. Whoever else was taken could not prove effective, as they had to devote time to agriculture and other livelihood-related work. Such irregular patrolling resulted in the interference of outsiders as well as insiders in the forest, leading to confusion and conflict. Also, the benefits derived from the forest were not enough to meet the needs of the villagers for fuelwood and other forest products. After 17 years of protection, people's expectations from the forest were high, and people consequently started frequenting the forest to meet their needs. An offence by one villager encouraged others to follow suit. People also became very irregular in giving their monthly contribution to the watchers and as a result the watchers also lost interest. Some households stopped contributing altogether. For Phuljhar it was time to critically reassess the benefits and other issues related to the forest.

Soon after the breakdown of the system, an ad-hoc committee was formed. It did not function well and interference in the forest continued. Forest protection was scattered: as one hamlet protected, the other hamlets destroyed. This sort of an arrangement indicated that people were concerned but could not come together to tackle it. This situation continued for eight years, till 1988. In the opinion of the leaders, one of the main reasons for the breakdown of the protection system was the absence of strong leadership. The continued destruction and interference resulted in massive depletion of the forest. The forest was back to what it was in 1965. This disturbed the villagers and they realized that cutting the forest was not a healthy sign. A common understanding for re-initiating formal protection was established once again.

Third phase of protection

In May 1988, a general body meeting of the village was called for, and a five-member forest protection committee was formed. This old committee was restructured in the process. Four watchers were appointed and rules and regulations were modified. A fine amount of up to Rs 125 could be imposed. The president and secretary were to take all decisions with regard to felling permissions for household requirements. Each household was to pay 15 *tambis* (1 *tambi* = 750–800 gm) of paddy per month to contribute to the watchers' salary. Non-compliance with the rules would result in the cancellation of any rights of that person over the forest in the future. Strict protection continued till May 1994. The protection once again enhanced the growth of the forest. After six years of protection and consequent regeneration, villagers began entering the forest for fulfilling their needs. As forest offences were on the rise, the villagers who were contributing paddy or money for 30 years were distraught. The three broad reasons for this to happen were:

1. Abundant forest also meant more scope of exploitation and large scale use.
2. The rules with respect to benefit-sharing needed to evolve.
3. A dominant *sal* forest does not cater to all the needs of the people such as agriculture, building material, etc. Besides, it took some time before the *sal* trees could be used.

Through 1994, the women participated actively in cutting trees for fuelwood. In order to keep a check on the women offenders and to motivate more women into protection activities, a decision to involve women in forest protection was mooted and accepted. A seven-member special women's protection force was created. They were to help the male watchers in the forest protection. The group patrolled the forest mainly to catch women offenders. This was done at a time when it was strongly felt that forest protection was impossible without the active involvement of women and that this step would force them to realize the gravity of the situation. Unfortunately, this group of women broke up in 1995.

Fourth phase of protection

In 1996 certain cases of conflict further weakened forest protection. The need for invigorating the protection stemmed from a case where a villager of one hamlet cut a mahua tree without the permission of the committee. This agitated other members from the same hamlet, and two groups were formed. Both groups felt that the forest protection did not yield any result and implied that they were not satisfied with the functioning of the committee. A series of discussions were held and it was found that the committee had a number of weaknesses. A majority felt the need for restructuring it. The main problem identified was that the committee continued to function without any change or review of its activities or leadership rotation.

After more deliberation in 1997, a general body meeting was called again to elect a new forest protection committee. Eight members were elected and new rules and regulations were set to enable the committee to evolve. The new protection arrangement had two new provisions. One was that the *moharirs* were taken in as regular committee members for the first time, and the second was the equal distribution of the collection among the committee members (earlier it was only for *moharirs*).

Some of the new rules were:

1. The secretary and assistant secretary would approve the applications of villagers for forest requirements and inform the *moharirs*.
2. The four *moharirs* would go patrolling on a rotation basis: i.e., two of them on alternate days unlike the earlier system.
3. A monthly contribution of Rs 35 or 15 *tambi* of paddy per household was fixed as charges towards protection. This was divided equally among all the eight members of the committee.
4. Prize money was awarded for information/intimation about a forest offence. For a general villager it was Rs 30 and for committee members including the *moharirs* it was Rs 20.
5. The rule that no tree was to be cut without permission would have to be strictly followed.
6. In case of an application, the committee members would enquire whether the need is genuine or not, and accordingly assign the task to the *moharirs*.
7. Maximum two trees per household were allowed to be cut in a year. If more trees were required, then they would have to be bought from outside. A charge of Rs 10 was to be collected and deposited in the committee fund.
8. A fine amount of Rs 50 was fixed for a villager from Phuljhar. The amount could also differ from case to case and when the offender was from another village.
9. For marriages, one tree and branches was allowed for a *chamundia* (platform with temporary roof) made of tree branches.
10. After a tree is cut, the root is to be preserved for regeneration and the committee makes provisions for protecting it.

The committee has the primary function of protecting the forest. Besides that it has certain seasonal functions. In the agricultural season the committee takes decisions and imposes penalty on cattle-owners when cattle destroy the crops. It also acts similarly during the vegetable cultivation season. The committee also intervenes and decides in conflict situations. The committee members do not have a fixed tenure, but continue to function till a conflict between members arises or the committee does not function well. If there are many complaints against a single member, then the member is replaced with someone else.

Interaction with the forest department (FD)

The FD has approached Phuljhar several times for forming committees and helping them with forest development work such as trench making, plantations, etc. But Phuljhar has refused. They feel that the FD will raise the plantations, hire guards and gradually take control in their hands. Phuljhar is averse to the idea of seeking help from the FD. They recount experiences of how the reserved forests were sold out to contractors and green trees were felled *en masse*. They believe that this could happen only because the forest was under the custody of the FD. That is why they chose to protect the *khesra* forest. Villagers also say that the FD staff is insensitive towards people's needs. Villagers do not want to be in a situation where for every permission they have to look up to the FD. Also any collaboration with the FD would imply other outside villagers accessing what will be called 'government' forests.

Impacts of community conservation

The first phase of protection resulted in the growth of forests to provide material for repairing and construction. Sal leaves were available again. Nearly 15-20 quintals sal seeds were collected per year and usually got exchanged for salt. Collection of char seeds for consumption was also resumed. When the forest cover improved, grazing was allowed during the rainy season.

There was dissatisfaction amongst the villagers with regard to the lack of benefits from the regenerated forest. For the villagers the forest has still not started supporting their needs, but they feel that after 10-15 years more they would be able to avail benefits in terms of wood at least. Today sal is invariably used for a number of purposes that range from house construction to agricultural equipments to fuelwood.

At present the forest provides facilities for grazing, collection of mushrooms for three months, *sal* leaves and seeds, and occasionally house construction material. Earlier the people of one hamlet used to engage in leaf-plate making but they have abandoned this as the *sal* trees have grown tall and out of reach for leaf collection. Many villagers see this as a positive indicator of a growing forest.

Opportunities and constraints

An overall conclusion would be that sal being the dominant species, other trees that are sources for NTFP collection are not much present. The villagers have to go far off, sometimes even to Bihar, in order to get wood for agriculture and building material. However, now that many other villagers have also initiated forest protection, they face difficulties in accessing those forests as well. At times, they are stopped by forest guards, and they have to pay fines or give bribes to them. The villagers strongly feel that their forest would eventually save them from such humiliation.

The real problem that Phuljhar faces is that the choice of species for differential use is not enough. Secondly, internal dynamics and external pressure do not let the initiative survive for long stretches of time.

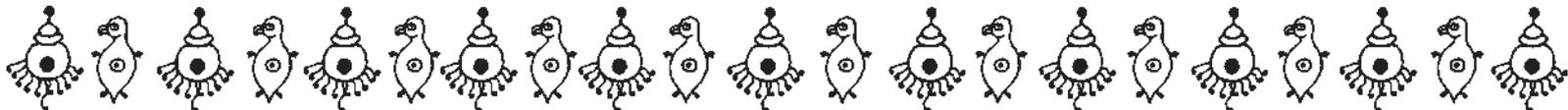
The future plan of the committee is to address the issue of lack of women's participation in forest protection. The committee also needs to consider the source of fuelwood for the women rather than just preventing them from collecting fuelwood. The committee has plans to involve a 15-member woman thrift and credit group. This group would then be responsible for the protection of the forests and members would earn salaries as watchers so that their common fund can increase. This would not only ensure the help of women in protection but also enable some development work through this group. Apart from this the committee has no other plans for the future.

This case study has been compiled based on information contained in: Vasundhara, 'A Case Study of Jhargaon Village, Jharsuguda District, Orissa. Devolution of Forest Management: Creating spaces for community action for forest management (Bhubaneswar, Vasundhara, 2001).

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Suruguda village, Sundargarh

Background

Suruguda, a nondescript village of Orissa, was awarded the national Indira Priyadarshini Brikshaya Mitra Award in 1989 for efficient forest management. This tiny village, which consists of 155 households under 6 hamlets (*padas*), has become a source of inspiration for adjacent villages and the entire district. The village consists of a mixed community of Agharias, Brahmins, Scheduled Castes and Scheduled Tribes. The village is located about 23 km from the district headquarters. Agriculture, agricultural labour, service, sale of milk, carpentry and bamboo weaving are some of the major occupations in the village. Floristically, the forests are dominated by sal and bamboo.

Until 1960, the *khesra* forest (revenue forest) was under the direct supervision of the landlord. The villagers could extract dry wood, NTFP like leaves, fruits and flowers from the forest with the permission of the landlord. These forests were popular hunting grounds of the king and the landlord, and punishment for offences was therefore severe. It was the fear of such punishments that resulted in the preservation of the forests in this region. However after 1960, as the landlord system was abolished in India, the degradation of the forest began.

It was around this time that the government of India also started coupe-felling in forests for timber extraction. Large parts of the forests were leased out to contractors. This led to considerable degradation of forests between 1970 and 1985. The degradation was further accelerated because of unrestricted cattle grazing, excessive extraction of wood (especially by the dominant Agharia community), indiscriminate forest fires and stone quarrying. The adjoining villages were equally responsible for the depletion of the forest. For the lower income groups in the village, particularly the scheduled castes, the forest became a quick source of money. By 1980, the forest had reduced to a barren patch. Although this affected every villager, it was the economically poor, largely the scheduled castes and the scheduled tribes, who were hit the hardest. The affluent villagers, i.e., the higher castes, were not much affected, as they could afford to buy fuelwood and agricultural tools from outside.

With the end of the landlord system, many community institutions emerged in the village. The agharia community, which was strong in the times of the landlord, continued to play an important role in these village administration institutions. The village constituted a number of committees to deal with education, religious functions, etc. However, decisions relating to the village as a whole or inter-/intra-village conflicts are collectively discussed in a village meeting. One male member from each family has to participate in the village meetings. Conflicts are taken to the civil administration if not resolved at this stage.

Towards community conservation

Interestingly, it was a conflict between Suruguda and the neighbouring village of Jhariapali that led to forest protection. It happened when the villagers of Jhariapali did not allow the harijan community of Suruguda village to purchase rice from their market any longer. To teach the Jhariapalis a lesson, it was decided to prevent Jhariapalli villagers from entering the forests that they accessed for their firewood and fencing-material needs. Initially the decision to protect the forests was taken by two *padas* in the village: harijan pada and bhuiyan pada. A forest protection committee was formed and a letter was sent to the forest department to seek permission for protecting a part of reserved forest. A few months later the entire village joined in and a village meeting was called. In this meeting an executive forest protection committee was formed with representation from each hamlet (*pada*). Though the incident with Jhariapalli was the immediate trigger for forest protection, the other concerns that influenced the decision were acute scarcity of fuelwood and wood for house construction, agricultural implements, etc. Soon the villagers were protecting 80 ha of reserved forest and 40 ha of revenue (*khesra*) forests.

The first informal forest protection committee (FPC) was formed in 1985. FPC members were selected from within the general body with representatives of all caste groups. The people who had taken the initiative for protection were included in the committee. At this stage there was a dominance of the scheduled caste communities. However, changes in the committee came when it



was formalized later, first as the *van* forest protection committee (VFPC) in 1989 and then as the *van samrakshyan samiti* (VSS) in 1994 under the forest department's joint forest management programme. The initial effort was informal and the leadership was more committed to forest protection, whereas in the more formal set-up the leadership is more for power and resources.

For the protection of the forests, initially *thengapalli*¹ was practiced. After a couple of years, as the pressures on the forests reduced, the number of people going for patrolling was reduced from six to two. The nearby villagers gradually became aware of the protected status of these forests and the penalties to be paid by offenders. The committee members regularly monitored the protection arrangement and rectified its faults. A strict set of rules was formulated, which evolved over a period of time, depending on the changing circumstances. An informal set of rules started in 1985, with a complete ban on entering the protected forests. In the initial periods, night patrolling was also done, which subsequently stopped with the reduction in the number of offences. In 1988, different rates of penalties were introduced for different kinds of offences. In 1990, the amounts were further increased to put greater pressure on the offenders. In 1994, because of JFM the forest committee was formalized and a formal set of rules and regulations were worked out.

There are specified rules for regular thinning of the forests under the FD-promoted silvicultural practice. The thinning operations are performed with the objective of promoting the growth of valuable species. The other rules for protection include:

- Wood-cutting instruments are prohibited from being taken into the forests.
- A differential penalty for different kinds of offences has been worked out.
- With the permission of the committee, free collection of firewood is allowed on Sundays.
- Bamboo-shoot collection is prohibited.
- Strong restriction on cutting sal, mahua and bija.
- Entry of cattle to the forests is allowed only in the pre-monsoon season. For the rest of the period a patch of grazing land has been specified.
- Entry of neighbouring villages is restricted.
- Strict penalty against those who fail in patrolling duty.
- Individuals helping the committee in catching the offenders shall get 50 per cent of the seized produce.

In addition to setting up these rules and regulations, the villagers also strictly monitored the spread of fires for the first few years and took measures to put out fires quickly.

The rules, frequency and dates of thinning, efficacy of management, offences, etc. are all discussed in the meetings of the committee. The periodicity of meetings is not strictly fixed. In the initial period, meetings of the executive body took place once a week. Gradually the frequency decreased to once a month. Whenever required and or whenever an offender is caught, meetings are immediately called. The committee appoints a person from the village itself for intimating committee members and the villagers. The person who gives the message is called a *katuala*. While executive committee meetings are restricted to executive committee members, in the general body meeting participation of at least one person per family is mandatory. Mostly men attend these meetings. In the executive committee as well as general body, there are women members; however, they only attend the meeting if it is being called by the FD or some visitors have come to the village.

For forest protection, each household contributes voluntary labour for patrolling, irrespective of the family's financial condition and other constraints. Keeping in mind the economic conditions of the NTFP gatherers, the committee has not put any restrictions on NTFP gatherers from nearby villages.

The initial problems were to find ways to deal with the pressure from forest-dependent villages. A lot of effort had to be put in to convince the villagers to protect the forest for their livelihood and the future generations.

Impacts of community effort

Strict protection seems to have helped improve the vegetation growth in these forests. A field study conducted by Vasundhara in 2001 indicated that there is a good regeneration of commercially valuable species such as *sal* and bamboo. The quality of bamboo boles indicates a good harvesting

technique and good regeneration. The frequency distribution pattern of tree species indicated that most of the species are regaining their vigour through safeguarding their regeneration stands. However, some NTFP species such as beheda and hirada do not seem to be regenerating as well and could do with better protection.

Information on the status of fauna is not available.

Although the regeneration of NTFP species was recorded to be low, the production of NTFP has improved ever since the protection started. Protection has also ensured higher concentration of medicinal plants, which are an addition to the local income.

After years of protection, the villagers have started getting benefits of the protection. In 1990 the villagers extracted 266 cartloads of fuelwood, and in 1997 around 3,600 pieces of bamboo were harvested. The increase in NTFP has contributed to the incomes of people belonging to the marginalised sections of the village. In addition the villagers will be getting 50 per cent of the benefits from harvest of valuable timber under JFM.

JFM has also enhanced institutional capacities. The villagers now have greater confidence in dealing with the FD and other outsiders. Since it is the first village in the locality to start forest protection, it has been a model for the neighbouring villages.

To protect trees and reduce their dependence on them for fuelwood, *chullahs* (a locally developed stove which uses paddy husk as fuel) were adopted by the Suruguda households. Now the villagers also have various other forms of fuel like *gobar* gas and electric heaters. The VSS identified 50 households for a 50 per cent discount on alternative cooking equipment.

Opportunities and constraints

Role of the FD

In the initial stage of the joint forest management process, the forest department (FD) was very supportive, but this support gradually declined. In fact the FD helped the upper-caste community gain a position of prominence in the protection process, which had been dominated by the disprivileged sections when the initiative was informal. In addition, there was little or no involvement of the villagers in formulation of the micro-plan; in fact many villagers are not aware of its existence. The micro-plan has not been implemented effectively. It is apparent that the FD is yet to internalise the concept of people's participation.

Equity in decision-making and benefit sharing

Participation of women in forest protection is only nominal, to meet the requirements of the JFM resolution. The male leadership of the initiative has not felt a need for involving women in decision-making.

The distribution of benefits from forest protection among the villagers was largely equitable in the initial years. Of late, however, elite sections are appropriating higher benefits: for example, in some cleaning operations the benefits have been grabbed by a few influential people. While on the one hand powerful people often get higher benefits, the poor end up paying a much higher cost for forest protection. For example, each family has to contribute an equal amount for forest protection activities. There is little sensitivity towards those, such as old people and widows, who may not be in a position to pay the contribution. According to some people from the disprivileged sections, the interim needs of the community are also being addressed inconsistently and with a strong caste bias. However, considering that a number of poor families and women from the village as well as neighbouring villages depend upon NTFP sale for livelihood, there is no restriction in the collection of NTFP.

Local Politics

Presently the *van samrakshyan samiti* is facing a crisis with the emergence of factional politics. Initially all sections had an equal say in the decision-making process; now the power is mainly concentrated in the hands of the upper caste group. The committee now lacks a strong leadership. Since regeneration and the consequent rise in the value of the resource, positions in the forest management committee are viewed as positions of power and the committee has been reshuffled and important seats occupied by inexperienced young people belonging to the dominant caste.

Encroachment

Encroachment of the common grazing land and its subsequent conversion to agricultural land is causing tension between two castes of the village.

Local politics, differential penalty for powerful sections and weaker sections (with weaker sections playing a higher cost), ineffective action in some cases of tree felling, etc. are among the things that have caused resentment within the community. This has also affected the overall unity of the village, threatening the long-term sustainability of the initiative.

Realising these problems, in 2001 the village committee decided to meet and take corrective action. This reflects the maturity of the village and a desire to bring about positive change. Information on subsequent developments could not be ascertained.

This case study has been compiled from two documents, references for which follow. We are grateful to Vasundhara, a Bhubaneshwar based NGO for further clarifications and comments on the case study.

Satyasundar Barik, 'A small green village in Orissa', *Humanscape*, December 2001.

Vasundhara, 'Devolution of Forest Management: Creating Spaces for Community Action for Forest Management – A case study of Suruguda Village, Sundargarh District, Orissa' (Bhubaneshwar, Vasundhara, 2001).

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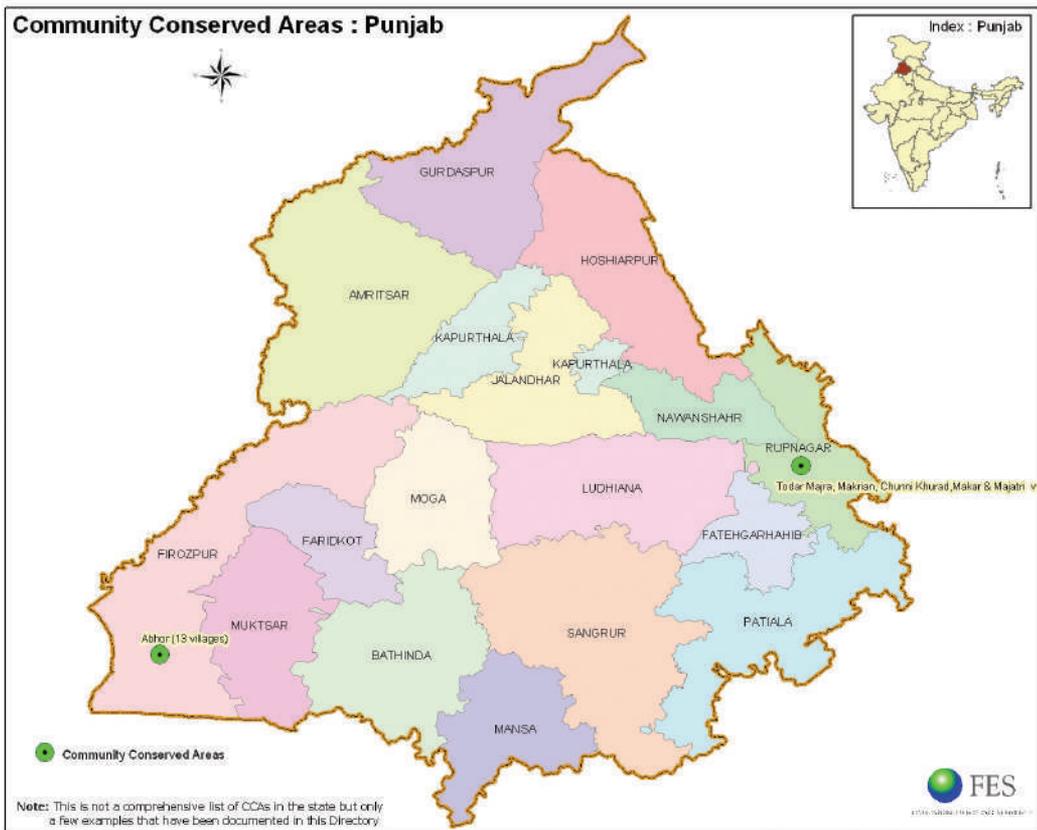
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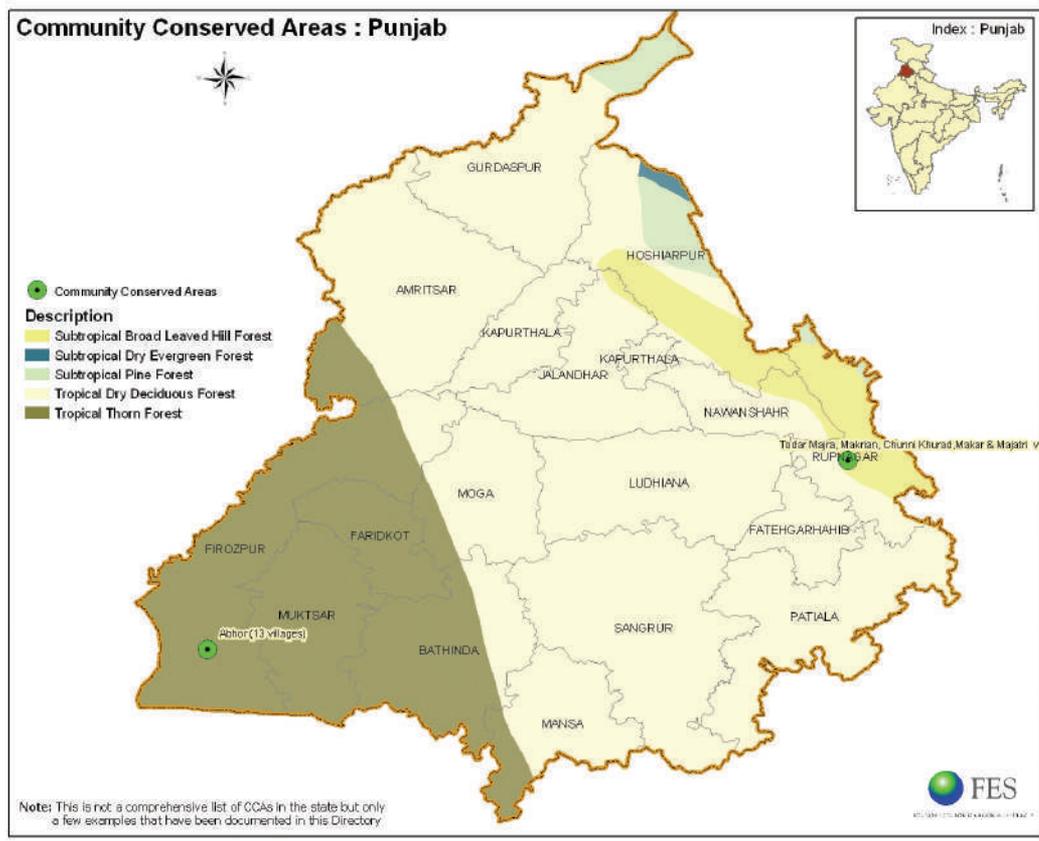
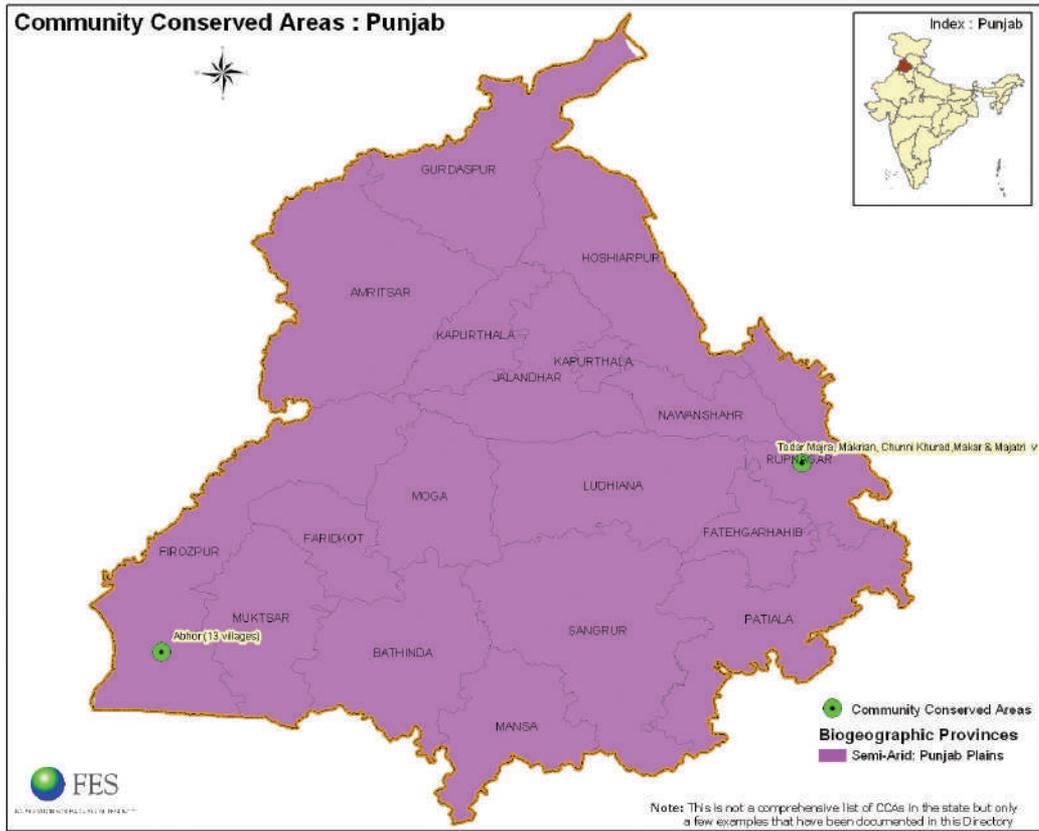
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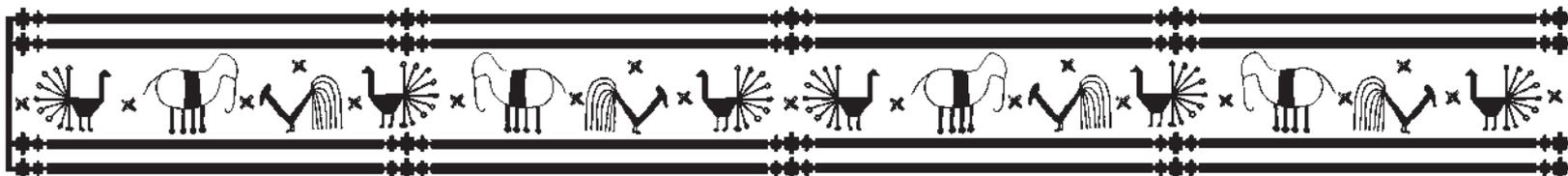
¹ A rotational system of forest protection, where the patrolling party carries sticks (*thenga*) with them. After finishing the patrol the *thengas* are placed near the doors of the people who are expected to go patrolling the next day.



Punjab







Punjab: Socio-cultural and religious practices in biodiversity conservation

Neelima Jerath, Puja Ahluwalia, and Arshdeep Kaur

1. Background

1.1. Geographic profile

The state of Punjab (lying between 29°31' and 32°32' N latitude and 73°54' and 76°50' E longitude) is a tiny segment of land that is almost entirely cultivated. Since its reorganisation, first in 1947, and subsequently in 1966, the state has lost a major chunk of its natural forest cover to neighbouring states and has been forced to use its natural resources intensively.

1.2. Ecological profile

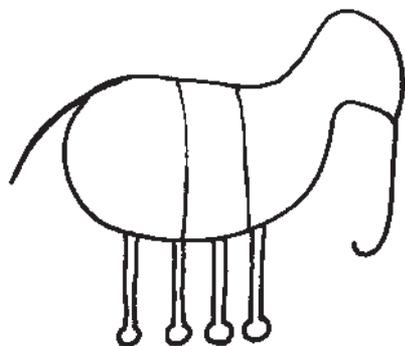
With the advent of the green revolution, Punjab attained the distinction of being the grain bowl of the country. This sobriquet, however, also points to an adversely affected ecological balance. The monotony of well-tended fields is broken here and there in patches, by watercourses, wetlands and sand dunes. The north of the state is characterised by an elongated, green and undulating stretch of land—the Shivaliks—an area with the maximum concentration of the state's biodiversity. A study of the history of traditional land-use practices in the state indicates that in an effort to produce more grain, the production and area under cultivation of legumes (like groundnut and pulses) and coarse cereals (like , bajra and corn) has decreased drastically in the last 3–4 decades. Dependence on high-yielding varieties has also led to decreasing intra-specific diversity of wheat and rice, the principle crops in the state. Another major factor which has contributed to the destruction of biodiversity and disruption of traditional agroforestry systems is the large-scale felling of fruit, fuelwood and other native trees by farmers themselves at the time of consolidation of land holdings in Punjab.

1.3. Socio-economic profile

Punjab is a predominantly agricultural economy. As per the 2001 census, its population is 24.36 million, two-thirds of which was in rural areas.¹ 60 per cent of the population is Sikh, 37 per cent Hindu, and there are very small Muslim, Christian, Jain, and Buddhist minorities.²

Traditional societies all over the world value a large number of species for food, fibre, shelter, medicine and other economic and aesthetic uses. Though perhaps unaware of the underlying scientific principles as stated in modern terms, these societies have a deep-rooted understanding and practical experience of the ramifications of ecological linkages in nature. This wise human-nature linkage has motivated these societies to conserve and sustainably use their natural resources over the ages.

2. A history of administrative control over land and resources



Punjab has for centuries been a centre of human activities such as pastoralism and agriculture. A study by the Forest Department of reports and genealogical tables of various villages of eastern Punjab indicates an abundance of vegetation (forests) and wildlife in the past, particularly during the medieval period. Prior to the middle of 18th century, the Shivalik hills were strictly preserved for hunting, and no cultivation, grazing or exploitation of timber were permitted. At that time the hills were covered with thick lush acacia, shisham and pine forests with a profuse undercover

of shrubs and grasses. However, after the Sikh Wars in 1845–9, the Sardars and Rajas, who owned hunting lands, were evicted, and forests were handed over to villagers for use in addition to their village common lands. In the middle of the nineteenth century the British annexed Punjab. Lord Dalhousie, who toured Punjab at that time, stated in 1851: '...there was absence of forest trees and even fruit trees and bushes. The whole territory was a continuous stretch of unrelieved plains, but its hilly region abounded in prolific forest and central plains were over grown with bush wood.'³ In less than two generations unrestricted and large-scale felling of trees and overgrazing had removed much of the natural vegetation of the forests. As the problem assumed serious proportions, the then Provincial Government passed the Punjab Land Preservation (Choes) Act 1900 to save the remaining vegetation of the state and to check the great damage done by the *choes* or seasonal rivulets. This allowed areas to be closed to grazing, controlled the type of livestock permitted within grazing areas, and prohibited tree felling, cultivation and quarrying. However, the implementation of the Act remained inadequate and the situation deteriorated further after independence.

3. Towards community conservation

Despite dramatic pressures on land resources in the state, there still exist islands of conserved areas maintained by traditional communities known for their tradition of *kar seva* or self-help. The conservation and equitable use of *shamlat* (land with common property rights for local communities); the development and afforestation of *phirnies* (village peripheral roads), and community conserved village pasturelands and ponds are extensions of the same traditions.

In 19th-century Punjab, customary rules jointly designed by user communities allowed conflicts over critical resources to be minimized. These rules and regulations allowed pastoralists and farmers to turn 'open access' forests and pasturelands into a system of controlled 'common access' resources. These joint management systems extended not only to the specific common lands of the agricultural villages (*shamlat-deh*) but also to regional commons situated in the marshes of the flood plains (*chhambhs*), in upland ridges (*bar*) between rivers, in lowland riparian tracts (*belas*), in grazing runs of the forested hills of the Lower Shivaliks, and in the alpine meadows of the Upper Himalayas. Communal management did not rely upon state intervention, but rather upon the mutual need for secure access to forests and grasslands.

3.1. Protection of wildlife and trees by the Bishnois of Abohar⁴

The Bishnois practice a religion initiated by their Guru, Jambeshwar (or Jambaji), in which conservation plays a key role. Jambaji propagated 29 tenets,⁵ two of which involved bans on 'the felling of any green tree' and 'the killing of any animal or bird'. Hence, the Bishnois actively protect wildlife and do not permit hunting or felling of trees in their area (see Abohar case study for details).

The All India Jeev Raksha Bishnoi Sabha in Abohar area (district Ferozepur) of Punjab was founded in 1974 by Sant Kumar Bishnoi and began working towards the conservation of blackbuck, the state animal. The Sabha does not permit hunting in areas under its sphere of influence.

The efforts of the Sabha have resulted in maintaining the number of blackbucks at about 4,000 in the area for the past one decade (Anonymous, 1989; Bishnoi, 2001). In recognition of the efforts of the Sabha, the state government declared a 70 sq km area as the Abohar Wildlife Sanctuary in 1975 under the Wildlife Protection Act, 1972⁶(see Abohar case study for details).

Some of the problems faced by the Bishnois in their conservation efforts are:

1. Despite a Bishnoi protest, a broad water drainage channel has been constructed in the area, dividing it into two parts. This has restricted the movement of blackbuck in the sanctuary and could adversely affect their distribution and reproductive habits.



2. The increase in the number of blue bulls sometimes leads to destruction of standing crops in the fields. The community allows blackbucks to feed on their fields, considering it as a religious donation. They also believe that the crops sprout better if grazed by blackbuck. However, increasing pressure on land (due to increased requirement of foodgrains for the growing population, conversion of crop areas into orchards and division of land holdings with increasing family size) has led to a conflict situation with animals, especially blue bulls or *nilgai*, for

which there is no natural predator in the area. This conflict is more pronounced in the case of the younger generations of Bishnois, who may be less tolerant of wildlife-caused damage.

3. Since the Bishnois do not kill any type of animal, increasing numbers of stray dogs in the sanctuary pose a serious threat to the blackbuck. Effective methods to control the dog population in the area need to be devised. Due to financial and language constraints the community is unable to spread its message to a wider audience.

3.2. Protection and equitable use of *Shamlat* lands in the Northern Shivaliks by the Gaddi and Gujjar tribes

Shamlat lands in the villages of Punjab have traditionally served as a common property resource for local communities. The *shamlats* of the Northern Shivaliks (Himalayan foothills) are interesting because they do not rely on the 'one village, one forest' self-sufficiency model, but integrate the needs of diverse communities, including farmers, graziers from the plains (Gujjars), and graziers from the hills (Gaddis). The Gaddis migrate to the upper Himalayas in summer and visit the area every winter and share pasturelands with the locals. The Gujjars visit the area during *rabi* harvesting.

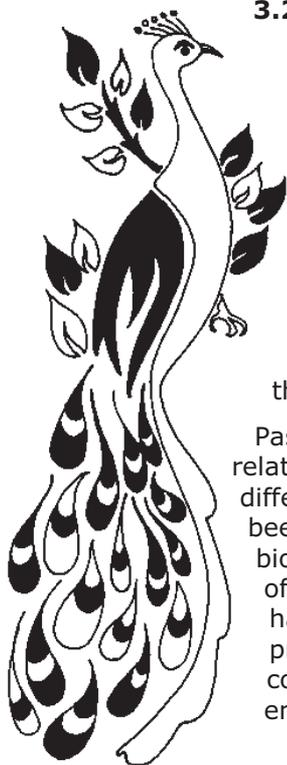
In 1961 it was estimated that over 3,840 sq km of *Shamlat* forests were still in existence in the lower Siwaliks, representing much of Punjab's remaining forest resources.⁷ The Shahpur Kandi comprised a part of the Shivalik Forest, which covered over 26,800 ha of low hills. Ownership of Shahpur Kandi vested in the village co-proprietary body, which was a kind of local institution established in some villages in Punjab. These exist even today in the form of *panchayats*, composition of which is varied. In the past, the elderly farmers would usually choose the members of this body, but now proper elections are held to form *panchayats*. Reservation of rights of the Gaddi shepherds and Gujjar herdsman was acknowledged. During the early 19th century, the government claimed ownership of trees and the right to collect the grazing fees from the Gaddis.⁸

3.2.1. Institutional structures

Management systems regulating use are based on complementary needs and reciprocal arrangements between users, optimally utilizing the inherent characteristics of different ecological niches. Traditional mechanisms of *shamlat* use were developed in order to minimize conflicts between users, while ensuring sustained availability of critical resources. Extraction and use of timber, fodder and fibre grasses were regulated and conserved through rules monitored by user groups. The needs of both the pastoralists, who are dependent on a range of forest species, and the sedentary farming communities were accommodated, as the scale of their operations and resource requirements were very different from each other.⁹

In the 19th century, people in the plains, valleys and the lower hills specialized in cultivation of lands, while people of the less fertile upper hills and mountains depended on pastoral resources. Neither region could be completely independent of the other. While the plains faced long droughts with highly erratic rains, flash floods, and volatile river action during the monsoons, the upper hills had heavy rain throughout the monsoons as well as severe winters. The Shivalik region occupied a midway position. It provided pasturage and forest vegetation as well as land for cultivation, acting as a common resource pool. A symbiotic relationship thus grew up between the two groups of users: the sedentary cultivators and the nomadic pastoralists.

Movements of pastoralists included regular seasonal movements before the monsoons, in winter after the *kharif* and in summer after the *rabi* harvest, as well as stress movements during floods, droughts, scarcities and famines. The Gaddi shepherds came from the alpine ranges of the upper Himalayas in the winters and the villages gave them food, shelter and pastures. The Gujjars came from the plains at the time of the *rabi* harvesting. The sedentary cultivators alternated the pastures between fields under short fallows (*banjar jadisd*) and several categories of the uncultivated long fallows (*banjar kadim*) kept as the *shamlat-deh* or the 'village commons'. Cattle owners entrusted their livestock to graziers who moved with them in large herds (*gols*), across arid tracks, through the riverine and forest fallows and the hills. The Shivalik forests served as seasonal commons and were treated as reserves, providing pastures throughout the year for the livestock of the nomads from the mountains and plains as well as for the livestock of local farming communities in times of need. Natural ecological principles thus provided the basis for complex land-use patterns.



3.2.2. Current status

Over the past several decades, community forest management systems have been affected by partition of the village commons (caused by the sale of large chunks of land by large farmers to smaller farmers for money), by privatization and by irrigation, which has led to double- and triple-cropping, effectively shortening the period for which agricultural lands can be used for grazing. Similarly, state intervention and statutory land reforms after 1947 have diluted the authority of local institutions of community control over both land use and property rights in general and forest rights in particular. Whereas earlier each member of the community had equal responsibilities and shared equal benefits, under the state-sponsored system a hierarchy was created at local *panchayat* level, leading at times to the alienation of the common person.

Pastoralists have been marginalised in the agrarian system and their relationship with sedentary cultivators has become strained. The role of the different communities as partners in a participatory management effort has been threatened, and, as a consequence, their commitment to managing biodiversity and sustaining tree and grass cover has been eroded. The impact of this institutional breakdown on common access to resources like forests has been worsened further by government intrusions and by the urban-based private sector. Hence, presently one hardly finds community participation in conservation of bio-resources in the area. Such systems need to be revived to encourage people-centred conservation of bio-resources.

3.3. Community participation in a watershed management project in Relmajra

The resource base of the Shivaliks is increasingly faced with degradation due to the over-exploitation of hill vegetation by humans and livestock. As agriculture is mainly rain-fed with poor yields, the farming community has a depressed economic base. In order to combat this, an integrated watershed development model has been initiated with peoples' participation by the Central Soil & Water Conservation Research and Training Centre, Chandigarh.

Under the project, a Water Users' Association (a registered society), later known as 'Hill Resource Management Society', was constituted in Village Relmajra, District Ropar. The HRMS included the head of every family living in the village. This hilly catchment area was treated using soil and water conservation measures, besides planting of local trees and grasses. Contour trenches were dug on the slopes to promote *in-situ* moisture conservation and a 14 m-high earthen dam (with storage capacity of 13 ha m in 3 ha spread area) was constructed. The main responsibilities of the HRMS are as under:

1. Protection of hilly areas from grazing and illicit cutting of trees, i.e. 'social fencing'.
2. Distribution of irrigation water from dams among members equitably, at the rate to be fixed from time to time.
3. Maintenance of dams, water conveyance systems and other assets.
4. Utilization of society's funds for welfare activities in the village.

The project has led to local rainwater harvesting and has resulted in increased water availability. The community is responsible for all the activities mentioned above. The activities were monitored by the Central Soil & Water Conservation Research Institute, Chandigarh, for 2-3 years, followed by the community itself.

Income from water charges is utilised for dam maintenance and welfare activities. The effort has helped increase water availability and conservation of bio-resources and has improved the ecology of the area and the economic status of the locals. Though water has been the major driving force, this project is a good example of community participation for bio-resource conservation in Punjab.

3.4. Protection of Indian peafowl in a group of villages in District Ropar

Indian peafowl were abundant in rural Punjab about fifty years ago. The loss of tree cover at the

time of consolidation of land holdings and increased use of pesticides due to the introduction of the Green Revolution in the state has led to a decrease in availability of habitat and pesticide-free grain for this beautiful bird. Substantial numbers can, however, still be sighted in five villages (Todar Majra, Makrian, Chunni Khurad, Makar and Majatri) of Ropar district. Amar Kaur of Todar Majra village informed us of an age-old community initiative directed towards conserving this beautiful bird (see Todar Majra case study for details).

3.5. Forest conservation in areas around the Mahantan Wala Choe and the Rodian da Dera

Between Maili and Janjjon in Ropar Shivaliks lie the Mahanta Wala Choe (The saints rivulet) and the Rodian da Dera (The abode of the nuns). In these, a strict religious code of conduct was known to exist that prohibited locals from using resources from a small portion of forest which harboured rich biodiversity. The locals in the area tell stories of rich biodiversity pockets where no hunting or even plucking of plant parts was allowed. This tradition is, however, gradually diminishing with time. During preparation of the Punjab Biodiversity Strategy and Action Plan¹⁰, the authors visited the site but could not find any such area. According to the locals, the younger generation has now abandoned these traditions due to change in attitudes and have lost the traditional values.

3.6. The cleaning of Kali Bein waters through *Kar Seva*

The Kali Bein¹¹ water was used by the locals for drinking and other purposes in the past. However, the *bein* has silted and the water quality has deteriorated over the years. Baba Balbir Singh and his *dera* (the 'abode' where the sage lives along with his disciples) at Sainchewal village (Kapurthala district) initiated *kar seva* (community labour effort) intended to de-silt the rivulet in the Sultanpur-Lodhi area (extending from Gurudwara Sant Ghat to Gurdwara Ber Sahib), to increase water flow and to improve water quality. The initiative has also led to the improvement in aquatic biodiversity of the area.

4. Conclusions

On the basis of the above case studies of Punjab, it can be concluded that the concept and practice of maintenance of common property resources and biodiversity through community participation are scientifically and socially valid. Traditionally people have known that they are a part of the ecosystem in which they live, and that they have to manage their resources appropriately for survival. What needs to be done is to apply contemporary scientific knowledge and dispassionately study people's traditional habits and practices so as to support and improve on the usefulness of these practices for appropriate ecological management. Further, similar efforts need to be promoted in other areas as well through appropriate awareness, education and training.

However, community conservation efforts in the state face serious challenges:

- Changes in the attitudes of people, especially the younger generation, which is more materialistic in approach and has virtually no regard for traditional values.
- Emphasis of the state government on developmental activities like promotion of agriculture and industry with scant respect for environment and traditional conservation practices.
- Emphasis on agriculture (84 per cent of land is under agriculture and HYVs).
- Lack of awareness of environmental issues in development departments, and unplanned and inappropriate increase of new technology.

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Endnotes

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³ S.P. Mittal, R.K. Aggarwal and J.S. Sharma (eds), *Fifty Years of Research on Sustainable Resource Management in Shivaliks by Central Soil and Water Conservation Research and Training Institute* (Chandigarh, CSWCRTI, 2000).

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⁵ The name Bishnoi means twenty-niners, or followers of twenty-nine rules.

⁶ As of 2006, it is reported that the state government is considering converting the sanctuary into a community reserve, a new category of protected area brought into the Wild Life (Protection) Act in its 2003 amendment.

⁷ Minoti Chakravarty-Kaul, 'Durability in diversity: Community managed forests in NW India', *The Administrator*. Vol. XLI: 29-51 (1996).

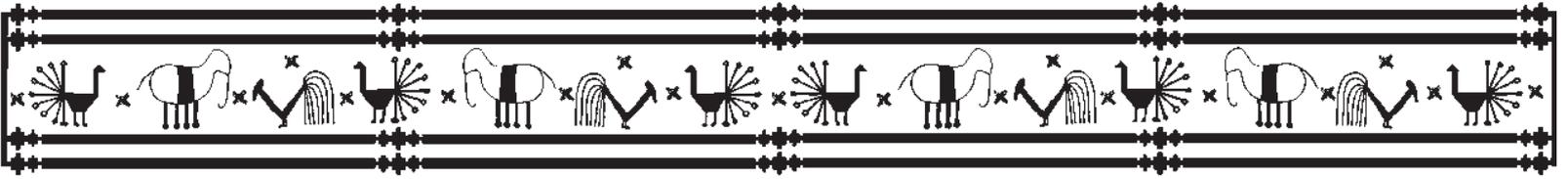
⁸ Mittal et al., *Fifty Years of Research*. (As above)

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¹⁰ Part of the National Biodiversity Strategy and Action Plan process of the Ministry of Environment and Forests, Government of India; see TPCG and Kalpavriksh, *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan* (Pune/Delhi, Kalpavriksh, 2005).

¹¹ A rivulet feeding the Satluj river.





Abohar Wildlife Sanctuary, Ferozpur

Background

The Bishnoi community occupying parts of Rajasthan, Punjab and Haryana is known for the absolute protection they offer to the blackbuck and the khejari tree, as also protection of other plant and animal diversity within their village boundaries. Khejari is a multipurpose legume tree valued by the villagers for its pod (used as food), leaves (used as fodder and manure) and branches (used as construction material). Blackbuck and chinkara have on the other hand been placed in Schedule I of the Wildlife Protection Act because of their high conservation value. The habitat at Abohar is represented by semi-arid plains with scattered sand dunes, acacia trees, beri bushes and weeds. The dominant flora is *Acacia nilotica*, *Dalbergia sisso*, *Prosopis cineraria* and shrubs include jungli ber and species of cacti and succulents. The fauna includes Indian peafowl, partridges, black-naped hare, jungle cat, nilgai, etc. The Bishnois are largely a farming community with fairly large landholdings; they meet most of their biomass requirements from their own fields. The dependence on the surrounding forest is not very high. After the construction of Rajasthan Canal and Bikaner Canal by the government, this area has plenty of water and is being cultivated with wheat, gram, bajra, jowar, etc. Large landholders keep about 10–12 buffaloes and cattle per family, whereas the landless keep around 2 goats or cattle per family. Some families also keep camels.

The area which has been declared a sanctuary is mostly *birani* or sandy land. No agriculture is generally done here. This habitat is ideal for the blackbucks and chinkaras.

Towards community conservation

Conservation plays a key role in the religion practiced by the Bishnois. Their religion was initiated by their Guru Jambheshwar (or Jambaji) about 500 years ago. The guru propagated 29 tenets, giving his followers the name 'Bishnoi' or 'twenty-niners'. Two of the main tenets are 'ban on the felling of any green tree' and 'ban on the killing of any animal or bird'. Hence, the Bishnois actively protect wildlife and do not permit hunting or felling of trees in their area.

It is said that in 1730 the Maharaja of Jodhpur ordered his men to fetch timber for his lime-kilns from a Bishnoi area. The local people, led by a woman, Attri Devi, hugged the trees to save them from the axe-men, and about 363 of them, mostly women and children, were hacked to death before the king's men gave up. With a history like that, the sect goes to great lengths to conserve their wildlife. This is evident from the incidents like that of film actor Salman Khan being chased and apprehended by the villagers for hunting a blackbuck in their area. Bishnoi lands stand apart as oases in the largely degraded landscape of Punjab and Haryana and in the vastness of the Thar Desert of Rajasthan.

The All India Jeev Raksha Bishnoi Sabha in Abohar (Dist. Ferozepur) area of Punjab was founded in 1974 by Shri Sant Kumar Bishnoi and began working towards conservation of blackbuck, the state animal. The Sabha does not permit hunting in areas under their influence. The Sabha also organises seminars and public meetings from time to time for their own children and for people from surrounding villages in order to explain the ecological links between wildlife and humans. Attempts are made at these meetings to motivate others to adopt conservation and sustainable development practices.



In recognition of the efforts of the Sabha, the state government declared a 70 sq km area as a Wildlife Sanctuary in 1975 under the Wild life Protection Act, 1972. Also under Govt. Notification No. 40/4/98/Ft-IV/11505 dated 7/9/2000, all rights of local people except for hunting, shooting, killing or capturing wild birds and animals have been allowed to continue under section 24 (c) of the Wildlife Protection Act (as amended in 1991). Located in Ferozpur district of Punjab, the sanctuary includes 13 Bishnoi villages of Rajanwati, Raipur, Rampura, Bishanpura, Narainpur, Wazidpur, Himmatpur, Seetoguno, Mahrana, Khairpur, Dotaranwali, Sukhchain and Surdarpur, and and 3 closed areas (Gumjal, Panniwala and Haripura). The uniqueness of the sanctuary lies in the fact that the



entire area within the confines of the sanctuary is under private ownership. According to the state forest department staff, the involvement of the forest department in the management of this sanctuary is nearly non-existent.¹ Since the area is protected by the Bishnois, villagers have been provided with guns by the department to guard the animals from poachers.

The Forest Department is under severe funding constraints with practically no money for protection and other activities in Abohar Sanctuary. The Bishnoi Sabha regularly helps the FD officials with night patrolling. They also provide the FD with jeeps and armed volunteers when needed. Bishnois have frequently requested the government to provide more staff and resources to the FD so that they can effectively patrol the area and control poaching. In 2001, a decision was taken by the state that weapons confiscated by the state police under judicial orders will be handed over to the wildlife staff in PAs in Punjab.² Whether this order was actually implemented is not known. In the year 2000, the then Minister for Social Justice and Empowerment, Mrs. Maneka Gandhi, had promised the Bishnoi Sabha support for establishing a veterinary hospital to treat animals and birds in Abohar Wildlife Sanctuary. She had reportedly offered a grant of Rs 25 lakh for the purpose, along with land for the hospital and an additional amount of Rs 5 lakh for an ambulance. The current status of this project is also unknown.³

Impacts of community effort

The efforts of the Sabha have resulted in maintaining a high population of blackbucks. In 2000, about 4,000 blackbucks were counted in the sanctuary.⁴ The Bishnois conserve all kinds of flora and fauna in their area, and because of their efforts the villages and surroundings are green oases in the desert, with Indian peafowl, chinkaras and blackbuck, nilgais and other animals roaming freely and even approaching people fearlessly.

Opportunities and constraints faced

Conservation of ungulates like the blackbucks comes with its own set of problems. These animals cause significant damage to the standing crop. The community appears to be more tolerant of the damage caused by the blackbuck as compared to the other animals, since they consider this loss as a religious donation. They also believe that the crops sprout better if grazed by blackbuck. However, increasing pressure on land (due to increased requirement of foodgrains for the growing population, conversion of crop areas into orchards and division of landholdings with increasing family size) have led to conflict situation with animals, especially the nilgai, for which there is no natural predator in the area. Reportedly, this conflict is slowly beginning to weaken the Bishnois' commitment to protecting the animals. They still would not think of killing them but they do shoo them away from their own fields, with their neighbours probably shooing them back!⁵

Since the Bishnois do not kill any animal, the increasing numbers of feral dogs in the sanctuary poses a serious threat to the blackbuck populations. Local people feel that effective methods to control the dog population in the area need to be devised. The dogs feed on blackbuck fawns as they are small in size but do not attack the fawns of nilgai because of their larger size. This is another reason for the increase in the number of nilgai as compared to the blackbuck.

A broad water-drainage channel, constructed by the irrigation department, has divided the area into two parts despite a Bishnoi protest. This has restricted the movement of blackbuck in the sanctuary and could adversely affect their distribution and reproductive habits. Additionally, there is an increasing trend to establish narma and kinnow crops (orchards). Such gardens are affecting the habitat of the blackbucks.

Despite all the above problems the community members still propagate conservation values. They express their limitations due to financial and language constraints, which restricts them from spreading the message of conservation to a wider audience. They are still in unison in wholeheartedly saving the blackbucks, nilgai and green trees. But this enthusiasm seems to be much higher among the elders in the community rather than the younger generation, who are less tolerant towards the damages caused by the wild ungulates.

Abohar Sanctuary is currently under the process of denotification. The government intends to re-notify the sanctuary as a 'Community Reserve' under the amended Wild Life Protection Act 2003, which would mean that the local institutions would formally be handed over the responsibility to protect and manage the sanctuary, which was not possible till now under the Act.

Conclusion

The resolve towards conservation of plants and animals despite facing serious crop damage in Abohar is inspiring. To the best of our knowledge, this is the only example in the country where a wildlife sanctuary has been established on land owned by a community and also the only example where local communities have been allowed all rights within the sanctuary. The move towards converting this to a Community Reserve is good: the local communities will then have a legal right to protect this area and they may be able to secure some financial and other support for carrying out various activities.

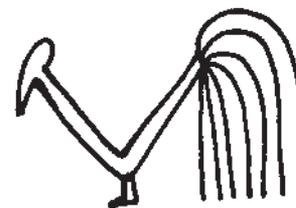
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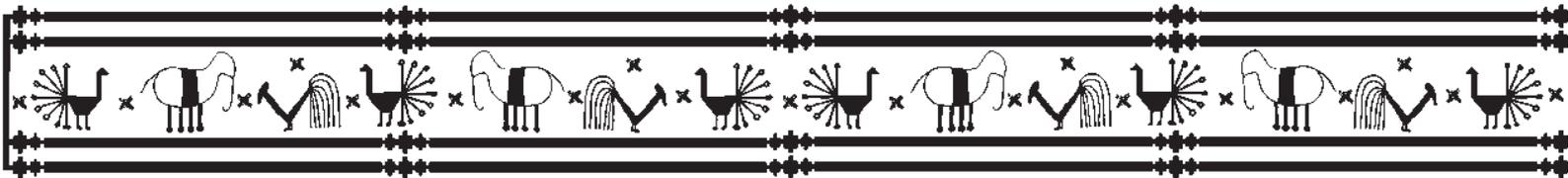
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Endnotes

- ¹ E-mail correspondence with Madhu Sarin, an independent researcher based in Chandigarh, on 23 April 2003.
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Todar Majra, Makrian, Chunni Khurad, Makar and Majatri villages, Ropar

Background

Indian peafowl, the national bird of India, was found in abundance in rural areas of Punjab about fifty years ago. The state's natural vegetation (which included fields interspersed with horticulture trees and dense ever green native trees) provided a suitable habitat for its feeding and roosting. However, the loss of tree cover at the time of consolidation of land holdings (see the state chapter on Punjab for details) and increased use of pesticides during the Green Revolution in the state has led to decrease in availability of habitat and pesticide-free grain for this beautiful bird. In spite of this, the bird can still be sighted in great numbers in 4–5 villages in Ropar District. These villages are Todar Majra, Makrian, Chunni Khurad, Makar and Majatri. These villages are adjacent to each other and cover a total area of nearly 404.8 ha.

Towards community conservation

As informed by Amar Kaur of village Todar Majra, the villagers are protecting Indian peafowl since ancient times. They do not allow anybody to take away or kill these birds in their area. The community has planted a number of mango trees to give breeding, roosting and nesting places to the birds, and they allow them to feed on the grain in the fields. Every villager provides shelter to these birds on their rooftops, in open yards or in the gardens, and keeps large bowls of water and grain for them. Indian peafowl can be seen moving freely in large numbers in the area and local villagers do not mind their presence even if they destroy the crops (especially fields of spinach, pulses, pea, raya, fenugreek, chillies, etc.) out of love and close association with the birds.

Another reason for protection of the birds, besides their beauty, is that these birds feed on small snakes and insects from the fields. Religion also plays a key role in protection as the feathers, shed by these birds once a year, are used for decoration in the local *gurudwara* and temple for making the *chaura* fan over the Guru Granth Sahib¹ by the Sikh community. Hindus in the area also consider the birds sacred.

According to a local villager, Paramjit Singh Grewal, the birds are considered residents of the village and thus the villagers protect the birds as they would any other member of the community.

Impacts of community effort

As a result of the villagers' efforts, about 400 Indian peafowl have been protected in Todar Majra village alone, which has an area of 500 acres (202.4 ha) and a human population of around 700 persons.

Opportunities and constraints

Despite the best of community efforts, some problems do crop up.

Trees in certain areas are being cut from the panchayat lands by certain influential people in the village, thus destroying the nesting and roosting sites of these birds.

In recent years, due to excessive use of chemical fertilizers in the fields, some Indian peafowl have died due to pesticide poisoning. However, in the recent times some motivated and slightly educated individuals who have come to know about the negative effects of chemical fertilizers have begun motivating the rest of the villagers to use less of them.



Conclusion

In spite of the above problems, the number of Indian peafowl has increased in the village over the past 40–50 years and the whole community is very proud of its efforts. However it is very clear from this case study that excessive use of chemical fertilizers and pesticides in the farms of the farmers is a great threat to birds and animals.

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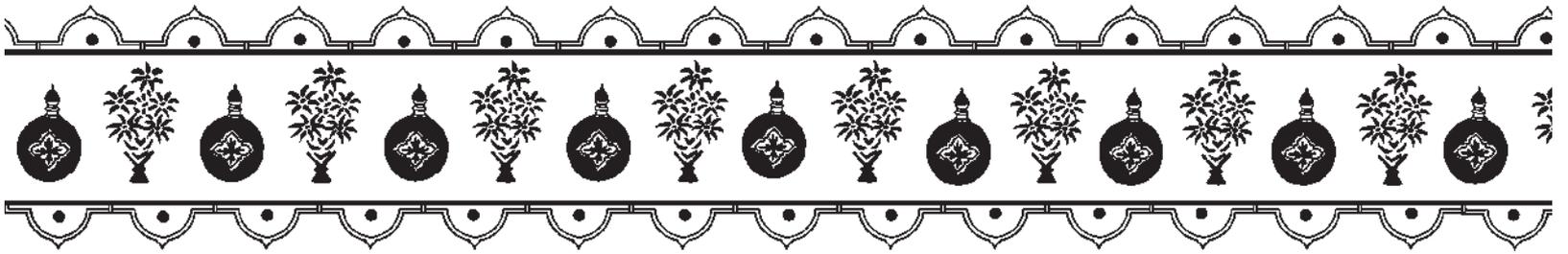
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Endnotes

¹ The religious book of the Sikh community.





Rajasthan: Tales of co-existence

Sandeep Khanwalkar

1. Background

1.1. Geographic profile

The State of Rajasthan was formed in 1950 and, at 342,239 sq km, is the largest state in India. It is bordered on the west and northwest by Pakistan, and by the states of Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, and Gujarat on the other sides. The topography is dominated by the Aravalli Mountains, running across the state, with the highest point at Guru Shikhar on Mount Abu. The Aravallis are rich in natural resources, including minerals. The southeastern part of the state is dominated by the uplands east of the Aravalli Range. The southern parts are heavily forested, but generally the state is thinly covered by vegetation, consisting of large areas of sandstone and of masses of rose-colored quartzite. The uplands are wide and stony, with a sandy central region. The valleys extend for many miles and the flattened hilltops form small plateaus.

Teak, dhok, acacia and bamboo grow on the lower slopes, and grasslands and pastures are found on the hilltops. The south-eastern *pathar* (Hadoti Plateau) covers the eastern part along the Chambal River. Over half the geographical area of the state is occupied by the Great Indian Desert (Thar Desert). Covering 209,000 sq km, it is bordered by the irrigated Indus plain to the west, the Aravalli Range to the southeast and the Rann of Kachchh to the south. Several saline lakes, locally known as *dhands*, are scattered throughout the region. The Aravallis form Rajasthan's most important watershed. The major rivers in the state are the Chambal, Banas and Banganga.¹

1.2. Ecological profile

The state mainly has scrub jungle, and towards the west there are plants characteristic of arid zones. Large trees are found mainly in the Aravallis and in eastern Rajasthan. The desert vegetation is mostly herbaceous or stunted scrub; on the hills acacias and euphorbias may be found. Khejari tree grows throughout the plains. Rohida is another economically useful tree of the state. Grasses form the main natural resource of the desert. Tigers are found in the Aravallis. Leopards, sloth bears, sambhar and chital occur in the hills, while nilgai, blackbuck and gazelles are numerous in the plains. Several migratory waterfowl are known to visit the state. The desert is the home of the vanishing Great Indian Bustard. The chinkara is the state animal, while the Great Indian Bustard is the state bird. The state has 23 wildlife sanctuaries and four national parks (Keoladeo, Ranthambhor, Sariska and the proposed Desert National Park).² Of these, Ranthambhor and Sariska are also Tiger Reserves.



Deciduous forests of Kumbhalgarh Sanctuary
Photo: Ashish Kothari

1.3. Socio-economic profile

As per the 2001 census, Rajasthan had a population of 56.5 million, nearly 77 per cent of which was rural.³ Almost 89 per cent of the population is Hindu, about 8 per cent Muslim, and the rest are Jain, Christian, Sikh and Buddhist

minorities.⁴ Though small in terms of overall proportion of the state's population, Rajasthan has one of India's largest number of Jains, which may partly account for a strong vegetarian tendency amongst the population. Of the total population, about 17 per cent are scheduled castes, and almost 13 per cent scheduled tribes.

The population of the state includes numerous indigenous groups: minas, banjaras, bheels, gadia lohars, kalbelias, garasias, sahariyas and rebaris (the cattle breeders). Communities like rebari, gadia lohar, bhaat and banjara still follow nomadic lifestyles. Rebaris and gujjars migrate with their livestock, usually every monsoon, from the western parts of the state to the eastern parts. Although most of its area is arid or semi-arid, Rajasthan has a large livestock population⁵ and is the largest wool-producing state.⁶ It has a monopoly in camels and in draught animals of various breeds.⁷

2. A brief history of administrative control over land and resources

In the pre-independence era, Rajasthan was divided into several small and large princely states, each governed by separate laws. At that time forests were largely defined as natural and community forests. Natural forests were large expanses of forest owned by local rulers. Villagers were allowed to meet their basic needs from this category of forests. Commercial use was strictly prohibited. Community forests belonged to the village, but they were not allowed to destroy the forest. Commercial use of community forests was also not permitted. These forests were small in size and were only able to fulfil the villager's small requirements like fuel wood, grass, fruits etc.

In the British districts of Ajmere (now Ajmer) and Merwara (now Udaipur, Rajsamand and Bhilwara) all 'wastelands' had been handed over to local inhabitants, with the government relinquishing all rights over these lands by the Settlement Act of 1850. The practical results of this policy, dictated though it was by the highest motives, were disastrous. The hills and other wastelands had become denuded, the wood was used up, what timber there was had been sold, and these lands were for the most part utterly barren. During the drought of 1867 and 1868 all grass on these hillsides dried up, and cattle perished or had to be driven away.⁸

Alwar was an independent state, having a protection treaty with the British, and had about 12 per cent of its territory under forest cover at the turn of the century. Till 1901, the state maintained *roondhs* (fodder reserves, grasslands in the valleys/ plains) and *banis* (areas where trees were reserved for state use). After the state's needs were met, these areas were opened for adjacent villages to extract basic requirements such as wood for ploughs, etc. In addition there were lands under the management of the village bodies for resources such as shrubs, grasses, wood, etc. However, after a land settlement in 1872, the area under *roondhs* and *banis* was gradually extended by taking over more and more of the village commons on the pretext that the village cattle entered the state reserves. This created conflicts between the state and the villagers, which was further intensified after the state started maintaining a cavalry regiment, thus increasing its fodder requirements. As fodder scarcity increased, so did the boundary conflicts. In 1899 a Forest Boundary Commission was established to investigate these conflicts. As per the recommendations of the commission, the disputed land was returned to the villagers.

In 1901, the forest department was constituted, after which the informal access of the local people to government land was severely restricted and forests came under stricter and more rigid rules and regulations. In many villages the FD took over the village commons. The FD had a tendency to bring more and more area under its control and charge higher grazing fees. The forests were one of the highest sources of revenue for the state. After the settlements of the Indian Forest Act, 1927, lands for each village were clearly demarcated. It is said that felling of trees was less before 1934 and people could still extract dry wood and small timber for domestic needs. World War II resulted in enhanced timber felling.⁹ The demarcation and settlement of reserved forests was completed by 1940 but a majority of the cases relating to protected forests could not be disposed of till the princely states merged into Rajasthan. By this time most of the state forests has been felled. After the abolition of the *jagirdari*¹⁰ system in 1959 (under the Rajasthan Biswedari Abolition Act 1959), large areas came under the control of the government, but their control had to be taken over by the FD from the Revenue Department. Before the Act came into force, most *jagirdars* had sold their forests and the areas were clear-felled. The Rajasthan Forest Act was enacted in 1953, under which the forest areas were demarcated and settled and regulations made for their management. The forests which could not be classified, such as the *jagirdari* forests, were then called 'unclassed forests', and have since been classified as protected forests.¹¹

Management and control of the community pastures was transferred to *panchayats*,¹² but ownership lay with government. As time passed and grazing pressures increased, the forests were degraded. Pastures were also allotted for mining operations, which affected them severely. As owners of pastureland, *panchayats* were unable to establish effective systems of management. The *panchayats'* loose control motivated vested interests to begin encroaching the commons. Inadequate policy for removing encroachments saw vested interests taking ownership of these lands, as getting *pattas* (land ownership deeds) for encroached lands was easy. This became a common practice and most community pastures are today either severely encroached or in a degraded condition.

The Aravalli Sacred Grove Conservation Programme, a programme to restore the sacred groves of the Aravalli hills, was launched by the Udaipur Forest Division in 1992. The programme involves the protection of groves, planting of indigenous species, soil and water conservation, and participatory approaches to restoration. Moria Ka Khuna is a good example of conservation and development by FD. This sacred grove is located inside the forest in Udaipur. It has the best bamboo clumps in the Aravallis, in terms of clump dimensions and clump area. A bamboo plantation has been raised in the adjoining 50 ha of land to extend the area of the grove.¹³ In some areas, new sacred groves were developed in consultation with local communities, but in others local people were not informed of the new boundaries, bringing the 'success' of this programme into doubt. There has been no replication of programmes like Aravalli Sacred Groves Conservation in other districts of Rajasthan.

In parts of Western Rajasthan, the forest department has also developed some *orans* (sacred groves; see section 3.1.3) under the Desert Development Programme. However, the implementation of the programme was restricted to only a few pockets. In addition, some *banis* in Rajsamand district were developed by the forest department, but this also remained restricted to only one pocket. Such efforts are to be appreciated but are not sufficient to protect the tradition of conservation at community level. In most of these efforts the local institutions play little or no role in the conservation of these areas. In Rajasthan various programmes (e.g., Integrated Watershed Development Programme (IWDP), 1991; Drought Prone Area Development Programme (DPAP), 1974-75; and Desert Development Programme (DDP) 1977-78, funded by the central government) have been implemented to conserve and develop village commons. However, most of these programmes could not meet the objectives for which they were envisaged.

3. Elements of community conservation

The concept of togetherness and security for livelihood has helped develop community based resource management systems. Dependence on natural resources for livelihood options leads to resource conservation efforts by communities at different levels.

The people of Rajasthan have always viewed themselves as part of a system, intricately linked to their fellow creatures, whether trees, birds, streams, or even rocks. Many of these natural elements are revered and protected as sacred totems. Entire patches of forests, or pools in river courses, or ponds may be considered sacred and accorded protection against exploitation. Such age-old traditions of nature conservation have played an important role in conserving India's heritage of biodiversity.¹⁴

In arid areas with little forest cover, communities developed management systems based on individually owned resources like trees, *beed* (private lands protected by individuals for grass and fuel wood), community pastures, *johad paithan*,¹⁵ etc., while residents of the Aravalli and Vindhya ranges, who were more dependent on the forest for their livelihoods, developed systems based on the conservation of common resource pools. Brandis wrote in 1870 of territory belonging to the Thakur of Bednor, a feudatory to the Maharaja of Udaipur, of hills that were wooded, and of the state tradition of protecting *beeds*. *Beeds* continue to exist in several parts of Rajasthan on both private and common lands and are well maintained by the community: Segrun village of Rajsamand district and some pastures of the Kailadevi Sanctuary of Karauli district are good examples.

The history of Rajasthan is incomplete without the mention of the bishnoi community, which has often been written about.

Community forests in Rajasthan have traditionally been used as pastures (*gochar*) for grazing animals. Commercial use of common resources from community forests was strictly prohibited, but



villagers were allowed to meet small commercial and household requirements like the collection of fuelwood and sale of gum, fruits and other non-timber forest produce (NTFP). In return for this privilege, villagers were expected to be responsible for forest protection. Self-imposed social regulations (e.g., open grazing is not permitted in the rainy season, watch-and-ward is conducted on a rotational basis and token amounts are levied on each household, based on the number of cattle owned, for harvesting of fodder) prevented their large-scale destruction. These community forests continue to abound in Rajasthan today and are referred to by various names (*oran*, *bani*, and *dev van* amongst others, discussed in detail in the sections that follow).

These traditional systems of resource conservation were developed and sustained only because of the community's awareness of their importance and livelihood dependence on these resources. Regulatory systems were often woven around religious sentiment and belief.

3.1. Sacred elements in community conservation

CECOEDECON, a voluntary organisation based at Chaksu, district Jaipur, recently commissioned a study on sacred groves.¹⁶ This was a good effort but there is a need for such efforts on a larger scale. This study gives a brief idea about the status of sacred groves in Rajasthan.

Table 1: Status of sacred groves in Rajasthan¹⁷

District	Number of groves
Barmer	253
Banswara	18
Chittorgarh	83
Dungarpur	25
Jaisalmer	27
Jalor	22
Jodhpur	21
Nagaur	31
Pali	57
Rajsamand	13
Sikar	2
Sirohi	92
Udaipur	46



3.1.1. Dev van or bani

No common understanding exists on the origin of *mandir van* or *bani* (temple grove) in Rajasthan. Hemaji, s/o Dhanaji (72 years old) of village Natudi in Ajmer district, believes that *bani* (and their associated water harvesting structures) were developed to meet the fodder and drinking water requirements of domestic and wild animals. It is also believed that during shifting cultivation, patches of forest were left undisturbed, in which all the species found in the area were protected; these patches ultimately became sacred groves. Because of their size and number, *mandir van* or *banis* have been studied comparatively more than other forms of community conserved areas in the state. Most *mandir vans* are rich in biodiversity: the *van* located in the forest patch of Dhad Devi near Kota is renowned for being the richest in terms of biodiversity per hectare in Rajasthan. In Hadoti (comprising the Kota, Bundi, Jhalawar and Tonk, Districts of Rajasthan), *dev bani* (God's groves) were maintained in the belief that the local deity would protect the community's *talabs* (waterbodies) and other water harvesting structures. The *van* was developed on the main bund of the *talab* to strengthen it.¹⁸

A large patch of land downstream of the *talab* was also demarcated as part of the *dev van* to compensate for any losses of tree growth to submergence. Only local tree species were planted in these *vans*.¹⁹

Pandey and Singh studied the *mandir vans* (*dev vans*) or *banis* of Kota and Udaipur. They divided sacred groves of the southern Aravalli ranges and Vindhya ranges into three major categories. The first type of sacred groves were developed and managed by tribes, and are located in forests, near streams or on hills. The second type was devoted to Shankara. These are located in watershed areas. The third type consists of single trees like banyan (*Ficus bengalensis*), peepal (*Ficus religiosa*), and so on.

Institutional structures in management

Maintenance of the *vans* was assured by linking them to religious sentiments. On completion of *talab* construction, the *pandit* (local priest) would conduct a *pran pratishtha* (a religious ceremony) on an auspicious day. This ceremony established an annual celebration²⁰ in homage to the deity residing in the *van*. Communities from neighbouring villages were invited to attend this function. The grand function, apart from celebrating the successful completion of the *talab* and the availability of a critical resource, was used to re-establish the area demarcated for the *dev van* in the presence of all the villagers. Regulations governing management and protection of the *van* were discussed and finalised in the presence of the mass gathering. These rules were never written but became part of an oral tradition that continues to be adhered to till today. Systems of management are site-specific and vary with communities inhabiting the area. *Vans* are either managed informally, by those associated with temples or by temple Trusts. *Van* management committees are mostly comprised of local people, but do include outsiders as well. The management committees are responsible for creating and enforcing rules and regulations concerning the protection and use of resources from the grove. However, even in instances where there are no formally defined management committees or formally deputed guards, sacred groves are still protected and in good condition because of unwritten rules, traditionally handed down from one generation to another.

The regulations governing the management of sacred groves throughout the state show several similarities. Enlisted below are the rules related to the *dev van* of Hadoti:

- Encroachments are not permitted or tolerated.
- The *van* can be only used for open grazing.
- No commercial use may be derived from resources extracted from the *van*.
- Wood extraction (dry) is permitted only for religious function in the *van*.
- Green felling is not permitted.
- *Vans* could not be used as open toilets.
- *Kulharis* (axes) are not permitted to be carried in the *van*.
- Hunting is not permitted.

The *dev van* developed in the *lakheta*²¹ of the Abheda Talab in Kota is a good example of wildlife protection and management.²² This *dev van* provides refuge for birds and other wildlife of the area. The main reason behind this is that the absence of any biotic pressure in the *lakheta* has helped in the natural growth of various trees and a variety of shrubs and herbs. Construction of a temple or open platform for the local deity sanctifies the vegetation in this *dev van*.

Constraints and opportunities

With little ongoing conservation effort, most of the *banis* or *mandir vans* are in a considerably degraded state. The state government too does not take much interest in protecting these groves, and no separate records of *mandir vans* are maintained by the Revenue Department.

Little or no effort is made either to maintain old growth, encourage regeneration or plant new saplings in degraded areas. Most *vans* are currently under various threats: submergence under *talabs* or tanks, clear-felling, mining and quarrying, encroachments, etc. For instance, part of Ubeshwarji Mandir Van was destroyed by the construction of an anicut across the stream flowing through the grove. The government constructed this anicut with little opposition from local people. The Sagasji Dev Van on the bund of the famous Jawahar Sagar, constructed by the King of Kota in 1790, is in need of urgent attention as the *talab* is now filled with the ash-waste of the National Thermal Power Corporation, Kota.

The *vans* are also under tremendous pressures to meet the fodder and fuelwood requirements of villages. Most of the youth and children of the neighbouring villagers do not know the history behind these *dev vans*, and therefore little emotional attachment among the youth exists. This has led to the erosion of traditional systems evolved for the management and maintenance of these sacred groves: encroachments or tree felling within the groves today thus face little opposition from local communities.

3.1.2. *Kakad bani*

Kakad is the name applied to areas located on the boundary of two villages. This common land between villages was developed as community forests known as *kakad banis*. In many places, *kakad banis* came to be linked with religion, as villagers began naming them after their local deity. The belief that damage or misuse of the *bani* would incur the wrath of the gods developed gradually within communities. Tree felling came to be considered a taboo. Resource extraction from the area was not permitted without consensus between both village communities. The *banis* were mainly used for controlled grazing and local fuelwood requirements, and also contributed to local economies from NTFP markets.

3.1.3. *Orans*

Orans are sacred patches of pastureland, devoted to a god or temple. The *orans* of Deshnok and Koramdesar temple are renowned in the state.

Historically, *orans* were developed by princely states to protect the common lands of villages. The objective behind this was to conserve natural resources. In the arid regions of Rajasthan, livelihoods have traditionally been based on animal husbandry. To ensure fodder availability, the king or *jagirdar* of that area allotted some portion of common lands to a temple. The involvement of the *jagirdar* in protection and management of the *oran* forced local inhabitants to conserve the area. Religious sanctity of the *oran* as well as the fear of the *jagirdar* ensured that *orans* remained protected. *Orans* are important components in the recharge of the aquifers in the desert, where every single drop of water is precious. In most *orans*, particularly in western Rajasthan, the dominant tree, khejari, is worshipped for its immense ecological value. Leave aside *orans*, people would not cut khejari trees even from their agricultural fields. The tree enriches soil nitrogen, and, during drought and famine, the bark of the tree is mixed with flour for consumption.²³

Institutional structures in management

Orans are a very common feature in the desert areas of Rajasthan. The traditional systems for their conservation and use are as follows:

- Felling of trees and commercial exploitation of *orans* are strictly prohibited. In some *orans*, lopping is permitted in times of fodder scarcity, but in others it is not permitted at all.
- *Orans* are considered common property resources and are used as grazing lands.
- People from any caste or class can bring their cattle for grazing, but they cannot damage or cut trees.
- People can also use NTFP resources of the *oran*.
- Earlier, if any person did cut a tree, that wood was confiscated and sent to the *kathwada*, a community wood godown.
- The guilty party was punished and had to provide grain at the local *chabutara* and was also fined a sum of money.

The *orans* also provided a space for adjacent villages to discuss socio-religious, economic and cultural issues and space to air and resolve personal grievances.

Constraints and opportunities

After Independence, the *jagirdari* system was abolished and the ownership of *oran* lands vested in the revenue department. The department could not understand the importance of *orans* in the sustenance of livelihood of local inhabitants, and were as a result unable to manage them in the traditional manner. Currently, the management of *orans* is under the *panchayats*. *Panchayats*, unfortunately, are highly political institutions with artificially constituted units of communities or villages with divergent agendas and social and economic identities, and have failed to manage these areas.²⁴ Gradually, illicit felling in *orans* has become common. Traditional systems of social fencing have also broken down as the faith systems of younger generations changed. This has resulted in the degradation of most of the *orans* in the state. The legal status and total area of several *orans* have not been clearly defined. Unfortunately, these lands have not even been declared as forest lands, hence effective legislation cannot be enforced to deter offenders.²⁵

There are, however, several cases where people of the area have shown keen interest in protecting the village *oran*. They have protested encroachments by outsiders as well as members of their own community without the fear of severing relations with these people. They have filed several cases in court against those who threatened the *oran*.

For example, in village Para of Barmer district, villagers under the leadership of Sanwal Singh and Arjun Ram Darji filed a case with the help of the local *patwari* (revenue official) against Sagat Singh and Lakh Singh of same village because they encroached the *oran* land for agriculture and other purposes. In village Gehun of Barmer district, villagers, under the leadership of Kamal Singh Rajput, Gemaram Nai, Deeparam Raika and others, filed a case against the forest department to protect the land from the forest department. This case was filed in the Jodhpur High Court and villagers won the case only because of their unity and awareness.

3.1.4. Kesar chhanta

In southern Rajasthan people sprinkle saffron on the boundary of the forest area to indicate that the area would henceforth be protected and felling of trees would no longer be permitted. This ritual of sprinkling saffron has helped protect several areas of forests in Southern Aravallis by placing voluntary restrictions on green felling. In the Udaipur South Forest Division alone, about 12,000 ha of forests are protected by people through *kesar chhanta*.²⁶

Institutional structures in management

At a village meeting, the patch of forest to be protected is declared. Contributions are sought to meet the basic costs of completing the process. Saffron (*kesar*) or rice is collected from an appointed temple, as a symbol of the local deity (most often Rishabhdev-Keshariyaji), and people then move around the forest patch beating drums to communicate the message that *kesar* is being sprinkled and that the area is now under community protection.

Selection of forest patches depends on local resource requirements based on the following criteria:

- Vegetative cover
- Degree of degradation
- Potential for regeneration
- Requirements of the dependent community
- Common arrangements on the area covered in *kesar chhanta*
- Availability of other areas to fulfill resource requirements after reducing access to this area



Villagers are permitted to water their cattle if there is any reservoir in the forest patch. *Vaids* (traditional medical practitioners) are permitted to extract local medicines. People in general can only extract NTFP in times of scarcity. Fodder extraction is permitted but grazing is not.

Constraints and opportunities

The past few centuries saw a dramatic change in the sensitivity of the local villagers towards conservation of the village commons and particularly the forest lands. At present the rural youth, who are mainly responsible for taking forward the traditions, have either less interest in community management practices or have no faith in them. The basic reason is probably because of getting lesser returns. However, there are still examples of community-managed pasturelands which can be seen in the southern part of Rajasthan.

The system of *kesar chhanta* is still alive in this region and can again be reactivated in many more areas to bring awareness among the younger generation so that they realize the importance of community management and that is in the better interest of the local community that the age-old tradition is carried forward. Apart from this the government is also providing the opportunities to the villagers through formation of local village institutions in programmes like Joint Forest Management, Watershed Development, and IWDP. If these programmes are implemented in a systematic way, then there are bright chances of communities taking over the management of the pasturelands.

3.1.5. Radi

Close to village settlements, amidst cultivable areas, are remarkable woodlands, known as *radis*, which are found in Bundi, Kota, Baran and Jhalawar districts of Rajasthan. *Radis* are most frequent in Kota. Adjoining these *radis* are farmlands, sharply demarcated from the surrounding country. Consisting mainly of *babul* (*Acacia nilotica*) trees, they are only found within the Vindhya hills of Hadoti. They were earlier mostly timber-supply forests being maintained by *patels* and *jagirdars* on behalf of the village, somewhat as private property.²⁷ *Radi* now considered is a common property

of one or two villages.

A.P.F Hamilton,²⁸ the then Inspector General of Forests, wrote in an inspection note in 1946 after visiting the forests of Kota State:

'There already exists a type of minor forest called *radi*: they are small forests, generally *babul*, managed by the State entirely for the use of the villagers, to whom the trees are sold at low rates. This is the sort of thing that is required all over India in rural districts where forests are scarce or absent. I would suggest that this excellent custom be extended in the State; and particularly in those areas, which have become denuded of forest. *Babul* is the best tree but it will not grow everywhere and *Prosopis juliflora* should be sown wherever conditions are unfavorable for it. These little forests should not be expensive to establish and protection might be given through a system of collective responsibility on the part of the villagers or through local *panchayat*. I think they will pay for themselves in the end.'

The Government of Rajasthan, by various notifications between 1960 and 1970, legally transferred small *radis* to *panchayats* and entered them as *charagah* (pasture) lands, and large *radis* were declared as reserved forests.

Pandey records the largest *radi*—Khandgaon Ki Radi, near the Pisahedi, Rajpura, Alyahedi, Deoli and Khandgaon villages—at 194 ha (1.94 sq km).

Use of radi

Resource use in the *radis* can be described in several ways:²⁹

- Roads and village paths may pass through it. *Bharbardaris* (head-loaders) were given right of passage and fuelwood collection.
- **Water points:** Some *radis* also have *talai*, ponds or small depressions where livestock could drink water. These ponds are in close proximity, to places of worship, though the place of worship may not always be situated inside the *radi*. For example, Khandgaon Ki Radi has Sunari Talai and Bheruji Ki Talai.
- **Places of worship:** Some *radis* have *devasthan*s (sacred places) where villagers offer prayers and worship during festivals. Khandgaon Ki Radi has several sacred places, such as Ajraji, Sida Mataji and Bheruji.
- **Funeral places:** *Radis* may also be the sites for funerals, as is the case with Khandgaon Ki Radi.
- **Grazing:** Grazing of village cattle is permitted free of cost.
- **Fuelwood:** Collection of dead and fallen wood is permitted free of cost.

Constraints and opportunities

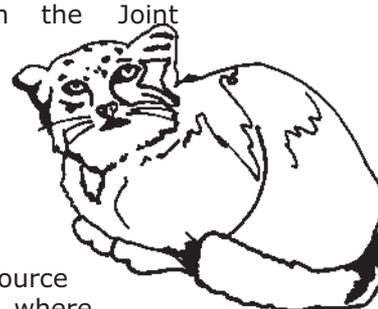
The main constraints in the conservation and development of *radi* are encroachment by the people, illegal mining, illegal tree felling, etc. Efforts are being made by the government to promote this traditional conservation practice, but unfortunately only in very few cases. The major setback to this traditional method was declaration of *radis* as reserved forests rather than involving villagers in protection and management of *radi*. In several cases where the area under plantation is more, these patches of plantations are being termed as forest lands, but in cases where the area is small it is not falling under the forest land category. Apparently both – the government and the local villagers -- neglect the maintenance and protection of these small patches. No proper efforts have been made to promote *radi* to widely establish it in the Hadoti region. There are several examples available within the state when government declared the *radi* as reserved forest and within few years it got degraded.

Now the question is: how to promote this age-old tradition to meet the fuel-fodder requirement of the villagers? Attempts should be made to involve the villagers where such *radis* are still present and can be used to meet out the fuel-fodder requirements through the Joint Forest Management Programme.

3.2. Self-initiated community efforts at natural resource management

3.2.1. Efforts at Kailadevi Wildlife Sanctuary³⁰

Apart from the traditional systems of conservation and natural resource management mentioned above, there are numerous examples where



the communities have taken up conservation efforts in recent times. These efforts are often a consequence of serious resource scarcity. Such community efforts are typically exemplified by the efforts of Baragaon ki Panchayat (council of twelve villages) in Kailadevi Wildlife Sanctuary, within the buffer zone of Ranthambore National Park in Sawai Madhopur district. The vegetation of the area is dry deciduous, dominated by dhok. Though not much wildlife can be seen here today, this area was once as famous for wild animals as is the neighboring Ranthambore. It is also a part of the tiger reserve, forming part of its buffer zone. In the decades preceding 1980s, these forests were under several external pressures, such as hunting activities of the imperial rulers (before Independence) and more recently of the bargi community; government forestry operations; illegal felling; mining; and extensive grazing by the migratory rabari community. The sanctuary is inhabited by predominantly pastoral gujjar and meena communities. Hit by the resource scarcity resulting from these activities, the villages in the area decided to organise themselves and oppose the excessive use of resources by outsiders like the Rabaris, as well as to regulate their own use of the resources.

Institutional arrangements in management

In 1990, 12 villages (traditionally having an apex body for conflict resolution) decided to form the Baragaon ki Panchayat, primarily to take stock of the rabari problem. This body gradually started taking the responsibility for protecting the forest. The elders of the individual villages formed the *kulhadi band panchayat* (no-axe council). This council in each village ensured that no one went to the forest with an axe to fell green trees. Only dry and dead wood was allowed to be collected for fuel. The *kulhadi band panchayat* resolves all forest-related offences, and when they cannot be resolved at this level the matter is taken up to Baragaon ki Panchayat. As a result of this initiative, forest use is highly regulated and Rabaris are not allowed to enter in certain areas.

In more recent years, the community initiatives have run into trouble. This is partly due to the GEF-funded ecodevelopment project carried out by the forest department, under which Ecodevelopment Committees were set up in many villages. These new institutions did not necessarily build on the villagers' own institutions such as the Baragaon ki Panchayat, but rather tended to undermine them. (See Case Studies)

3.3. Community efforts supported or initiated with the help of NGOs

Several NGOs have contributed significantly to conservation of natural resources in the state. Some of these NGOs and their efforts are mentioned below.

3.3.1. The Tarun Bharat Sangh (TBS)

The TBS was founded some 16 years ago, with the objective of accelerating rural development through restoration of ecology. TBS is based in Bhikampura Kishori in Alwar district, and is known for its efforts in reviving the traditional rainwater harvesting structures. TBS claims to have constructed more than 4500 check dams in various villages in Rajasthan. The NGO propagates by word of mouth the art of making earthen dams. About 1200 villages in this drought prone area are believed to have benefited from the efforts of the NGO. The process of construction of the water harvesting structures (locally called *johads*) is usually accompanied by regeneration and protection of the forest making up the catchment of the *johads*, and micro-credit programmes for the local women.

The Arvari river is a small but important river in Alwar district feeding Sainthan Sagar lake. For the villages settled along the river, the Arvari is a lifeline. This area is a part of the Aravalli range that extends from Rajasthan to Delhi. The region is dry, receiving less than 600 mm of rainfall annually. Over the last few decades severe droughts have characterised many of the villages in this district.

There are 70 villages in the Arvari catchment. Local livelihoods are a combination of intensive rainfed cultivation and animal husbandry. This area had a tradition of trapping water during the short rainy season in a series of small *johads*. Systems were in place to ensure that these *johads* were regularly maintained and their catchments were protected to avoid siltation. In the post-independence era, over-dependence on the state for irrigation caused neglect of *johads*, while excessive tree felling for various reasons by the state and local people caused complete degradation of their catchments. As a result many rivers like the Arvari ran dry, forcing people to move out in search of employment and reducing the soil productivity to the minimum. From the time that TBS started (towards the end of 1980s), about 200 water-harvesting structures have been built in the catchment of the Arvari by local villagers with help from TBS. These structures have replenished ground water and increased the water table, enabling the Arvari to flow perennially again.

The twin villages of Bhaonta-Kolyala have a combined population of about 600, covering an area of 1200 ha. They have played a prominent role in this initiative of combining water harvesting, forest conservation and other rural development work. In order to carry out these activities the village has formed a *gram sabha* (village assembly), although this institution has no legal or state recognition. The village has constructed about 17 *johads* over a period of a decade. These structures have been built with technical help and 75 per cent of the cost covered by TBS. The village contributed 25 per cent of the cost as labour or in kind. The village is protecting the catchment forests of these *johads* by regulating grazing, fuel wood collection and reducing the number of livestock in the village. On the other hand, presence of perennial water has increased agricultural productivity and improved the groundwater situation, thus reducing the need for out-migration. (see case study for details). After a decade of successful protection, based on a suggestion from TBS, the villagers decided to call their forest Bhairon Dev Lok Van Abhyaranya (Bhairon Dev People's Sanctuary) in October 1998.³¹

Arvari sansad

In 1998, at the initiative of TBS the villagers of 34 villages (of the total 72 situated in the Arvari basin) met and decided to constitute an Arvari *sansad* or Arvari parliament. The *sansad* includes two members from each village, selected by the local village institutions. The *sansad* meets every six months to take decisions about the land, water and forests.

A 15-member co-ordinating committee was formed, headed by Kanhaiya Lal Gujjar from Bhaonta and Chaju Ram of Samara village. This co-ordinating committee is in the process of preparing a set of guidelines for resource utilisation in the catchment based on suggestions arising out of discussions with the local villagers. The committee is also in the process of identifying government officials interested in decentralised management, in order to start consultations with them. An action plan has also been made, under the National Biodiversity Strategy and Action Plan process.³²

Opportunities and constraints

Though this initiative has resulted in improved status of natural resources and a consequent improvement in the social status of the local villagers, there are still many issues which need serious consideration. The boundaries used by the conserving villages such as Bhaonta are traditional boundaries, not necessarily recognised by neighbouring villagers who do not agree with the conservation approach of these villages. Since these villages do not have any legal authority to stop outsiders, this gives rise to conflicts among these villages. Of late (in the early years of the new millennium), the surrounding villages too have begun to appreciate the need to conserve the forests.

There are also often problems of intra-village inequities, with complaints from the lower castes and classes of discrimination or not being included in the decision-making process. Non-participation of women in decision-making and implementation is one serious concern in Rajasthan.

3.3.2. Seva Mandir³³

Seva Mandir was established in 1966 by Mohan Singh Mehta. Seva Mandir works in the economically and socially deprived tribal belt of Udaipur district, where there is a heavy dependence of people upon natural resources. Over the years they have spread their work to about 535 villages in Udaipur District. Their main activities are in the field of natural resource development, education, health, women and child development, and institution building. Seva Mandir has been involved in a number of villages, and regeneration and conservation of natural resources has been taken up by the villagers. In addition, it has been involved with a number of biodiversity studies in the Aravalli region, including documenting people's knowledge and perception of biodiversity. They have also helped develop a strategy for conserving biodiversity in the Mahad cluster in Phulwari Ki Nal wildlife sanctuary in Kotra block of Udaipur District.

In village Badlipada, the Udaipur based NGO Seva Mandir started its activities through adult education programme in the 80s. The organization contributed to the process of institution building, to a large extent through its continuous involvement. A major turn in village events came in 1995 when a village education committee was set up. As the committee became an accepted institution, all aspects and issues related to health, education, agriculture, pastures, forests and other social issues started getting discussed in the committee meeting. After the drought of 1987 villagers decided to close their *charnot* (pastureland). But Raju and Behra of Badlipada village and Lakhama of Richawar village encroached the pastureland. Villagers started protesting against the encroachment. A committee meeting was called to discuss the matter, where these three encroachers were also called to sort out the matter but they did not turn up. In 1996 the committee

members went to the sub-divisional officer of Jhadol to appeal for action against the encroachers and they succeeded in declaring entire 75 *bighas* of land as village pastureland. Apart from this, in order to put additional pressure on the encroachers, the villagers also decided to socially boycott them. But the efforts were in vain and the encroachers continued to take crops on the pastureland. In February 2001 villagers decided to destroy the crop. And one fine day they also broke the house of the encroacher and freed their pastureland from the encroachers. After this villagers enclosed the *charnot* in its entirety and started plantation and other pasture development activities with the help of Seva Mandir in April 2001. Now the villagers have come out with a very good management system of this pastureland. They have appointed two watchmen who are paid Rs 300 per month. In October 2002 the villagers did the *kesar chhidakav* (sprinkling of saffron) in the *charnot*. After the enclosure of the *charnot*, villagers have harvested the grass twice. One member from each household is allowed to harvest the grass. They also fixed a price per sickle. In the first year they were able to harvest 8,000 bundles of grass (each 1.5 kg in weight). In order to realize these benefits, it took sustained efforts of seven years from the people of Badlipada to free their *charnot* of encroachment.³⁴

3.4. Community action initiated by the government

3.4.1. Joint Forest Management

The Joint Forest Management movement is now more than a decade old in the state and seems to have made considerable progress. There is a lot of development since 1991, when the JFM directive was issued in Rajasthan. Initially, there were separate resolutions for working in non-forest lands, such as revenue wasteland and forest land. The directives issued on 15th May 1999 put both types of land under the same category. There are a total of 3667 village forest protection and management committees (VFPMC) in the state that cover an area of 376765.88 hectares of forest land. Total forest area of Rajasthan is 3.19 million ha. Dense forest is 0.36 million ha., open forest 0.95 million ha. and barren forest 2.88 million ha³⁵, out of which around 11.81 per cent area is covered under JFM, according to the forest department.

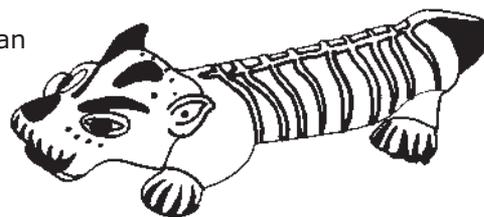
But the major question is whether these VFPMCs are functioning as per the JFM guidelines. The answer is in the negative. Because it is still in its initial phase, the villagers are not convinced whether they will get benefits from the forest or whether they will be sidelined at the time of benefit-sharing. In most of the cases villagers are getting grass, tendu leaves, fuelwood and other NTFPs in the southern and *dang* areas of Rajasthan. None of the villages is in the position to share the timber from the forest as a final sharing. It is because most of the forest lands are yet to mature and in the old forests villagers are not in the position to ask the FD for their share, because the GR says that the VFPMC would only share in the final felling if they have contributed a major share in the development of the forest. The FD claims that old forests are their property and that villagers have not contributed in the development of these forests. Therefore the question is still valid and the FD is not in a position to answer the question. They have also got a big project sanctioned from the Japanese government to develop the degraded forest area of the Aravalli hill range. It is still not clear whether the communities would be involved in execution of this project.

Institutional structures in management

For effective implementation of JFM, a VFPMC is to be formed in the respective villages. Every family living in the village would be a member of the general body of the VFPMC. There will be a women's sub-committee to promote active women's participation in the VFPMCs' activities. The VFPMC will be formed in the presence of 40 per cent members of general body. 11 members would be elected to the executive body. This body then selects a president, vice president and treasurer. A secretary would be appointed from the FD for two years. After successful completion of two years villagers can appoint their own secretary. The term of this executive body would be two years, after which a new body would be elected. Terms of reference between the FD and VFPMC would be signed.

As per the JFM guidelines, the roles and responsibilities of various office bearers are as follows:

- The president provides overall leadership and direction.
- The vice-president assists the president and plays an advisory role.
- The secretary, who is the local forester in most of the cases, keeps all records (including money transactions and minutes of meetings) and maintains the link between the committee and FD.



- The treasurer would be responsible for all financial transactions.

In JFM, the institutional structure is well defined, but in practice the control is with the forest department and villagers do not have any say in decisions. Most of the decisions are taken by the forest department and the VFPMC has to follow. This is mainly because of low awareness level at the community and/or VFPMC level.

Opportunities and constraints

There are various issues related to JFM in Rajasthan. There are constraints in promoting and establishing JFM in Rajasthan but there are opportunities as well. Some of the constraints are:

- Less effort has been taken to allow greater space and opportunities to the local community for proper management of forests.
- The local forester is so overloaded with work that there is very little scope for him to acquire greater understanding of JFM-related opportunities and management processes.
- In most of the villages the forest plays a major role in the livelihood of people, but there have been no serious efforts within the state to look at JFM beyond plantation protection, except for a few examples like Varai Devi VFPMC in Chittorgarh district of Rajasthan.
- Raising awareness and broad understanding about JFM-related issues is essential to fully release the benefits of people-friendly approaches to forest management. Voluntary organisations can play a crucial role in this regard.
- Capacity building of VFPMC members and FD staff is the immediate intervention required for successful JFM implementation.

In Rajasthan there are good opportunities to promote JFM. In most of the villages, residents understand the importance of forests in their livelihood, and they are coming forward to protect and develop their forest. For this to succeed, awareness-building among the villagers about JFM is a must.

Box I

Joint Forest Protection and Management in Nayakhera village³⁶

Nayakhera is a small village located at a distance of about 15 km from Udaipur city. The local forest ranger took the initiative and persuaded the villagers to constitute a VFPMC. The village elders also favoured the idea of protecting their own forests to meet their basic needs of fodder and fuelwood. The VFPMC was registered in June 1995 and has since raised plantations over 315 ha of degraded forest land. The villagers take pride in showing this dense patch of forest to the visitors now. In addition to this the VFPMC is also protecting 120 ha of natural forests adjoining the village. The grass thus produced has a ready market in the surrounding areas and earns substantial revenue for the villagers. An anicut has been constructed with help from the forest department, which has not only recharged the ground water but is also now an important source of water for irrigation. Nayakhera village has won the state prize for forest protection.

4. Emerging issues and the way ahead

Most community resource-use areas are currently under varying degrees of threat. There are no favourable government policies for protection and promotion of such practices, nor does the government have any systematic records of such initiatives. No special legal status is accorded to these areas and no action is taken on complaints of encroachment. Market forces have severely affected the very basis on which the ethos of community conservation is based, and *panchayats* are unable to protect the common property resources (CPRs) because of personal agendas and limited understandings of the impact of commons on livelihoods. Internal politics and conflicts, lack of awareness, little or no financial support, and encroachments by migrants are other reasons that have led to the degradation of these resource-use areas. Though these areas once played a vital role in meeting fodder requirements in times of scarcity, the degradation of resources over time has eroded traditional conservation management systems.

The central government has launched a programme called Maru Gochar Yojana with an objective of developing *orans*, pasturelands and *gochar* land in villages. This programme is for a short period of three years and would be implemented in ten desert districts of Rajasthan. Forest department has been given the responsibility to prepare the project proposal. This project would be implemented

through the *gram panchayats*. The forest department would play the role of a technical support agency to the *panchayats*. The total cost of this project is Rs 10 crores. This is not sufficient to conserve and develop such a large area of degraded pastures.

4.1. Future strategy for conservation and development of CCAs

Some of the strategies that could lead to the development of the CCAs are as follows:

- Regeneration and/or plantation programmes, as appropriate, should be undertaken on a large scale in CCAs.
- Seminars at school as well as college level to highlight the importance of CCA in maintaining livelihoods should be organized on a regular basis.
- The government should conduct detailed surveys to prepare a directory of CCAs.
- A policy to promote CCAs must be formulated.
- Documentation of traditional practices should be done and shared.
- Programmes like the Aravalli Sacred Groves Conservation Programme should be replicated on a much larger scale.
- Some portion of *panchayat* funds should be spent on conserving CCAs.
- Conservation of sacred groves should be a priority in developmental programmes like watershed development programmes.

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Endnotes

¹ Rajasthan Institute for Public Administration, *Rajasthan State Biodiversity Strategy and Action Plan, 2002*. Prepared for National Biodiversity Strategy and Action Plan - India. Ministry of Environment and Forests. Contained in CD with *Securing India's Future: Technical Report of the NBSAP - India* (Pune, Kalpavriksh, 2005).

² Rajasthan Institute for Public Administration, *Rajasthan State Biodiversity Strategy and Action Plan*. (As above)

³ http://www.censusindia.net/t_00_003.html

⁴ http://www.censusindia.net/religiondata/Religiondata_2001.xls

⁵ Total livestock population is 54,348,901. Source: Livestock Census, 1997, Board of Revenue for Rajasthan.

⁶ Total wool production (2000-01): 196 lakh kg.

⁷ Rajasthan Institute for Public Administration, *Rajasthan State Biodiversity Strategy and Action Plan*. (As above)

⁸ Brandis D. *Indian Forestry*. Oriental University Institute. 1897.

⁹ S. Shresth and S. Devidas *Forest Revival and Water Harvesting. Community Based Conservation at Bhaonta-Kolyala, Rajasthan*. (London and Pune International Institute of Environment and Development and Kalpavriksh, 2001).

¹⁰ *Jagirdari* shall mean any person (holding *jagir* or any interest therein in any part of the state) and recognized as a *jagirdar* under any existing *jagir* law and shall include a grantee of *jagir* land from a *jagirdar*.

¹¹ Shresth and Devidas, *Forest Revival*. (As above).

¹² As per the Rajasthan Panchayat Act, 1953

¹³ Shresth and Devidas, *Forest Revival*. (As above).

¹⁴ Madhav Gadgil and Ramachandra Guha, *Equity and Ecology: The Use and Abuse of nature in Contemporary India* (New Delhi, Penguin Books, 1995).

¹⁵ *Johad* is a community pond and *paithan* is its catchment area.

¹⁶ CECOEDECON. Undated. *Orans: Marubhumi Me Hariyali Ki Chadar* (Shil ke Dungri, Chaksu, CECOEDECON).

¹⁷ (As above).

¹⁸ For any *talab*, the bund is the main part and water pressure is comparatively greater on the *bund* than any other part. As most of this region is plain, the length of a *bund* has to be longer to distribute the water pressure evenly. It therefore makes a lot of sense to plant trees along the *bunds*.

¹⁹ D.N. Pandey, *Sajha Van Prabandhan* (Udaipur, Himanshu Publications, 1998).

²⁰ Every villager contributes towards meeting the costs of this function. Villagers from the neighbouring villages were

also invited to attend this function. After completion of *pooja* (prayer), villagers sing traditional songs and *bhajans* (hymns) in praise of God. On this day villagers have their food there. Every villager has to contribute some amount as per her/his capacity to celebrate this function. It has become a tradition to celebrate this day every year.

²¹ An island constructed during *talab* construction.

²² Pandey, *Sajha Van Prabandhan*. (As above).

²³ See www.wwfindia.org.

²⁴ D.N. Pandey, 1999. 'Sacred Forestry: The Case of Rajasthan, India', *Sustainable Development International*, 1-6 (1999), available at: <http://www.p2pays.org/ref/40/39748.pdf>.

²⁵ Pandey, *Sajha Van Prabandhan*. (As above).

²⁶ Pandey, 'Sacred Forestry'. (As above).

²⁷ (As above).

²⁸ Quoted in Pandey, 'Sacred Forestry'. (As above).

²⁹ (As above).

³⁰ Priya Das, 'Kailadevi Wildlife Sanctuary: Prospects of Joint Management' in Ashish Kothari, Farhad Vania, Priya Das, K. Christopher and Suniti Jha (eds), *Building Bridges: Towards Joint Management of Protected Areas in India* (New Delhi, Indian Institute of Public Administration, 1997).

³¹ Ashish Kothari, Neema Pathak and Farhad Vania, *Where Communities Care: Community Based Wildlife and Ecosystem Management in South Asia* (Pune, International Institute of Environment and Development and Kalpavriksh, 2000).

³² Tarun Bharat Sangh. 2003. *Biodiversity Strategy and Action Plan, Arvari Catchment. A Sub -State Site in Rajasthan*. Prepared for National Biodiversity Strategy and Action Plan – India. Ministry of Environment and Forests. Contained in CD with *Securing India's Future: Technical Report of the NBSAP – India* (Pune, Kalpavriksh, 2005).

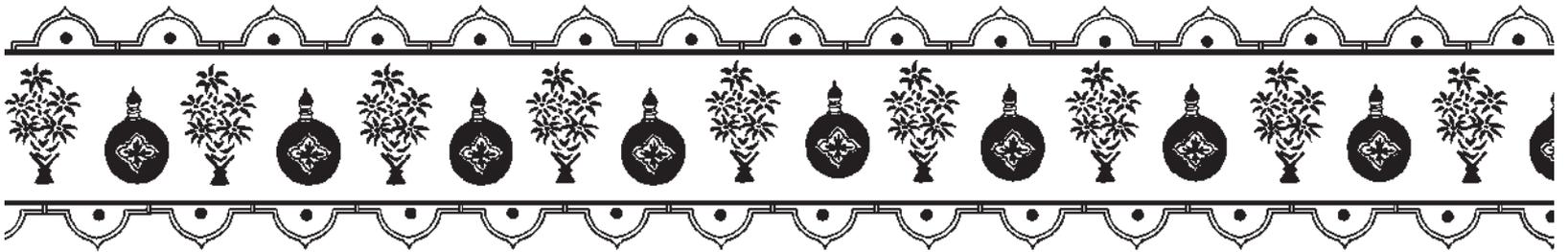
³³ Seva Mandir, *Documentation of people's knowledge and perception about biodiversity and conservation across related ecosystems and agro-ecology zones in Rajasthan, Udaipur* (Udaipur, Seva Mandir, 1997).

³⁴ Seva Mandir. *Land community & Governance: An exploration of Seva Mandir's work with Rural Communities and Governance Mechanisms on Land in Udaipur, Rajasthan* (Udaipur, Seva Mandir).

³⁵ Government of India, *Forest Survey of India 2003*, available at: http://www.fsiorg.net/fsi2003/states/index.asp?state_code=23&state_name=Rajasthan

³⁶ Rajasthan Institute for Public Administration 2005. (As above).





Bhaonta-Kolyala villages, Alwar

Background

This study is an attempt to understand the natural resource conservation and management efforts of twin villages Bhaonta-Kolyala in approximately 600 ha of forest area in the upper catchment of a recently revived rivulet, the Arvari.¹ The Arvari catchment is located in Alwar district of Rajasthan in western India. The resident communities and the Tarun Bharat Sangh (TBS) support the conservation initiative.² This effort is not only indicative of the potential of local institutions in protecting natural resources but also provides an example of the role NGOs can play in strengthening communities and conservation initiatives.

Bhaonta-Kolyala are villages situated in the upper catchment of the river Arvari, in Alwar district of Rajasthan, western India. The area is a part of the Aravalli range that extends from Rajasthan to Delhi. The region is dry, receiving less than 600 mm rainfall annually. Over the last few decades, severe drought conditions have characterised many of the villages in this district.

The villagers and a local NGO, Tarun Bharat Sangh (TBS), have built around 200 water-harvesting structures in 70 villages in the Arvari catchment over the last 15 years. These structures have replenished groundwater and increased the water table, enabling the Arvari to flow perennially again. Bhaonta-Kolyala have played a prominent role in this initiative, particularly in combining water harvesting with forest conservation and other rural reconstruction work.

The main livelihood strategy in this semi-arid region is a combination of intensive rain-fed cultivation and animal husbandry. Water conservation in this area has traditionally involved trapping water during the monsoon months by constructing a series of small dams and tanks (*johads*). *Johads* require regular maintenance. It is also important that the slopes of the hills remain forested to avoid soil erosion from the hills silting up the ponds. In the years following Independence, over-dependence on the Indian state for irrigation caused the villagers to ignore the maintenance of the *johads*. At the same time, excessive tree felling in the hilly areas not only stripped the area of forest cover but also increased soil erosion and silting up of the *johads*.

In the pre-conservation days, nearly all families had to send at least one member to cities for work. With the increased pastoral and agricultural productivity in the past few years, there has reportedly been a reduction in the number of men going outside for work. However, members of large families do need to augment their incomes, and at times when additional income is required (e.g., for a wedding), individuals still go to cities in search of work. All Balai families need to send their men outside the village for work. Men from the village generally work as manual labourers in flour mills in Delhi and Jaipur.



Community protected forests of Bhaonta Kolyala, Alwar district
Photo: Farhad Vania

In 1990, the villages of Bhaonta-Kolyala, spread over about 1200 hectares, had a combined population of a little under 600,. There are three communities in the villages and the surrounding region: gujjars, balais and rajputs. The gujjars are numerically dominant. According to the norms of traditional social hierarchy, rajputs occupy the highest position in society; the gujjars come second; and the balais are on the lowest rung. While the rajputs and gujjar share ties of commensality, they do not

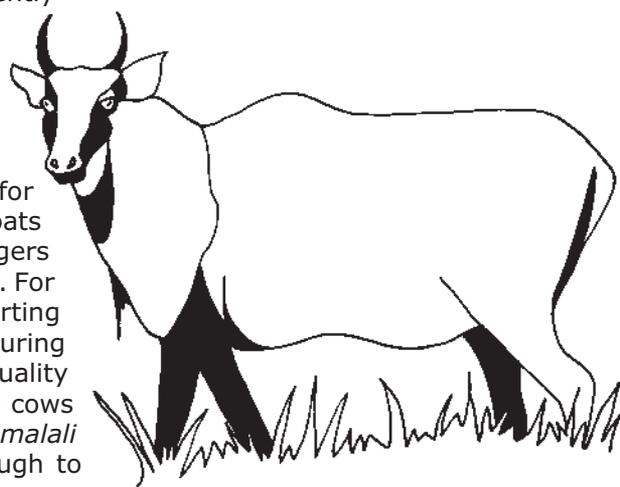


eat and drink with the balai. In the past, this hierarchy was reflected in the economic situation of each community. The rajputs, as *jagirdars*³ of Bhaonta, controlled most of the resources. The gujjars and balais were dependent on the Rajputs for employment, waiving of loans and revenue. The influence of the rajputs extended over Kolyala as well.

The villages are set in the flatlands at the foot of the Aravalli hills, which are (or were at one point) covered by dry deciduous or scrub forests. These forests are mostly on land belonging to the forest department (FD). The Alwar Division Working Plan for 1979-1989 mentions these forests as unclassified forests. Habitat classification systems in India have undergone changes over the years. Unfortunately many of these classifications seem inadequate due to lack of mapping and can only be considered valid for a few selected regions and stands. Bhaonta-Kolyala belongs to the dhok forest zone (semi-arid areas of East Rajasthan) and is equivalent to the edaphic climax type of dry tropical forests of Champion and Seth (1968).⁴ This region has more or less been stripped of its natural vegetation over the last few decades. These forests occur on a variety of rock and soil formations and thus vary in composition depending on the factors that control them. The most common species found is dhok, a slow-growing species with a height of up to 12 metres at places. Due to continuous hacking and grazing, this species has been reduced to scrambling bushes. On the higher slopes and plateaus, salar is found. The other common species are gurjan, safed dhok (not in Bhaonta region), khair, tendu, jingha, kakoon and others.

Faunal diversity must at one point have been high, as indicated by early travelogues and descriptions of 'game'.⁵ Tiger, panther, blackbuck, chinkara and other mammal species, apart from a large diversity of birds and other faunal life, were apparently found commonly. With habitat destruction and widespread hunting, wildlife appears to have declined considerably, though in the Sariska Tiger Reserve and in the community-regenerated and protected forests there is reportedly a revival of the population of several species. Presently the mammal species found in these forests include porcupine, hyena, hare, leopard, wild boar, jackal, nilgai, mongoose and Hanuman langur, apart from a number of other birds and reptiles.

Villagers are heavily dependent on the forests for fuel, fodder, non-timber forest produce, etc. Goats graze in the forest everyday, since the villagers (except the rajputs) do not like to stall-feed goats. For many years, the Bhaonta forest has been supporting the goat population of the surrounding villages. During the monsoons, due to the abundance of good quality fodder, some shepherds take their buffaloes and cows up to the *maidan* (open and flat ground) in the *malali* region. This is the only *maidan* that is big enough to serve as a cattle camp.



Towards community conservation

According to the village elders, from the 1940s onwards the forests in the region were heavily worked by the FD and *dhok* was extensively extracted for charcoal. The villagers recall a drought in 1944 that took a heavy toll on human and natural resources. Since water was scarce, livestock had become the major source of livelihood. Villagers say that they had overgrazed the forest during this time and forests had severely depleted. Cattle grazed through a system of contractual grazing in neighbouring areas. According to the villagers, prior to the construction of water-harvesting structures, only maize, *chana* and *sarson* (mustard) (crops that do not need too much water) could be grown once a year in some of the fields. Fodder crops were grown during the rest of the year or by those who had no access to water. Villagers remember that construction and maintenance of *johads* was traditionally the responsibility of the village. Some water-works were also built by the state. However their maintenance was also the responsibility of the village community. Water scarcity seems to be at least about 50-55 years old. Most people in the age group of 50-60 remember water shortages in the area. In their opinion, reliance on the Indian state, in both the pre- and post-Independence era, eroded the sense of communal responsibility towards natural resources. The old water harvesting structures fell into disuse due to poor maintenance.

Box 1**Johad⁶**

A *johad* is a simple mud and rubble structure built across a water channel that holds rainwater. Sometimes a series of these may be built along the catchment of the water channel. These structures have high embankments on three sides and the fourth is left open for the entry of rainwater. The shape of a *johad* is in most cases concave and resembles a crescent. The height of the embankment is such that the capacity of the *johad* is more than the volume of run-off coming from the catchment. This is based on a rough estimation of a maximum possible run-off that could come into it. *Johads* require regular maintenance. Annual pitching of the soil in the cracks before the monsoon and desilting are essential for their efficiency and survival. The advantage of this system is that, along with arresting rainwater, it improves the moisture level at sub-soil level in the fields, particularly in downstream areas. This recharged groundwater is the major source of irrigation in the region, including through wells.

Bhoanta-Kolyala's move towards community-based conservation and management of natural resources has its roots in the initiative of the NGO Tarun Bharat Sangh and the villagers of Gopalpura, a nearby hamlet. In 1985, this village had organised around TBS to build a *johad*, which showed quick results. As the news of the success in Gopalpura spread in the region, one of the village elders in Bhaonta, Sundra Baba, contacted TBS for similar work to be undertaken in the village. In early 1986, a *padayatra* (foot march) was organised by the TBS in the region. It was an awareness campaign with a slogan *johad banao, jungle bachao* (build *johads*, save forest). During the *padayatra*, the villagers of Bhaonta-Kolyala expressed a desire to initiate water and forest conservation. A series of discussions among the villagers and with TBS resulted in a decision by the people of both the villages to collectively protect the forest and construct *johads* with the help of TBS. By 1987, forest protection measures were already in place. In 1988 construction of *johads* began in the village. The construction of the first one was completed in four years.

To facilitate collective decision-making on forest protection and water harvesting, a *gram sabha* was formed. While the idea of a *gram sabha* came from TBS, the actual formation and organisation of the body was a village activity. This body acts as the regulatory and coordinating unit for building waterworks. All decisions are taken collectively.

Forest protection

In Bhaonta-Kolyala, forest protection apparently pre-dates the construction of water harvesting structures. The decision to protect the forest involved admitting past mistakes and a commitment to regulated forest use. The villagers used the old forest boundary from the *jagirdari* (when the area was under a local landlord, the *Jagirdar*) days to demarcate the area they could protect. The *gram sabha* evolved a pattern of regulations and penalties. These rules were formed keeping in mind the needs of the village community and sustainable use of the forest. Overgrazing and tree felling were perceived to be the prime reasons for degeneration of forests, but grazing is an important activity and a total prohibition was impossible. A mutual decision was taken to allow the grazing of village goats in the forest. Shepherds were asked not to cut any trees while their goats were grazing. The village community also tried to reduce the number of goats in the village. Only wood that was dry or on the forest floor was allowed to be collected for fuel.

Water works

A total of 17 *johads* were built in the village. These include structures built on private lands. For the two dams on common lands, TBS provided technical help and 75 per cent of the total cost; the other 25 per cent of the cost of building was the villagers' responsibility. The village community chose the site of the dams and TBS members calculated the cost of construction. In a series of *gram sabha* meetings, the amount to be paid by each household as cash or labour (*shramdaan*) was calculated. Over the years, meeting this 25 per cent of the cost in the form of either labour or cash from each family was coordinated by the *gram sabha*.

Institutional arrangement

No government body apart from the FD and the revenue department (RD) has a presence in the village. Though the village is part of a *panchayat*⁷ and one person from the village is its *up-sarpanch*

(deputy head), little work has been done by this body. Most villagers appear disinterested in the *panchayat* and feel that since they have done all the water harvesting, forest conservation and other work themselves, they do not need the *panchayat*. Apart from a school that was built with *panchayat* money, there is no link with this body, judicial or financial.

The villagers had formed a *gram sabha* (village council) nearly ten years ago to organise water and forest conservation. This is the only organised body in the village. It settles all matters concerning forest and water resources. There is little indication of any major contentious issues or cases of conflict in the village. The *gram sabha* is a self-initiated body and does not have any formal authority.

According to the villagers, while there had been a strong sense of collective solidarity in the village, there had earlier been little collective organisation or action. The community had earlier not felt the need for a body such as a *gram sabha* or *panchayat*, formal or informal. However, with the agenda of forest protection and water harvesting, it was felt that such a body would be useful. TBS was the inspiration behind the formation of the *gram sabha*.

The *gram sabha* was formed as a platform for addressing common concerns through collective action. It has an open membership, with a quorum of 22 adults, who by and large represent each hamlet in the two villages. Women are usually few in number. It meets once every month on the day of *amavasya* (new moon) and the minutes of every meeting are recorded. Apart from the *adhyaksha* (president), it has no other office-bearers. The office of the *adhyaksha* is informal and has no power. The *adhyaksha* is responsible for conducting the monthly *gram sabha* meetings.

Box 2

Gram Sabha Forest Regulations

1. No shepherd will go into the forest with an axe.
2. If a shepherd is caught cutting a tree, he will be fined Rs 11. Any person who, having witnessed such an activity, fails to report it to the *gram sabha* shall be fined Rs 21.
3. No man or woman shall use an axe for collection of fuel. They will only collect dry wood.
4. If wood is required for building a house or for a wedding, the person will collect it only with the permission of the *gram sabha*.
5. The *gram sabha* will meet every month on *amavasya* (new moon day).
6. In the meetings, any issue relevant to the village community will be discussed.

The *gram sabha* has the right to make changes in regulations and enforce penalties. The body is, however, not recognised by the state and has no formal legal authority.

Early challenges: Indiscipline by villagers

There were incidents of tree felling in the early years after introduction of forest regulations, and offenders refused to pay fines imposed by the *gram sabha*. However social pressure and persuasion by the *gram sabha* has now ensured compliance with the regulations. Villagers feel that strictness in this early phase helped discipline everyone. They seem to have internalised the concept of judicious use of natural resources and there are very few instances of violations now.

Villagers recount one particular instance as a milestone. In 1992, the rajputs had allowed some graziers from the Marwar region to camp in the forest. Though the graziers were gujjars, they had regional affiliations with the rajputs. The other villagers had expressed their unhappiness over the large number of goats and sheep but did not take any action, hoping that the rajputs would themselves ask the graziers to leave. After 15 days, however, when the graziers showed no signs of leaving, they blocked their entry into the forest (the graziers had come down to the village for their daily necessities). The graziers were forced to leave. Since then, no one from the village has undertaken contractual grazing of livestock or hosted graziers from other regions.

Other neighbouring villages committed 'offences' as well. In the early years of protection, when offences were detected, the *gram sabha* members went to the offending village and checked the houses of those they thought were offenders. Since women were often the offenders, women from Bhaonta-Kolyala were asked to accompany the 'search parties' (usually the older women went). Villagers were also persuaded to respect the traditional *jagirdari* boundary and obey forest regulations if they entered Bhaonta forest. Such incidents are now less common.

Gram kosh

The *gram sabha* felt that having a fund (*kosh*) for the village would strengthen the community. It was decided that each household would contribute five kg of grains after the harvest. Some of the collection would be retained as a grain reserve for village needs and the rest could be sold to build up a monetary fund for common community needs. The fund was established in 1993-94. However, following the inability of some farmers to pay back the loan amount and interest, in the following years it could not be built up and remained as a small grain reserve. The aim of the grain bank is to provide relief to those families whose grain reserves might need to be replenished before harvest. During the period before harvest, the grain prices in the market are high and the family head can take the required amount from the *gram kosh* reserves. After the harvest, the amount can be paid back with a pre-fixed interest. Repayment can be in cash or kind. In the past couple of years, this reserve has helped several families, though in its limited capacity. An auxiliary of the *gram sabha*, the *gram kosh* is headed by an *adhyaksha*, whose duties include maintenance of stock, keeping records of loans and payment, keeping the *gram sabha* apprised of the status of the reserve and ensuring recovery of loans. The decision about loans is taken in the *gram sabha* meetings. If a loan has been given prior to the monthly meeting, the *gram sabha* has to be informed of the transaction.

The *adhyaksha* is keen to build the monetary component of the *kosh*. For this the villagers plan to utilise the amount they have collected from forest fines and repayment of loans.

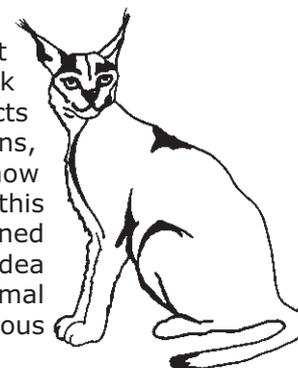
Declaration of Bhairon Dev Lok Van Abhayaranya

Situated at a distance of 15 km from the village, Sariska Tiger Reserve holds considerable interest in the peoples' minds. They have had a long association with the area due to the presence of a Bharthari Baba shrine in the park. The area was declared a state game sanctuary in 1959 and was later declared a National Park and Tiger Reserve. Sariska is the only region in Alwar to have a tiger population till recently.⁸ The villagers in the surrounding area call it Bharthari or *sonchirri* (from sanctuary). In an interesting move parallel to the official protected area of Sariska, and after 10 years of successful community initiative, the forest of Bhaonta-Kolyala was declared a Bhairon Dev Lok Van Abhayaranya (Bhairon Dev People's Sanctuary) in October 1998.⁹ This was on TBS' suggestion that the forest be held up as an example of a local community's successful effort at conservation. During the festival of *Makar Sankranti* that year, a stone representing Bharthari Baba was brought from Sariska and laid adjacent to the temple of the local deity Bhairon Dev. Both Bhairon Dev and Bharthari Baba are considered the protectors of forests. The village community wants to present this sanctuary as an alternative to the non-participatory approach to conservation followed by the FD in Sariska Tiger Reserve.

Villagers say that some regulations were made with the declaration, especially concerning hunting of animals by outsiders, but we have not been able to find any record of these. According to Kanhaiyalal Gujjar, who, apart from being one of Bhaonta-Kolyala's residents, also works with TBS, the declaration of the sanctuary represents an ideological alternative to the kind of conservation followed by the forest department. However, since the *sonchiri* status does not have any ground-level implications that go beyond the rules already laid down for forest protection, perhaps this could be one of the reasons that people in the village do not relate to it. In the *gram sabha* meetings, the forest is referred to as the 'jungle', not as *sonchirri*. Most villagers believe in forest protection and have an idea of how to use the forest judiciously. They continue to follow the pattern of use advised by the *gram sabha*. *Sonchirri* seems to be a term used by the more active members of the village, especially in meetings on forest protection involving other villages in the area.

Participation in forest protection

It has not been very easy to discuss with people what they think about forest protection. Most people spoken to, especially women, did not talk about forest regulations. But the manner in which they use the forest reflects *gram sabha* regulations. When asked if they were told of the regulations, some said elders informed them, but most say that they simply 'know' how to use the forest judiciously. We have not been able to understand how this knowledge has developed, or how forest protection has this unquestioned acceptance. It is possible that people have over the years internalised the idea of forest protection and the use pattern that is associated with it. Like normal agricultural operations, forest conservation is a routine, almost subconscious part of village life.



Though the entire community is involved in the initiative, it is useful to delineate the two major groups that are directly involved in forest-related activities and have to conform to the rules laid down by the *gram sabha*: shepherds and women. It is also interesting to note that neither of these groups is easily visible in the *gram sabha*.

Shepherds

Each family has some goats. Usually one person from each family is deputed to take the goats for grazing, and tending to the goats becomes a lifelong commitment for him. Sometimes during the sowing or harvest season, a younger member of the household may take over this responsibility. Due to the long-term involvement of the shepherds, usually they are an identifiable group in the village. However this group is not indicative of any caste. The Rajputs own only a couple of goats per family and stall-feed them. The Balais too have certain family members tending to the goats.

Since shepherds need to go to the forest everyday, the burden of regulations is largely borne by them. For them compliance with forest regulations means having to go deeper into the forest to graze goats. The presence of two leopards in the forest is a threat, and they have to keep a constant vigil while the sheep are grazing. The older shepherds have witnessed fodder scarcity in the pre-forest-protection era. The village livestock had to be sent out of the village for grazing through a contractual system. The younger generation has grown up in a period of awareness and is well informed of the consequences of not having adequate grazing areas for village livestock. Most of the shepherds also seem to enjoy the lushness and cooler temperatures in the forest. Therefore, in spite of some personal hardships, they are supportive of forest protection. The shepherds also seem to have an informal system of protection or grazing regulations in some areas in the forest. Sometimes a group of shepherds decides informally that for a specific period (which could range between two months to a year), they would not take their goats grazing to a particular patch of the forest. It is not clear, however, whether other shepherds are told about this decision, and whether there is any coordination amongst all the villagers to leave such a patch alone.

Shepherds are the first to detect offences in the forest area and are the primary informants to the *gram sabha*.

Women

Though there is no strict division of labour, fuelwood collection is largely carried out by women. They are supportive of the conservation process. According to them, it is convenient to have a forest nearby and not to have to walk long distances for fuel and fodder. Though regulations do cause some inconvenience (having to search in a larger area for dry fuel), they have no complaints. According to them protection was the only way to ensure that the forest remains intact. Since going into the forest is physically arduous and time consuming, they prefer, as far as possible, to meet the daily requirements from the fields, fallows or trees around the hamlet. The daily pattern of fuel and fodder collection varies according to time, convenience and necessity. There is a proposal to develop the village *gauchar*, and once that is ready, it will be more convenient for them to procure fodder for cattle and young lambs and kids.

It is hard to detect the presence of women in the decision-making process, especially as they are not present in significant numbers in *gram sabha* meetings. According to Rajinder Singh of TBS, women manage to get their ideas across through husbands and other male members of the family. According to him, this informal, indirect but effective method works better in the rural setting. He cites as an example the *gram sabha's* decision to allow the collection of a headload of green fodder for young goats in 1997. Women had wanted this particular concession.

The younger women seldom speak out in the open and have rarely attended *gram sabha* meetings. Some of the older women attend meetings and voice their opinions. Since they directly represent women's interests, they are encouraged to speak. However what seems more important for women's participation is the informal social network. Women are more comfortable discussing issues when they are interacting during the course of their daily work. This also seems to be the channel by which older women can communicate the decisions of the *gram sabha* to the younger ones, and receive their inputs.

Impacts of the community initiative

The villagers claim that the forest has shown remarkable regeneration since the protection efforts started. With the regeneration of the forest, villagers report the presence (not continuous)

of two leopards in the forest. They have reportedly been preying on goats from the forest. As yet, however, there does not seem to be any ill-feeling among the villagers. The shepherds keep a sharp vigil while their sheep graze. The elders claim that the disappearance of tigers and other predators from the forest was the reason behind the depletion of forests. They maintain that the presence of predators will inhibit people from going into the forest unless absolutely necessary, and thereby aid the conservation process.

State of the forest

The following observations are made on the basis of the ecological assessment carried out by us.

The forests occur on a variety of rock and soil formations and thus vary in composition, depending on the factors that control them. The most common tree species found is dhok, a slow-growing species with a height of up to 12 m at places. Due to continuous hacking and grazing, this species has been reduced to scrambling bushes. On the higher slopes and plateaus, salar is found. The tree species are interspersed with shrubs mainly in the valleys. While the plains exhibit extensive grass growth, grass cover can be seen only where there is soil on the forest floor and is restricted to the plateaus. Dhok regenerates only in areas where the villagers have undertaken some protection activities.

Dhok was seen to regenerate in the valley (Satala ka Nala) next to the dam while the slopes of the hillocks were devoid of any regenerating tree species. Since the vegetation in the valley is thick, forming a formidable cover, goat penetration is minimised, thereby allowing plants to be recruited into the higher age, height and girth groups. Further, the dhok that are regenerating (one-year-olds) are in the cracks and crevices on the slopes.

According to some of the villagers, the forest has been in the present state for the last 8-10 years. This strengthens the theory that grazing has been intensive in the region. On the upper reaches of the hills one can also see extensive lopping for firewood, thus opening up the forest. The slopes of the hills are devoid of any soil and humus that can support plant life during the dry months. On the contrary the plateaus on the tops of the hills have a number of termite mounds, which is indicative of good soil quality.

It seems that pressure due to grazing is still quite high in these forest areas. The barren slopes that are seen on the slopes of the hillocks near Bhaonta are due to the combined effect of both hacking and grazing. Whatever regeneration is seen is probably due to elimination of lopping of trees. Kanhaiyalal, a member of the *gram sabha* of Bhaonta village, also agrees that grazing is still intense and occurs in the regenerating patches of the forest. Ever since the cessation of tree felling, the vegetation has grown and partly closed up the gaps, thereby protecting the seedlings of dhok. What is seen as a thick forest today can be called a 'coppice forest' (which is a result of re-growth from stumps and stalks) and not one that has regenerated (grown) from the seeds.

Availability of resources

According to the villagers, the most visible change in the village is the presence of water as indicated by the recharged wells and greenery in the village. The water collected in *johads* during the monsoons is used for irrigation and other daily necessities. The villagers say that after 1990 there has been a rise in productivity and two crops can easily be grown in a year. Since wheat has proven to be the most productive, most farmers prefer to grow it. But maize and *chana* are also important parts of their diets and are grown by almost all farmers. The cropping pattern may vary according to the relative availability of water.

With the success of forest protection and the consequent improvement in the soil, villagers are thinking of ways to develop unutilised lands as alternative sources for fuel and fodder. A *gauchar* (pasture) is being proposed as part of this effort. The livestock has become more productive due to the increased availability and security of fodder. Most villagers say that fodder was available even in the pre-protection days, but it was decreasing every year and there was no sense of security. They now feel secure with the regeneration of the forest.



Forest protection committee members at Bhaonta Kolyala Photo: Ashish Kothari

Controlled outward mobility

During the period of resource shortage, many men were compelled to serve as seasonal labourers in bigger towns. Most worked as manual labourers in mills and factories. There has reportedly been a decrease in migration in recent years and very few villagers seek employment elsewhere out of compulsion; data on this was however not available. Agriculture and animal husbandry seems to suffice for most households.

Constraints and opportunities

Intra-village dynamics

Though relatively harmonious in its internal functioning, there are a few existing or potential inequities in the village that could have a bearing on this initiative. The balais feel that they are being discriminated against. They had wanted to resettle some of the households in a *sawai chak* (unused land, belonging to the FD) area in the village. They claim that the gujjars built a *johad* on that area to prevent them from settling down there. According to some of the gujjars active in the process, this is true. Apparently there had been some encroachments in the *sawai chak* areas and the *johad* was built to ensure that the land remains the common property of the village and is not appropriated by individuals or a community. The balais also feel that while one of the rajput families was allowed to settle on land that belongs to the FD, the balais are not allowed to. The lack of full participation by women (especially the younger ones) could be such a constraint, though villagers do not seem to articulate this. The rest of the villagers say that the FD itself will ask the rajputs to evacuate the area and do not seem too keen to interfere. Though the balai have not raised this issue with the *gram sabha* and are not sure if they ever will, they appear disenchanted with the conservation process as they feel that their interests have been compromised. This may eventually weaken the support to the initiative.

Inter-village conflicts

Since there are many villages in the vicinity, it has not been easy to guard against offenders. The villagers of Bhaonta-Kolyala say that since many of these villages do not have their own forest, they rely on other forests in the region. They therefore have no objection to neighbouring villages using the forest area to graze, but they will not permit violation of the regulations laid down by them. Some also feel that these villages could try to develop their own areas for fuel and fodder.

The older patterns of forest use are not feasible anymore. Earlier, due to the abundance of forest land, even those villages which did not have forests in the immediate neighbourhood had unopposed access to the forested areas in the region. However this pattern has become unsustainable due to the depleting forests and increasing human and livestock populations over the last 30 years. Some of the other villages in Thanagazi *tehsil* have initiated protection of their forests and are very intolerant of encroachments or infringements by neighbouring villages, even resorting to violence against offenders. This has increased the pressure on the Bhaonta forest. At present, the state of the forests in these areas seems better than the Bhaonta forest. The people in Bhaonta-Kolyala say that, unlike these other villages, they would not like to take recourse to violent means or threats. According to them a movement based on intimidation is not sustainable. They would prefer a change in attitudes and thoughts, even if this takes longer.

The *gram sabha* seems to be unable to respond unregulated use by outsiders as it did in the early years. Perhaps one reason for this is the challenge to its right over the forest. The traditional legitimisation invoked by the *gram sabha* on the basis of the old *jagirdari* boundary is not recognised by the adjoining villages, who are aware of the more recent official status of the forests.

Relations with forest department



The villagers claim that the forest department has never been supportive. A few high-ranking officials who visited the village made laudatory notes in the *gram sabha* register. But this has not translated into any real support at the ground level. According to them, the FD staff at the local level (forester and forest guard) are invited to the monthly meetings but they seldom attend. The FD staff feels that they have proven their support by attending some of these meetings, and express their inability to attend every meeting due to other official duties. There is a severe lack of communication between the village community and the FD, which has resulted in mutual mistrust and hostility. Initiating a dialogue or developing a

system of communication may help in improving the relations between the two, but this may require the intervention of a third party.

Box 3

President's Award¹⁰

On 28 March 2000, the efforts of the villagers of Bhaonta-Kolyala were given the highest official recognition. The first Down To Earth-Joseph C. John Award for the most outstanding environmental community was presented by the President of India to Bhaonta-Kolyala. The award carried a citation and a cash award of Rs 1,00,000. Seven villagers, including two women, received this award on behalf of the communities. This recognition has encouraged the villagers to carry forward their hard work, which had so far been unacknowledged.

Presence of Tarun Bharat Sangh

TBS has played a crucial role in the initiation and success of this effort. TBS works with workers from the villages itself. Their knowledge of the local language, geography, and ecological and social contexts are central to the success of the works undertaken by them. Most workers are graduates who have over the years gained knowledge through experience. For the organisation the process by which projects are implemented are as important as the goal. The process helps in building the capacity of the local community to fulfil their aspirations. It pursues a participatory approach in its work in a manner that the responsibility of the work lies with the local community more than it does with the organisation. The workers seem to have perfected the method of identifying and adopting ways to transfer the responsibility to the local communities at the very beginning of their work.

TBS views itself as a facilitator in the various activities it carries out. It recognises and encourages the right of the people to take their own decisions. It only provides the necessary inputs to enable the community to take decisions concerning their livelihood. All activities related to the initiative come within the decision-making framework of the communities.

For the villagers, TBS represents a support structure. In fact, it is the only outside institution that they would like to be associated with. Though the organisation has more or less now withdrawn from the village, the villagers retain strong links with it. They continue to participate in the awareness campaigns run by TBS and have gone to other parts of the country to share their experiences with others. Such sharing of ideas and experiences from one region to another could help influence similar initiatives in other areas as well. TBS continues to help in generation of funds for the villagers if they need to take on any development activity.

Box 4

The Arvari Sansad-A unique initiative with other villages

At a meeting held in Hamirpur village in 1998, a collective decision was taken by villagers situated on the catchment of the Arvari River (including Bhaonta-Kolyala) to form a *sansad* (parliament) that could help regulate resource use in the catchment. Elected members from 34 of the 70 villages situated in the catchment attended the meeting. These representatives took a decision to form a 90-member parliament that would lay down guidelines concerning *jal, jungle aur jamin* (water, forest and land). During the forest session, issues like mining, forest felling, hunting and over-utilisation of groundwater were discussed. A 15-member coordinating committee was formed, headed by Kanhaiyalal Gujjar (of Bhaonta) and Chajjuram of Samra village. They were entrusted with the responsibility of preparing a guideline for resource utilisation in the catchment based on suggestions arising out of the discussions. These guidelines have been ratified by the parliament. A committee has been formed to identify those forest officials that are known for their sincerity, so that the *sansad* could enter into collaboration with the FD. According to the members, though there is a strong will among the villagers, forest guards could be of help in enforcing regulations. It is hoped that, through a process of dialogue with the FD, a collaborative network for conservation can be built up. TBS is at present acting as the facilitator but hopes to withdraw once the *sansad* has established a working office and is fully functional. The rules and regulations for the utilisation of natural resources include:

- No one is allowed to draw water directly from the river for irrigation, after Holi,¹¹ as the lean

flow season starts then. However water may be drawn directly for livestock even after Holi.

- Before Holi, in the areas that are directly irrigated by the waters of Arvari, only *sarson* and *chana* may be grown. During the *kharif* rains, however, any crop may be grown apart from sugarcane and rice.
- Only crops that require less water should be grown in the areas that are irrigated from the wells near the river.
- Vegetables are to be grown only according to local needs.
- People should be penalised for growing sugarcane and rice against the advice of the *sansad*.
- The use of organic fertilisers to avoid soil degradation, damage to lands and to help retain moisture should be attempted.
- Production should be for local needs.
- Direct relations between the producers and the buyers should be established.
- Water should not be drawn from the river using pumps.
- The waters of the Arvari should not be used for commercial purposes or for mining operations.
- Digging borewells to draw water should not be allowed in the Arvari catchment.
- Villagers should keep watch over people who hunt.¹²
- Areas that are affected by hunting are to be identified.
- A tiger protection programme should be developed, as the presence of tigers would act as a deterrent to hunting.
- Put an end to all mining activities in the area.
- Lands that have suffered due to mining should be regenerated.
- Sale of land to outsiders should be prevented.
- There should be a total ban on the cutting of green trees.
- Grazing of livestock from outside areas in the Arvari catchment should be prevented.
- Cutting of grass, etc. should begin only after Deepavli¹³, after the pastures have had a chance to regenerate during the monsoons.
- Pastures in the villages for livestock should be developed.
- Denuded hill slopes should be afforested.
- Revive traditional conservation methods.
- These methods should be written down by the educated youth of the region.
- Rules of the *sansad* should be arrived at and enforced with consensus and discipline.
- The *sansad* has been established for guiding natural resource use in the Arvari catchment.
- The *sansad* should work for self-sufficiency of village communities and for the disciplined use of natural resources in the Arvari region.

Conclusion

Several important lessons emerge from the experience of Bhaonta-Kolyala. Perhaps one of the reasons why people of Bhaonta-Kolyala were inspired toward forest protection was the manner in which the linkages between forest, water and agriculture were highlighted by TBS. This may have only required a few helpful hints by TBS, as the villagers traditionally understood such linkages anyway but had lost this understanding due to various processes of alienation. What TBS would also have helped to do is to link the village's efforts to larger social, economic and ecological processes. A perspective such as this brings the concept of conservation closer to the people. The perception of 'nature' here is not that of a 'wilderness' but rather of a continuum of human-made and influenced ecosystems where non-human natural elements co-exist with, and relate intimately to, human ones. In the last few years, the villagers have seen the links between

forests, agriculture, pastoralism and livelihoods working, with a little effort on their part, to their advantage. Forest protection is therefore a part of the larger livelihood strategy in the village, but also has, at least for some of the villagers, an ethical and moral component. Perhaps this could explain the overwhelming support for forest conservation in the village.

It is important to keep in mind that the conservation initiative has been a process of empowerment for the village. It has not only meant construction of water-harvesting structures and formulating forest regulations but also the evolution of a new sense of the collective 'self' based on their successes. The people of Bhaonta-Kolyala now feel confident to assert their rights to, and de facto ownership over, common property natural resources, even though there is no governmental or statutory recognition of this. It also resurrected the sense of collective and individual responsibility toward natural resources, which is essential for the success of community-based conservation.

The emphasis on the formation of the *gram sabha* as the decision-making body has ensured that the community retains, to a large extent, the power and responsibility to take decisions. All activities concerning natural resource use have been kept within the decision-making framework of the village. Even the area's *panchayat*, the official decision-making body relevant for the village, does not have a say in how the villagers of Bhaonta-Kolyala use their natural resources. The reasons for this non-involvement are, however, not clear. As a dominant voice in the village and the *gram sabha*, the Gujjars have played a crucial role in initiating and sustaining the conservation process. The Balais feel that their concerns are not taken into account. In the long run, this may influence their support for forest protection as well.

It is also evident that de facto ownership or control is not adequate. In Bhaonta-Kolyala, the inability to prevent neighbouring villagers from felling trees has been demoralising. The absence of any formal authority has made the initiative vulnerable to questions of legitimacy. We feel that along with the will of the resident communities to save forests, there also needs to be a statutory support structure which has the authority and infrastructure to enforce that will. At present such authority rests only with the FD. It would perhaps be helpful to collaborate with the FD, but in the long run, statutory powers need to be given to the community itself, with the FD acting as facilitator and mediator in disputes with outsiders. Unfortunately, the present sense of distrust between both the parties precludes the possibility of such collaboration in the near future. Initiating a dialogue would be a step in the right direction, and TBS may be in the best position to do this.

The assertion of de facto control is not restricted to Bhaonta-Kolyala. While attending the February 1999 session of the Arvari *sansad* (Arvari parliament), we felt that villagers from across the catchment shared this experience of empowerment and that a new collective identity was being formed in the process of discussions. This could help to overcome, to a certain extent, the occasional disempowerment that villagers of Bhaonta-Kolyala feel when dealing with neighbouring villagers, even if legal authority is not vested in them.

Finally, local leadership plays a very important role in any community initiative. Though the village still looks to TBS as a support structure, over the years it has also evolved its own strong leadership. This comprises individuals like Kanhaiyalal Gujjar and Chhotelal Gujjar who work with TBS (and are often out of the village), are educated and can negotiate with relevant authorities like the FD. On the other hand, people like Arjan Gujjar and Dhanna Baba (both respected elders) live and work in the village and play the important role of enthusing the village community to rally for a common cause. Emergence of a second level of leadership could play a strong role in sustaining the initiative.

The model for conservation that has emerged from the efforts of Bhaonta-Kolyala indicates that conservation of natural resources need not be in opposition to the livelihood needs of resident communities. It holds promise as an alternative form of conservation, and is pragmatic in societies and areas where the majority of the population is directly dependent on natural resources for survival.

This case study has been adapted from S. Shresth and S. Devidas, *Forest Revival and Water Harvesting: Community Based Conservation at Bhaonta-Kolyala, Rajasthan, India* (Pune, Kalpavriksh and International Institute of Environment and Development, 2001).

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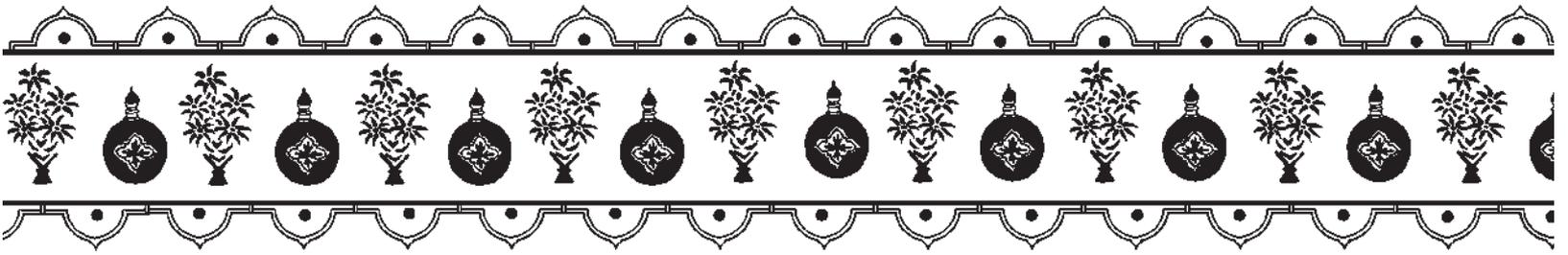
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Endnotes

- ¹ There are some 200 water-harvesting structures built along the catchment of this rivulet. Over a period of ten years, these structures have replenished ground water and increased the water table, enabling the river to flow perennially again.
- ² TBS is a local NGO that has been active in promoting a community-based movement toward floral, faunal and water conservation in the region for the last 15 years. Conservation of natural resources in the region has evolved as a process of growing self-awareness, self-sufficiency and understanding of the natural world for both the resident communities and TBS.
- ³ *Jagirdars* were landlords who during the princely times had been awarded lands by the state. They were exempt from paying taxes.
- ⁴ H.G. Champion and S.K. Seth, *A Revised Survey of Forest Types of India* (Delhi, Government of India, 1968).
- ⁵ *Administrative Reports for the State of Alwar (1877-1912)*. Alwar State Publications.
- ⁶ Source: R. Samantray, *Johad: Watershed in Alwar District, Rajasthan* (Delhi, UN Inter-Agency Working Group on Water and Environmental Sanitation, 1998).
- ⁷ *Panchayat* is the lowest formal administrative body consisting of elected representatives from one or more villages.
- ⁸ Editor's note: An investigation carried out in 2005 however has revealed that there are no tigers left in Sariska. This revelation has caused much debate in the country and has led to a number of investigations in other national parks and sanctuaries. This discovery also led the Prime Minister to constitute a Tiger Task Force. The recommendations of this task force have resulted into an amendment in the Wildlife Protection Act in 2006, constituting a Tiger Authority in the country to be able to check the declining population of tigers, including through the participation of the local people.
- ⁹ The villagers popularly refer to it as *sonchirri*. *Sonchirri* also derives from *son* (golden) and *chirri* (bird). We have not been able to establish if this refers to an actual species that existed or exists in the area.
- ¹⁰ Source: Anon. 'Awarded: Bhaonta-Kolyala', *Down to Earth*, 30 April 2000.
- ¹¹ *Holi* is a festival that is celebrated in the month of March.
- ¹² We did not hear any incidence of hunting in or near Bhaonta-Kolyala.
- ¹³ *Deepavali* is a festival that is celebrated during October or November.





Kishori village, Alwar

Background

Kishori village is located in Alwar district of Rajasthan. This village, like Bhaonta-Kolyala (see case study for details), was once in the drought prone zone. Because of the efforts of the villagers along with the NGO Tarun Bharat Sangh (TBS), the resources have now regenerated and the River Arvari has turned into a perennial river supporting local agriculture. The main occupations of the villagers are agriculture and cattle grazing.

Towards community conservation

The forest cover of Aravalli hills was once lush and green but its condition deteriorated in the course of time due to felling of trees and negligence by the villagers. After Independence, a greedy local prince auctioned most of the blocks of the forest. Subsequently the rainwater started running down into the valleys, eroding the fertile topsoil instead of seeping into the earth. The village women had to travel long distances for a pot of water. There was no grass for cattle. Most of the villagers of Gopalpura village migrated to Gujarat in the fifth year of the drought. The Arvari rivulet was barely wet in the monsoons and the check-dam constructed in the past was worn out, with the villagers not in a position to do anything about it.

In October 1985, a young social worker Rajendra Singh, along with four of his friends, came to Kishori village. They mobilised the villagers into finding a solution to their problem of scarcity of water, and organised people to contribute labour voluntarily (*shramdaan*) towards repairing, de-silting and deepening their own ponds. They also started building *johads* (small earthen check-dams which capture and conserve rain water, improve percolation and recharge groundwater).

Rajendra Singh sought help from an engineer friend named Yogendra for repairing the 1400 ft long, 20 ft high and 50 ft wide check-dam that existed on the river. The dam was too big to be repaired by the villagers alone, so they had to engage external labour. Payments to the external labourers were made from donations by the villagers. That year the villagers were able to irrigate 600 *bighas* of land. The success of this initiative led to the formation of Tarun Bharat Sangh (TBS) with Rajendra Singh and a number of local members.

Subsequently, similar efforts were carried out in Gopalpura village (another village along the river Arvari) as well. As a result of these efforts, the Arvari changed into a perennial rivulet over the next decade. In neighbouring Hamirpur, which was once a desert-like village, there is now a sparkling Jabbar Sagar, a reservoir built by the TBS and the villagers with teeming aquatic life surrounded by thick vegetation.

Box 1

A struggle against mining

When Rajendra Singh started work in Sariska, he realised that all the rain water disappeared into the marble mines. When Sariska was declared a national park in 1978, all the villagers were denied their livelihood. Most of the villagers left the village and the others started working in the mines owned by people like Subhash Ghai, Balram Jakhar and Bhairon Singh Shekhawat. The mines were death traps for the tigers in the sanctuary. In 1990 the TBS moved the Supreme Court against mining in Sariska and got an order in its favour the next year. But the Rajasthan Government wanted the mines to run and they filed false affidavits. There were attacks on the TBS volunteers as well. There was an attempt made in 1990 when a car in which Singh was a passenger was smashed by mine owners. He was travelling with a judge, Justice M.C. Jain, who made a note of the incident and the mine owner was punished. The court also directed the Union Government to declare Aravalli a fragile ecosystem and ban mining. But the miners got a notification in their favour in which only the districts of Alwar and Gurgaon were



declared fragile. TBS launched a three-month *satyagraha* in January 1993, blocking the roads to the mines. The mine owners filed 42 false cases against Singh, which were not upheld. Later, a forest officer, Fateh Singh Rathore, understood the problems of the villagers and befriended them. This led the villagers to frame rules for forest protection and start water harvesting, which resulted in regeneration of life in the village and the forests as well.

Kishori, Gopalpura and Hamirpur are among the 70 villages that joined hands in the late 1990s to constitute the Arvari Sansad in 1998 with the objective of preserving and protecting the entire stretch of the river (see Box 4 in the case study on Bhaonta-Kolyala for details). Along the stretch of the river and in the regenerating catchment forests in the villages, a number of local rules apply for sustainable management of resources, including hunting and green-felling bans. So deeply ingrained is the ecological importance of the river and surrounding forests in the people's minds that the villagers had once launched a 100-day *satyagraha* forcing the government to cancel the fishing contracts for the reservoir that the villagers had built. Within the villages, if even a single fish is caught, the village *gram sabha* imposes a fine of Rs 1100.

In another hamlet called Mala Tolawas, a TBS volunteer advised two women, Gyarsi and Phoola, to start digging a pond. They were the only 2 villagers who were left in that hamlet. Encouraged by TBS, they started digging a pond and within four months, with periodic help from TBS, they finished the task. In a period of two years the pond was full round the year. This is where the concept of Mahila Mandals started in this region. The women set up a cooperative bank in which each member contributes Rs 10 a month. This money can be borrowed in the lean period by the members at a low interest rate.

Within Kishori and the neighbouring villages, there are certain rules and regulations for usage of rainwater and groundwater. Water-intensive crops such as sugarcane are not grown. Initially the various government departments were not in favour of the water harvesting structures being built by the TBS and the villagers. They claimed them to be illegal, but later on the irrigation department started collaborating with TBS. However, other departments took a little longer to come around. For example, when TBS motivated the villagers to plant trees in the catchments of the *johads* to check excessive silting, the State Revenue Department imposed a fine of Rs 5000 for illegally planting trees on its land.

Impacts of community conservation

Due to the collective efforts of the TBS and the villagers, the village has witnessed many progressive changes. There is a perceptible increase in the forest cover (a systematic study of the ecological impact of these efforts and impact on forest management needs to be carried out). According to the villagers and TBS volunteers, the soil erosion has reduced from 80 per cent to 5 per cent. Earlier the water table was below 200 ft, which is now claimed to have risen to 20 ft. Through these efforts and constant interactions with the outside agencies, both government and non-government, the villagers have gained self-confidence. Increased availability of water has improved the socio-economic situation because of improved agricultural conditions. Earlier villagers grew crops such as *chana* and *sarson* in *kharif* (summer crop) and jowar and bajra in *rabi* (winter crop), but now the varieties of crops have changed to wheat, barley, sugarcane and vegetables in *rabi* and corn, akhar, jowar, kala jeeree and vegetables in *kharif*. They also grow kharbooza (musk melon) and lauki in *rabi* and tarbooz and fodder in late winter. The village, which earlier had to buy most of its requirements from outside, now supplies grain, *ghee*, cotton and salt to the market.

Opportunities and constraints

The villagers faced some hurdles from the government agencies initially, but government agencies are now convinced of the villagers' efforts and are collaborating with the villagers.

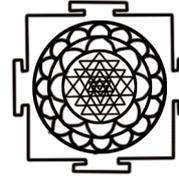
Conclusion

This case study reflects how a 'black zone' (drought-prone) area had been transformed into a 'white zone' (water-surplus) area due to the efforts of the TBS, backed by the support of the villagers. It contradicts the myth that the drought situation is due to the failure of the monsoons alone. This is an example of successful conservation and water harvesting, whose results comply with the villager's social and economic needs.

This case study has been compiled based on information provided by Vijaya Pushkarna in her write up 'Kiss of life for Mother Earth', published in *The Week*, 27th December, 1998; and on information provided by Soma Basu in her write-up 'Hope in the midst of loss', published in *The Hindu*, 25th June 2000.

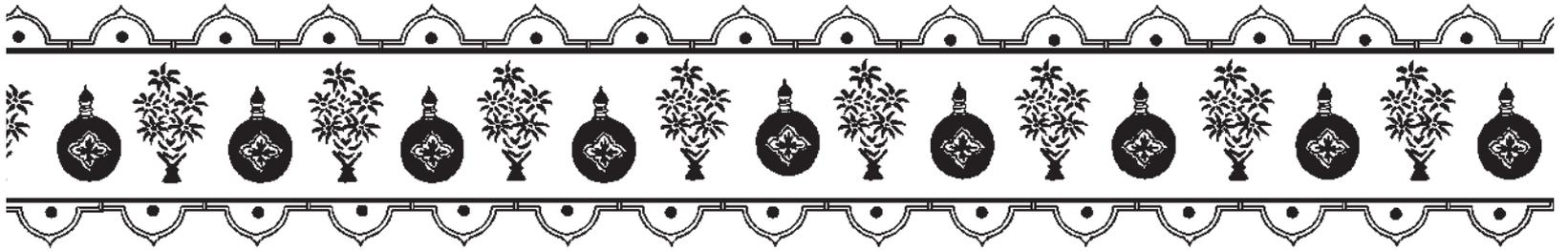
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**Endnotes**

¹ Interestingly, once the river rejuvenated and the reservoir was built by the villagers, the government stepped in to auction the contracts for catching fish in the reservoir, much against the wishes of the villagers. This had to be withdrawn after stiff resistance from the local people.





CCA/Raj/CS3/Karauli/Kailadevi/Forest protection

Kailadevi Wildlife Sanctuary, Karauli

Background

The Kailadevi Wildlife Sanctuary (KWS) is the northern extension of the Ranthambore National Park and falls within the buffer zone of the Ranthambore Tiger Reserve. The sanctuary is located in the Karauli district of Rajasthan and falls within the Karauli and Sapotra blocks. It is spread over a total area of 674 sq km, falling within the longitudes 76°37' E to 77°13' E and latitude 26°2' N and 26°21' N. The sanctuary is bounded on the west by the river Banas and on the south by the river Chambal.

Even prior to the declaration of the sanctuary in 1983, the forest area that now comprises the sanctuary has been home to several pastoral and agricultural communities who are dependent substantially on its resources for their livelihood.

Kailadevi Wildlife Sanctuary, otherwise a little-known PA, has become a popular reference among environmentalists and conservationists for the community-initiated forest protection committees (referred to as *kulhadi bandh panchayats*) that are operational in the area. These forest protection committees prevent the carrying of axes into the forests, a symbol of protecting the forests. Following these initiatives there have been several measures by the FD to collaborate with the people.

This case study reflects on these organised efforts that the communities in and around the sanctuary have made towards protecting their forests and those of the sanctuary. The research on which this case study is based was conducted in two phases: one in which the area had a number of self-initiated community conservation efforts and the second in which the forest department intervened for promoting community-based conservation. This case study is thus a comparative one, analysing the functional dynamics of the community-based conservation efforts over a period of time. In the span of three years between the first phase (1996) and the second phase, several changes and developments took place. These include changes in the management, more active NGOs, consistently poor rainfall and the people in the villages becoming outwardly mobile. The changes have had a significant bearing on the existence and operation of the community initiatives in this area.

Profile of the sanctuary



A forested *kho* (ravine) in Kailadevi
Photo: Ashish Kothari

The reserved forests of Kailadevi were declared a sanctuary vide initial notification No.P. (27) Raj group 8/83 dated 09/07/83, covering an area of 674 sq km. These forests were earlier protected forests, so declared in 1955. A final notification of the declaration of the sanctuary has not been issued to date. This is partly because the process of settlement of rights (a requirement under the Wild Life (Protection) Act before issuing the final notification) is a complicated process. The Settlement Officer is believed to have submitted a report to the FD; this report accepts all existing rights and concessions to people living inside the sanctuary area.

The FD has not yet accepted this report and hence the final notification is pending.

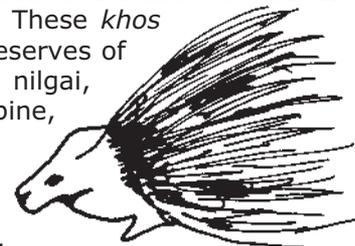
The area under the sanctuary falls within the biogeographic zone 4 (semi-arid zone) and biotic province 5 B (the Gujarat Rajwara Province).¹ The vegetation is of the dry deciduous type with a predominance of *Anogiesus pendula*, locally known as dhok. The vegetation is spread across



the three altitudinal levels of the sanctuary; the vegetation is also of three distinct kinds. In the uppermost tabletop area there is an abundance of dhok. In the lower tabletop there is a predominance of *Euphorbia sp.* and ber scrub. The lowermost level comprises mostly ravines with flat land near the banks of the river Chambal.

The terrain is characterised by some valleys and river gorges, locally referred to as *khos*. On account of higher moisture retention and cooler temperatures, these *khos* are the most suitable habitats for wildlife and nurture a wide variety of flora and fauna. These *khos* are considered (both by the FD and the local people) to be richest reserves of biodiversity in the area. Common in this region now are sloth bears, nilgai, sambar, cheetals or spotted deer, striped hyena, and Indian porcupine, among a host of other species.

The most significant conservation value of the sanctuary is that it is buffer to Ranthambore National Park. In the past, large parts of the sanctuary, especially the *khos* regions, were maintained as hunting reserves known as *shikargahs*.² Today the possibility of existence of tigers in this area is doubtful, though the FD claims otherwise.³

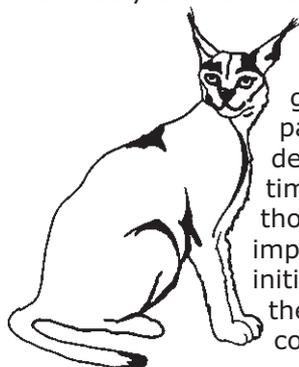


In 1991 the sanctuary was included in the Ranthambhor Tiger Reserve (RTR) and is under the jurisdiction of the DFO (KWS) based in Karauli. RTR is one of the seven sites where the International Development Agency (IDA) and Global Environmental Facility (GEF)-sponsored India Ecodevelopment Project was implemented. 31 villages in the sanctuary were covered under this programme. In each of these villages an Ecodevelopment Committee (referred to as EDC) was constituted. Under the scheme a micro-plan was made for the individual villages by the FD in consultation with the local villagers.

As per the figures of the FD there are about 36 villages and hamlets inside the sanctuary. According to the local NGO, Society for Sustainable Development (SSD), there are about 41 villages inside the sanctuary. The difficulty in assessment arises primarily from the fact that most revenue villages have several hamlets that are far-flung. According to the FD, in 1996 there were about 1000 families living inside the sanctuary. Most of the villages are multi-caste in their composition. Predominant amongst them are meenas (considered as scheduled tribes) and the gujjar (considered as other backward classes). Otherwise most villages have a varying population of caste groups like kumhars, malis, jatavs/bairvas, korins, khatiks, brahmans, dhobins, banias, fakirs, nais, telis, doms and bhangis. In any given village, the majority of the population is comprised either of meenas or gujjars: very rarely are the two communities found living together in the same village.

Most communities, irrespective of their caste affiliations, subsist on pastoralism and subsistence, single-crop agriculture. On an average, the number of cattle heads per family varies between four and 15. The cattle are of the local variety. Goats are few, mainly owned by the Bairva community. They rarely keep sheep. Wage labour is increasingly an important source of livelihood, as the rainfall for the past several years has been highly erratic. People work on the construction of roads and in the legally and illegally operating mines (outside the sanctuary area).⁴ When the ecodevelopment scheme was being implemented, some people managed to get wage labour. Sometimes labour is also created through village development activities (such as water-harvesting structures, etc) carried out by some NGOs, including SSD and Tarun Bharat Sangh (TBS), an NGO located in Alwar, Rajasthan. These NGOs have been working on improving the water-harvesting structures in this area. A number of men and boys have migrated to cities like Chennai, Ahmedabad and Bangalore, in pursuit of wage labour in construction and masonry work.

The civic amenities in this area are poor. Karauli and Sapotra blocks, within which the sanctuary is located, are reported to have very poor infrastructural facilities. Most villages are not connected by roads and thus not serviced by buses. The Primary Health Centres (PHCs) located outside the sanctuary are not easily accessible. This area faces an acute scarcity of water.



Because of the acute shortage of water, especially from March onwards, every year the pastoralists undertake a seasonal cyclic movement between geographical spaces of differing circumferences, primarily in search of pasture and water. Most people living in and around the sanctuary are heavily dependent on the resources of the sanctuary, such as fodder, fuelwood, non-timber forest produce and timber for agriculture and house construction. Even though timber extraction for personal use (house construction and agricultural implements) is officially not permitted, this is a concession that the community-initiated Forest Protection Committees (FPCs) make in the forest areas under their jurisdiction. The quantity to be extracted is decided upon by common consensus and is strictly in accordance with individual requirements. All the

local communities as well as the migratory graziers (and the villagers) who set up *khirkarees* (cattle camps) are dependent on fodder resources from the sanctuary. This is partly obtained by allowing livestock to graze openly in the sanctuary area and by lopping, with dhok being a particularly preferred species.

External threats to the sanctuary

Migratory graziers & livestock: For the last 20 years, the forest ranges of Kailadevi and Sapotra have been on the route for the Rabaris, migratory graziers of the Mewar region of Western Rajasthan. In the initial years the Rabaris were given a stipulated number of permits to graze in the region from July to September. With the declaration of the sanctuary, the Rabaris have been banned from the area. According to official opinion they exert the highest biotic pressure in the area besides causing irrevocable harm to the ground vegetation. From time to time there has also been considerable unrest among the local people against the entry of migratory graziers into this area. Consequent to the people's as well as the official endeavours to try and divert their routes, the entry of the migratory herds into the sanctuary has been completely banned since 1990.⁵

Mining: The region is rich in shale and sandstone, which is extensively mined in this part of Rajasthan. Most mining activity inside the sanctuary was abandoned after its declaration. However there are a number of mines operating around and very close to the sanctuary in areas like Albat ki Gwari and Kajsingpura. Illegal mining activities are rampant in the protected forests (PFs) adjoining the sanctuary. There are some suggestions that mining may even be taking place inside the sanctuary due to the unclear status of boundaries.

Poaching: The Moghiyas (or Bargis as they are also known) are a hunter community that used to reside in this part of Rajasthan. In the past they used to accompany local rulers on hunting expeditions, besides providing crop protection to local villages. Apparently since the declaration of the area as a PF and subsequently as a sanctuary, all their activities were branded as illegal, although there are reports of their activities continuing till 1993. However, after an incident in which two forest officials were killed in an encounter, the FD systematically cleared the area of Bargis. There have been occasional instances of poisoning of animals. Recently the forest officials nabbed a few people who posed as itinerants but were apparently poachers. The people of Nibhera village (one of the villages involved in conservation activities) have reported that there have been occasions when they have heard gunshots at night and have spotted persons believed to be poachers. The FD however does not believe that there are any significant threats to wildlife from poachers in the area.

Box 1

Impact of local people on the sanctuary and the sanctuary on the people

Strictly speaking, according to the provisions of the Wildlife Protection Act, 1972, only a limited number of privileges and concessions can be made available for resource utilisation. No systematic studies or monitoring of resource use has been carried out in Kailadevi Sanctuary. The positions held by the FD, local NGOs or even the local community on resource use and its impact on sanctuary resources are therefore primarily opinions and assertions. According to the FD, timber collection, fodder extraction, grazing of cattle (particularly through establishing cattle camps deep inside the forests) and fuelwood collection are major sources of threats to the sanctuary. The villagers confirm that under prevailing drought conditions (particularly in years like 2000-01), incidents of tree felling, especially in the densely forested *khos* inside the sanctuary increase.

The declaration of the sanctuary, and the subsequent imposition of regulations, has had several impacts on the people. Shortages have been reported from most villages in the sanctuary for fuelwood, fodder and timber. It is believed that partly because of the restrictions imposed, coupled with the effects of resource scarcity, the necessity to migrate has further heightened. In most villages their grazing areas have been denied and largely restricted to common grazing lands and village forests. People have been denied access to timber even for personal use. There have been allegations that very often lower-rank FD staff extort money for letting people take away timber for household use. Even though people are allowed to take away headloads for fuelwood, they are sometimes prevented from doing this, though it is not unusual for someone based inside the sanctuary to witness large-scale fuelwood collection from the forests or witnessing people moving in with their axes.

The closing of mines in and around the sanctuary has forced many people to migrate to distant

places in search of work wages. People feel that the absence of basic amenities prevents them from venturing into alternative sources of income generation, including setting up dairies. In the initial stages of declaration of the sanctuary, the local staff used the possibility of relocation as a threat against the people. Although this is not the case after the initiation of the ecodevelopment scheme, people continue to be uncertain about relocation from the sanctuary.

Towards community conservation

Brief history

Kailadevi Wildlife Sanctuary was declared in 1983, but local people were not aware of the legal status of the sanctuary till about early 1990. However, irrespective of the legal status of the area, a people's movement towards forest conservation started in this area in the late 1980s. According to the local people, the immediate reason for the origin of this movement was to take action against the migratory graziers—the rabaris.

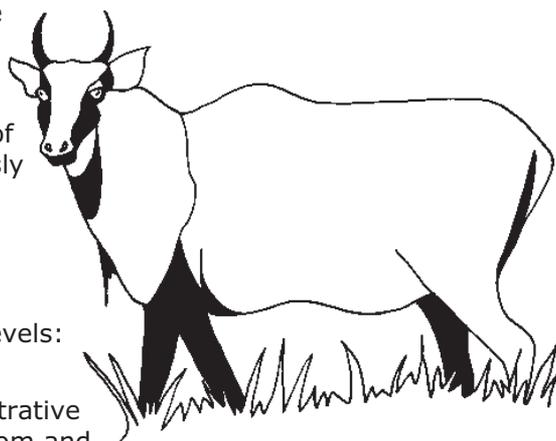
Towards the end of the 1980s the forests in these areas had become severely depleted. Local people attribute a number of reasons for the denudation of the forest cover and the depletion of wildlife. The origins of these reasons lie in the period before the declaration of the sanctuary. According to them, first the British and later the independent Indian government's forest policies extensively exploited this area for revenue (e.g., timber extraction and charcoal making). The British as well as the Indian royalty also used the area for game hunting. The Annual Administrative Report of Karauli State for 1912-13 states that the local ruler had hunted down about 213 tigers between 1886 and 1912. The maximum extent of degradation in this area took place in the 1970s and 80s, when this area was subject to excessive exploitation of various kinds: coupe-wise felling of trees by the forest department for revenue generation, poaching and illegal felling. Thus, within a span of 20-25 years the area saw drastic levels of depletion of forest resources.

Compounding the problem of the fast-depleting resources for the survival of the local communities was the pressure exerted on the resources by the rabaris. From time to time there has been a lot of unrest among the local people following the entry of these migratory graziers. According to Ganpat, a vocal member of the movement, in 1986 the aggression of the rabaris became intolerable. Hence, the 12 villages of Lohra Panchayat, unable to rely on the intervention of the FD, which had apparently not been very forthcoming, organised themselves under the leadership of Ramesh Rajouria, the *ex-sarpanch* of village Rajour and an activist of the Bharatiya Janata Party. Thus the brewing tension took on the contours of an open conflict. The struggle with the rabaris continued over a period of time, going on till 1994.⁶

Constitution of *kulhadi bandh panchayats* (KBPs)

The organisation of the 12 villages became famous as Baragaon Ki Panchayat. The villagers realised that their resource base was threatened not only by the Rabaris but by the poachers, the timber mafia and the local people themselves. Thus was born the idea of *kulhadi bandh panchayat*. It was decided that the *panchayat* of the 12 villages would ensure that no one carried axes into the village forests. They also decided to protect the forests within their village boundaries against outside threats. Following the example of the Lohra Panchayat, various other *panchayats* (like the Nibhera Panchayat that has about 8 villages under it) also adopted the practice.

In some villages like Chauriakhata, located in the more interior parts of the sanctuary, the practice of KBP evolved at later dates because of local circumstances. According to the local narrative their *panchayat* started only around 1990 after they witnessed a rapid depletion of the forests in their immediate forests and simultaneously felt the growing shortage of fuelwood and fodder.



Constitution and functioning of KBPs

The structures at the initial stages operated at two levels: (i) Village level, and (ii) Apex level.

i Village-level: Every village has a political and administrative *panchayat* (village executive). The KBP is adapted from and

in some cases constituted of the same body. The difference however was that the KBPs were/are convened to discuss the specific issues of forest protection alone and also adopt a set of regulations and rules pertaining to the same. Besides they take on the additional responsibility of keeping vigil over the village forests. Further the KBP met at more regular intervals as compared to the village *panchayat*. Structurally, in most villages it is ensured that almost all families in the village are represented as constituent members of the KBPs. *Panch patels*, the handful of village elders who are the chief spokespersons and key decision-makers on all issues pertaining to the village were also responsible for enforcing the various norms and regulations of this committee.

ii Apex-level: A number of villages officially falling under the administration of a single formal political *panchayat* as designated under the Panchayati Raj system.⁷ Generally some of the *panch patels* represent their respective villages at this level. The apex body may, subject to circumstances, also include villages outside this *panchayat*. This body is generally convened to settle inter-village disputes among the member villages over resource use or refusal by any member village to adhere to the prescribed norms of the KBPs.

The first apex body was that of the Lohra Panchayat (Baragaon ki Panchayat). There are however villages like Chauriakhata and Kased that have no such apex bodies. The apex bodies seemed useful in ensuring that unsteady village-level KBPs do not break too easily. The KBPs were most unsteady in villages like Raheer and Kased, which did not have such apex-level affiliations.

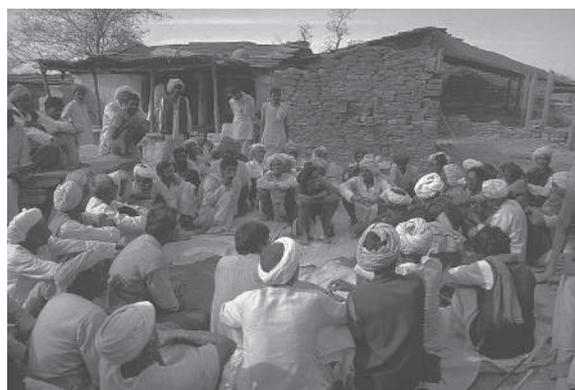
Issues of equality and representation

In their constitution the KBPs tend to be remarkably representative. KBPs, both at the village level and the apex level, comprise members from almost all castes/communities residing in the village. While the various castes continue to practice their customary social discriminatory practices, every caste has an equal say in these *panchayats*. In their informal administrative village *panchayats*,⁸ almost every caste, with the exception of chamars (they are taken to be complete outcastes and have a relatively small population in the village) has a representation among the *patels*. The chamars may not have a representative but most certainly have an equal right to be heard. The practice is also carried over to KBPs, which are, as mentioned earlier, adapted from the village *panchayats*. The number of representatives is in proportion to their strength in the village. Besides, villagers reinforce that though the decision-making rights are vested in the hands of the *patels*, they cannot function in an autocratic manner. Further, by making every family a member it is ensured that most of the village is represented and in turn equally shares the responsibilities of the KBP.

The sense of equality is also reflected in the fact that in Maramda village the KBP had made concessions for a chamar to lop more of the tender branches than permitted. The chamar, who had no land or livestock, eked out a livelihood by selling baskets (*dhokoli*) made of these branches.

Involvement of women in KBPs is a complex issue. Gender discrimination is an integral part of Rajasthani culture. In keeping with tradition, women are prohibited from speaking or even being present in public forums. Thus on the face of it they do not take part in the KBPs. However, closer examination of the society reveals that the women are as keenly aware of the functioning and regulations of the KBPs as they are of any other village matter. They are the ones who do most of the fuelwood collection in the village and it is not possible that their reservations about the rules of the KBPs are not accommodated by the decision making body. Thus while the villagers of Nibhera claim that their KBP is still functional, at least in principle, one can witness women taking axes into the forests to collect fuelwood. The concession is made, not to allow them to chop green wood but to enable them to cut the dry and dead wood into manageable sizes so that it is easier for them to carry it back to the village.

The active involvement of women could be crucial to issues of KBPs. As per law, a third of the seats in the formal political *panchayat* are reserved for women. The active participation of these women in the KBPs can enable them to effectively represent issues of the KBPs in a larger political forum.



Kulhad bandh panchayat meeting of twelve villages at Kailadevi Photo: Ashish Kothari

Rules and regulations

The underlying principle of all regulations and rules formulated by the KBPs are that no one harvests the forest resources in excess of their needs as well as safeguards the same from external threats so far as possible.

All the villagers have equal responsibility in keeping a vigil on the forests and promptly reporting to the *patels* about any untoward incident involving either people from their own village member or people from other villages. Meetings are then convened to address such issue. No action is taken against anyone unless witnesses as well as evidence are produced in the *panchayat* meetings. However not many get away by lying. The surest check against this is using religious sanctions against such acts. Irrespective of whether there is a witness or not, a man refrains from lying after having taken the oath of honesty in the name of the Goddess Ganga. This is known in local parlance as *ganga utthana*.



They have instituted varying amounts of fines depending on the nature of the offence. The KBPs may charge anywhere between Rs 11 and Rs 501. In general they levy a sum of Rs 21 for minor offences and Rs 251 for major offences involving a substantial amount of illegal felling. This money is then used as a welfare fund for the village. Sometimes they also levy fines on those who, after being summoned, failed to attend the KBP meetings.

In some villages the minutes of these meetings were maintained in a register. In other villages like in Nibhera no records were ever maintained.

The KBPs have no legal standing. They enforce the rules and regulations by imposing their social and religious sanctions.

Resource use for meeting personal requirements

Unlike the FD's interpretation, the idea of 'banning the axe' is not the same as not permitting people to carry axes into the forests at all. Banning the axe is more a symbolic use of the phrase to signify the resolve to protect the forests and give up indiscriminate felling. It must be appreciated that the highest incentive for conserving the forests is to enable the sustained availability of resources for their survival.

Thus, unlike the rules framed by the FD that at times put a total ban on the use and extraction of some key forest resources, the KBPs have formulated flexible regulations that enable them to meet their genuine needs. For example, the forest department clearly bans the extraction of timber wood. The KBPs on the other hand permit the extraction of the same, albeit in a monitored fashion. An individual has to state his requirement at the KBP meeting and has to seek approval of the *panchayat* on whether the amount to be extracted is justified by his needs. The approval is given only for basic necessity, depending on the occasion.

Similarly people are occasionally allowed to carry an axe into the forests only to chop the dry wood into collectable sizes. While they do not object to carrying in an axe, they would certainly take the person to task if the person came back with green wood. Thus, so long as their basic principles are not compromised, the KBPs allow for some flexibility in the rules, only to facilitate their day-to-day existence.

The year 2000 was a drought year in the region. In the months of May and June, by the people's own admission there was excessive felling and cutting in violations of all rules made by KBP. This violation was explained within the same framework of 'meeting their requirements'. The villagers explained that there was an acute shortage of fodder in the area. Thus it was absolutely impossible that they could deny anyone the right to extract the resources in excess. They justify this, saying that if they cannot use the trees in their hour of need then what is the point of protecting their forest at other times. After the drought conditions were over, the villagers are believed to have again gone back to adhering to the laws of the KBPs. The FD helped in the process of going back to the protection measures by helping in local employment through the ecodevelopment project.

Conflict resolution

The inter-village conflicts over natural resources are a constant feature, which are also effectively handled by the KBPs. Conflicts over common property resources are generally settled by the exchange of letters between the *patels* of the concerned villages. This letter has a great social

bearing. The inter-village relationships are subject to the manner in which these letters are written and responded to. They also influence the manner in which the conflicts are resolved. Often the villages that refuse to comply can be socially boycotted, as the Baragaon ki Panchayat has done with Pitupura village. Most KBPs, like in Chauriakhata village, have carefully preserved letters that they write to the offending village. These letters often have either the signature or the thumbprints of the *patels* and all those people who are present at the time of drafting of the letter.

Such conflict-resolution mechanisms are far less successful between villages where multi-village *panchayats* do not exist. Chandelipura village, for instance, did not have a KBP and the dispute with its neighbouring village had resulted in a physical fight between the two villages. Neither of the villages felt bound to pursue the process of mutual exchange of letters. Besides, they had no apex body to refer the case to. Sometimes the FD has also been requested by the villages to intervene on their behalf to prevent neighbouring villages from violating the norms of the KBPs inside the boundaries of their village forests.

The relations/ collaboration of KBPs with other organisations

The KBPs and the informal village *panchayat*

The KBPs have been adapted from the village *panchayat*. In some cases like Lakhruki, the KBP remained distinct from the administrative village *panchayat*. The decision-making powers in both cases were vested with the *patels*. A distinction is made between the two institutions because they are not only structurally (with a defined membership of sorts) but also functionally different. However in some cases the KBP may be different functionally but not structurally. Within the same structure, when the informal *panchayats* adopt a special emphasis on forest protection and meet to take decisions on forest-related issues, they are referred to as KBP meetings. In any case it appears that the ties between the two are very close and the differences very slight.

KBPs and the formal political *panchayats*

The KBPs are mostly village-level *panchayats* and have very little to do operationally with the formal political *panchayat*. However the *sarpanchs* from the formal *panchayats* have had a significant role to play in the KBPs in their respective villages. It may not be entirely untrue to state that their involvement has been partially related to the idea of political mileage. Most people who have been in the forefront of this movement have either been *ex-sarpanchs* or aspiring *sarpanchs*. It could also be that they have a greater power in the village to be able to mobilise the local people. While these *sarpanchs* have been active and encouraging in certain cases, their involvement has also had negative impacts in other areas, particularly where the FD got involved. For example, the FD had vested some powers in the *sarpanch* to be able to take offenders to task. However, according to the people such powers hardly ever helped the KBPs because they were mostly abused to serve the vested interest of the largely corrupt *sarpanchs*. The Eco-development Committees (EDCs) of the FD often have the *sarpanch* as a member.

KBPs and the forest department

The KBPs have had a variety of relations with the FD. These relationships have largely depended upon two major factors: first, the expectations of the people from the government-initiated programmes towards participatory management, in particular the Joint Management Programme; and, second, the FD's appropriation of the KBPs to enable its initiatives in community-based conservation. Of the latter there have been two: the *van suraksha samitis* (VSS) and the EDCs.

Joint Forest Management

Because of the fact that the FD is the authoritative body in the area, the villagers saw ample scope for the FD's intervention in KBPs, even though the villagers were not well disposed towards the FD. Apart from their requirement for legal recognition, the villagers, in their own understanding of joint management, feel the need for the FD's intervention at two levels: first, to handle external pressures, like migratory sheep, mining, illegal felling, etc.; and, second, to handle situations within and between villages that they are unable to address effectively at their own level.



Van suraksha samitis (VSSs)

The VSSs constituted in the area in 1985 under the Joint Forest Management (JFM) Scheme of the forest department are no longer in existence today. According to the officials, they have all been converted into EDCs, as JFM cannot legally be extended to PAs. Although the scheme was in operation from 1985 till 1996, there were only five VSSs in the sanctuary area. These were also the villages where KBPs existed earlier, and they had subsumed the VSSs. Most of these VSSs were not successful and were seen by local people as a nexus between some powerful members in the village and the FD. There are numerous stories of financial and other kinds of malpractices by the members of the VSS.

One successful VSS was that of Rahar village, constituted in 1996 by the FD. The VSS in this village could be constituted after much cajoling and coaxing by the FD. Initially the people refused to be part of JFM, mainly because in the past whenever the villagers had either informed the FD of indiscriminate cutting or sought their intervention on any other issue, the FD had been indifferent. Finally when the VSS was constituted, the villagers chose the president and the members, and the FD merely endorsed the same. The VSS functioned effectively for several meetings. They managed to get forest guards who had failed to help them in checking some malpractice vis-à-vis use of forest resources transferred. They even extracted a fine of Rs 11 from the members who had abstained without explanation in the second meeting. However, soon the VSS scheme was abandoned and the Ecodevelopment Project was initiated.

Eco-development committees (EDCs)

With the advent of the India Eco-development Project, FD officials (and to an extent the villagers) claim that KBPs and VSSs in project villages have been converted to EDCs. These EDCs are apparently established through a democratic electoral process. On paper and as per procedure, the general body (GB) of the EDC comprises of a male and a female member from every household in the village. A group of six members and a president (*adhyaksh*) elected from the GB constitute a working/executive committee. Representing the FD, a forester is designated as the member-secretary of the committee. His duty is to extend technical support and to document the proceedings of meetings and other related issues. *Sarpanchs* are also taken to be members of the working committees. The micro-plans are prepared in meetings of the EDC with the FD and are thus considered to be drafted 'in consultation with the villagers'. The money for work to be done by the EDC is allotted on the basis of the number of families in a village. The village is granted a sum of Rs 12500 per family. The people are meant to contribute about 25 per cent of the total cost of the work undertaken and this is saved as a village welfare fund to be spent on the maintenance of these structures once the project funding ceases. The allotted money is maintained in a joint account of the member secretary and the *adhyaksh* of the EDC and the cheques released for payment have to be co-signed by both.

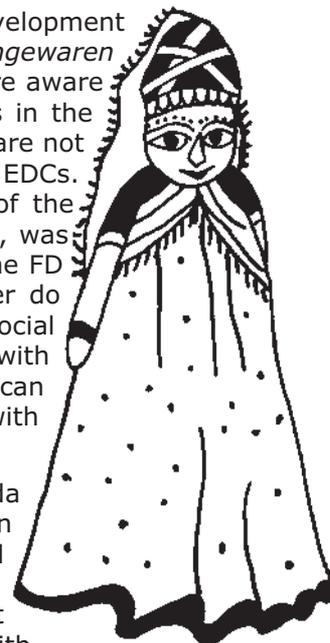
Most villagers consider the EDCs as highly corrupt institutions. The *adhyaksh* is said to be a product of favouritism on the part of the FD. Often it is alleged that instead of employing wage labour as required by policy, the FD and the *adhyaksh* get the work done through contractors. There is no transparency whatsoever in the accounts. In Rahar the forester had been accused of getting blank cheques signed. In almost every village the people are not happy with their *adhyaksh*. They accuse him (the *adhyaksh* is always a man) of being hand-in-glove with the FD and making money, and hence not presenting their grievances against the FD accurately. Most villagers are also unhappy about the conversion of KBPs into EDCs.

Lakhruki has been one of the most exemplary KBPs in this area. The FD claims that the KBP today functions as an EDC and is equally successful. However conversation with the villagers reveals another reality. It appears that the informal KBP functions even today as it used to in the past and is even today the main body in the village for forest conservation. The EDC exists but most villagers are unaware of what it is all about, who its members are and how it functions. (The same was also found to be the case in other villages where EDCs have been functioning). Villagers understand that some of the schemes for village development have been brought in by the EDCs (e.g., the construction of waterworks and a fodder enclosure), providing an opportunity for earning wage labour, and appreciate this. However, they expressed their unhappiness about the lack of transparency in the functioning of the EDC. Villagers also feel that the FD has failed to involve the people in the EDCs.



The nature of participation in EDCs, even though slightly better than the VSSs, remains a little questionable. Most *adhyakshs* are themselves unaware what an EDC

means except that it is a scheme of the FD to enable it to carry out development work at the village level. An EDC is better understood in the villages as '*rangewaren ki samiti*' (a committee of the forest department). Very few members are aware of their membership status. It is mandatory to have women members in the working committee. The women who have been registered as members are not even aware of their membership and do not have any idea about the EDCs. Practically in every village, people complained that at the beginning of the project, the *adhyaksh*, rather than being *elected* by the GB of the EDC, was *selected* by the FD officials. They complained that the negotiations of the FD are largely with the *adhyakshs*. The meetings for micro-plans however do involve all villagers who want to be present. But because of the internal social dynamics, very rarely are people able to speak out if they do not agree with the *adhyaksh*. As seen in the case of Nibhera, sometimes the *adhyaksh* can bypass the decisions taken at the EDC meetings if he does not agree with them.



As for the issue of forest protection, villagers in Nibhera Maramda and Ashaki villages claim that even though technically KBPs have been subsumed under EDCs, they continue to function independent of and outside their formal structure. In Nibhera, despite an acute shortage of fodder due to drought in 2000, they still did not allow anyone to extract fodder resources indiscriminately. In fact they had been disappointed with the FD because it had not helped them in their effort to stop the neighbouring villages from pilfering in their area.

Although the village KBPs are still the informal bodies for forest protection, the EDCs are seen as a must for each village by the villagers because of the incentives that come with them. To an extent the ambiguity about the relations between the KBP and the EDC also prevail because issues pertaining to forest protection are discussed both in the periodic meetings of the EDC (where the higher officials are also present) and in the villages' own KBPs. However it must be noted that EDCs are convened periodically at the behest of the FD and largely to discuss the agenda of the FD. The KBPs, on the other hand, are convened by the villagers as and when the need arises.

The FD would like people to believe that the people are refraining from taking axes into the forests in return for the incentives that they have been able to provide to the people through the Ecodevelopment Project. The people claim that this is not the case. Their argument is simple. They protect the forests in their own interest and thus they would continue to protect it with or without the FD. However in a public forum with the FD, the villagers would never challenge the FD's claim because it is in their interest to maintain the goodwill of the FD, especially in order to avail the incentives of the Ecodevelopment Project. This trend is seen in all villages: for example, in Chauriakhata villagers display very little faith in the FD's capability to protect the forests but are still keen on the FD's intervention because of the incentives. In several interviews with villagers, the main advantage they saw in the EDC was that it gave them an opportunity for earning wage labour.

KBPs and NGOs

The KBPs originated without the aid and assistance of any NGOs. In fact in 1996-97 the people of this area were not at all aware of the NGO culture. They were wary of any NGO that came to work in the area: for example, the Society for Sustainable Development (SSD) and a team from Indian Institute of Public Administration (IIPA, an independent institution).

However, after interacting with these two groups for about a year, during which these NGOs organised workshops for the interaction of the people with the FD, the villagers did see some role for NGOs in facilitating the better working of KBPs with the FD. They especially felt the need for NGOs to be involved as third parties in negotiations with the government-initiated activities. They felt that NGOs could act both as conduits of accessibility and help to bridge the communication gap that exists between the two parties.

Today SSD has soundly established itself and is working on several projects on natural resource management in the sanctuary. Over the years the villagers have always relied on and consulted Arun Jindal, Director, SSD, on all issues pertaining to the FD and to the Ecodevelopment Project. In some villages, SSD has established village-level institutions, referred to as Village Development Councils (VDCs). SSD has also started several self-help groups (SHGs) for promoting saving and thrift among villagers. It appears that the meetings of the VDCs and SHGs also serve as forums to discuss issues that were otherwise dealt with by the KBPs. In Nibhera, villagers explained that

people otherwise have very little time to gather for meetings, and since they make time for the meetings of the SHG and the VDC, it serves as an effective forum to discuss these issues. So long as the purpose is met, it really does not matter what forum is used for discussions and decisions about forest protection. SSD itself claims that KBPs have been converted into VDCs.

Impacts of community conservation

Owing to the involvement of practically every family in the KBPs, everyone keeps a vigil on the others. Even if a single individual creates a problem, the whole village may end up paying for it. For instance, as is also done in their informal administrative *panchayats*, when the *patels* of the concerned villages are summoned for decision-making to the offender's village, the whole village usually has to bear the cost of their hospitality. By the villagers' own admission, this has to a large extent checked the indiscriminate felling by local people. The FD also acknowledges that there is some regeneration of forest cover in areas monitored by KBPs. However, no detailed scientific studies have been carried out so far to confirm this observation.

The Forest Protection Committees (FPCs) have not only been effective in checking the villagers but have in the past also accosted some FD officials, tried them in the FPC meetings, and levied appropriate punishment. The KBPs also assist the FD in keeping a check on illegal activities. In the past, there have been cases where they have taken culprits, mostly outsiders, to task first at their own level and then handed them over to the FD. This has happened mainly in cases where villagers have hauled trucks carrying illegal consignments of timber or other such big-scale offences. The people however complain that most of the times the FD does not pay heed or does not take any action against the offenders. The people place much more confidence in their own capabilities than on the FD to check the irregularities.

Another achievement has been that being involved in KBPs has helped a number of people to understand (at least to an extent) broader issues of 'wildlife conservation' as used in the FD's parlance. Some display awareness regarding their position as stakeholders and their 'right' to have a 'say' in decisions pertaining to the resources of the sanctuary. Such people however constitute a small percentage and include mostly people who are politically very keen or are employed in government service.

Limitations of community conservation initiatives

Based on the conversations related to forest use and protection with local people, forest officials, NGOs and others, the following issues appear as limitations of the community conservation initiatives in the sanctuary area.

Intra-community conflicts

The social dynamics of any community has a direct bearing on any such endeavours. There have been several instances where intra-community conflicts have marred efforts at organising KBPs. In Rahar, for instance, the initial attempts at forming a KBP had been disrupted by internal dissension between the three predominant communities in the villages. Even at Kailadevi, the



Baragaon Ki Panchayat had not been able to stop the rampant illegal felling and lopping of fuelwood. Pre-eminent among the various reasons put forward were the disagreements based on caste differences and the feelings of being discriminated against. The jatavs of Kailadevi, who admit to selling fuelwood from the sanctuary, feel discriminated against by the FD. They complain that there are Meenas who also indulge in the same activities; however, because they have stronger political representation both at the state level and in the forest department, they tend to be harassed much less by the authorities. As told by Ganpath Meena of Lakhruki, the Baragaon Panchayat has not met for the last one and half years, as one of the member villages has refused to pay up the fine that was levied on it.

In almost all villages there is definitely dissent between communities and this. These implications are critical and have to be taken account of in proposing any institutional arrangement for people's participation, as has been evident in the case of EDCs.

Another dimension of such conflicts is the allegations of favouritism and nepotism on the part of the *patels*. Apparently such acts of favouritism are carried out very subtly. In Maramda the villagers claimed that in many cases the *patels* would carry out the full exercise for punishing an offender, but would

ultimately excuse him from the fine.

The issue of intra-community conflict is an important issue to be addressed. However it is worthwhile to understand that because of the intra-community conflicts, the politics of the FD-community interface leads to favouring of one community against the other. Also much of the democratic and participatory policies are put to naught at the implementation level because of a lack of understanding of the intra-community dynamics.

Box 2

Democracy and village dynamics

As in most villages, in Nibhera too the people were unhappy with their *adhyaksh*. The people of the village claimed that they had no forum to redress their complaint. However, in 2000 a new DFO was deployed. He attempted to hold EDC meetings regularly and to follow the curriculum of the EDC as per procedure. Since one year had already lapsed for most of the EDCs, he conducted fresh elections of the heads of these committees. These fresh elections provided an opportunity for the people to exercise their choice and remove the previous head. Surprisingly however, in Nibhera the head was not changed in the elections. The DFO asked the people whether they wanted to continue with the same head or would like him changed. Not much response came from the crowd. They neither agreed nor disagreed. The DFO finally declared that if they did not say anything the same head would continue, and eventually that is what happened. Later when those who played a key role in the village, including the *sarpanch*, were asked as to why they had not availed of the opportunity to change the head, they said that he was a senior member of the village and it would not have been appropriate to let him down in public and in front of the FD. He would have been hurt. They felt that the head himself should have felt morally obliged to step down. Thus, while technically a democratic process was effected, it still did not manage to capture the consensus of the people.

The lack of legal recognition of KBPs

In 1996-97 the greatest lack that the KBPs felt was some sort of legal sanction by the FD. The need for legal empowerment was felt on several counts. First, it was important because sometimes threats of social sanction were not strong enough for those offenders who were outwardly mobile and were aware that these threats had no legal implications. Besides, with a gradual loosening of the community's religious and social ties, communities feel constrained without any officially sanctioned powers. Second, it was necessary to enable them to check external threats against which they could only use the threat of physical force. Third, they felt that legal empowerment was also necessary to enable a wider functioning of the KBPs. For instance, they had suggested that in cases of losses suffered by the villagers due to wild animals, the report of the affected person, if endorsed by the FPC, should be considered valid and should be accepted by the FD (thereby avoiding the delays and harassment of having to get official inspections conducted).

A team from IIPA had many discussions on this issue with the FD in 1996-97. Legal empowerment of the KBPs would mean the devolvement of powers to them. The FD felt that the people, being illiterate, were not adequately equipped to handle legal powers. Besides, denying the indifference that the people accuse them of, the FD felt that the legal aspect of the issue could always be forwarded to the FD. So far as the communities are concerned, they are asking for a joint arbitration of cases. The people feel that in the event that a case could not be resolved by the KBP alone, it should be jointly arbitrated by them and the FD, and 50 per cent of the fine levied should go to the KBP.

Even in EDCs the issue of legal empowerment is elusive. The EDCs have been vested with no legal powers. The FD continues to be the final arbitrating authority on all issues. In terms of support of the FD, some villagers did acknowledge that it is better for them to refer cases of offences, especially where the offender is adamant, through the EDC, as it has the authorisation of the FD and the offender becomes a direct defaulter of the FD. It must be noted however that the FD does not try the offenders through the EDC but deals with them directly. This either suggests an undermining of the authority of the EDC or that the FD has empowered them only on paper.

The concern for wildlife in the communities' agenda for forest protection

It is important to clarify that the initiatives of the KBP were not motivated by the need to protect wild animals but to protect forests, a source from which



villagers drew their resources.

The KBPs were constituted for forest protection but a conservation mandate in PAs also critically includes wildlife conservation. What really needs to be assessed is the significance that communities attach to wildlife conservation in their agendas for forest protection. What remains to be probed is whether people would be equally enthusiastic about wildlife conservation and under what circumstances.

In the interaction with the villagers in 1996, they neither displayed any overt hostility towards wildlife, nor did they seem to attribute much significance to it in their day-to-day existence. This is most unlike their attitudes to trees, which they are making a very deliberate effort to protect. Wildlife conservation is indirectly effected through forest protection; however none of the KBPs have any specific rules pertaining to wildlife management or conservation.

Their value for wildlife is derived more from their religious realm and their basic reverence for nature. Their attitude towards wildlife is varying. While some people take pride in the fact that their area is rich in wildlife, some others (like in Kased) consider it to be a menace; inevitably, 3-4 times a year either their cattle are lifted or their crops raided by the wild animals.

It is true that even today the people narrate in very glowing terms how the wildlife gives character to their life and their forests (as they did in Chauriakhata). However their concern for wildlife needs to be assessed in the current context of the restrictions that they face on account of the sanctuary and the increasing incidence of crop raiding and cattle-lifting because of degrading forests and greater proximity to the wildlife.

There is evidence that in the past the people took specific measures to protect their crops against wildlife. They patronised members of the hunter tribe of Moghiyas to protect their crops, cattle and humans from wild animals. According to the descendant of the erstwhile king, some villages located in close proximity to the sanctuary still continue to patronise Moghiyas. Besides, in the 1920s the people had revolted against the state and had in defiance of the law shot wild animals to protect themselves, their cattle and their crops. It must also be made clear that even now, just as before, the people bitterly complain against the FD and say that they are more bothered about wild animals than about human beings.

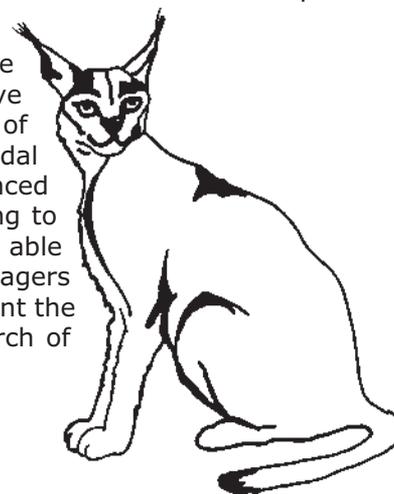
Changing livelihood aspirations

A great disincentive for the KBPs is the increasing hardships that the people face in meeting their livelihood requirements from their present circumstances, and their changing aspirations. There have been consecutive years of poor rainfall. There already exists an acute shortage of water and fodder in the region. Adding to their misery are the restrictions imposed on account of the sanctuary. The villagers are aware that they cannot expand their agricultural activities. Because of poor breed of cattle and lack of roads, their dairy activities have not been very successful. Since the FD will not allow electricity in the sanctuary, there can be no industrial employment generated, which they feel would be the ideal source of employment. In the Nibhera Panchayat, their belief that there are no alternative livelihood means to be had in the village has been reinforced by the recent happenings. The SSD motivated the *panchayat* to introduce fish into their village pond and then lease out the fishing rights to a contractor. The FD has strongly opposed this move. According to the DFO, this violates the sanctuary laws and thus the process has been put on hold.

As compared to earlier, a larger number of younger boys have left their villages for wage labour in bigger cities. Many people have in conversation actually expressed their willingness to move out of the sanctuary if they get a decent rehabilitation package. Arun Jindal however contends that if the productivity of the area is enhanced through effective natural resource management, people are willing to continue their current livelihood means. In Beherda, he has been able to work intensively on improving the agricultural systems of the villagers on an experimental basis. According to him, after such improvement the villagers are unwilling to consider moving out of the area in search of any other means of employment.

Constraints faced

A comparison of the field studies conducted in 1996 and 2000 reveals that earlier the villagers were extremely proud and happy about their KBPs. With the attention that they



received because of the IIPA team and SSD, they were enthusiastic and hopeful that their efforts would bear fruit and that their immediate livelihood concerns would be resolved. Of course, earlier too the people spoke of disappointments and disillusionment vis-a-vis the FD and the restrictions imposed on them on account of the sanctuary. In 2000 the KBPs continue to operate in the area but the spark and the zeal that they displayed seems to have faded. Today the people do acknowledge that the communities' hold and the strictness with which they implemented forest-use regulations are on the decline; in Ganpath's words, '*Woh pehli wali baat nahi rahi*' (things are not the same as before).

In many places the meetings are no longer summoned as frequently as they used to be. In some places like Nibhera they have not had an exclusive meeting of the KBP in a long while because matters are usually discussed in the SHG or VDC meetings. In a long time no one within the village has been fined. They have been dealt with very lightly. The apex bodies are less and less referred to. Most importantly, there are those within the village who, if given a choice, would be willing to abandon the KBP.

However to assess this as a decline in success of the community-initiative would be unfair. It is not the lack of efforts on the part of the community but the nature of intervention by the FD, the drought conditions and the demands of the changing social climate that are responsible for the despondency displayed by the KBPs. We give below some of the critical issues that have affected the status of conservation initiatives in the area.

Lack of empowerment

As explained earlier, despite the presence of KBPs in this area for so long, none of the villagers' aspirations for the FD's support have been realised in practice. Whatever limited support has been extended through the Eco-development Project has been enjoyed by the EDCs and not the KBPs. However, since most people have not really been able to grasp the exact nature and purpose of EDCs, they rarely use the forum to appeal to the FD. Besides, on many occasions when they have tried to reach the FD they have mostly met with disappointment. Thus the KBPs continue to feel the lack of empowerment to check violations and to act against offenders. They are more in need of such empowerment than before as the people, given the drought conditions, become more desperate and audacious.

Desperate drought conditions

This area being a drought prone-area, droughts are a frequent phenomenon. During such periods there is an acute shortage of water and fodder and thus economic conditions are badly hit. Under such circumstances the people feel compelled to extract more fodder resources through the cutting of trees. After a three-year-long drought between 1997 and 2000, in many villages people explained that since everyone was cutting the trees no one had the moral authority to check the others (as mentioned earlier, Lakhruki was an exception in this case). Beside they said it would have been futile trying to check anyone because it was a matter of life and death so far as their cattle population was concerned. They however ceased cutting soon after the monsoons commenced.

Loss of sense of ownership and responsibility

The intervention of the EDCs has in some sense resulted in the 'tragedy of the commons', insofar as the function and responsibilities of the KBPs are concerned. In most places villagers explained that the presence of the EDC has had both a negative and a positive impact. On one hand, people are more cautious about breaking the rules because the FD is involved. On the other, people feel that it is now the responsibility of the FD to protect the forests and thus no longer consider it their sole responsibility.

The loss of responsibility is also connected to the loss of sense of ownership. The FD has been constantly asserting that it is their responsibility to ensure that the forests are not cut. In the few meetings of the FD with the EDC, the incentives are literally auctioned against the people's assurance that they will not take axes into the forests. Besides, the FD is extremely strict about letting people use the resources. By these means, the FD has very subtly been asserting a sense of proprietorship. All this has generated an extreme feeling of loss of ownership and belongingness. As a result people's urge to protect the forests has been receding. It should be noted that the people adopt a very different attitude when protecting their own resources and when protecting resources that belong to the FD. In Lakhruki the people have been voluntarily protecting the enclosure that the people had made without any external monetary help. However they are unwilling to protect

the enclosure made by the FD under the Ecodevelopment Project without any incentive. They feel that the enclosure is the property of the FD and without any incentive they are unwilling to expend their time and energy on the same.

Destabilising through EDC intervention

According to the Director of SSD, Arun Jindal, the FD, to serve its own purposes, appropriated and took advantage of a system (the existing KBPs) that was already in place. In the process of implementing the project, by generating a sense of loss of ownership and fuelling party politics it destabilised the fundamentals of the existing system. This seems to have contributed to the current demoralisation of KBPs in some places. In this context he cites the example of Raheer. He says that at the start the FD took great trouble to reorganise their unsteady KBP into a VSS, which was soon after referred to as an EDC. Despite several charges of corruption, people continued to work with the FD for three years through the period of the Ecodevelopment Project. Apparently, after the termination of the timeframe of the project, the FD has been indifferent to complaints by the people that there is indiscriminate felling in that area. They have also been equally indifferent to the complaints about malpractice by the lower-rank FD officials (it should be noted that this is the same place where at the initial stage the FD had transferred two forest guards on allegations by the people). From the visit to the village it was clear that the operation of the EDC had definitely managed to sow seeds of dissension within the community. There were those who were vehemently opposed to the *adhyaksh* and accused him of corruption and being an accomplice of the forester, and there were those who favoured the *adhyaksh*. Currently, there are some groups indulging in indiscriminate felling, but with the failing attention of the FD the rest of the community is unable to stop them from doing it.

The threat of relocation

The threat of relocation has been enhanced by the operations of the EDC. In almost all villages there are doubts abounding about the sudden flurry of activities that the FD has undertaken in the past several years. Bhanta of Nibhera clarifies that the people are not sure why the FD has all of a sudden started making tanks and fodder enclosures, and the suspicion is furthered because of the increasing strictness about imposing the rules. People feel that these are all endeavours towards relocation. In Maramda too, similar questions regarding relocation and EDCs were posed. The general belief is that through the works of the EDC, the FD is actually improving the habitat for wildlife conservation and once the project is over they will start to remove the people from the sanctuary. The fact that the FD is vehement about not allowing the laying of electricity lines and roads convinces them further that they are to be relocated. These threats have affected their zest for protecting the forests. They believe that their efforts may be futile in the event of being relocated from the sanctuary.

The issue of 'benefit sharing'

The issue of whether or not they are allowed to use the resources of the area they protect is a critical matter affecting the people's initiative. In Lakhruki there is evidently a loss of morale because the FD has become increasingly strict about letting them harvest fuelwood, fodder and timber from the forests that their KBPs have so far been protecting. It has also lately stopped them from getting stone slabs for building purposes into the sanctuary. The people in Lakhruki state that this is one of the reasons why the people are less inclined to adhere to the community norms of KBP. Apparently, while they earlier had considerable influence over the KBPs of the neighbouring villages and in some ways were responsible for their effective functioning, today their endeavours are confined to their own village. The primary reasons for this is that the other villages are demoralised and less willing to be governed by social sanctions because they feel that their efforts will reap no benefits.

Conclusion

The picture is not entirely dismal. What really needs to be appreciated in this context is that despite all odds the community efforts at protecting their forests continue. While some older institutions seem less solid, there are those that are functioning with great enthusiasm. There is information that in a village called Meldhankri, the KBPs have been functioning effectively and have been convening their meetings very regularly. There are a couple of lessons that one may take from this case. First, community-initiated conservation efforts are dynamic processes. Thus the success



or failures of such attempts cannot be analysed as one that is fixed in time and thus unchanging. More realistically they need to be analysed and appreciated in the context of the broad changes in the policies, practices and social climate that have a direct bearing on them.

Second, community-initiatives at conservation of forests may have very different implications in PAs than in non-PAs. The two issues that make a critical difference are those of benefit-sharing and wildlife conservation. This difference needs to be appreciated.

Third, the changing livelihood aspirations of communities inside a PA are a reality that can hardly be denied. Their initiatives towards conservation are closely connected to the issue of livelihood. This is a reality that needs to be taken into account when promoting the case of community-based conservation in a PA. It is quite possible that their aspirations may no longer be compatible with conservation imperatives.

Fourth—an extension of the first point—efforts made by either the state or other organisations, apparently to strengthen communities' efforts, may instead dilute and weaken them. Such interventions may lead communities to lose the sense of ownership, self-reliance and authority with which they administer their self-initiated efforts at conservation. Thus, instead of reinforcing the protective measures, it may lead to a point where the resources that are being protected become no one's responsibility and thus vulnerable to exploitation by all.

The fifth and final point is that community-based conservation can be sustained if allowed to be run on principles of utilitarian conservation and not protectionist conservation.

This case study has been contributed by Priya Das. It is based on primary fieldwork conducted in 1996-97 for the Indian Institute of Public Administration, Delhi, and again between September 2000 and January 2001 for a doctoral thesis. Priya is currently an independent researcher based in Shimla.

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Endnotes

¹ W.A. Rodgers and H.S. Panwar, *Planning a Wildlife Protected Area Network in India. Volume 2.* (Dehra Dun, Wildlife Institute of India, 1988).

² Hunting reserves maintained by the local rulers for their own hunting pleasure. Local people were not allowed any use from these reserves.

³ R.K. Tyagi and L. Singh, *Kailadevi Vanya Jeev Abhyaran Mai Jaiv Vividhita hetu Kulhadi Bandh Panchayat: Sanrakshit Shetra Prabandhan ki Ek Nai Disha*, Paper presented at the Symposium on Habitat Conservation - Fresh Vision in 2000 and Beyond, held at the Ranthambore Tiger Reserve, Sawai Madhopur on 1 and 2 October, 2000.

⁴ The terrain is rich in shale, sandstone and limestone.

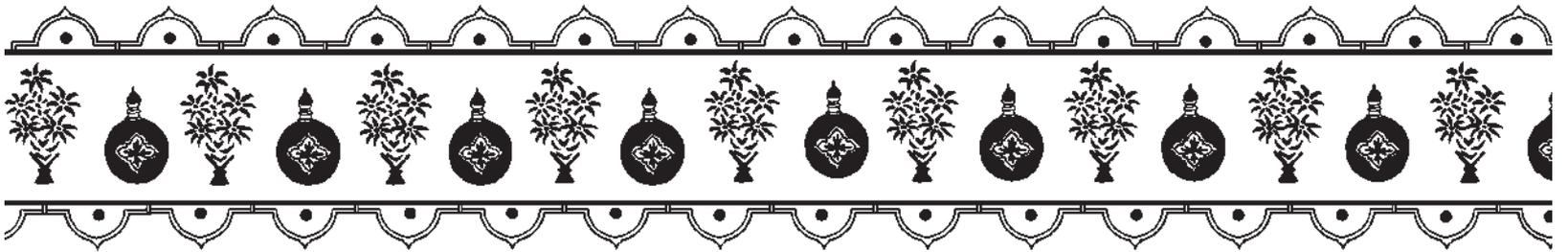
⁵ R.K. Tyagi and L. Singh, *Kailadevi Vanya Jeev Abhyaran.* (As above).

⁶ (As above).

⁷ Under which a *panchayat* (consisting of representatives from one or more villages) is the smallest unit of local administration.

⁸ In addition to the formal *panchayat*, most villages in India have an informal traditional *panchayat* at the hamlet or individual village level. In reality these are the first decision-making bodies in the village.

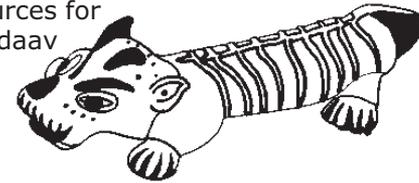




Ledhor Kala, Karauli

Background

Ledhor-Kala is located in Karauli district of Rajasthan. The forests in the area are dry deciduous forests and grasslands. Besides natural forests, the State Forest Department has carried out five different plantations in the vicinity of the village. The major flora species found here include sheesam, babul, daru halad, khair, raimji, dhok, safed khair, neem, berberi, chaukar. Older generations in the village report presence of tigers which are not found any more. The village population is 2000 with 120 households. The villagers are Hindus, and the major castes are rajputs, brahmins, gujjars and jatavs. Their main source of livelihood is farming and cattle grazing. The cattle population comprises 1500 cows and buffaloes and 2000 goats. Some of the villagers derive additional income by way of land revenue. The villagers depend on the forest resources for their daily requirements such as fodder for cattle, fuelwood and daav (grass used for making ropes).



Towards community conservation

Till the 1960s this area had lush green forests but as time passed the forests in the area degraded to the extent that at one point the land became barren. This noticeable change caught the attention of Bhagwan Singh in 1984. Bhagwan Singh had recently retired from the army and returned to his village. He organised a meeting with the villagers to discuss the importance of the forests in their lives. As an outcome of that discussion, the villagers decided to protect the forests in their vicinity. In 1988 the villagers and the forest department [FD] came together to rejuvenate 375 ha of forests. The local community started protecting the forests by creating VSSs (*van suraksha samiti*) or FPCs (Forest Protection Committee) under the leadership of Singh. The VSS consists of villagers from all the caste groups. Besides protection of the village forests, five different plantations were set up out by the FD under Sanza Van Pariyojana (Social Forestry Scheme); this has helped the forests to regenerate by reducing the pressure on them.

The land was occupied illegally before the conservation initiative took place. In order to regain control of the land, villagers collected Rs 100,000 to fight a case against the illegal occupants. Subsequently the land was demarcated and land records were procured. Villagers claim that they received all the support from the government agencies in trying to protect their forests.

Considering the lack of effective participation by women in the VSS, a MMD (*mahila mangal dal*) was formed to encourage women participation. The VSS realized that resource collection is mainly carried out by women, and if use by women is to be regulated, then their participation in the initiative is essential. Before the protection efforts the forests were also being used by the women from the neighbouring villages. The villagers have had clashes with these women in trying to stop them.¹ The villagers have made a written request to the nearby villages for not felling green trees. They have installed a camera in the forests that has created fear amongst these women.

The management of funds is done by the *koshadhyaksh* (treasurer), while the local Forest Officer looks into the accounts for the same. The villagers have planned out the resource utilization of the forests in such a way that it does not create pressure on a particular patch. They had allotted a different forest patch for cattle grazing while doing the plantation for 100 hectares. After three years the patch under protection is allowed for fodder collection and grazing, and those under use till then are protected. As part of the protection system the VSS has laid down a set of rules as follows:

- Grazing permitted only in certain patches of the forest
- Regulated cutting of grass for fodder and for rope making
- Collection of dry wood twice or thrice a month by the villagers
- Cutting of wood as per personal requirement but not for sale
- Ban on felling of green trees



The offenders have to pay a fine of Rs 1100 and those assisting in the offence have to pay Rs 2200.

It seems that all sections of the society are taking part in the protection efforts and the village has managed to receive support from government agencies too. For example, in case the village faces problems with the offenders (particularly outsiders), the Police Department also comes forward to help. It also appears that all sections of the society are equally benefited from the protected areas. The forest department or MMD act as the conflict resolution bodies.

Impacts of community conservation

Due to the protection of the forests, local people claim to have gained in terms of increased availability of fuelwood and fodder and also increased agricultural production because of increased availability of water. Animal husbandry, which was once impossible, has become a profitable occupation because of increased availability of fodder.

The ecosystem seems to have also benefited with species once rare such as shisham reappearing. Some animals like leopard, nilgai, black-naped hare and sarus cranes have also made a comeback.

Opportunities and constraints

The VSS, though constituted many years ago, remains an unregistered body. This denies the VSS a legal right to apprehend the guilty. This sometimes causes serious problems for the committee in trying to control the offences.

Initiation of this effort has also caused conflicts with the neighbouring villages because of trying to stop outsiders from entering the forests for resource use.

Since the regeneration of forests, the population of nilgai has increased, causing damage to the crops in the village. Villagers are taking up some measures such as shooing the animals away, but for many it remains an issue that needs to be resolved.

Conclusion

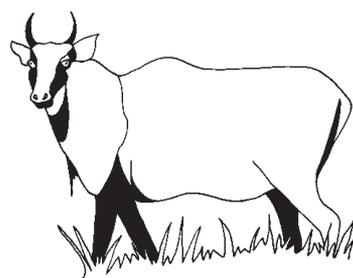
This case study reflects the community initiative that had manifested into effective protection efforts. However there seems to be a strong need for legal backing for the initiative to enable the people to assert their rights and responsibilities. Crop damage is another issue that is troubling the people and needs to be resolved at the earliest.

This case study has been contributed in 2001 by Arun Jindal, Society for Sustainable Development, Karauli, Rajasthan.

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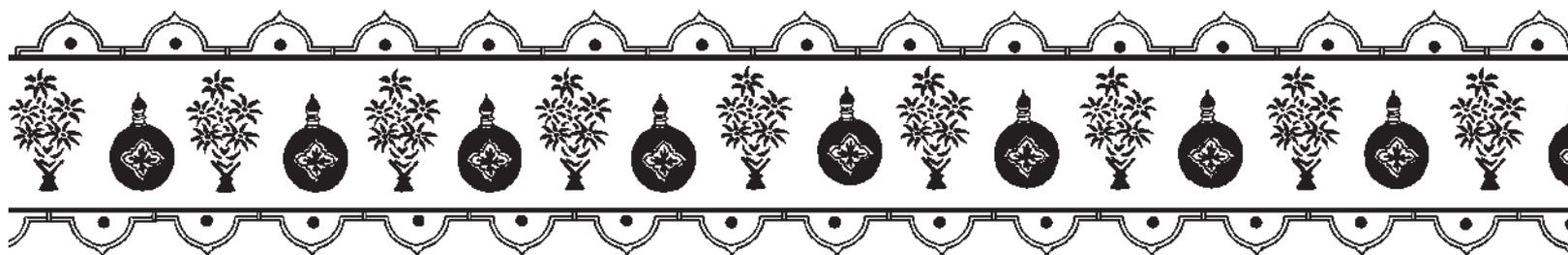
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Endnotes

¹ Editor's note: The impact of this initiative on the women who were earlier using the forests is not clear. It appears from the case study that no alternative was provided to the women.





Patari dang, Karauli

Background

Patari dang (hill) is located near the village of Alampur in Karauli district of Rajasthan. The hill supports dry deciduous thorn forests and savanna grasslands. Among the medicinal plants found here are, cheela, gular, bansora, guggal, and gurjain. The fauna found here include leopards, Indian wolf and striped hyena. Earlier accounts of local people indicate abundance of tigers, which are now very rarely seen. The forest protection initiative covers an area of approximately 66 ha.

The village population is about 14000 (according to the 1991 census) and the villagers are Hindus by religion. This society has a caste-based structure, with the main castes being gujjars, thakurs, kahars and brahmins. The main occupation of the people is agriculture, with the main crops being bajra (pearl millet), sarson (mustard), wheat and chana. The villagers have about 20000 heads of livestock, including 8000 goats, 6000 cows, 2000 sheep, 4000 buffaloes and around 600–700 camels. The villagers depend on the forest resources for fuelwood and fodder, and also use the area for grazing purposes.

Towards community conservation

This area was under a local princely state before Independence. The villagers therefore have traditional rights over these forests granted to them by the local rulers. The forests were depleted very rapidly soon after Independence, once the princely state was amalgamated into India. One of the major causes for forest degradation was the absence of a system for forest protection. In recent times the forests have been further degraded because of a number of reasons, including encroachments by nomadic pastoralists; illegal mining; illegal tree felling; increased numbers of goats and sheep in the surrounding villages and their use of the forests; and even influx of camel grazers from western Rajasthan. Degradation of forests have meant scarcity of resources as well as depleted groundwater table for the villagers. In 1984, a retired *havaladar* (army sergeant), called Kartar Singh, after returning back to his village, realised the condition of the forest and made the villagers aware of the forest situation and the importance of conservation, thereby starting the initiative.

Subsequently, this area was brought under the Joint Forest Management (JFM) programme of the state government. Under this scheme, a *van suraksha samiti* (VSS) and *mahila mangal dal* (MMD) were constituted for the protection, management and administration of the forest area. Under this programme the villagers got a certain amount of support from the forest department (FD).

Under JFM, 14 villages in the vicinity of this forest have been included in the protection effort: these include Alampur, Umri, Nevla, Bhauwa, Lakhmipur, Kanchanpur, Talhati, Chaubar Pura, Barbat Pura, Sardar Pura, Kedhan Ka Pura and Parsaa Ka Pura. Each VSS consists of 11 members, of which 8 are men and 3 are women. These members are elected from all the villages. The MMD consists of seven representatives from each of the villages. There is no system for handling of funds and maintaining accounts; however, the revenue that is generated by way of fines is deposited in the village fund. All the villages share equally in the functioning and the decision-making of the VSS and the MMD. The meetings of the VSS are held as and when required.

Although these institutions are new, the rules, regulations and resource sharing patterns are traditional. Some of the rules and rights allowed to the villagers are:

- Right to collect fodder and fuelwood.
- Right to collect palash leaves once a year and loom leaves for fodder once in a year.
- Ban on green tree cutting. In case of an offence, a fine of Rs 500 is imposed on the offender.
- Ban on grazing by camels; offenders have to pay Rs 1100 per camel.
- Collection of firewood by tractors is also banned; offenders are fined Rs 2100 per tractor.



In order to ensure that all rules are being abided by, the VSS installed a camera in the forest. This ensured that people regulated use of the forest.

Impacts of community conservation

The conserving community depends on the surrounding forests for grazing, collection of fuelwood and fodder, etc.; they are dependent on the area for their livelihood. The conservation initiative has ensured easy availability of resources such as fodder, fuelwood and leaf litter for agriculture and gardens. Additionally, it has believed to have increased the water level in the wells by 10-15 feet, which in turn has increased agricultural productivity. The ecosystem has also regenerated, although in the absence of any assessment it is difficult to say what has been the impact on the wild flora and fauna.

Opportunities and constraints

From the case study it appears that the VSS does not have enough funds even to fight cases. These regenerating forests face continuous external threats and are severely constrained by funds and lack of effective support from the forest department in being able to fight these. One of the pressures is from the nomadic camel herdsman from western Rajasthan, who bring their camels for grazing in the conserved area.¹ These herdsman do not follow VSS rules and regulations and often bribe the FD guard on duty to get access to cutting a green tree for fodder. There have been violent clashes between the villagers and the nomads. Villagers claim that such situations could be averted if the FD would intervene and cooperate.

These forests are also continuously threatened by the illegal mining taking place in the area, which the villagers feel can also be stopped with the FD's intervention. The villagers have not received required cooperation from FD in either of the above-mentioned cases. The villagers are financially constrained to take any legal action against these powerful outside offenders on their own.

Conclusion

This case study reflects a strong initiative by the villagers towards forest protection along with moderate support from the FD. But despite the existence of institutions for regulating and implementing protection, there are instances of violations that are beyond their scope. There seems to be a need for a stronger work orientation between the FD and the villages towards conservation that can alter the rate of forest regeneration for a longer period of time.

This case study has been contributed by Arun Jindal, Society for Sustainable Development, Karauli, Rajasthan in 2001.

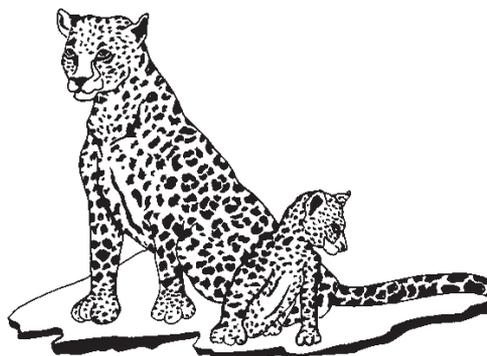
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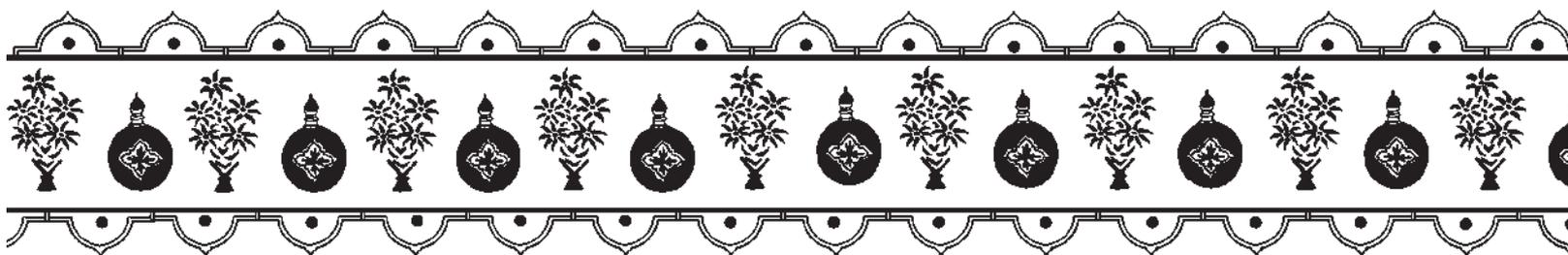
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Endnotes

¹ Editor's note: It is not clear from the case study whether these are traditional pastoralist communities and what their traditional interaction with these forests and the local people was.





CCA/Raj/CS6/Kota/Udupuria village/Heronry

Udupuria village pond, Kota

Background

Udupuria village pond is situated about 28 km from Kota town of Rajasthan. The village can be approached on Kota–Shyopur road and is 7 kms from Digodh town and 10 km from the Chambal river. The pond covers an area of about 2 ha. The pond is predominantly rain-fed but is also connected to the Right Main Canal of the Chambal river and receives water from it in the summers when the canal is operating.

The villagers belong to the brahmin, meena, berwa, bawari and nandwana communities and all villagers are completely vegetarian.

The pond is nowadays well-known as a breeding ground for painted storks. According to the villagers these birds have been coming here since 1994. The site was first discovered by two bird watchers, Anil Nair and Akilesh Begri, during the winter birds survey in January 1997. According to the counts in January 1997, the number of young and adult birds was 250.



Udupuria village pond Photo: Anil Nair

In addition to painted storks, other birds found in the area include the lesser whistling teal, common coot, purple moorhen, common moorhen, white-breasted waterhen, cotton teal, northern pintail, northern shoveller, Eurasian wigeon, spotbilled duck, red-wattled lapwing, black-winged stilt, white-breasted kingfisher, black ibis, stone curlew, Indian peafowl and black-necked stork. Babul, tamarind, banyan, peepal and neem are some of the tree species found here.

Towards community conservation

In 1997, when the bird-watchers found the pond, it had a small patch of water hyacinth. In subsequent years 90 percent of the pond was covered by the hyacinth. In 1998, 29 pairs made nests here, but as the pond was largely covered with hyacinth only 7 pairs raised their families here while the rest left the site.

In the summer of 1999 a local NGO (Hadothi Naturalists Society) along with the villagers took up the task of manually removing the hyacinth. The members of the NGO explained to the villagers about cleaning the pond and the reasons for this. A few villagers agreed to join the cleaning drive, as they were also facing problems while bathing, washing clothes and accessing water for cattle due to the spread of the hyacinth. When the manual removal of hyacinth began, all the villagers joined the drive and some even brought their tractors to help remove the hyacinth. Subsequently, the villagers have started helping in saving the chicks or juveniles from dogs and other predators when they fall from their nests. The local media has extensively covered the efforts of the villagers in cleaning the pond and saving the birds. This has been a great encouragement to the villagers.

The following breeding period saw an all-time high of 250 painted storks fighting to find a suitable place to make nests. Finally 95 nests were made and all the chicks survived. In 2001, a pair of black-necked storks was also seen looking for a suitable place for nesting, but they were not successful and left. This pair was seen coming till 2004.

The pond is used by the villagers for their everyday needs; it also helps to maintain the water table of the wells in the village. In 2004 a plantation drive was carried out by the villagers, the forest department and local college students opposite the pond to have more trees available for nesting in the future.



Opportunities and constraints

Currently the NGO and the villagers are looking for support in order to establish a chick-rearing center (with egg hatchery, medicine and food). They also wish to train one of the village youths during the period of nesting and pay some honorarium/salary to the person for that particular period. There is also a need to highlight the efforts of the villagers in the national media to raise their pride in having and saving the breeding colony of the storks.

Conclusion

Various species can be saved by involving the people living around them. This can be achieved by creating a pride among the people about their efforts at conservation.

This case study has been contributed by Anil K. Nair, an ornithologist, in 2006.

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Painted storks at Udupuria Photo: Anil Nair



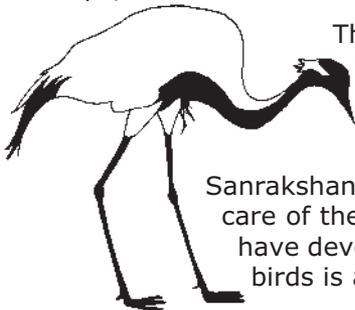
Khichan village, Udaipur

Background

Khichan is one of those villages that have sustained protection since generations. It is located near Phalodi at a distance of 150 km from Jodhpur in Udaipur district of Rajasthan. In the 19th century Khichan was famous for being the village of several rich Jain traders, who have now migrated to other important centres of commerce. Khichan is today famous for another migratory community that makes its home here for the six months of winter. These are the endangered demoiselle cranes, who have been coming to Khichan for generations. The numbers of these birds are dwindling fast elsewhere because of hunting along their migratory route and ecological imbalances in their natural habitat. These cranes arrive in Khichan in the month of August from Mongolia and Central Asia to spend the winter here.

Towards community conservation

The villagers have been playing host to these birds since generations. They arrive during the winter season and stay here for 6 months. Feasts are hosted when they arrive each year. The birds form an important part of their lives and are treated well. There is a folk song that has a mention about these birds. The cranes are called *kurja* by the villagers. Every morning the villagers feed wheat, jowar (sorghum), bajra (pearl millet) and mateers (watermelon seeds) to the birds. Nearly 500 kg of grain is spread to feed the birds. There is a 200 sq m feeding ground called *chugga ghar* where they assemble for their feeds. The birds are comfortable in the village and can be seen on rooftops, in waterholes and on the surrounding sand dunes.



The villagers are compensated by the annual remittances they receive from a section of the Oswal Jains, a community that has migrated out of the village. Funds for the grains also come as donations from visitors. An account of all the donations received and expenses borne is kept in the village. These activities are administered by the Kuraj Sanrakshan Vikas Sansthan, a society established in Khichan for the protection and care of the cranes. He is a trustee of this charitable trust. Ratan Lal and his wife have devoted their lives to these cranes. They ensure that the food stock for the birds is always full.

Impacts of community conservation

According to the villagers, only a few birds used to come to the village earlier; however, since the villagers have started feeding them a few decades ago, their numbers have increased tremendously. In 1996, about 6000 birds visited the village.¹

Opportunities and constraints

The major threat to the protection offered to these birds is tourism. In this case there is a need to probe and analyse the implications in terms of revenue generation for the villagers and the quality of grain offered to the birds. There have been instances where the villagers warded off two hotel ventures that were to be built in an area close to the village. The number of visitors in recent times has gone up to around 10,000 per season.

Visitors can also be a disturbance to the birds when they move to the sand dunes nearby. The cranes are not usually disturbed by passing camel carts and people. However, if disturbed, a single alarm call causes the whole flock to take wing. This spectacle fascinates many people, who then deliberately disturb the birds. An increasing population of dogs and crows is also gradually becoming a serious disturbance to the birds in the village.



To prevent the birds from getting disturbed while feeding, a separate feeding ground was established by the villagers. However, the number of birds has now increased to the extent that all cannot fit here. The villagers are currently considering ways of dealing with this.

New settlers encroaching upon previously open government land and building houses is now hampering the preferred flight path of the birds. This has created tension in the village between those conservationists in the village who want to assure the safety and peace of the cranes and opposition politicians who see the new settlers as potential vote banks. Local authorities have sometimes tried to evacuate the encroachers; however they have not been very successful because of political patronage.



Feeding time for demoiselle cranes *Photo: Asad Rahmani*

Conclusion

This case study reflects effective protection towards the avian visitors that are under threat in other areas that are part of their migratory route. The aspect that is most apparent is that the villagers have successfully been offering protection on their own initiative. Not everyone in the village unanimously supports the crane-feeding programme. There are some who are concerned about the increasing population of pigeons and other birds because of this free feeding. However, most people are enthusiastic about their care for the cranes. They defend their position by saying that more and more of the traditional grounds of the cranes are now either destroyed or threatened and that they are proud that Khichan is one of the safe havens for these special visitors.

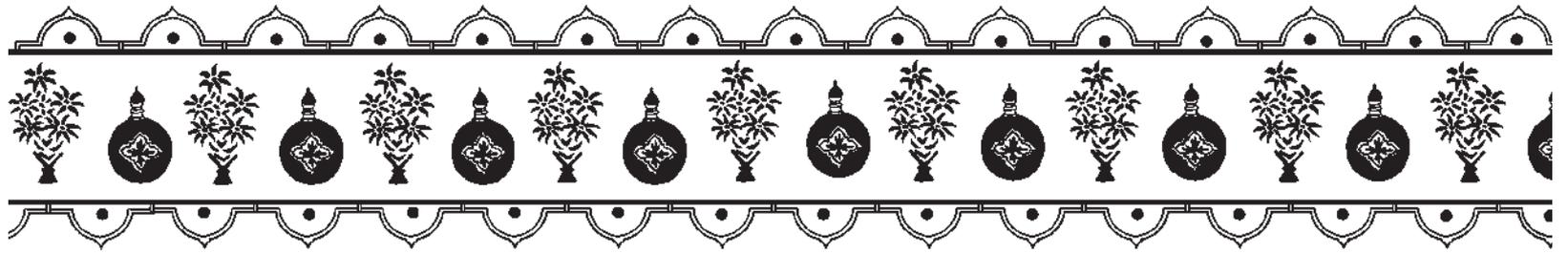
This case study has been compiled based on information provided by Rauf Hameed from Pakistan, Lian Chawai from Delhi and Amit Shankar from Rajasthan in the write-up 'Flight into danger', published in *Down to Earth*, January 2001, and by Rakesh Bhandari in his article, 'They strive to protect cranes in this village' published in *Times Of India*, 23 October 1998. See also O. Pfister, *OBC Bulletin*, 24 December 1996.

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Endnotes

¹ O. Pfister, *OBC Bulletin*, 24 December 1996.



Suali village, Udaipur

Background

Suali village is located in Udaipur district of Rajasthan. It is one of the hamlets located to the east of Bhamti revenue village. The Bhamti revenue village consists of Suali, Bhamti and Unali Bor hamlets. The protected area, known locally as *kakrot ka jungle*, lies to the east of Suali. The total area under conservation is undulating and covers about 500 ha. These forests are under the jurisdiction of the forest department. The forests of Kwadar, Bawai, Samlai and Panwa villages lie to the east of *kakrot ka jungle*.

The Suali settlement was set up 60-70 years ago by clearing dense forests. Today the village consists of 572 people. The local people belong to the Bhil clan; the major communities are Kharadis, Sevanas, Vadheras and Khokarias. The main occupations of the villagers are agriculture and cattle grazing. The local villagers as well as the neighboring villages depend on the forest resources for their needs such as fuelwood, timber and fodder.

Towards community conservation

Till around the time of Independence, this area had a dense forest cover. Subsequently as population in surrounding villages kept increasing and pressure on the surrounding forests of Karel, Neechli Seegri and Upalri Seegri led to the degradation of these forests, the pressure on *kakrot ka jungle* started mounting. As these tribal communities practiced shifting cultivation, once they occupied these forests their degradation was quick. Gradually, the Suali settlement began to expand and more and more cultivable forest land came under occupation for agriculture. In 1985, the deteriorating condition of these forests was brought to the notice of the entire village by a few villagers, namely, Bhimji, Velnathji, Hajaji, Vadhera and Mangal Nathji. After some discussion the villagers decided to discontinue the practice of shifting cultivation. In further discussions the villagers realized that steps would have to be taken to improve the quality of forests. In 1985 a Forest Protection Committee (FPC) was constituted by the village. They formally conveyed to the neighbouring villages that they had resolved to protect the forests. A set of rules and regulations were put in place for effective protection, including:

- Ban on felling of green trees
- Ban on grazing in July and August to facilitate plant regeneration
- No felling without permission
- No permission to be granted for felling fruit-bearing trees
- Collection of dry twigs and branches only
- Ban on carrying an axe into the forest without permission
- In addition to the local villagers, the neighbouring villagers are allowed to collect dry twigs and dead wood, and graze cattle.

For offences, if someone is found carrying axe into the forest without permission, the penalty includes confiscation of the axe and a fine of Rs 5. For cutting wood without permission a fine of Rs 25 is charged.

The FPC consists of 11 members, including two women members. Villagers claim that all villagers participate in protection activities, including women. The men take informal help from the women on certain management and protection issues. Most of the expenses for protection activities are borne by the villagers.

Villagers follow two systems for protection:

- a) Patrolling of forests in groups
- b) Declaring the protected patch as sacred



In the initial years the villagers from 2-3 households would together patrol the forest on a rotational basis to protect it from illicit felling and forest fires. However, they were helpless against the neighbouring villagers, who would come in groups of 10-15 persons. The villagers then decided to undertake surprise patrol visits in large numbers. Despite all measures, illicit tree felling continued. This compelled the villagers to declare this area as a sacred site. On 6 Sept 1995 they sprinkled the trees with kesar (saffron) and vowed that they would not cut a single tree for the next seven years.

Due to the protection efforts taken up by the people, there have been many clashes with the neighbouring villagers. The Suali villagers were denied access to the access road and sometimes even physically abused. The villagers then registered a complaint with the local forester, who then filed a case against the villagers of Neechli Seegri who had attacked the villagers. However a settlement was reached between the two villages.

The village has been supported strongly in its protection efforts by the Communist Party of India (CPI). Seva Mandir, a local NGO has also helped the villagers spread awareness among the villagers.

Impacts of community conservation

There are visible signs of regeneration of forests. Over the years soil erosion has decreased and a few local species of trees such as teak and dhawada have regenerated well. There is an optimal use of the forest resources by the villagers. The amount of litter has increased, although grass production has reduced. There is an overall enrichment of the nutrient status in the area.

Opportunities and constraints

Despite all the protection measures, there have been incidents of sporadic felling of trees. The villagers have given up their traditional practices to protect the forests. The entire system of protection is based on social fencing.

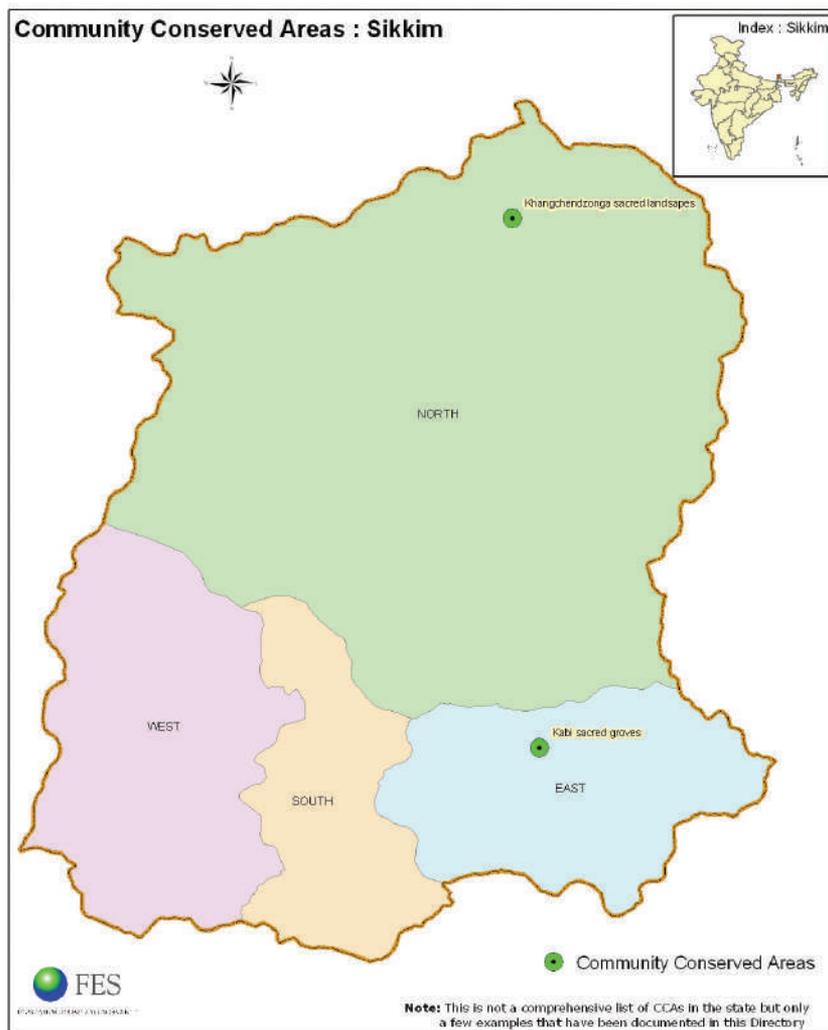
Conclusion

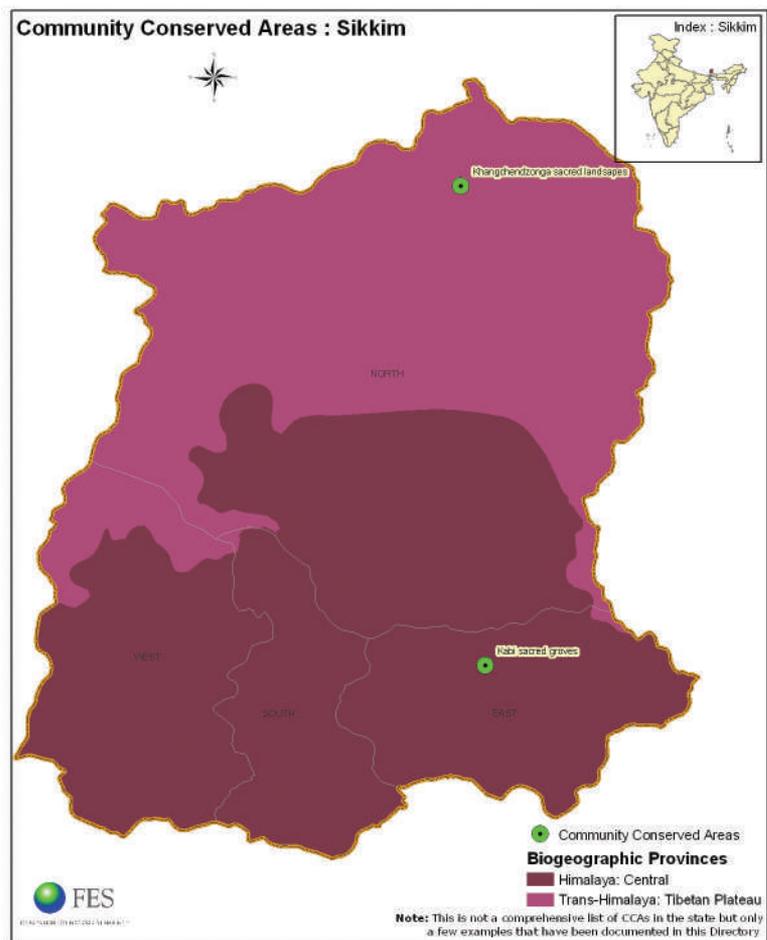
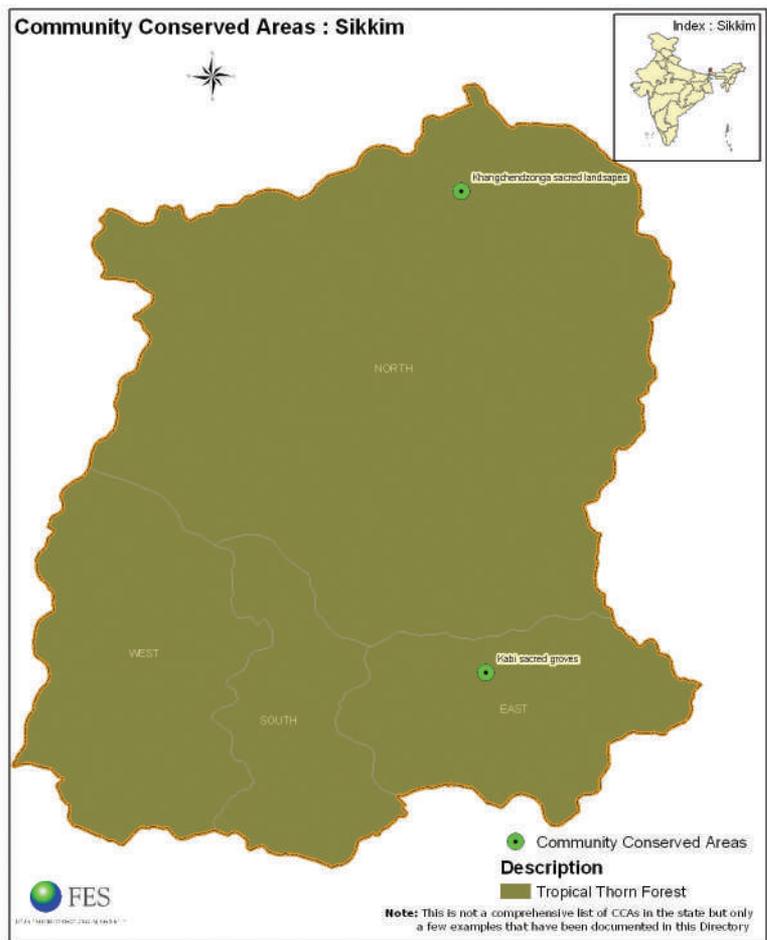
From this case study it is apparent that forest protection is totally centred around the villagers initiative. In order to sustain it for a long time, there needs to be some form of support from the forest department that would facilitate the process. Steps should also be taken by the villagers to increase grass production, which would serve the purpose of grazing.

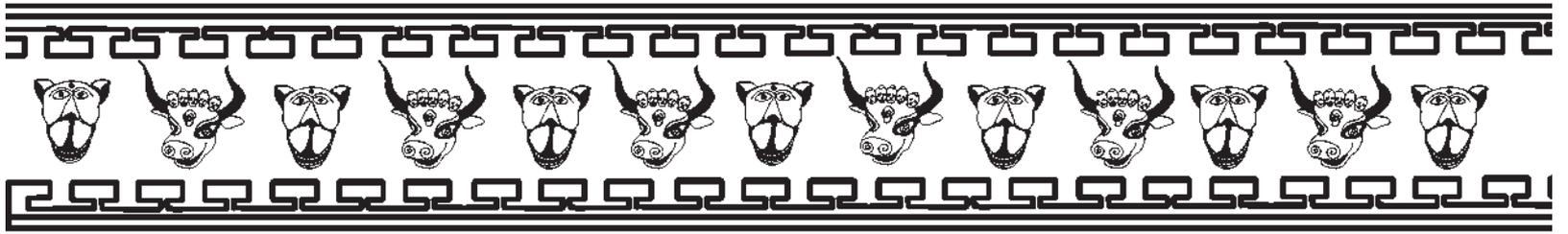
This case study has been compiled based on information provided by Neeraj Kumar Negi in his article 'What makes people protect forest,' *Wastelands News*, xvi, 2 (Nov.00 - Jan.01), p.27-32.



Sikkim







Community conservation in the Sikkim Himalaya

Nandita Jain

(with additional inputs by Nakul Chettri, Usha Lachungpa and Lalit Rai)

1. Background

1.1. Geographic profile

Sikkim, which became part of the Indian Union in 1975 is a vertical strip of very rugged, mountainous country, having a geographical area of 7096sq.km. It is bounded by the Chola ridge towards the east, the Singhalila ridge towards the west and the mighty Himalayan axis in the north. These ranges enclose Sikkim in a titanic horseshoe, which traps the moisture-laden winds from the Bay of Bengal, causing heavy precipitation. This land is drained by the mighty Teesta and Rangit rivers, which flow from north to south. The most astonishing aspect of this region is the enormous altitudinal gradient, ranging from 300 masl (metres above sea level) to 8585 masl. This creates a range of climatic zones, right from the tropics to the tundra. This in turn fosters a bewildering diversity of flora and fauna.¹

Sikkim extends approximately 114 km from north to south and 64 km from east to west, surrounded by vast stretches of Tibetan Plateau in the north, the Chumbi valley of Tibet and the kingdom of Bhutan in the east, the Darjeeling Gorkha Hill Council of West Bengal in the south and Nepal in the west. The state, being a part of the inner ranges of the Himalayas, has no open valley and no plains but varied elevations ranging from 300 to 8585 masl, consisting of lower hills, middle and higher hills, alpine zones and snow-bound land, the highest elevation of 8585 m being the top of the Khangchendzonga mass itself.



Khangchendzonga, the country's highest ecosystem *Photo: Sandeep Tambe*

1.2. Climatic profile

Annual rainfall varies from 1300 mm at its lowest elevation to over 4000 mm at elevations around 2000m, with 60–75 per cent of rain falling during the period June–August. The mean temperature in the lower altitudinal zones varies from 4.5°C to 18.5°C, whereas at higher altitudinal zones, it varies from 1.5°C to 9.5°C. The temperature varies with altitude and slope.

1.3. Ecological profile

Estimates of land use indicate that about 43 per cent of the state's total land area is under forest cover, and about 11 per cent under agriculture. Approximately 28 per cent of the area is under perpetual snow cover, and 14 per cent is under alpine pastures. Alpine areas are famous for the occurrence of numerous medicinal plants.²

Champion and Seth³ demarcated six broad vegetation types in Sikkim:

1. Tropical Semi- Evergreen Forest (300–900 m)
2. Sub-Tropical Mixed Broad Leaved Hill Forest (900–1800 m)
3. Himalayan Wet Temperate Forest (1800–2700 m)
4. Sub-Alpine Forest (2700–3700 m)
5. Moist Alpine Forest (3700–4000 m)
6. Dry Alpine Forests (4000 m)

Table 1: Biological and Ecological Diversity of Sikkim

Component	Approximate numbers
Flowering Plants	4500 spp.
Orchids	500 + spp.
Rhododendrons	36 spp.
Bamboos	20 spp.
Ferns and Ferns allies	362 spp.
Tree Ferns	9 spp.
Primulas	30 spp.
Oaks	11 spp.
Mammals	144 spp.
Birds	550 spp.
Butterflies	600 + spp.
Fishes	48 spp.
Physical Features	
Mountains and Peaks	28
Glaciers	21
Lakes and Wetlands	227
Rivers and Streams	>104

Table 2: Protected Areas in Sikkim

Name	Remarks	Area (sq.km)
Khangchendzonga Biosphere Reserve (including the Khangchendzonga National Park)	Established 1977 (BR) Established 2000 (NP) Covers temperate and Alpine types	2,655 of which 1,784 is the NP
Barsay Rhododendron Sanctuary	South-west Sikkim, sub-Alpine forest adjacent to Singhalila National Park in Darjeeling	104
Fambong Lho Wildlife Sanctuary	Sub-tropical and temperate forest types close to state capital Gangtok	52
Singbha Rhododendron Sanctuary	Yumthang Valley in Lachung area in North Sikkim, sub-Alpine rhododendron forest	43
Maenam Wildlife Sanctuary	Temperate and Sub-Alpine forest in South Sikkim	35
Kyongnosla Alpine Sanctuary	Sub-Alpine and Alpine types	31
Pangolakha Wildlife Sanctuary	Temperate and Sub-alpine forest in South-east Sikkim	124

1.4. Socio-economic profile

Sikkim is a multi-ethnic state broadly divided into tribal and non-tribal groups. Lepchas, Bhutias and Sherpas are some of the major tribes. The Lepchas are considered the original inhabitants of the state and, compared to other ethnic groups, still maintain many of their traditions. The Bhutias are originally from Tibet. The Sherpas are a marginal ethnic group in the state. Over 70 per cent of the population consists of Nepalese, who are today the dominant ethnic group in the state. The people from the plains, mostly involved in trade and services, represent another marginal group.

Sikkim's population has gone up from 316,385 in 1981 to 540,851 in 2001. Of this population, 111,405 (or about 21 per cent) are scheduled tribes. The sex ratio is 875. Sikkim has a long tradition of Buddhism, although only 25 per cent of the population practices Buddhism. Though a majority of the population is Hindu, Buddhist traditions remain deeply ingrained in the psyche of the Sikkimese people. This is evident in all walks of life, including architecture and a large number of monasteries and stupas dotting the landscape.

Buddhism was introduced into Sikkim after the consecration of the first *chogyal* (religious king) of Sikkim at Norbugang, Yuksam in 1642. This is also when the first Buddhist monastery was established at Dubdi near Yuksam. Buddhism was the state religion here until Sikkim became a part of India in 1975.⁴

The economy of Sikkim is mainly based on agriculture and animal husbandry. Approximately 11 per cent of the total geographical area is under agriculture. Agriculture is of mixed type and still mostly at a subsistence rather than commercial level. As an important aspect of the hill economy, where productivity is low, all the able-bodied people (men and women both) are employed in agriculture or related activities. Cultivators account for 57.84 per cent of people in the state. Agricultural labourers as a whole constitute only 7.81 per cent of the workers in the state. Industries are negligible, but the tertiary sector at the state level accounts for a good percentage of the working population.⁵

Cardamom cultivation is an important contributor to Sikkim's economy, and in one form or another provides both rich and poor farmers a significant source of income. This native mountain cash crop generally grows beneath natural forest cover on marginal lands. Significant areas of cereal-dominated subsistence agriculture have slowly been transformed into this high-value cash crop since Sikkim's merger with India in 1975. The total area under cardamom cultivation is estimated to be 20,000 ha. Almost 1,316 ha of reserved forests in Sikkim are also being used for under-canopy large cardamom cultivation. Farmers lease the land but have no rights to cut the trees. Generally, cardamom plantations support surprisingly good tree diversity since the crop requires shade. The dominant tree species in cardamom plantations are *Alnus* and *Albizia* spp., reflecting the elevations and forest types that are favourable to its growth. The primary concern, however, is the amount of wood needed to cure and process the crop.⁶



From yak herding to tourism
Photo: Sandeep Tambe

The past one and a half decades have witnessed a tremendous upward swing in various developmental programmes, giving a new thrust to the Sikkim economy. This process has increased wage-employment opportunities. Although most of the inhabitants are still basically in agricultural occupations, they have diversified into tertiary jobs such as government services. Tourism has only recently provided economic opportunities. Over 100,000 tourists came to Sikkim in 1999, of which about 90 per cent were domestic visitors.

1.5. Land use patterns

As mentioned above, forestry is the major land use in the state, with nearly 80 per cent of the total geographical area of the state under the administrative control of the Forest Department (FD). 14.40 per cent of total land area is under permanent pastures and grazing land including cultivable wastes.⁷

2. A history of administrative control over land and resources

2.1. Forestry in Sikkim

The FD is one of the oldest departments in the state, having come into existence in the 1890s. Close to 80 per cent of the total geographical area is currently under the administrative control of

this department. In 1902, the then *chogyal* of Sikkim, Sidkeong Tulku, after getting educated at Oxford University, initiated a process of demarcating forest areas in his kingdom. Forests that were considered vital to the functioning of the kingdom were designated as Reserve Forests and set aside for protection. No logging was permitted in these areas and heavy penalties were imposed for illegal activities. Khasmal forests were designated around villages and settlements that could be used for the timber, fodder and fuelwood requirements of the local villagers. Grazing lands or *goucharan* were designated as common grazing areas. At the time of demarcation, one family was permitted to graze one milch animal and a pair of bullocks free of charge in goucharan areas.

Key events in Sikkim's history of forestry are summarised below:

- 1893: Forest Department of Sikkim established; Reserved Forests (RF) demarcated; Khasmal Forests demarcated out of notified RF; Goucharan Forests demarcated; Conservation and Preservation of Wildlife Game Law formulated
- 1955: Areas declared as camping grounds for horses/mules
- 1956: Sikkim Forest Act formulated, same as Indian Forest Act (previously under West Bengal modification)
- 1959: Clear-felling permitted after the Chinese aggression
- 1977: Khangchendzonga National Park established
- 1978: Separate Directorate for Fisheries and Wildlife created
- 1980: Directorate of Fisheries and Wildlife bifurcated to separate wings
- 1983: Four new wildlife sanctuaries established
- 1988: Sikkim Forest, Water Conservation and Road Reserve (Preservation and Protection) Act enforced
- 1989: Indian Forest Act, 1927, extended to include Sikkim
- 1995: Grazing in Reserve Forests, plantations and perennial water-source catchments in south-west districts banned
- 1998: Khangchendzonga National Park boundary extension; Joint Forest Management Resolution gazetted
- 2000: Creation of Khangchendzonga Biosphere Reserve

The State's first Working Plan (1951-71) demarcated Road Reserves and Slip Reserves as state-owned forests. Other kinds of forests demarcated but not considered under state management were forests under the *kazis*,⁸ *gumpa* or Monastery Forests, and Private Forests of the *chogyal* and members of the royal family. Subsequently, the state took over the management of some of the Private Forests, particularly those managed by *kazis* and monastery officials.

Unlike forest management elsewhere in India, forestry in Sikkim has not focused on extractive practices such as commercial felling. This absence can partly be explained by the remoteness of the region and the associated difficulties in access and transportation. Commercial felling has however, become a concern over the past few years, with incidents of relatively large-scale felling in north and west Sikkim being reported and debated in the media. Recently the export of timber, stone and sand has been banned from north Sikkim.⁹

2.2. Rights and concessions

Access by local people to forests is primarily determined by their designation (Khasmal, Goucharan or Reserved). Access to Reserved Forests (2,261sq.km), determined by the Forest Act, is very restrictive. Any rights that *kazis* may have had in Reserved Forests have been liquidated. Khasmal Forests (281sq.km) allow the greatest access to local people, who are able to collect fuelwood, fodder, timber and other non-timber forest products primarily for subsistence use at no cost. Goucharan Forests (185sq.km) are primarily for grazing purposes and while people have the right to free grazing and collection of firewood, no tree cutting is permitted.



Himal *rakshak* with the endemic *Rheum nobile*
Photo: Sandeep Tambe

In order to extract timber and medicinal plants, permits are required from the FD. The Sikkim government has not granted any permits to external agencies (such as commercial concerns) to extract medicinal plants. Under the law there is a collection cycle for medicinal herbs, which is managed under rotation so that sites are able to recover, but it is not very clear whether this is actually implemented. Illegal extraction is known to happen but the exact extent is not known.

2.3. The *gumpa* or monastery forests

Many of the monasteries in Sikkim have their own forests, from which there is some extraction for religious rituals but not for other uses. Around many of the monasteries in Sikkim, such as Pemayangtse, Dubdi, Lachung, Ralang, Sangacholing, Phodong, Khecheopalri and so on, are small areas of forest (often several hectares) that are relatively undisturbed. Most of these monasteries are set in biodiversity-rich warm and cool temperate forest types and represent a small but interesting aspect of traditional management of forest resources. Resident monks manage these areas not only for resources to be used for rituals, but more importantly to maintain a sense of sanctity and tranquility for residents and visitors alike. It is therefore not that surprising to find descriptions of monasteries for visitors that highlight the surrounding forest areas as verdant, tranquil, lush green, etc. Ideally, forests should surround any monastery, but when this is not possible, as in the case of the new Rumtek monastery (the old one was surrounded by forests), at least one forested slope is maintained next to the monastery.

Gumpa forests are closely protected by the monks and they generally do not allow local inhabitants access for fodder, firewood and timber. As monasteries play a very important role in the social and cultural lives of many Sikkimese people and are highly respected, there is little encroachment into these forests. As a result, these relatively small *Gumpa* or monastery forests have remained in relatively good ecological condition. However, little, if any, work has been done to assess the total area under this type of management, but their place in local culture remains important regardless of their extent.

2.4. Conventional conservation practices

Protected Areas (excluding the buffer zone of the Khangchendzonga Biosphere Reserve), created out of Reserved Forests, cover approximately 28 per cent of the state, an area almost equivalent to that considered under perpetual snow cover. (With the inclusion of Pangolakha this figure may change, with the total PA coverage including buffer zone of KNP being 42 per cent of the total geographic area) The largest protected area is Khangchendzonga National Park (1784sq.km), which now forms the core zone of the Biosphere Reserve in West Sikkim. With the creation of the Biosphere Reserve in 2000, 946sq.km of reserve forest has been added, making the total area of the reserve 2655sq.km. Other protected areas in Sikkim are wildlife sanctuaries located in all regions of the state covering a variety of forest types (See Table 2).

Sikkim's protected areas are governed by the Indian Wildlife Act (1972, amended 2003) and administered by the Wildlife Wing of the Sikkim Government Department of Forests, Environment and Wildlife. The most interesting and significant impact of this legislation for communities and conservation is in Kanchendzonga Biosphere Reserve, specifically in the core area governed by National Park regulations.

A small settlement of Tibetan refugees was granted land by the *chogyal*, as a payment for looking after his livestock in the area. About 10 households were given 30 ha of sub-alpine forest and the settlement of Tshoka was established. In winter, these families move to lower elevations with their livestock. At the time of creating the National Park in 1977, this settlement and the lower pastures did not fall within the boundaries, but subsequent enlargements have resulted in the settlement of Tshoka and the winter pastures falling within the National Park. Over the years, the families of Tshoka have used resources outside the original 30 ha. The size of the settlement has decreased as the younger generation has migrated outside



Sungmoteng Tsho, one of 73 alpine holy lakes in KNP
Photo: Sandeep Tambe

in search of alternative livelihoods. It is not clear what future policy will be followed regarding this settlement, but it is clear that families do not want to lose title to their lands.

Villagers from Yuksam and other settlements on the periphery of the National Park traditionally took their animals up to the higher elevations for grazing every summer, and also maintained yaks at higher elevations. In the late 1990s, the FD attempted to restrict and virtually ban grazing within the National Park. Not surprisingly, the ban was not well received by local people, and grazing continues, although it is unclear whether this is permitted or signifies lack of enforcement by the authorities. As with much of Sikkim, remote areas are not patrolled and in the absence of active participatory protected area management, people and authorities continue for the most part as they always did, irrespective of orders and edicts. Similar conditions can be found in other protected areas, though some efforts have been made to consult with local users (often without any follow-up, usually due to lack of resources), and other efforts are being taken that encourage and promote more active participation of people in conservation.¹⁰

2.5. Joint forest management

In 1998 the Government of Sikkim issued the notification of an order to establish Forest Protection Committees. The underlying concern behind the notification was degradation of khamsal and goucharan Forests. Forest Protection Committees made up of villagers, *panchayat* and forest officials would be entitled to 25 per cent of the net income derived from the forest crop (including non-timber forest products and medicinal plants) that would be protected and left after meeting the bonafide needs of the local villagers in respect of fodder and firewood from fallen and dry twigs. In addition, these committees may also be given 25 per cent of the income generated from the intermediate fellings, i.e., thinning and cleaning, etc. JFM at this point focused solely on degraded forests. In south and west Sikkim efforts are underway (starting in 2001) to establish Ecodevelopment and Forest Protection Committees.

As an area of high biodiversity, Sikkim's forests have many valuable species in terms of both conservation value and potential human use. Much of the recent writing about JFM and its implementation highlights the need to move beyond subsistence and into income generation. In the initial gazetted order, the focus of the FD was on rehabilitation of degraded forest areas, but most villagers would probably view JFM as an opportunity to deal with issues of decreasing biomass, meeting daily requirements of forest products and/or a means to increase income. In regions of high biodiversity and close proximity to protected areas there is an added concern of the relationship between JFM and biodiversity conservation. If Sikkim adopts JFM practices from other states without adapting them to its conditions (i.e., with a focus on timber), it may find that better-off villagers with minimal forest dependence become even wealthier.

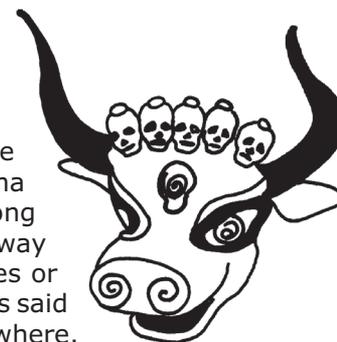
NTFP represents an important livelihood strategy for many people, but confusion over rights provides little benefit for local users and managers, since forest records have not been updated for many decades. JFM, if implemented fully, also signifies a shift in control not only in decision-making about forest management but also in access to resources. With growing decentralisation in administrative and political systems, there will be tensions between conventional decision-makers (namely, the FD) and newcomers into JFM such as the *panchayats*. State governments that are already short of financial resources are likely to view moves that shift financial resources to local administrative units with some resentment, which could in turn have significant implications for the way that JFM is formulated and implemented.

To date there has been little in the way of JFM implementation, and there is little to write of in terms of experiences and impacts on local communities living in and around forest areas. It is, however, imperative to draw lessons from the implementation of JFM in other parts of the country before getting fully into JFM in Sikkim.

3. Elements of community conservation

3.1. Sacred landscapes

According to Ramakrishnan,¹¹ for the Sikkimese people the whole state of Sikkim is sacred. Sometime in the 7th century AD Lord Padma Sambhava (a great Indian saint) was invited to Tibet by King Trisong Deutsen to establish and introduce Buddhism. It is believed that on his way to Tibet, he went via Sikkim and is said to have hidden many treasures or *ters* here. Therefore Sikkim is regarded as the holiest of all places and it is said that one merit done here equals a hundred thousand merits done elsewhere.



Ney-sol, a Buddhist directory of the holy places, describes the area below Mount Khangchendzonga in West Sikkim (referred to as Demojong), as most sacred and the abode of Sikkim's deities. This entire region is also referred to as Yuksam.

Yuksam is considered to be a *lhakhang* or altar for offerings to the Khangchendzonga deities. The seven holy lakes surrounding Khangchendzonga—Kheocheopalri, Katok Tso, Bar Cho Marpu, Phu Cho Karpu, Ka Bur la tso, Sume ten tso and Dafuk yum tso are the seven offering bowls to the Khangchendzonga deities. The Rathong Chu, a sacred river in Yuksam, is said to have its source in nine holy lakes located closer to the mountain peaks. The Yuksam region is also considered to have 109 hidden lakes. Every landscape of highland, middle land and low land and every river, stream, cave, and big tree is believed to have guardian deities (*yullha*, *zibda*) of their own, and therefore during the morning ritual in every monastery these deities are worshiped with great devotion.

According to Shri Sanga Tempa, Head Lama of Dubdi Monastery, Yuksam,¹² Khangchendzonga, the guardian deity of Sikkim is regarded as the premier highland deity of the mountains and it is surrounded by a hundred to a thousand smaller hills and their deities like Khabur Tsen, Dzungri Tsen, etc. The four holy caves—Lhari Nying Phu (The Old Cave of God's Hill) in the north, Khandu San Phu (Cave of the Occult Fairies) in the south, Bas Phu (Sacred Cave) in the east and De-Chen Phu (Cave of Great Happiness) in the west surround the great Khangchendzonga.

The midland deities comprise Pao Hungri with 21 major deities and a hundred thousand Tsan and a hundred thousand Dii, Bar Pin Dheen, deities of Chak Drok Drak, Singe Drak, Bap Churong, Bakteng Re (Tsan Na), Lanka Bur, etc. The lowland deities comprise of Ka Gye (Eight Protector Deities) and deities of the important hills like Tashiding, Sanga Choling, Pema Yangtse, Rabdentse, Pham Rong, Drak Thong Rong, Dorjee Drak and the deities of the 100 species of trees and flowers. Every hill has its own importance and significance. For example, at a place called Nalung just before entering Khangchendzonga National Park (KNP), one has to make a vow not to pollute the land, lakes, rivers and streams and not harm animals and plants. At a place called Ra Luk Yasha below Bakhim, one is not allowed to carry meat, especially pork, or to make noise; one must also abstain from getting intoxicated. All these deities are the protectors of mountains, lakes, wild animals, flowers, forests and rivers. Any developmental work resulting in clearing of forests, blocking of rivers, dynamiting a place and even its smell is believed to disturb these local deities, which causes landslides, disease, and other natural calamities like cyclones, hailstorms, etc.

Given all this, it is not surprising that the Rathong Chu Hydro-electric project proposed by the government in 1994 was vehemently opposed by the local people. This opposition was not only restricted to those currently residing in Yuksam but also locals now educated and settled outside. Maintaining the sanctity of this entire landscape is seen as being vital to the well-being of the people and ecosystem even today. The short-sightedness of the proponents of the project is evident from the fact that they considered local people superstitious and under the influence of blind faith thus opposing the dam, even though the dam would have opened the door to development in the area. The religious sentiments are deeply sensitive about the ecological fragility, a fact yet not understood by many outside of the Yuksam community. The proposal was finally dropped by the government due to strong mass opposition.¹³



Khangchendzonga, the sacred landscape
Photo: Sandeep Tambe

3.1.1. The Kabi sacred grove¹⁴

Located at an elevation of 7,000ft with a southern aspect, Kabi sacred grove is a small forest (6 ha) with historical significance. It is situated near the road that takes travellers from Sikkim's capital, Gangtok, to the more remote and rugged northern region of the state. This small area marks an important juncture in Sikkim's history. It was in this forested area that the Lepcha and Bhutia rulers signed a treaty in the 13th century to promote communal harmony and fraternity between the two communities. A stone marks the place and occasion. All the peripheral villages of Kabi have reverence for the sacred site and have developed rules that govern the area's management.

In 1268 Punu Habum was the Lepcha king in Sikkim. Thickem Chek, an enlightened person, was

his patron. At this time Sikkim was attacked through the Chumbi valley on the eastern border with Tibet by Khye-Bumsa (the Bhutia ruler). Punu Habum forced an accord with the invader but was killed by the deceit of Khye-Bumsa. Khye-Bumsa's claim to be the ruler of Sikkim raised suspicion. Thickem Chek discovered through tantric practices the nature of the deceit. Khye-Bumsa confessed and was made to swear that he would follow all Lepcha traditions as the ruler. The Lepchas and Bhutias signed the Blood-Brotherhood Treaty of 1268 at Kabi and the patch of forest has since been revered and regarded as sacred. Large stone monoliths, locally called Longchuk, which stood out in the forest area, were considered natural witnesses and placed in the Kabi grove during this celebration (known as Chyu-Slo-Nylso). The event is today celebrated as Pang-Lhapsol, a very important annual festival for Sikkimese Lepchas.

Another interesting aspect of this area and the festival is located in Lepcha folklore with a very different narrative. The story dates back to antiquity when the rivers Teesta and Rangit are said to have originated following a severe earthquake. A great deluge ensued, and many lost their lives. The subsequent floods forced the Lepchas to take shelter at higher elevations on the mountain slopes. Those who survived the devastation initiated the tradition of worshipping each of the mountain tops where they had sought refuge. These peaks were worshipped as 'Saviour Mountains' and Kabi is one among them. Even now prayers are offered on the night of the full moon in the ninth month of the Lepcha lunar calendar.

Local communities extract little from the grove—only small amounts of NTFP, fodder and fallen branches are collected. As such there is no formal institution of management for the sacred grove, although occasionally meetings are and can be held to address issues of resource removal. Villagers from the surrounding areas have met often to discuss these issues. The discussions have included resource extraction, but local villagers usually attribute this to non-locals such as daily wage labourers, construction workers and road-building camps.

The general tree density of the grove has been estimated at 156 trees/ha, with a mean basal area at 6138sq.m. Dominant tree species are birch, oak and magnolia (*Betula cylindrostachya*, *Castanopsis hystrix* and *Michelia cathartii*). Other key species include *Cinnamomum impressinervium* (cinnamon), *Daphniphyllum himalayense*, *Eurya acuminata*, *Machilus edulis*, *Nyssa javanica*, *Prunus nepalensis* (cherry), *Quercus* sp., and *Spondias axillaris*.

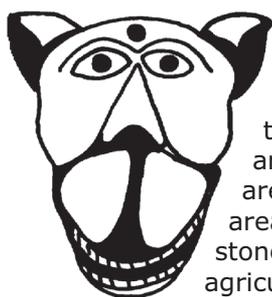
3.2. Dzumsa or the pipen system in North Sikkim¹⁵

The alpine meadows and the high arid plateaus of north Sikkim are home to a unique system of decision-making that affects not only natural resource management but also governs the livelihood activities of the Lachenpa (people from Lachen valley) and Lachungpa (those from Lachung valley) communities of the region. Pastoralism, the region's major livelihood, was acutely affected by political changes in China during the 1950s and subsequent conflicts between India and China.

Since the hostilities, local pastoralists have lost access to traditional grazing areas and markets in Tibet with the result that livestock profitability decreased and other livelihoods were explored and pursued. Over the last century the Lachenpa and Lachungpa have taken on other livelihood activities such as fruit production (apples were introduced by Europeans during the last century) and tourism.

Management and control over community activities is exercised by an organisation called the *dzumsa*, composed of the heads of all households. Meetings are held in a public hall called the Mong-Khyim, and once a year the *dzumsa* elects a *pipen* (often older respected males) to lead the community's livelihood activities and a Gen-me (or Council, composed of a body of respected elders) to assist the *pipen* in settling disputes within the community. Two Gyapen or assistants are also appointed to assist the *pipen* in his duties.

At meetings of the village council, the *pipen* designates summer areas for grazing by cattle and yaks in the high alpine pastures. Local people are informed of the demarcated areas, each of which is assigned a specific grazing time. Graziers move with their animals from one area to another according to the schedule drawn up by the *dzumsa*. During the peak summer months, the graziers reach Chho Lhamu (a lake in northern Sikkim) and during the winter months the cows are brought down to temperate forest areas near Toong while the yaks are kept at higher elevations around the Shingba Rhododendron Sanctuary. The *pipen* also demarcates areas and a schedule for collecting fodder in the winter months. Only one area is worked at a time. Decisions regarding the extraction of timber, fuelwood, stone, sand and other natural resources, dates for cultivation and harvesting of agricultural crops, and the collection and harvesting of medicinal plants are also



controlled by the *pipen*.¹⁶

Violation of rules and regulations set at the village councils invites punishment that can take the form of social boycotts or fines. Fines are channelled towards community development through the *dzumsa*. A certain amount of tax per animal is also collected annually and deposited with the *dzumsa*. Some of these funds are available to the community in the form of soft loans for community development.

In case of disputes regarding the regulations, the disputants approach the *pipen* with a scarf and a rupee note. Once the case is accepted, a meeting is called where both the parties bring some food and *chhang*, the local liquor. Once the matter is decided, this food is served to the gathering to celebrate, and the guilty party pays a monetary fine.

Three members of the Lachung community were nabbed poaching musk deer (*Moschus chrysogaster*) in a combing operation in 1977. The FD sent them to jail for two months. When they returned, the *dzumsa* met and passed a resolution warning future poachers with social boycott, despite the fact that there is no prohibition on the killing of musk deer under traditional Lepcha law. There is no worse punishment for the people of Lachung than social boycott. No cases of poaching have been reported from the region since.

Although there is an element of community resource management in *pipen* regulatory systems, the areas over which *pipens* exercise control are considered the property of the state. With increasing pressures on the valuable timber resources of north Sikkim, the *pipen* system is under considerable pressure to be incorporated into wider administrative processes and policies. The good news is that Government officials have recently begun interacting with the *pipens*. In March 1998, a case of encroachment by the army in the forest area was brought to the notice of the FD as a case of violation of the Forest (Conservation) Act 1980. The Army had razed the natural embankment of a sacred lake to improve vehicular access to the lake. A gurudwara (a Sikh temple) had also been constructed at the site and the name of the lake changed to Nanak Jheel, hurting local sentiment as the lake had been named after Padmasambhava. The Chief Secretary took up the matter and consulted the *pipen* in this matter. In the context of a focus on small-scale resource management committees, it is imperative that this traditional decision-making arrangement is recognized and built upon in all decentralized decision-making processes of the government.

3.3. Participatory tourism monitoring by the Khangchendzonga Conservation Committee (KCC), Yuksam¹⁷

Tourism in Yuksam began during the early 80s and has grown steadily since. The primary attraction is trekking into what is now Khangchendzonga Biosphere Reserve and National Park, following the trail of pastoralists through rich, verdant forests into high alpine pastures and passes. Apart from commercial tourism operations, the Himalayan Mountaineering Institute (HMI) conducts several adventure and basic mountaineering courses annually with large numbers of participants and support staff. The growth in tourism presented a livelihood opportunity for local residents since Yuksam lay at the start of the trekking trail. However, in the mid to late 1990s, local community members began to express concern about some of the impacts tourism was having in the area and in the National Park. They recognised that it was the presence of natural wealth in the area that provided the main attraction to visitors, and realized that efforts needed to be made to conserve these resources upon which their incomes and livelihoods were dependent. They realized that unchecked and unregulated tourism growth could, in the long term, endanger and threaten the very resources that attracted visitors to their village.

To address these issues and bring awareness among the local people, the local youth formed a small but active community organisation, the KCC, with a focus on natural resource conservation, conservation education and income generation. Members of the committee have conducted several awareness camps; training courses for tourism service providers such as porters, cooks and guides; and other conservation-related activities. In 1999, the KCC started a participatory monitoring programme of the



Herders using traditional skills to become eco-guides
Photo: Sandeep Tambe

major trekking trail inside the National Park and in the surrounding areas. Unable to exert any active decision-making role in the management of the protected area, they felt that one important role they could play was to monitor the condition of resources and use this to influence users of the park (primarily HMI) and the State FD.

Box 1

Objectives of the KCC Participatory Monitoring

- To monitor the garbage status, trail condition and trekker's huts and campsite facilities in the trekking corridor (Yuksam–Dzongri–Base Camp).
- To monitor the use of firewood by the trekkers, travel agents (if any), trekking support staff, trekkers' huts, caretakers and the members of HMI.
- Prepare reports to submit to relevant agencies like Department of Tourism, Forest & Wildlife Department and NGOs, and disseminate information in the village community for awareness and support.
- Interact with and involve visitors, trekkers and local tourism entrepreneurs in the participatory monitoring of tourism activities and in the process empower them to take decisions and advocate for conservation initiatives.

To begin their work on participatory monitoring of tourism activities, KCC invited key local people and National Park staff from the village for a general meeting. The objectives of the participatory monitoring study were highlighted and consensus was arrived at with the villagers about participating in the proposed study. Having received positive responses from the community, a brainstorming session was conducted with villagers to evolve strategies for involving local people in the monitoring activities. Participants also noted the roles of relevant agencies that could be involved so that appropriate actions could be taken. The outcome of the meeting was a list of possible activities and the names of local people apart from KCC members who would be actively involved and could contribute significantly. Consultation and assistance from external agencies were sought to make an effective work plan that would address the issues of monitoring tourism activities and conservation impacts. Having set their targets, several meetings were conducted in the village to make local people and those involved in tourism enterprises aware as to why such an initiative was important and how local people could participate and contribute. The different activities that were conducted in the participatory monitoring of tourism activities are listed below:

- Preliminary awareness meetings in the village with local people. Making an effort to involve all tourism stakeholders to take an active role in monitoring tourism activities in and around their area.
- Survey of the trekking trail and tourist facilities along the trekking trail.
- Status report of the tourism facilities, impacts and other issues documented and prepared in collaboration with a group of students from Indian Institute of Technology, Bombay.
- Monitoring formats and questionnaire developed to collect information and data on types of tourists visiting the area, different tourism activities and their subsequent impacts, information on flora and fauna, and camping facilities for trekkers.
- Meeting with the Forest and Tourism Department staff to tell them about the situation of the trekking trail, tourist facilities and measures that could be taken up to address the impacts of tourism.
- Meeting with the Principal Chief Conservator of Forests to update him about the community initiatives that were being undertaken, and how the FD could further extend support to their initiatives in the long term.
- Meeting with the HMI staff to talk about strategies to manage their training programs in order that they adopt more environmentally sound and responsible practices and adopt the code of conduct developed by the KCC members.
- Proposal developed and submitted to Tourism Department for funds to do a clean-up of the trekking trail and camping sites which are heavily degraded and polluted.

Much of the work is still under progress. Data that have been collected are being analysed to convert them into reports for dissemination. Preliminary reports have been prepared and submitted to relevant government agencies and community stakeholders.

More recently, KCC has also helped to coordinate the preparation of a biodiversity strategy and action plan for the Rathong Chu area, under the National Biodiversity Strategy and Action Plan process of the Government of India.¹⁸

Himal Rakshaks

Almost 60% of Sikkim is classified as Reserved Forest. The sub-alpine and alpine landscape of the Sikkim Himalayas, locally known as *himal*, is an ecologically sensitive area. It serves as habitat to various animals like the snow leopard, musk deer and black necked crane and houses the rich biodiversity of the area. It also forms the headwaters of several perennial rivers. Thus conserving this area is of prime importance. The upper sections of the mountains have not been successfully protected due to various reasons including the harsh terrain, climate, high altitude and the paucity of personnel and funding.

The Himal Rakshak programme was officially launched on the 5th of June 2006 as a solution to this problem. This is a voluntary programme where independent individuals who practice high altitude subsistence livelihood could enlist as *HimalRakshaks* (honorary mountain guardians) with Forest Department and help in the conservation management of the *himal*. In return, the volunteers can continue their subsistence livelihood activities in the *himal*, in a regulated manner.

After being launched in 2006, the programme has continued with the support of various organisations.

4. Conclusions

Sikkim has several interesting examples of community conservation activities, not all of which can be considered as traditional efforts by communities to protect forested or other areas for posterity. However, these traditional initiatives and the more recent changes and interventions do represent opportunities to explore and establish collaborative efforts in conservation.

Effective conservation of resources requires more than just one approach, and Sikkim is fortunate to have several that can be the basis of a diverse strategy. Perhaps the strongest element in supporting and promoting community-based conservation efforts in the state lies in the deep respect and spiritual values that many Sikkimese have not just for mountains but also for the landscape as a whole.



Zemu glacier Khangchendzonga National Park
Photo: Sandeep Tambe

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Endnotes

¹ Department of Forest, Environment and Wildlife, *Sikkim State Biodiversity Strategy and Action Plan*, Prepared under National Biodiversity Strategy & Action Plan – India. Included in CD with TPCG and Kalpavriksh *Securing India's Future: Technical Report of the NBSAP* (Pune, Kalpavriksh, 2005).

² As above.

³ H.G. Champion and S.K. Seth, *Forest Types of India* (Dehra Dun, Forest Research Institute, 1968).

⁴ P.S. Ramakrishnan, 'Conserving the Sacred: Ecological and Policy Implications', in A. Kothari, N. Pathak, R.V. Anuradha and B. Taneja (eds), *Communities and Conservation: Natural Resource Management in South and Central Asia* (New Delhi, Sage Publications, 1998).

⁵ Information from the Sikkim Science Society.

⁶ E. Sharma, K.K. Singh, and G. Sharma, 'A boon for mountain populations : Large cardamom farming in the Sikkim Himalaya', *Mountain Research and Development* 20(2) (2000), pp. 108-11 .

⁷ Government of India, 'Forest cover mapping through digital image processing of Indian remote sensing satellite data with special reference to Sikkim - Procedural manual and inventory' (Joint collaboration project of forest department, Govt. of Sikkim and Regional Remote Sensing Service Centre, Kharagpur, Indian Space Research Organization, Department of Space, Government of India, 1994).

⁸ *Kazis* are a group of Sikkimese considered as wealthy landlords.

⁹ State Forest Department, *State Forestry Action Plan* (Gangtok, Forest Department, 1996).

¹⁰ Proposals are under preparation by the FD to promote participatory conservation around Khangchendzonga Biosphere Reserve, and for other sanctuaries in south and west Sikkim. This includes a Himal Rakshak programme in which graziers are appointed as honorary wardens of the reserve, in lieu of continued access to grazing routes (see www.tmi-india.org).

¹¹ Ramakrishnan, 'Conserving the Sacred'. (As above)

¹² Information from the Sikkim Science Society.

¹³ Ramakrishnan recommends that the entire region from Khangchendzonga to the Yuksam lowlands be declared a National Heritage Site. Ramakrishnan, 'Conserving the Sacred'. (As above). At the time of going to press, monks and other citizens of the area had once again risen up to protest proposals for a series of dams that will severely damage the environment and cultural integrity of the area.

¹⁴ Edited from material provided by Lalit Rai, G.B Pant Institute, Gangtok.

¹⁵ Edited from material provided by Renzino Lepcha.

¹⁶ S.C. Raj, E. Sharma and R.C. Sundriyal, 'Conservation in the Sikkim Himalaya: Traditional knowledge and land use of the Mamlay watershed', *Environmental Conservation* 15 (1994), pp. 30-5.

¹⁷ Edited from material provided by the Khanchendzonga Conservation Committee

¹⁸ Department of Forest, Environment and Wildlife, *Rathong Chu Valley (Sikkim) Substate Biodiversity Strategy and Action Plan*. Prepared under the National Biodiversity Strategy and Action Plan. Included in CD with TPCG and Kalpavriksh *Securing India's Future: Technical Report of the NBSAP* (Pune, Kalpavriksh, 2005).

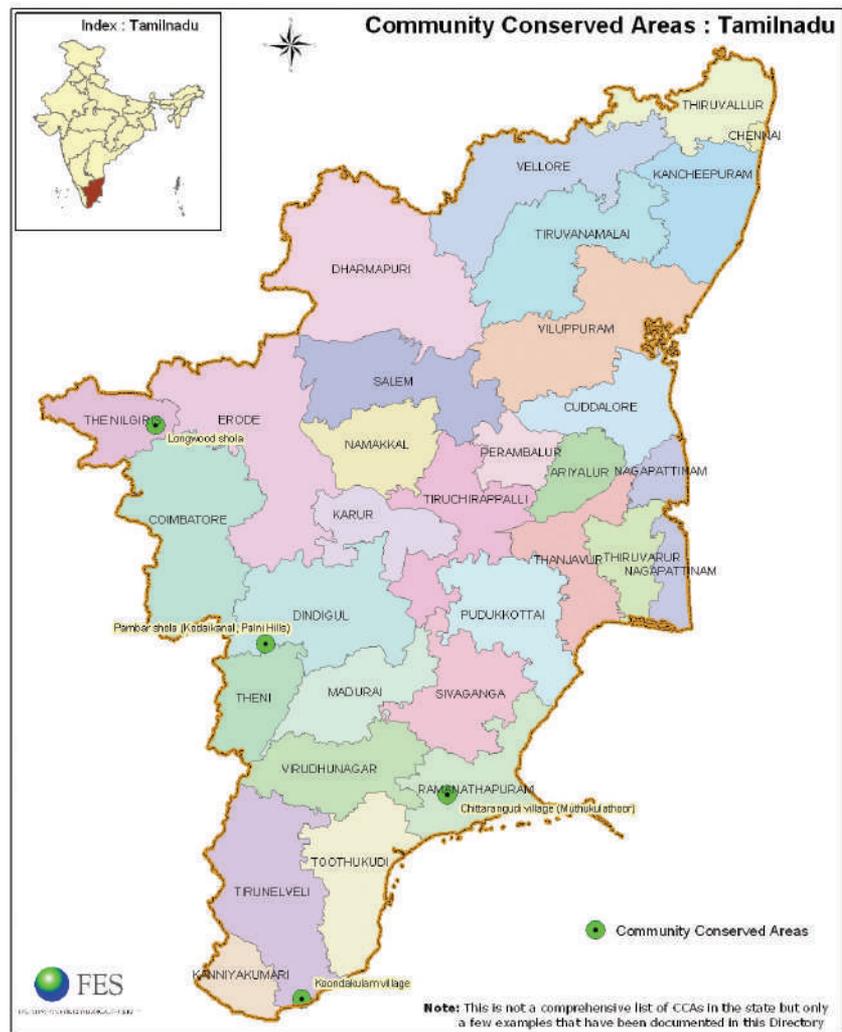
¹⁹ Source: 1. 'Himal Rakshaks to Guard Sikkim's Most Valuable Treasure' by Sandeep Tambe, Nima Tashi Bhutia, M.L. Arrawatia (<http://scstsenvis.nic.in/Himal%20rakshak.pdf>)

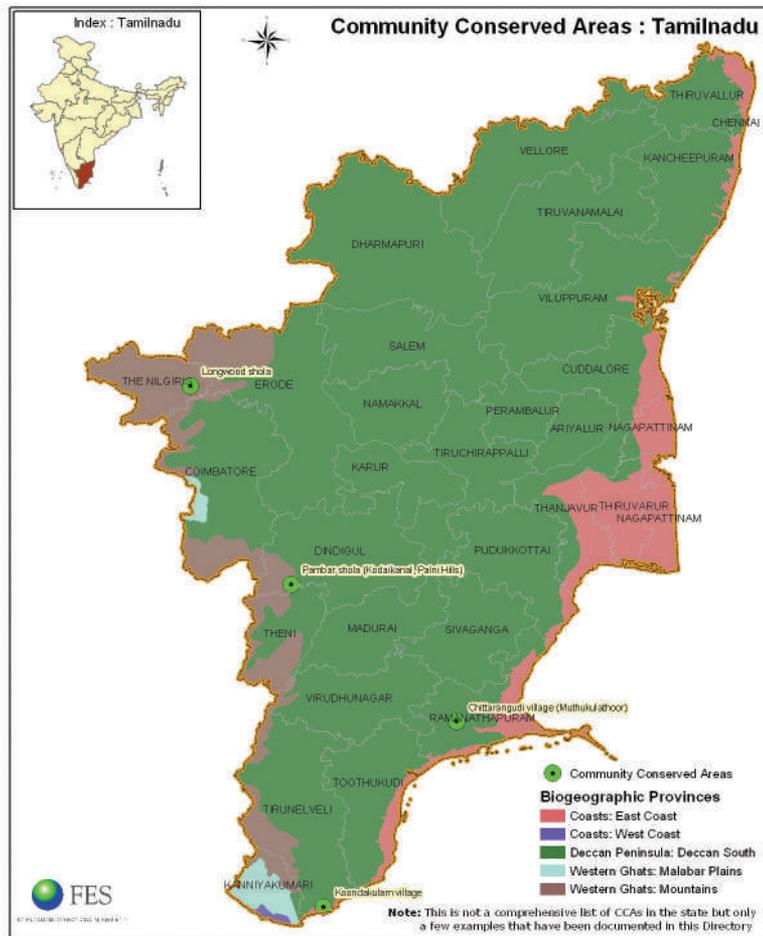
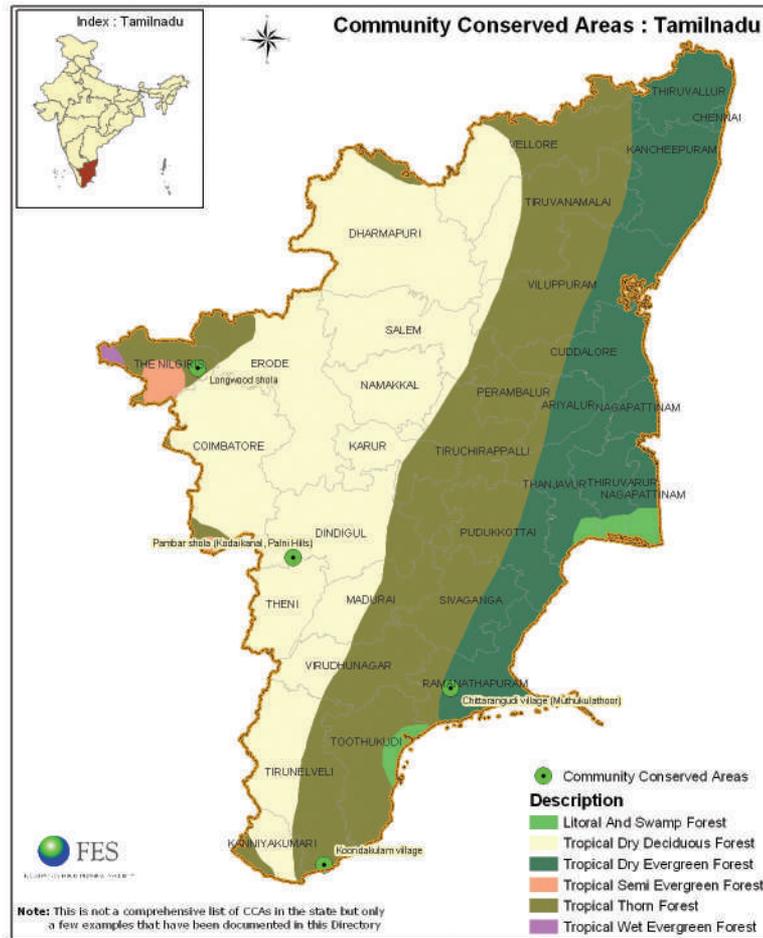
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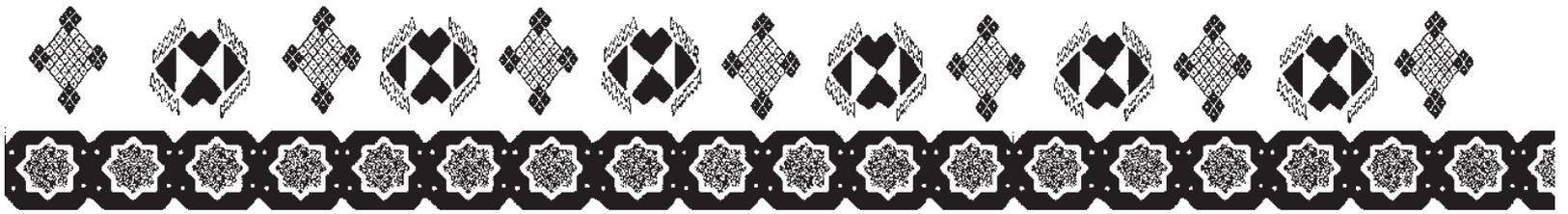
²⁰ Department of Forest, Environment and Wildlife, *Sikkim State Biodiversity Strategy and Action Plan*. (As above).



Tamil Nadu







Community conservation in Tamil Nadu

Shantha Bhushan

Author's note: This study was carried out with the help of several individuals and groups in Tamil Nadu. The paucity of information on coastal conservation in this chapter does not indicate that there is no community-based conservation here, but only that documentation is insufficient.

1. Background

1.1. Geographic profile

Covering 130,058 sq km of south-east India, the state of Tamil Nadu is blessed with a tremendous diversity of natural resources. The principal crops grown in the state are paddy, millets, cereals, pulses, sugarcane and groundnut. Tamil Nadu receives rainfall from the north-east monsoon between the months of October and December, and some parts of the state such as the Nilgiris benefit from the south-west monsoon in the months of May and June.

1.2. Ecological profile

The state is characterised by three distinct ecoregions:

- The Eastern coastal plains, a long and wide stretch of land lying between the Eastern Ghats and the Bay of Bengal, are dissected by broad valleys and deltas of major rivers such as Cauvery that flow through the state. The 1,067 km coastline comprises 13 coastal districts and 591 marine fishing villages. Rainfall in the region varies between 100 to 300 cm annually.



Pelicans and other waterbirds at Koonthakulam, Tirunelveli district *Photo: S. Subramanya*

- The Eastern Ghats have rugged, hilly terrain, run parallel to the east coast and cover Dharamapuri, North Arcot, Salem and parts of Nilgiri district. The western and eastern flanks receive annual rainfall between 80 and 200 cm while the central parts are quite dry. The uplands of the Eastern Ghats are comprised mainly of the hill ranges of Javadi, Shevaroy, Kalrayan, Pachchamalai and Kanjanmalai. The hill ranges form a chain of low, flat hills dissected by the Ponnaiyar, Cauvery and Vellar rivers. The high mountains of Nilgiri district rise at the tail end of the Eastern Ghats and mark the meeting point of the Eastern and Western Ghats. This region is the watershed of perennial rivers like the Cauvery, Amaravathi, Vaigai and Tamaraparini.
- The Western Ghats constitute a narrow but long range of hills running from the north to south along the western coast of India. These hills separate the western coastal plains from the drier parts of the Deccan plateau. The ecologically rich Western Ghats extend from Nilgiri District into Kanyakumari and Tirunelveli districts.

1.3. Socio-economic profile

Tamil Nadu has a population (2001) of about 62.5 million, with about 35 million in rural and 27.5 million in urban areas. The population is predominantly Hindu, comprising about 88 per cent, while Muslims and Christians comprise about 5-6 per cent each.¹

In the past the economy was largely agriculture- and fisheries-based. The population was mainly rural in the erstwhile Madras Presidency (which also had some parts of Andhra Pradesh, Karnataka

and Kerala), of which Chennai (earlier called Madras) was the capital. Post-independence, the nature of the economy changed to one based on industry and agriculture. High levels of education and industrialization in the inland areas have led to increased urbanization, and a reduction in dependence on wild biodiversity. Over the last five decades there has been a boom in the number of small towns. Thus the need to protect natural resources, especially habitats containing wild biodiversity, has not been strongly felt by people in the inland areas.

The other ecosystem-dependent community is that of fisherfolk along the eastern coast. As in other coastal areas of India, there are problems due to mechanisation, trawling, and increasing human population, leading to depletion of fish stock and marine life. The Gulf of Mannar (a Biosphere Reserve) is one such example where the population and diversity of marine life is reported to be declining. In spite of intense conflicts between traditional fishing practices and modern trawling, there is scope for communities to conserve their areas proactively, as demonstrated by fisherfolk at Pulicat lagoon. Here, fisherfolk practice a sustainable form of fishing but their traditional systems of fishing are currently under threat from development projects (See Case Studies).

2. A Brief history of administrative control over land and resources

2.1. The pre-colonial era

Village *sabhas* (assemblies) enjoyed considerable local autonomy in Tamil Nadu during the Pallava and Chola periods (600-1300 AD). These *sabhas* appointed several committees or *variya*m with distinct responsibilities: for instance, the *yeri variyam* was responsible for the village lake or tank, and the *thotam variyam* looked after the village gardens. Tanks, streams, channels and pastures were considered common property. There are records dating back to the Pallava era which indicate that misuse of common property was punished. According to Dharampal,² villages (through the village accountant or *karnam*) maintained land records.

Dams were built across river Cauvery to divert water for cultivation in the Chola period. Though the planning and building of dams was considered a central responsibility, their maintenance was entrusted to local communities.³

2.2. The colonial era

The decline of the *gram sabhas* began with the British takeover of revenue control. In 1860, the British established that the land revenue should on the average be equal to half the net produce and 33 per cent of the gross produce for dry lands and 40 per cent for wetlands. The consequence of this was economic depression and wholesale desertion of land and breakdown of traditional institutions. There were repeated famines and an unprecedented rise in prices. This led to the almost complete destruction of the village systems. Land management systems such as *Samudhayam* (community ownership of land and equitable sharing of its yield) almost disappeared by the mid-20th century.⁴ Under British Dominion, the Madras Presidency appointed a Conservator of Forests as early as 1806. The first Conservator went about surveying the state of forests and demarcated commercially viable forests. Later, a variety of protection regimes of forests were introduced. In 1823, Governor Thomas Munro abolished the position of Conservator in the belief that supply and demand would stimulate private afforestation if timber supplies ran low.⁵ In the years following this, there was considerable exploitation of forests for railway construction and consequent degradation of forests, both under government control as well as under private ownership.⁶

Large expanses of forests were also converted into plantations of coffee, tea and cardamom, especially in the Nilgiris in the early 19th century, contributing to habitat fragmentation. This has been particularly problematic for elephants. Much degradation was also caused by the forest department policy of encouraging plantations of exotic fast-growing species such as pine, eucalyptus, and wattle (often in the face of massive opposition by the local populace that depended on these forests for survival). In the Nilgiris, such plantations affected the grassland-*shola* ecosystem and had ecological impacts such as the drying-up of streams and increased soil erosion. The Madras Forest Act was enacted in 1882.

2.3. Post-Independence

The enactment of the Madras Panchayat Bill of 1958 was an attempt at reviving local self-governing bodies, but this did not succeed. As Ramachandra Guha⁷ points out, 'destruction of

ecological resource base has rendered the once possibly highly adaptive organization of caste society largely maladaptive.' The change in ownership of land and resources and the resultant change in the institutions and institutional structures seems almost irreversible.

The forest department traditionally concentrated on conserving the rich evergreen and moist deciduous forests of the Western Ghats. Till the 1980s, of a total of 2,112 sq km of Protected Areas in Tamil Nadu, about 2,027 sq km (95.97 per cent) were located in this ecoregion.⁸ After the mid 1980s, conservation emphasis has been on natural forest for improving and enhancing intangible benefits. The forest department also started research on understanding population dynamics of flora and fauna in representative forest types. Importance was also given to augment produce of NTFP (Non-Timber Forest Produce) within and outside protected areas (PAs).

It is estimated that about 7,000 sq km of forest land, interfacing with about 3,100 villages, was under various stages of degradation.⁹ This was mainly due to excessive cattle grazing, illicit felling, recurrent forest fires and encroachment. Social forestry programmes were started in 1982 to address these problems. In the second phase of the Social Forestry project in 1988, an innovative component called 'Interface Forestry Programme' was introduced. This programme was not very successful, partly because of a standardised rather than a site-specific implementation approach. In a critique of the social forestry process in Tamil Nadu, K. Balsubramanian¹⁰ has pointed out that 'people's participation cannot be programmed. Social Forestry and natural resource management is an extensive intricate task that requires location specific approach.' According to him, the issues of natural resource management are of such magnitude that even a macro-level institution like the government will not be in a position to address issues at the appropriate time. In terms of economics also such an approach may not be cost-effective. In his opinion, sustainability of such programmes can only be ensured by meaningful participation of the local communities. 'It is important to realize that a benefit sharing process will work only if the project fits the felt needs of the community. A standardized benefit sharing process will not work even if the framework is good.' When the state realized that this approach of social forestry was not suitable, Joint Forest Management was seen as the solution towards arresting degradation of forests.¹¹ In 1992 the state initiated a 5-year scheme, referred to as the Tamil Nadu Agricultural Development Project (TNADP), which aimed at increasing agricultural production by improving degraded forest areas and implementing water augmentation works. The strategy adopted was that of participatory forest management with the involvement of communities by constitution of village-level committees. The process of benefit sharing was outlined in a Government Order (GO MS.No.8: Environment and Forests (FR VI) dated 04-01-1993). However this scheme was not successful in achieving its objectives, reportedly because it was implemented as yet another departmental plantation scheme without the staff having internalised the concept of community participation.

The state passed a Joint Forest Management resolution in 1997 (GO No. 42, dated 8-8-1997), stating the objective that the 'Government of Tamil Nadu stands committed to involve local people in reforestation and protection of degraded forests and to share with them the sustainable benefits from these forests.' With the end of TNADP, the Tamil Nadu Afforestation Project (TAP) was launched in 1997-98, with the objective of ecological restoration with the fullest participation of people through JFM. This project is scheduled for a five-year period with an annual target of 200 villages, each village covering approximately 300 ha of degraded forests. With the project getting over in 2002, the role of the community in protection of these lands needs to be assessed.

An interesting and important feature has been that of multi-sectoral integration. The Chief Secretary, Tamil Nadu, has asked all district collectors to follow integration of various department activities in the villages where TAP was being implemented (vide D.O letter no 1251/FR.V/98-2, Environment and Forests, 4th April 1998). The Tamil Nadu government has constituted district-level Joint Forest Management Committees, with the district collector as chairman (GO Ms No 166/E&F/FR VI Department, dated 11.6.98). The District Forest Officer will act as member secretary. The committee has to review the functioning of Village Forest Councils and achievements of JFM in 23 districts where the programme is being implemented. This committee meets once in two months to identify the integration of forestry with other sectors and functioning of village forest councils. However, whether this integration has actually happened and whether it leads towards a participatory method of conservation needs to be assessed.¹²

3. Origins of community conservation

3.1. History of community conservation efforts

Historically, Tamil Nadu was divided into several *tinnai* or zones, some named after a flower, such as *kurinji* (hill regions), *marudham* (fields in riverine plains), *neidhal* (coastal regions) and *paalai* (wasteland).

Apart from numerous historical references to the close association between the Tamil people and their natural resources (such as the functioning of the *variyaams*), there are many telling examples in Tamil literature. The state's abundant natural wealth is reflected in poems such as the *Malaipadupakam* (sound of the mountain), *Nedunalavadai* (good, long north-wind) and *Kurinjipatta* (mountain song) among others. The *Kurinjipatta* lists 99 different flowers of the mountains. Villages were often named after the closest hill (suffix: *malai* or *kundru*), lakes (suffix: *eeri*) and tanks (suffix: *kulam*). Several others were named after trees, flowers, mammals or birds.

Ancient temples were closely associated with groves, as evidenced in the epic poem *Silapadikaram*, which describes a number of groves such as *ilavandigaisolai*, *sampaathi solai* and *kaveri vanam* in the Chola port of Poompuhar. The poems of the saints (known as Alvars) describe the beautiful groves around the holy temple of Srirangam.

Thirunandavan-kaingkarya (special grants from the king) were made to *thirunandavanu-puram* (temple gardens and orchards). The *tiruvalangadu* plates of King Rajendra Chola (10th century AD) describe parts of a village endowed to the local Shiva temple: 'All the land within the four boundaries including wetlands, dry lands, village sites, houses, house gardens, streams, rivers, ponds ... land where iguanas run or tortoises creep.'¹³

As in other parts of India, the worship of trees was prevalent among the Tamils. There are numerous references in Sangam literature to the commonly held belief that trees were the abode of gods. The tree that was worshipped subsequently developed into the *sthalavriksha* of the temple with which it was associated.¹⁴ When temples were erected for the god who resided in the sacred tree, people took special care not to damage the tree. The tree actually forms the *garbha-griha* (sanctum sanctorum) of several of these temples.

Almost all the state's temples are associated with a holy tree and a legend. Kanchipuram is named after the kanchi tree, and Chidambaram or Tillaivanam is named after *tillai* (mangroves). During the 18th and 19th centuries, *sthalapuranas* were written about the temples, each emphasizing the characteristics of the *sthalavriksha* (holy tree) and *teertha* (water source). About 357 *sthalas* and 60 *sthalavrikshas* have been recorded in Tamil Nadu.¹⁵ The tradition of worshipping sacred trees continues today; sometimes the stump is worshipped even after the tree is dead.

Many temples also had a small tank that was part of the temple complex and was considered sacred. The sacred tanks were believed to serve the ecological function of attracting clouds and ensuring that water-table levels were sustained. The CPR Foundation for Environment Education is documenting sacred tanks. The revival of sacred tanks could have an important role considering the extreme water shortage that the state has been facing in the last few years.

In the following sections, community conservation initiatives in the state under three categories have been explored: (i) sacred groves, (ii) irrigation tanks, and (iii) natural wetlands.

3.2 Sacred groves

Patches of forest preserved by local communities out of love, fear or reverence, the sacred groves of Tamil Nadu (*kovilkaadagul* or *mara kaavagula*) are an essential part of the state's landscape. They are dedicated to the feminine deities, Amman, Kaliamma and Mariamma, or to masculine forms such as Muniyandi and Karuppan. Almost every village in the state has at least an acre of land dedicated to the local deity. The groves are small, usually ranging from half a hectare to 20 hectares, but a few are as large as 500 ha.

The sacred groves of Tamil Nadu represent a variety of vegetation types ranging from evergreen to semi-evergreen to dry deciduous type depending on the region. The climax vegetation species in the drier regions of the plains are predominantly ironwood, East Indian satinwood, *Capparis* bush and *siris*. In high altitude areas, species such as Indian wild lime, hardwood tree, arjun and sandalwood are found. Some rare, endangered and threatened plant species (many of them medicinal) are found in sacred groves.

Apart from fulfilling several ecological functions, the regular celebration of festivals in sacred groves played an important part in fostering stronger ties between local communities.

3.2.1. Institutional structures in the conservation of sacred groves

Sacred groves are located on temple lands that are either owned by the forest department or temple Trusts, or lie in village commons. The ownership pattern seems to vary. For example, many sacred groves in the forested regions of Eastern and Western Ghats were large and at some point declared reserved forests (thus currently under state ownership), but existing customs and traditions were usually allowed to continue. This contrasts with the situation in the plains, where

many villages had a temple with a garden (*nandavanam*), situated in the centre of the village, and also a sacred grove on the outskirts of the village (which often served as a windbreak). The ownership of this kind of sacred grove would usually be with the *panchayat* or sometimes with a trust.

Practices associated with conserving sacred groves are deep-rooted and cut across caste barriers. In some cases, the groves are considered a renewable resource base, from where locals can collect twigs, dead wood, fruits and herbs. In several cases, however, even the removal of twigs is taboo. Some of the taboos that have been and are still practised are: prohibition on felling of trees, footwear not allowed, animals not to be harmed, etc. There was also considerable fear that breaking taboos could lead to failure of crops or pestilence. Sometimes animal sacrifice, fire-walking and suchlike practices were and are still practiced in these groves.

Of the terracotta figurines¹⁶ of bulls, elephants and horses that decorate each grove, the making of the Ayyanar's¹⁷ horse and its dedication is still an important event in villages around the state.

3.2.2. Constraints and opportunities for the conservation of sacred groves

Documentation conducted by the CPR Foundation Environment Education Centre (CPR-EEC), Chennai, reveals at least 448 existing sacred groves in different parts of Tamil Nadu, of which about 80 per cent are reasonably well protected.¹⁸ The groves are concentrated in the Perambalur, Tiruvannamalai and Tiruchirapalli districts. The Foundation has started a programme on restoration of groves. This has provided telling insights into the willingness of communities to participate in such an endeavour: in some villages, people expressed fears of the government or implementing agency usurping community lands. Fear of the deity, in several cases, also acted as a deterrent against restoration.

In 1998, the CPR-EEC, with local communities, began restoring degraded sacred groves in 14 villages. Restoration activities are centred on the clearing of thorny shrubs, fencing the grove, soil-working and, finally, selection of species to be planted. In restoration taken up by CPR-EEC, the response has been encouraging in terms of community participation and biodiversity conservation of the grove.¹⁹

3.3. Water resource conservation

The *eeris* (*yeri*) or *kanmoi* of Tamil Nadu, *keres* of Karnataka, and the *cheruvu* of Andhra Pradesh all refer to tanks spread over the entire Deccan plateau and dating back at least 2000 years. Even today, more than 140,000 small and big tanks spread over the Deccan provide not less than 25 per cent of the total irrigation requirement of the region. To give an idea of the extent of irrigation and the scale of revenue: the Veeranum tank in South Arcot district supplied water to 149 villages and provided a revenue of Rs 1,14,150 in the year 1850.²⁰ *Eeris* are especially important in dry areas of Tamil Nadu such as Ramanathapuram district.

The tanks were maintained largely for irrigation and drinking water, but several tanks have a considerable diversity of trees species that attract many species of nesting and migratory birds. The *Directory of Indian Wetlands*, prepared by WWF-India,²¹ highlights many such tanks in the state. There are many instances of heronries on tanks that were maintained by communities being declared bird sanctuaries under the Wild Life (Protection) Act (e.g., Chittarangudi, Vedanthangal). The declaration of these tanks as sanctuaries meant that the role of community in use and maintenance was stopped or reduced. Earlier the communities had specified systems of sharing water, maintaining the tank and regular desilting of the tanks. Once the forest department took over the tanks, it had to wait for funds to do the desilting (which is very important as the silt is used as fertiliser in fields and also ensures sustained water storage in the tank). At Chittarangudi sanctuary, the village now depends on the forest department for desilting the tank, on which they depend heavily for irrigation.

The famous Vedanthangal bird sanctuary, one of the oldest sanctuaries in India, was established in 1925.²² Vedanthangal literally translates as 'ban on hunting', a system practiced and enforced by villagers residing and farming near this tank. The farmers valued the birds for the fertilizer provided by the guano. In the late 18th century, British soldiers regularly held shoots at the tanks, events that were strongly objected to by local villagers. In 1790, after repeated attempts, the local villagers were able to obtain a *cow/e* or Document of Rights from the first Collector of the East India Company for Chengelpet district, preventing the hunting of birds in the tank and granting official recognition of the local communities right to protect the birds of the tank. The original document was lost and the villagers re-applied for this recognition in 1858. In 1936, the then Collector, a Mr

Todd, issued an order stating: 'Vedanthangal is a bird sanctuary and has been kept as such by the villagers for over a century. Notice in English and Tamil should be painted on wooden boards and set up at each end of the tank bund.'

The Vedanthangal tank continues to be managed by the forest department. The sanctuary is now threatened by large numbers of tourists, a pressure that is especially intense during the breeding season. This tank is an important breeding area for colonial nesting waterbirds, and a critical roosting site for many breeding birds and a large number of migratory waterfowl. Here the two trees of special significance are *Barringtonia acutangula* and *Alangium salvifolium*. It is not known what the present role of the community is in protection and maintenance of the tank.

In a similar initiative, the villagers of Chittarangudi do not burst crackers during the festival of Diwali, for fear of scaring the birds away from the village tank. They are also known to nurse injured birds back to health. The villagers are quite proud of the fact that they are known as people who protect birds. The tank is important for the economy, as the village is mainly dependent on agriculture. The tank is an important source of water and the bird droppings serve as good organic fertilizer (See Case Studies).

In sharp contrast to Vedanthangal and Chittarangudi, there are some village tanks in Madurai district where birds are hunted by methods as crude as crackers and explosives, and tanks are maintained only for agriculture and fishing. It has been observed that communities in areas that are resource-rich are negligent in contrast to areas where there is scarcity. An example of the latter is the rain-shadow area of Ramanathapuram district, where people are very careful in use of resources.

3.3.1. Institutional structures in the management of irrigation tanks

The development of the tanks were traditionally undertaken by local chieftains with technical advice from specialist surveyors and craftsmen, and construction by villagers. One of the main functions of the ancient *gram sabhas* (village assemblies) was managing the village irrigation tanks. Revenue generated from the tank (farmers, known as *ayacutdars*—*ayacut* is a measure of land irrigated—pay for the water they get and have responsibilities in protecting the tank water), and the corpus fund was generally sufficient to pay local villagers who undertook repairs and maintenance. Apparently each village had different rules, but broadly the system involved the stakeholders paying for the services and sharing the work of maintenance.

This system was disrupted under British dominion, as they introduced several settlements²³ and began taxing revenues earned from irrigation tanks. Net money available after taxation was considerably reduced, and gradually eroded the ability of village institutions to manage the tanks.

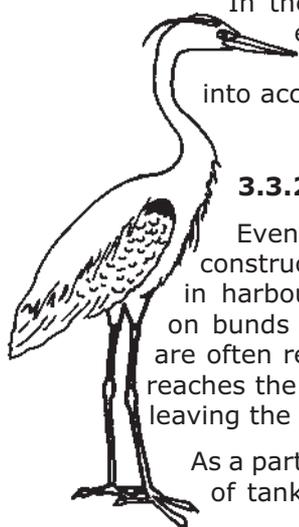
In the middle of the 19th century, the irrigation tanks were brought under the PWD (Public Works Department) of the Madras Presidency. The Madras Compulsory Labour Act was passed in 1858, forcing local communities to provide labour for repair and maintenance of the tanks.²⁴ This system did not work and tanks continued to disintegrate. The situation has not changed much post-independence: decision-making and tank administration continue to be centralised and village *panchayats* do not play an important role in their management. Most tanks belong to and are managed by different government bodies, leaving limited space for community participation.

In the 1970s, the PWD began a tank modernization programme focused on equitable benefit-sharing and the prevention of water seepage. This scheme was not successful, as it did not take traditional management structures into account and also did not involve farmers.

3.3.2. Constraints and opportunities for conservation in tanks

Even though these tanks are human-made structures and are usually constructed for drinking water or irrigation purposes, they serve an important part in harbouring wildlife. They also provide sources of revenue from trees planted on bunds and foreshores, fish and silt. Middlemen, contractors or corrupt officials are often reported to be siphoning off these revenues, and only a negligible amount reaches the government. In this process, both villagers and the government lose out, leaving the farmers weaker and the village economy more fragile.

As a part of the Social Forestry Programme, afforestation was tried out on foreshore of tanks and other common areas. This was not successful because the people



rejected the choice of species and the manner in which the programme was implemented.

There are efforts to revive community management of tanks. Recently an organization called DHAN (Development of Humane Action) Foundation²⁵ has started helping people organize themselves into groups called Tank Farmers Associations (TFAs) in Madurai and Ramanthapuram districts. In the last few years, these associations have gained in strength and proved that they have the potential to manage and safeguard the tanks. This concept seems to be gaining in strength.

3.4. Natural wetlands

There are a few wetlands mainly adjoining coastal areas, or near mangrove forests. Confusion regarding ownership, rights and management of these wetlands has left limited scope for community-based conservation. Many of these wetlands dry up in summer, and livelihoods dependent on these are therefore seasonal. An interesting example is that of Pulicat lake (see case study for more details), where the fisherfolk have an elaborate system to regulate fishing, and have also opposed development projects that have negatively impacted the biodiversity of the complex lagoon system and therefore the livelihoods of the fisherfolk.

Local community movements have also helped reduce the threats to some other waterbodies. The Noyyal river that flows through Coimbatore district is an important source of water. There is a concentration of industries, especially knitwear, which has resulted in considerable pollution of the river and groundwater in the area. In 1992, the Orthapalayam dam was constructed about 10 km from Tirupur to provide irrigation for 8,000 ha. Since the catchment area of the river has polluting industries, the dam became a reservoir for polluted water. In February 1997, there was no flow of water from the Cauvery and the stored water was becoming dangerous; the effluent-laden water was released from the dam, which led to the death of many animals. There was concerted, regular opposition by the local farmers associations against this pollution, and release of such waters for irrigation.

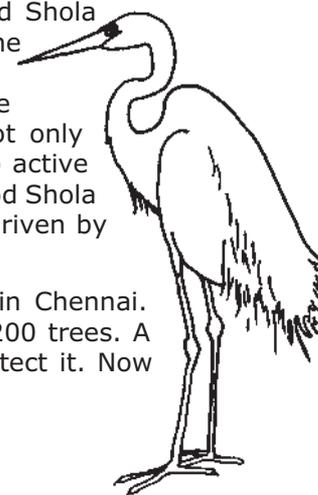
The flourishing leather industry in Vellore led to pollution of groundwater, destruction of farmlands and considerable health impact on humans and cattle population here. The leather industry is an important foreign-exchange earner and it was only when the people protested against this that any action was taken by the government. A PIL was launched by the people under the 'Vellore Citizens Forum' and in a landmark judgement in 1996, the Supreme Court ordered shutting down of tanneries here and ordered a pollution fine of Rs 10,000 to be paid by polluting industries. This judgement also required the Central Government to establish an authority under Section 3(3) of the Environment Protection Act of 1986, headed by a retired high court judge, to deal with the situation created by the tanneries and other polluting industries. This authority was conferred wide powers, including ordering closure or relocation of units if necessary.²⁶

The Palar river is an important seasonal river that flows through north Tamil Nadu. There has been large-scale sand mining from the river, mainly for the construction and glass industry. Even when the river is dry, there are several springs which supply fresh water. However continued sand mining will be a threat to the existence of these freshwater springs. The large-scale sand mining in the Palar basin is being opposed by many *panchayats*,²⁷ especially in and around Kanchipuram town, as the mining is seen as being detrimental to availability of fresh water.

3.5. Other initiatives

Other community-based conservation examples include the Longwood Shola near Ooty and Pambar Shola near Kodaikanal. At both these sites, the local community understands the importance of the forest as a source of water security, and is doing everything to prevent deforestation. The determined efforts of the Vattakanal Conservation Trust here have not only led to less pressure for fuelwood on the *shola*, but it has also taken up active planting of *shola* species from the nursery that it has set up. The Longwood Shola is protected by several villagers situated close to this reserved forest, driven by the belief that this forest ensures the year-round flow of streams.

Another example is that of an initiative in Simson Industrial estate in Chennai. There were earlier about 40 night herons here, in an area with about 200 trees. A person called V. Guruswami convinced the managers of the site to protect it. Now there are reportedly about 10,000 birds that roost and/or nest here.



4. Conclusions

4.1. Constraints and opportunities for community conservation

As seen above, both traditional and new forms of community-based conservation can be seen in Tamil Nadu. This includes sacred groves and other forests, wetlands, and other ecosystems. It also includes struggles against destructive land uses of these ecosystems, such as mining and industrial pollution. There also seems to be a revival of conservation of agro-biodiversity and organic farming, which has conservation potential. However, these initiatives face considerable hurdles that will need to be tackled if community-based conservation is to become widespread and be scaled up.

One of the biggest constraints to community-based conservation is posed by the degree of industrialization and urbanization across Tamil Nadu. High degrees and intensities of conflict over existing natural resources have led to enormous ecological pressures. Most of the communities are either part of the mainstream economy or dependent on it, due to comparatively high levels of literacy and industrialisation. This reduces the intensity and desire among local communities to participate in conservation of wild biodiversity.

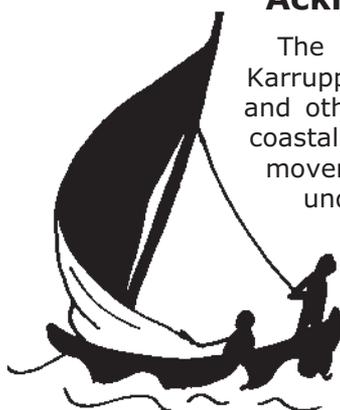
Secondly, as in many other parts of India, much of what was common property is now under state control. This leaves little incentive for local communities to protect their ecosystems, even though they may depend on these areas directly or indirectly. Equity issues internal to communities also continue to be hurdles; for instance, caste based politics appears to be a strong deterrent.

There are government schemes such as the TAP where funds are allotted for community participation in restoration and protection of forests and watershed areas. The drawbacks of such programmes are that they are externally funded, provide resources for a specified period of time and are dependent on officials implementing the programme, with little attempt to devolve decision-making to local institutions. On the other hand, sometimes such programmes may end up either introducing or reinforcing the concept of conservation and the benefits derived from it among local communities. They might also make the existing community more cohesive in order to derive benefits, and even after the official programme is over the conservation effort may continue (as is reported to have happened in the case of the ecodevelopment effort at Kalakkad Mundanthurai Tiger Reserve). The fringe benefit of such programmes is that they build confidence in people when they get to know more about the policies and schemes of the government, and are put in touch with government, non-government and other agencies.

One of the largest spaces for community conservation in the state exists in the restoration and management of wetlands and tanks. Some organisations have been working with local people to motivate them to form tank-farmers associations, and have been lobbying with the government both for allocation of funds for restoration of waterbodies as well as transferring ownership rights over such resources back to local communities. A comparison of budgets reveals that community-based tank management is cheaper in the long run for the government. An example of this is the desalination of sea water (Naripayyur scheme) to supply water to about 30 villages. This scheme incurred high cost in setting up infrastructure such as overhead tanks, the desalination plant with high maintenance cost and the membrane that was imported and is now not working (a rough estimate was about Rs. 3 crores or 30 million for a period of three years). On the other hand almost every village has a tank whose one-time clean-up will not cost more than Rs 50000 to one lakh and will ensure supply of water till the next desilting. According to Mr Karrupasami (member of DHAN),²⁸ the task of restoring forgotten management systems can also help unite and strengthen the community. And it would support the revival and conservation of tank-based biodiversity.

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Endnotes

- ¹ www.censusindia.net/t_00_003.html and www.censusindia.net/religiondata/Religiondata_2001.xls.
- ² Dharampal, *Panchayat Raj and India's Polity* (Goa, Other India Press, 1995).
- ³ Anil Agrawal and Sunita Narain (eds), *Dying Wisdom* (New Delhi, Centre for Science and Environment, 1997).
- ⁴ Dharampal, *Panchayat Raj and India's Polity*. (As above)
- ⁵ Sir Thomas Munro abolished conservatorship, as he held that dictates of capital and market would regulate forest exploitation. He was committed to what he construed as the ancient Indian tradition of personal government and thought that state control of forests would provoke peasant resistance. The lack of conservancy system, combined with the breakdown of community institutions caused by existing policies, led to increased rate of deforestation.
- ⁶ Mahesh Rangarajan, *Wildlife History of India* (New Delhi, Permanent Black, 2001).
- ⁷ Ramachandra Guha, *Social Ecology* (New Delhi, Oxford University Press, 1994).
- ⁸ W.A. Rodgers and H.S. Panwar, *Planning a Protected Area Network for India*. 2 volumes (Dehradun, Wildlife Institute of India, 1997).
- ⁹ Tamil Nadu Forest Department, 'Tamil Nadu Afforestation Project: A Resume of Achievements.' (Report by Tamil Nadu Forest Department for 1997-2001, 2001).
- ¹⁰ Annamalai. Report on JFM in Tamil Nadu, www.iifm.org/databank/jfm/tnstatus.
- ¹¹ Another positive spin-off was foreshore afforestation of tanks. In some districts of Tamil Nadu, afforestation done under the social forestry project has provided favourable conditions. Ramanathapuram district (TN) and Tirunelveli district (TN) are such examples. Species of *Acacia* were planted on the foreshore and sometimes in the tanks and this has been beneficial for the birds. Examples include Chittarnagudi and Vettangudi sanctuaries.
- ¹² Tamil Nadu Forest Department, 'Tamil Nadu Afforestation Project'. (As above)
- ¹³ Agrawal and Narain, *Dying Wisdom*. (As above)
- ¹⁴ M. Amrithalingam, *Sacred Groves of Tamil Nadu - A Survey* (Chennai, CPR Environment Education Centre, 1998).
- ¹⁵ Amrithalingam, *Sacred Groves*. (As above)
- ¹⁶ Terracotta was used as a dedication to the restorative powers of the earth.
- ¹⁷ The Ayyanar, a terracotta figurine of a man astride a horse, is deified as the village watchman and mounted in the local sacred grove.
- ¹⁸ Amrithalingam, *Sacred Groves*. (As above)
- ¹⁹ Bhavani Shankar, 'Restoration of Sacred Groves in Tamil Nadu', Nanditha Krishna and J. Prabhakaran (eds), *Ecological Traditions of Tamil Nadu* (Chennai, CPR Environment Education Centre, 1997).
- ²⁰ Agrawal and Narain, *Dying Wisdom*. (As above)
- ²¹ WWF – India, *Directory of Wetlands* (New Delhi, WWF India and Asian Wetlands Bureau, 1997).
- ²² Rangarajan, *Wildlife History of India*. (As above)
- ²³ These were schemes for maximising revenue mainly from agricultural land, designed and— introduced by Munro when he was Governor of Madras. This scheme was designed to ensure maximum rent returns even in famine years. There was a lot of debate within the company about the social and economic impact of deforestation, and therefore of the security of the British regime.
- ²⁴ Agarwal and Narain, *Dying Wisdom*. (As above)
- ²⁵ www.dhan.org
- ²⁶ Armin Rosencraz and Shyam Diwan, *Environmental Law and Policy in India - Cases, Materials and Statutes* (New Delhi, Oxford University Press, 2000).
- ²⁷ These *panchayats* are especially emboldened by, and are trying to use, the 73rd and 74th Amendments to the Indian Constitution, which empowered local bodies to handle development and welfare activities.
- ²⁸ Personal communication with Karuppasami, member of DHAN Foundation, Mudukulathor, in 2001.





Pulicat lake, Nellore

Background

Pulicat Lake is a well-known lagoon close to Chennai and also a legally notified bird sanctuary. However, what is not so well known about this lake is the link of the livelihoods and traditions of the local people with the lagoon ecosystem, and people's struggles consequent efforts to save their livelihoods, and thus the lagoon, from over-exploitation, pollution and developmental pressures. This case study is a small effort to bring out the aspirations and struggles of the local fisherfolk, which, if taken into account, could lead to long-term protection and conservation of the lake.

Pulicat is an extensive brackish-to-saline lagoon with marshes and a brackish swamp on the north. This is the second largest saltwater lagoon in India and a Ramsar site (internationally recognized wetland under the Ramsar Convention). Only 16 per cent of the lagoon is in Tamil Nadu; the rest is in Andhra Pradesh. It is fed by the Araani River at the southern tip and the Kalangi River from the north west. Buckingham canal, a navigation channel, passes through the lagoon. On the eastern boundary of this lagoon is Shriharikota island, which separates the lagoon from Bay of Bengal. The lagoon is shallow with large areas of mudflats and sandflats. In general, the seawater enters the lagoon through the northern end near Shriharikota Island and flows back into the Bay of Bengal through the southern end. The salinity is greatly affected by rains. There is a sand-bar formation at the north end where the lagoon is separated from the sea, and this has to be removed manually if the rains do not wash it away. The closure of the sand bar (either due to lack of rain or massive sand deposition) leads to depletion of fish stock, as the lagoon acts as nursery for the hatchlings. The lagoon is a delicate system and requires constant inflow of seawater and gets adversely affected by sand deposition.

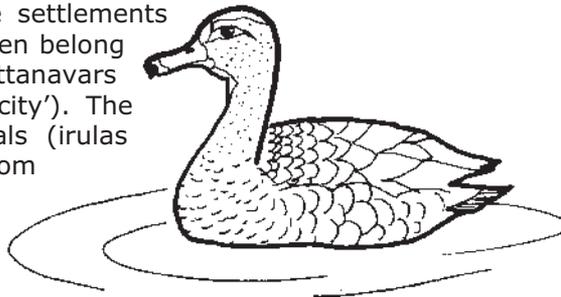
The Pulicat Lake is situated between 13°25' and 13°55' North, and 80°3' and 80°19' East. The lake is about 45 km north of Chennai and can be reached by bus from Chennai. Pulicat Lake has been a traditional fishing centre. This was a trading port for the Portuguese and Dutch in the 16th and 17th centuries. The process of soil erosion and siltation is believed to have started with the Dutch over-exploiting the mangroves for commerce and trade.

Legally, part of the lake was notified as Pulicat Bird Sanctuary (Tamil Nadu) on 22 September 1980, and was finally declared a Sanctuary on 30 May 1990. This sanctuary is controlled by the FD and managed by the DFO Nellore. There are patches within the lake where the ownership is not clear. Pulicat Lake is also a CRZ-I area under the Coastal Regulation Zone rules of the Environment Protection Act, 1980.

Pulicat Lake is located on the boundary of Tamil Nadu and Andhra Pradesh. This case study focuses on the efforts of local people in the 6000 ha on the Tamil Nadu side of the boundary.

The lagoon is known to support 160 species of fish, 25 species of polychaetes, 12 species of penaeid prawns, 29 species of crabs and 19 species of molluscs.¹ It is also known to support rich growth of algae (especially filamentous algae) and high populations of invertebrate fauna, including annelids, coelenterates, molluscs, crustaceans and echinoderms.² Pulicat is an important habitat for a wide variety of resident and migratory waterfowl, notably pelicans, herons, storks, flamingoes, ducks, shorebirds, gulls, terns and many species of raptors. Pulicat is known to be the third most important wetland for migratory shorebirds along the eastern shore.

The total human population in Pulicat Lake is around 35,000, spread over 52 *kuppams* (settlements). Two-thirds of the settlements are on the Tamil Nadu side. The majority of fishermen belong to the traditional marine fishing caste called the pattanavars or pattanathirs (literally meaning 'belonging to a city'). The others include dalits (scheduled castes) and tribals (irulas and yennadis) who have moved to fishing from agriculture. It is estimated that a total of about 12,370 fishermen live on full-time fishery in the lake (6000 in AP and 6370 in Tamil Nadu).



Towards community conservation

Paadu is a traditional system of fishing, where a part of the lagoon is controlled and earmarked for the exclusive fishing use of designated villages. This system is common to many coastal areas of Tamil Nadu.

The highly productive southern sector of Pulicat Lagoon, close to Ennore and about 5 km from the estuary (where the sea water and lagoon water meet), is controlled by fishermen from three villages: Kottai Kuppam, Christian Kuppam and Andikuppam. The fishing grounds fall within a radius of five kilometers from the mouth of the lake, with a salinity which is well maintained even during low tides. According to the traditional fishermen, this is a caste-specific system.

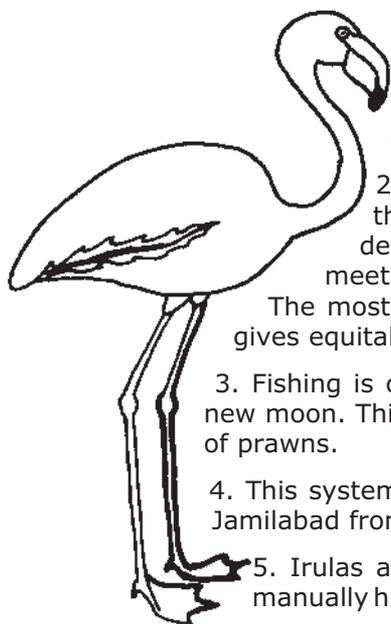
Among the traditional fisherfolk there are different classes and they are more or less designated as castes. The *pattanavar* (one who owns the village or who founded the village) is respected as the traditional leader and his family becomes the ruling caste. The fisherfolk of the *pattanavar* caste generally live at the southern end of the lake which does not usually dry up. Married men of the *pattanavar* caste (above 15 years of age) are eligible to be members of the *talekattu*, which is the village level organization of fishermen. The fisherman seeking membership should be skilled and acceptable to the village community. As a member of the *talekattu*, he has to participate in common tasks such as contributing towards litigation, temple repairs and festival expenses. This designated caste is supposed to protect the mouth of the lake since it is the best fishing ground.

There are three *paadu* systems in the lagoon:

- Vadakku Paadu: This is a canal-like area of about 1.25 sq km on the northern side. This is the most productive area and therefore the most intense fishing is done here.
- Moonthuri Paadu is about 2.5 sq km in area and is not as productive as Vadakku Paadu.
- Odai Paadu is the smallest and least productive *paadu* and has almost been abandoned.

Fisherfolk are strict about the kind of fishing equipment used. The boats usually used are ordinary country rafts called *nattupadagu* (literally, country boats). The length of this plank-built boat ranges from 6-8 metres, with a capacity of about two tonnes. A lot of fishing gears are used in Pulicat Lake. Researchers have listed nine types of fishing gear: cast nets, gill nets, drag nets, shore-seine, bag nets, stake nets, hook and line, *vallikodi* (lure fishing) and *adappu* (impoundment). The most effective of these nets are *sutru valai* and *padi valai* (both kind of fishing nets).

The operation is done at night during low tide when shrimps migrate to sea. The *tadukku* (an obstruction that functions as a barricade in the path of the mobile prawns and they consequently get caught in the *sutru valai*). The operations of *sutru valai* are done from shore to shore, virtually blocking the movement of prawn and thereby affecting the catch of downstream fishermen. The *padi valai* is essentially a drag net, almost in the shape of a shore-seine, mainly used for catching mullets and other species during neutral phases of the tide. The *padi valai* is a symbol of affluence and not owned by many and its operation requires about 30 people at a time. The *padi valai* is not used often as the fishing grounds have been altered by the 1984 cyclone.



Some of the rules and regulations followed include:

1. Each village carries out the fishing operations independently of the other.
2. The *paadu* system for the *sutru valai* operates on a lottery system for the eligible *talekattu* of the villages. Every *paadu* village knows the days designated for the village for fishing in the fishing ground. The *talekattu* meet on certain auspicious days to draw lots for allocation of fishing grounds. The most productive as well as the least productive villages are used and this gives equitable access to all fishermen.
3. Fishing is carried out three days before and three days after the full moon and new moon. This period has heightened tidal activity, which enables active movement of prawns.
4. This system excludes new fisherfolk, Yannadi and Irula tribals and Muslims from Jamilabad from fishing in these grounds.
5. Irulas and yannadis are allowed to use simple fishing gear to hunt crabs or manually hunt crabs but are strictly prohibited from using plank-boats or fishing nets.

It seems difficult to accurately assess the total production of fishes and shrimps available in Pulicat lake given the complexity of the system. One of the most serious threats to conservation of this lagoon, according to local experts such as Sanjeev Raj, seems to be overfishing. There has been a drastic dip in the income levels of the fishermen of Pulicat. This is attributed to high pollution levels in the lake. The outlet of coolant water from Ennore Thermal power plant at elevated temperatures has adversely affected aquatic life. The pollution caused by fly-ash from the Ennore plant has also had a big impact on the water quality and therefore on the biodiversity of Pulicat lake.

The pressures and conflicts within the lake have led to establishment of a fishermen's union which is a union of 29 different fishermen's societies from 20 different villages in Pulicat. This union has a major role to play in sorting out conflicts, reducing tension and mobilising people to act. Currently the *paadu* system is being extended to include the villages on the other side of the sand bar. The sand-bar formation at the mouth of the lake happens quite often and hampers the exchange of water between the sea and the lagoon. When the sand-bar formation is partial, then the rains either wash it away or it could be manually removed. The failure of monsoons in 2000 led to complete closure of the mouth of the lagoon and this led to rapid depletion of stock.

The exact details of the conflict resolution mechanisms were not available in the secondary literature. The relevance of the *paadu* system to the current situation of depleted fish stock also needs to be understood. There needs to be a better understanding of 'overfishing' in this context. There were conflicting opinions on this system, ranging from accusations of fishermen overfishing to pollution causing depletion of aquatic life and consequent loss of income. It is clear that the *paadu* system of ensuring equitable use of the lake is under threat from overpopulation, depleting stock and pollution caused by the thermal power plant. It is for this reason that we view the sustained struggle against pollution as an attempt to conserve biodiversity, though livelihood issues are also involved.

Opportunities and constraints

Conflicts due to displaced fishermen

Though the *paadu* system guarantees equitable access to the members of the pattanavar caste over the lagoon, access to outside fishermen is strictly restricted, which does lead to conflicts, which often turn violent. The settlements practicing *paadu* have experienced an influx of fishermen displaced because of the Shriharikota space station and the Kalpakkam atomic power plant. The Shriharikota Rocket Space Landing Station has been built on a small natural island in the midst of Pulicat, displacing three fishing villages. The project also involved building a road with a bridge right across the lagoon, which has had an impact on the ecosystem. The Kalpakkam atomic power plant (75 km south of Chennai) displaced two villages of marine fisherfolk, who have been then settled in Pulicat. In 1990, the Tamil Nadu government granted special fishing rights to the five newly settled villages, thereby leading to a conflict with the local fisherfolk.

Between 1985 and 2000, about twelve fisherfolk died in such conflicts. Since there was recurrent violence especially in fishing seasons (Oct-Dec), the *paadu* fisherfolk started calling for a 'fisherfolk leaders' council' in Pulicat lagoon. The role of this council is to resolve conflicts and ease tensions. The council also ensures that the rule and regulations laid down by traditional leaders councils are followed while fishing.

According to Rajashekharan, leader of the Fishermen's Union, because of the *paadu* system, conflicts are on the rise, and regulated fishing is under threat. The situation is further complicated by pollution, which is threatening the very survival of the lagoon and thus the fishing community.

The lagoon fisherfolk are divided over the *paadu* issue. About 70 percent of the fisherfolk benefit from this system and therefore support it, while those who do not are obviously against this system.

Struggle against pollution from thermal power project

North Chennai Thermal Power Station (NCTPS) was set up by the Tamil Nadu Electricity Board (TNEB). This plant is located within CRZ-I; however clearance for this was granted prior to 1991 when CRZ came into existence. This plant draws 44 lakh litres of freshwater from Ennore creek and releases hot coolant water into Buckingham canal and discharges about 3000 tonnes of toxic fly-ash in the form of slurry every day. The release out of hot coolant water at temperatures of about 40°C leads to oxygen depletion and death of aquatic life. The combination of coolant water and fly-ash has had a serious impact on the livelihood of people by depleting fish populations.

In order to tackle this problem, the people of Pulicat tried to have a dialogue with the state government, district collector, chief engineer NCTPS and others. As a result of these meetings, a fact-finding committee was set up to investigate the pollution caused by this plant. One of the basic

questions that concerned the fisherfolk was whether they would be granted jobs if the pollution continued, resulting in loss of livelihood. Nothing concrete emerged from these meetings with the government and the pollution continued unabated. On 5 August 2000, fisherfolk from Pazhaverkadu met the Chief Engineer regarding the intake of coolant water from Pulicat lake and continued release of hot coolant water. The engineer claimed that the coolant water was being drawn from Ennore creek and not from the lagoon. In response the fishermen decided that they would block the inlet of coolant water to NCTPS. Besides there was a total strike from 6-11 August and no one did any fishing for the next 15 days. A breakthrough was achieved as a result of this agitation. The NCTPS devised a system of reusing the hot water that it releases, and it was no longer necessary to discharge hot water into the lagoon. It is not clear if this system is efficient for the NCTPS and whether this will continue.

Struggle against petrochemical park

Kattupalli island is a narrow longitudinal island separated from the mainland by the backwaters extending from the Pulicat lake. The island is bordered by the Bay of Bengal on the east, Buckingham canal on the west, Pulicat Lake on the north and Ennore creek on the south. The total area of this island is about 18 sq km, and it supports a human population of about 2250 families. The island has a rich biodiversity of vegetation, especially mangroves, freshwater and brackishwater flora and fauna, and medicinal plants. The Tamil Nadu Industrial Development Corporation (TIDCO) had planned to establish a Rs 6000 crore petrochemical complex on this island with the idea that the Ennore port would be used for transporting the products. TIDCO went ahead with the acquisition of land of 2,900 ha even before the public hearing under Environment Impact Assessment (EIA) rules was held. The state government had directed the district collector to invoke Section 17(1) of the Land Acquisition Act, which is an emergency provision. They sought to acquire farmlands, wetlands, salt-pan areas, and private and *peramboke* (wasteland) land. The people of Kattupalli and Pulicat were vehemently opposed to this—they knew the impact that this project would have and therefore decided to oppose it. The local community approached Coastal Action network (CAN) for help in this matter. CAN is a state-level federation of people's organizations, environmental organizations, activists, consumer action groups, advocates, etc. CAN filed a writ petition (WP 7613 of 2000) asking to quash the GOMS 85 dated 21/3/1997 issued by the Industries Department and for a direction not to set up the petrochemical park. On 3 May 2000 a public hearing was held at the Tiruvallur Collectorate. A large number of fishermen from Pulicat and Kattupalli participated and clearly expressed their opposition to this TIDCO project.

This case study has been contributed by Shantha Bhushan of Kalpavriksh in 2002. It is based on a day-long field trip to Pulicat lake, Ennore Thermal Power Plant and Kattupalli island; detailed conversations with the union leader of the Fishermen's Union and a secondary literature review.

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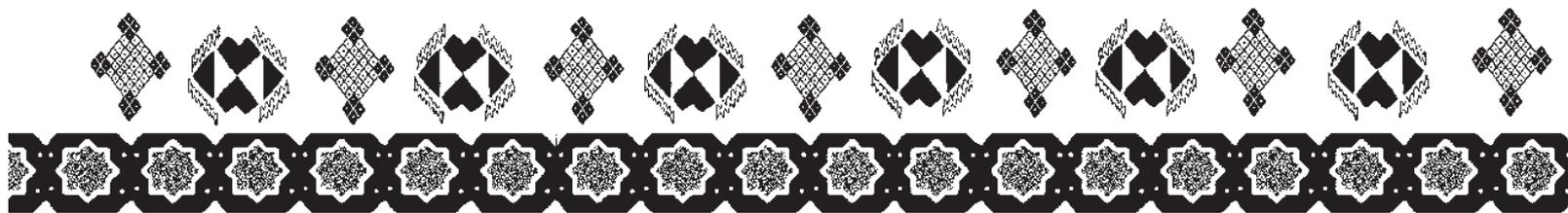


Endnotes

¹ D. Panini, 'Addressing livelihood issues in conservation-oriented projects: Case study of Pulicat Lake' in R. Jeffrey and B.Vira, (eds), *Conflict and Cooperation in Participatory Natural Resource Management* (London and New York, Palgrave, 2001).

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Longwood Shola, Nilgiris

Background

Longwood is a typical *shola* that is found in the higher ranges of the Western Ghats. The *sholas* are patches of evergreen tropical rainforests in the valleys of the southern end of the Western Ghats, surrounded by natural grasslands. *Sholas* are rich forests with two or three wood strata, and are usually rich in epiphytes like moss, orchids and ferns. The herbaceous cover on the ground varies according to soil moisture. The ground is usually covered with high humus content and leaf litter. Their expanse is restricted by the extreme climatic conditions of frost in the morning and strong sun during the day. There is an intense competition for sunlight among the trees in the *sholas*, and trees take a long time to mature. *Sholas* are like sponges that retain moisture and provide a continuous source of water.



A typical *shola* forest (photo from Kerala)
Photo: Ashish Kothari

Longwood is located in the Nilgiri mountains. It is a biodiversity hotspot and believed to be the richest in amphibian diversity in Asia. The conservation effort of the local people at Longwood Shola can best be understood in the context of the rapid rate of forest destruction that is taking place though most of the Nilgiris, mainly for extraction for fuelwood or conversion into plantations. The Nilgiris were among the most favoured hill stations of the European settlers who came here 150 years ago. The early settlers cleared large patches of natural vegetation for planting tea, coffee and cinchona. Destruction was so evident that towards the end of the 19th century concern were being raised about saving the *sholas* and other forests in the Nilgiris. Thus, large areas of forest land were reserved by the government under the Madras Forest Act of 1882. As early as 1905, some people were concerned with the degradation of forests and urged local people not to convert natural forests to plantations. In particular an Englishman, Mr. Bracks, had tried to organize people against deforestation. His initiative did raise awareness but the conversion to plantations continued. In the latter half of the 20th century, afforestation attempts were made by the FD by planting nilgiri and wattle to meet fuelwood needs.

Longwood Shola is located near Kothagiri town (about 50 km from Coimbatore), located at an elevated level close to the junction of Eastern and Western Ghats. This town is easily accessible by bus from Coimbatore town. Legally a Reserved Forest, this small *shola* of 116 ha is administratively under the control of the FD.

Longwood Shola is the source of three perennial streams with a few seasonal ones. Two of the main streams join in the central swamp and the third joins them in a pond below an old nursery. Longwood Shola has many endemic species of flora and fauna.

Towards community conservation

The forests in and around Longwood Shola have been getting degraded, leading to problems such as water depletion and erosion. The main reasons for this degradation have been cutting of trees for fuelwood and the timber market. The women and children would come here to cut fuelwood and the men would cut the bigger trees, which were then sold at local timber market. There were and perhaps are still several 'illegal' firewood dealers in Kothagiri town and adjoining areas.

What is now a community effort at preserving the *shola* started as an individual's determined effort to protect this rich patch of forest. In the early 1980s, Michel Danino (a French national), a researcher at the Mother's Institute of Research, started to create awareness about the need to protect this *shola*. He especially tried to get the forest department to protect this reserved forest, which is an important source of water for the residents of the adjoining area. In 1984, he sent a petition to the DFO (Udhagamandalam) regarding the rapid deforestation that was taking place. The forest department officials did provide help at this point, but it was not a sustained effort at



prevention of tree cutting. Gradually, in the 1990s, many individuals from the villages around the *shola* started taking an effort in creating awareness among the local people. They also started patrolling the *shola* on a regular basis. They would take turns in patrolling and made sure that there was somebody patrolling everyday. This patrolling involved sometimes confrontation with men and women who came for fuelwood or timber. Many times the tree-cutters ran away on seeing the patrollers. By 1997, the effort put in by this group of individuals had gained recognition. The group included nearly 40 people, who would take turns to patrol regularly. There were some determined and earnest members who would patrol everyday, while there were some who would come once a month to patrol. This informal but regular patrolling continues even today.

Apart from controlling illicit felling, these individuals also prevented encroachments, including encroachments for religious purposes. Finally a chain-link fence was erected around the *shola* to prevent trespass. In 1998, the new DFO Doraiswamy started taking interest in the *shola*. Since there were so many individuals trying to protect it, the forest department felt that formation of an officially recognized committee could institutionalize their efforts. In May 1998, a Longwood Shola Watchdog Committee (LSWC) was formed. It comprised Danino, Balamurugan (headmaster), Raju (mathematics teacher and social worker), and Michael Ezeikel (music teacher). The members of LSWC were chosen at a meeting where forest department officials and some members of the local community were present.

The primary responsibility of the LSWC is to prevent tree cutting and report offences to the forest department. On some occasions the FD has actually levied fines from the trespassers, but usually the fact of being caught has itself served as a deterrent and tree cutting has reduced. The LSWC has also been trying to find alternative sources of fuel so that fuelwood pressure comes down. They have been lobbying for fuelwood depots to be opened so that the long-time residents as well the new settlers have an official source of fuel.

The LSWC has been conducting regular awareness camps in nearby villages, and also seminars for teachers and headmasters. They also have eco-awareness camps at the interpretation centre constructed at the entrance (close to Kerbetta village) of the *shola*. This was financed by the forest department and several interested individuals helped. They also hold regular nature camps for children, giving the children actual field experience apart from lectures. The children also help in cleaning of the *shola*. In 1998, the LSWC printed about 4000 pamphlets describing the importance of the *shola* and distributed this to all the villagers. They also went door to door to about 700 houses in nearby settlements and villages to create awareness about Longwood Shola and its role in protecting their water supply. This campaigning has had an impact and reportedly villagers are more aware of the saving the *shola* for their water.

The LSWC has no legal powers and prosecution of offenders is done by the forest department. The role of the LSWC is purely in patrolling, informing the FD of any problems that might adversely affect the *shola*, and creating awareness. For the LSWC, the main motives for protecting the *shola* are water and biodiversity.

The LSWC has been maintaining the chain-link fence. They undertake repairs and many times put in their own money as the FD funds are released only at the end of the year.

Impacts of conservation

Within a year from the time that LSWC was formed, the incidents of illicit tree felling have reduced by 90 per cent. In addition, there has been spontaneous regeneration of *shola* species in the open and degraded areas within the *shola*.

Often picnickers used to visit the *shola*. Often groups of people would come here and litter the place and also scare the animals. Large amounts of plastic packaging could be seen strewn in the forest. LSWC has been able to control these harmful activities of the tourists to a great extent.

As has been mentioned above, Longwood Shola is the water-catchment area for several streams in the area. Protection of this *shola* has ensured drinking water to the surrounding villages of Kerbetta, Hosatti, Aaravenu, Jackaranai and 16 associated hamlets. There are many villages situated far away which also benefit from the streams originating at Longwood Shola.

This initiative also encouraged the forest department to focus more actively on conservation of *sholas* in the area. To this end, they have created nurseries at Bandishola, Aramby and Thalaikundah.

Constraints and opportunities

The FD has a budget allocation for maintenance of the fence and for conducting camps for children, teachers, etc. Usually these funds are released at the end of the financial year. By this

time the members of LSWC carry out the required work by contributing personal funds. However, recovering their money from the FD means a long follow-up and running around.

This initiative has evolved slowly, starting with one individual's attempt at conservation. The effort of the concerned people has been purely voluntary and there is no commitment by these individuals to any particular group/organization. Also, the entire community is not involved in this conservation attempt. The lack of structure is both the strength and weakness of this initiative.

Many people recognize that they need to protect this *shola* as a water source, and implicitly support this conservation initiative. Neither the constitution nor the mandate of this group (the constitution keeps changing) has the explicit consensus of all the people living around Longwood Shola in the form of any referendum. At the same time there has been no opposition to the effort put in by this group.

There are many tea factory workers in this area who take fuelwood from Longwood Shola, as they have no other cheap means of fuel. With the tea market slump, there has been more pressure on the forests, as the workers who had switched to gas/kerosene are no longer able to afford gas cylinders. There are also recent settlers (such as refugees from Sri Lanka, migrant workers) who have put added pressure on this fragile forest. The LSWC has been lobbying for a fuel depot to meet the fuelwood needs of the people of this area but the Forest department has not been able to arrange this.

The LSWC has no authority to prosecute offenders and therefore the cooperation of the FD is crucial. The relationship between LSWC and the ranger determines whether the ranger will actually register the complaints. Recently there have been reports of conflict between the ranger and some members.

There has been a sharp increase in the crow population, possibly because of the increased human population and garbage in the surrounding area. The crows are reportedly affecting the population of other birds, as they feed on them. They have even been seen chasing raptors like eagles.

The second problem has been that of an aggressive weed called orange cestrum, originally from South America. It is a fast-growing shrub that can reach a height of about 6-8 m and with a girth of 1 m, with clusters of orange trumpet-like flowers and spherical creamy seeds. The plant is identifiable by the bad odour that its crushed leaves produce. This weed is difficult to eradicate and since it grows about 20 times faster than *shola* species, it suppresses the regeneration of other saplings. The LSWC and other individuals have been manually removing these weeds, often with help from students and other volunteers.

This case study has been contributed by Shantha Bushan, member, Kalpavriksh, in 2002. The author is deeply grateful to Coastal Action Network (Ossie Fernandes, Jesu Ratinam and others), DHAN Foundation (Seenivasan, P. Anand Kumar and Karrupusamy) Tamil Nadu Green Movement (Jayachandran), and individuals such as Michael Danino and Bhojanam who took time out to help us understand the issues in community-based management in Tamil Nadu.

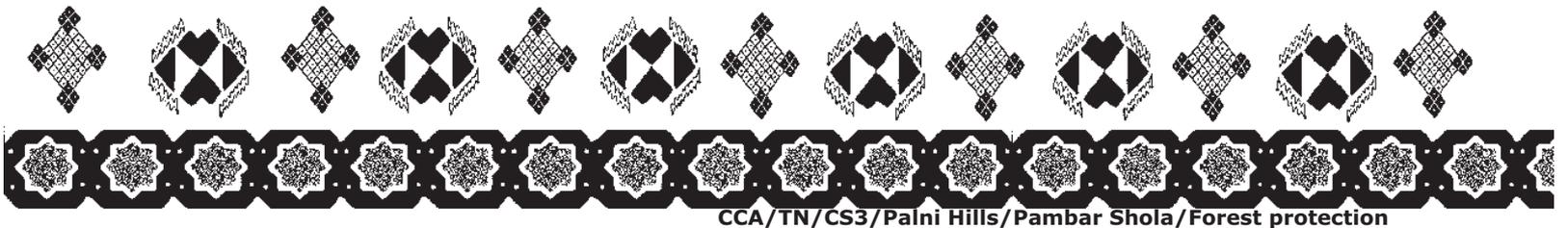
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Endnotes

¹ For more details on the initiative, also see Roy Lajapathi, 'Treasure of the shola', *The Hindu*, 25 March 2000; D. Radhakrishnan, 'Infusing new life into the Nilgiri sholas', *The Hindu*, 3 July 1999; Harry Miller, 'Halt desertification of the Nilgiris', *Indian Express*, 26 October 1984; Report of the Longwood Shola Watchdog Committee, 2001.



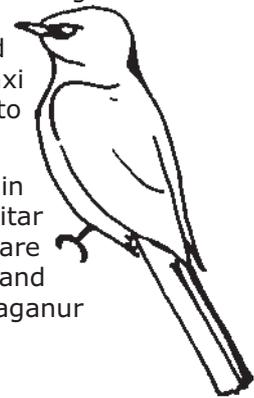
Pambar Shola, Palni Hills

Background

Pambar Shola is near Kodaikanal town, at an altitude of 2000 ft. The village of Vatakkanal, adjoining the *shola*, can be reached easily from Kodaikanal, which is a tourist destination in the Palni hills. The village of Vatakkanal has been taking a keen interest in the conservation of Pambar *shola* and is also attempting to restore the adjoining degraded areas. Rampant felling for fuelwood and timber, cattle grazing, potato farming, and soil erosion due to Ravine Falls being designated a tourist spot had led to steady degradation of Pambar *shola*. Now this degradation has been arrested and restoration of the *shola* and adjoining areas is underway. Legally the *shola* is a reserved forest and covers an area of about 100 ha.

The village of Vattakanal stretches from Kodaikanal lake to Pillar Rocks and extends down to Shembaganur in the north-east. The extensive grasslands surrounding the *shola* stretch towards Vellegevi in the mid hills. This village came into existence about 150–200 years ago when the British decided to explore these hills. Many of the villagers originally came here as labourers or as workers in the convents and churches that were established around Kodaikanal. Presently, the major sources of income include plying taxi and auto services and letting out rooms to tourists. Villagers also tried potato cultivation and then stopped it as it was not profitable and caused soil erosion.

Ecologically this area is an endemic hotspot for plants and is extremely rich in birdlife. The Nilgiri wood pigeon, Nilgiri flycatcher, white-bellied shortwing, Verditar flycatcher, black and orange flycatcher found in and around Pambar Shola are included in the Red Data list.¹ There are eight species of plants that are endemic and are found only in this *shola*. The grassland slopes between Pambar and Shembaganur *sholas* have been declared as a Kurinji Reserve.



Towards community conservation

R.W. Stewart and Tanya Balcar, an English couple, came to Vattakanal and settled here in 1985. When they settled here primarily for the 'majestic beauty' of village and the *sholas*, they realized that the *sholas* were getting denuded fast as firewood cut from the *shola* was available at Rs 6 per bundle. They decided to try and stop the degradation and help in the regeneration of the *shola* and the surrounding areas. They started experimenting with seed collection and growing saplings of *shola* species. In their effort they were helped by Jean Pouyet of Auroville. Thus the Vatakkanal *shola* tree nursery was started in 1989; now this has saplings of about 250 tree species. They realized that apart from fuelwood collection and timber extraction, potato cropping and free-ranging cattle were causing extensive degradation and soil erosion in the *shola*.

Stewart and Tanya began discussions with the local people about the problems facing the *shola*. It emerged that potato cultivation was not only bad for the soil but was also unprofitable, and hence people decided to explore an alternative. Discussions were also held with cattle-owning families. A local milkman, Bilavendran, helped in compiling a socio-economic database of the village. After many discussions, it was decided that the cattle-owning families would either practice stall-feeding or have specified patches where cattle could graze. This helped reduce soil erosion. By 1990, the *shola* tree nursery had become popular and saplings of all kinds (timber, fuelwood, *shola* and fruit) were taken from here and planted by the villagers. The villagers started planting fast-growing species as fences so that these could be used as fuelwood. Villagers made a conscious decision not to cut slow-growing *shola* species for fuelwood.

Tanya and Stewart realized that conservation and development of the community go hand in hand. They developed a strategy which would ensure economic growth of the villagers while ensuring conservation of the *shola*.

One of the key tools used to generate awareness about the degradation of the *shola* was an audio-visual presentation to the villagers. Since this village had no electricity, a generator was hired (a TV and video player were also hired) for a Tamil programme on *sholas*. This seems to have brought a dramatic change in the attitude of the villagers toward conservation of the *shola*.



In 1992, a massive tree plantation was done by the villagers and the forest department. The plantation was done in areas that were destroyed in a fire in 1989. However, along with the *shola* species, exotics such as nilgiri, pine and wattle were also planted.

The youth of the village started taking active interest in plantation and protection of the *shola*. There are instances where villagers have gone way beyond their capacities to conserve the *shola*: e.g., a youth shut down his traditional bakery after turning a conservationist. The bakery consumed a large amount of fuelwood which was obtained from the *shola*. With financial help from a family in New Zealand, the youth of the village were also able to take up plantations along the roads. From the savings of the work on saplings, the youth were able to go on an environment trip to the lower Nilgiris. During their trip they realized that they had to register as an organization to get any funding for conservation- and community-related work. This group was registered as VOYCE (Vattakanal Organisation for Youth Community and Environment) in 1994. The group established its presence and made sure that tree cutting in the *shola* was not done either by villagers or outside gangs.

Activities of VOYCE

- Regular and periodic cleaning of the area. This has resulted in drastic reduction of garbage inside the *shola*.
- Encouraging cultivation and multiplication of highly endangered plants including ferns, herbs, shrubs and trees. This is done by giving saplings to different people and institutions.
- Planting saplings in the degraded fringe areas with the help of the FD.
- Campaigning against illegal logging in the mid hills.
- Defending village watersources from developers.
- Working on relocation and recycling of waste from Kodaikanal.

The most active among the VOYCE members are John and Munniyandi. The VOYCE building was built through community labour and now has a small restaurant and eco-shop, which sells soaps and other items made by the village women's groups. It is a key meeting place for the villagers and serves as an information centre on environmental issues.

The profits from the sale of plants at the *shola* tree nursery go to VOYCE. *Alchemilla indica*, a member of the rose family, was found in Pambar *shola* in the early 20th century and then almost disappeared. Now the specimens of this plant are multiplying and will probably grow well again in their original habitat. *Psydrax ficiformis* and *Elaeocarpus blascoi*, two tree species listed as 'extinct or almost extinct', were found here and are now being multiplied in the nursery. Genera *Hova* and *Sonerita* (which have only one species in that genus) and species of *Plectranthus* and *Phyllanthus* have also been successfully grown in the nursery. *Crotalaria beddomeana* (a shrub) has also been propagated and planted extensively in and around Vattakanal village.

None of the people involved with the initiative have a scientific background, yet through this close association with the *shola* they have now developed deep understanding of the ecosystem and its character. For instance, they have learnt that in a plantation *shola* species have a tendency to invade the exotic species (which are used to provide cover from the sun). They have realized that where *shola* invasion is strong, the succession should be allowed to proceed and encouraged by selective weeding and species enrichment. Regarding removal of wattle, it was felt that manual weeding and ring barking at the base of fertile mother trees would speed up removal, and also that the cut material should be burnt or removed lest it act as cover for invasive species.

Impacts of conservation



In addition to the flora, the village has provided sanctuary to a family of gaur, which has increased to more than 13 in number. Because of the efforts of the youth, the garbage from the *shola* has considerably reduced.

Constraints and opportunities

The FD erected a fence around the *shola*. The fencing was necessitated partly by the heavy influx of the tourists into the *shola*, which is an extremely beautiful place with its many waterfalls. This fencing has however caused resentment amongst the villagers, as it goes against the 'social fencing' practiced by the villagers.

Planting in degraded areas belonging to the FD requires permission, and sometimes this causes conflict between the people and the FD.

A fire in 1998 under the Pond thermometer factory on the steep slopes of Pambar ravine led to seeding of exotic species (encouraged by the opened canopy), particularly acacia and surai, and now dense patches of these seedlings are well established.

Considering the Palni area as a whole, it is important to restore the grassland in the upper hills. Vast plantations of exotic species such as wattle, eucalyptus and pine and weeds such as *Ageratum* pose a threat to the habitat restoration of this area.

Tourism is a major threat to the *shola*. Waste washed down the Pambar stream due to large number of tourists coming to Ravine Falls has a detrimental impact on the stream and the *shola*. What seems to be demoralizing the villagers of Vatakkanal is that while part of the reserved forest is open to busloads of tourists who litter the place and go away, people who have been protecting the *shola* have no rights in this area.

This case study has been contributed by Shantha Bhushan, Kalpavriksh, in 2002. The case study is largely based on: Bob Stewart and Tanya Balcar, 'Pambar Shola – a success story in conservation' in *Shola*, Anglade Institute of Natural History. Issues 17 (1996), 20 (1997), 22 (1998), 25 (2000). The author is grateful to Tanya, Stewart, Munniyandi and John, members of VOYCE, for their help during the visit to the village, and for sharing their views and insights.

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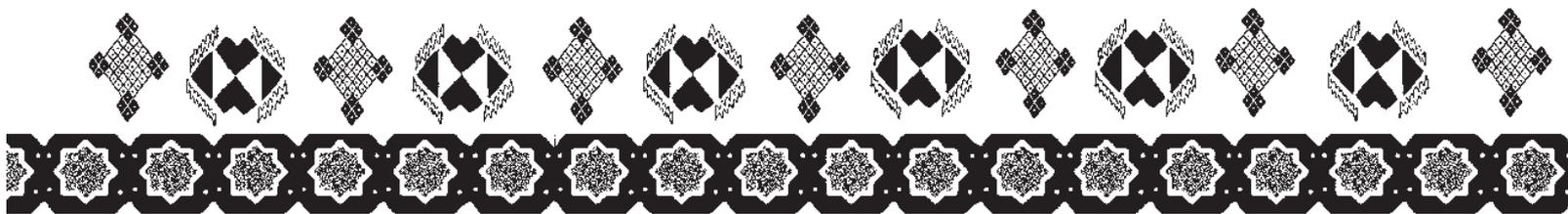
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Endnotes

¹ IUCN listing of threatened species.





Chittarangudi tank, Ramanathapuram

Background

Chittarangudi is a small village located 8 km from Muthukulathoor town in Ramanathapuram district. Chittarangudi tank, a traditional tank, is situated on the northern side of this village. About 4 km in length and about 2.5 km in breadth, Chittarangudi tank is an important heronry. There are several other tanks around Chittarangudi. Vettangudi and Kanjirkulam bird sanctuaries are two other important ones from the point of view of bird conservation. This area has experienced a severe drought in 2000 and 2001 and the number of birds coming to these tanks has therefore decreased.

Traditionally, Chittarangudi villagers have treated birds like children, as they have realised the importance of bird droppings in agriculture and thus their economy. Sentiments associated with the birds cut across all class and caste barriers in the village. The importance of the tank in the lives of the villagers can be gauged from the fact that they explain their history mostly in relation to the tank.

In earlier times there were nearly twelve castes in the village: thevars, konars, pallars, vellalars (pillai), sakkiliars, chettiyar, brahmins, Muslims, asariyars, poosaris, vannars (washermen), and ambattayars (barbers). Now the Muslims, brahmins and chettiyars have completely left the village. Among the nine castes that live in the village presently, Kondayan Kottai Thevars are in a majority, with nearly 55 families. Most of them are engaged in agriculture; some of them own cattle as well. The four servayar families are in a position of authority here. The village heads have been mostly from this community and even now the *panchayat* president and the society president belong to this community.

The next most important caste in the village is Konar, with about 25 Konar families in the village. Most of them own cattle and also practice agriculture. The Pallar community also has about 25 families in the village, who are engaged in agriculture and cutting of *Prosopis juliflora*. The sakkiliar community comprises mostly of labourers who are engaged in the cutting of *juliflora*. However, there is unity among all castes and socially the entire village stands as a single unit. The people have good relations with each other and the Chittarangudi tank seems to be a common factor that binds them all.

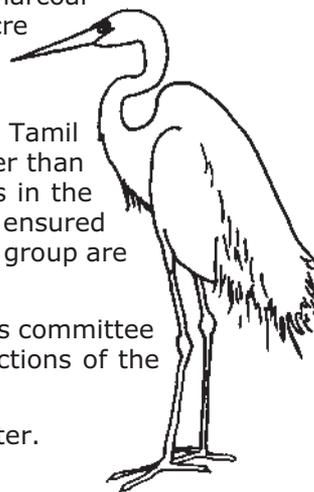
Seasonal agriculture is the main source of livelihood in the village. Being located in a rain shadow zone, this area receives very little rainfall. Rain is received from September to November (north-east monsoon) when the tank also fills up. Paddy is grown in the wetland and chillies in the dry lands. In the off-season the land is left fallow. During the dry season people grow some vegetables in the dry tank bed (each family has occupied some land in the tank). Till the 1980s several crops were grown in the dry areas of the tank. Around that time the FD planted *acacia* and disallowed the villagers from using the tank.

The major source of income for the village is charcoal-making from *Prosopis juliflora*. In the dry lands *Prosopis* grows naturally and is cut every 3 years. Normally an acre of land produces 5-20 tonnes of charcoal and fetches about Rs 3000 per ton. People also produce charcoal from their own fields; sometimes the land is leased for Rs 3000-5000 per acre for charcoal production. Due to a long drought and limited natural resources, there has been an increased migration to nearby towns and big cities.

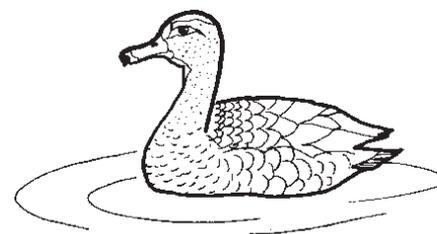
Politically, the village is divided between two major political parties in Tamil Nadu—the DMK and the AIADMK. Political positions and loyalties are stronger than the caste differentiation in the village. If at all there are clashes or conflicts in the village they are largely party politics-based. Divided political loyalties have ensured that the village lacks most infrastructure facilities, as the proposals from one group are shot down by the other.

Traditionally, the village has been administered by a village committee. This committee includes 8 to 10 members from all the communities in the village. The functions of the committee include:

1. To store the water in the tank and pond and to regulate the supply of water.



2. To maintain the tank.
3. To collect taxes from the villagers.
4. To organise village festivals.
5. To solve disputes and conflicts within the village.
6. To solve disputes with other villages.
7. To maintain the temples.
8. To protect the village from thieves and strangers.
9. To act as a mediator with the government.



This traditional system functioned well in the past but its efficiency has gone down in the recent times mainly after the introduction of the official Panchayati Raj¹ system of administration.

The present official system of administration in the village is the *panchayat*. The *panchayat* comprises three villages: Chittirangudi, Erachikulam, and Veppangulam colony. In Chittirangudi, though, even today the actual power of authority of the village is with the village committee. The *panchayat* only acts as an executor of government schemes.

Another important administrative unit is the District Forest Office (DFO) of the forest department (FD), which came to the village in 1979. The FD has planted *Acacia* sp. around the tank and in the dry parts of the tank under the Social Forestry Scheme. This plantation is maintained by the FD for the birds that come during the season.

Towards community conservation

Chittirangudi tank is the most important asset for the livelihood of the village. In 1800 a canal from the Ragunatha Kaveri river was linked to supply water to the tank. The tank has a total water-spread area of about 7 sq km and has an *ayacut* (irrigated area under a tank) of 350 acres, which consists of 54 *ayacutdars* (the beneficiaries of an *ayacut*). There are 5 sluices, all of them in the southern side of the tank. The bund height is about 4-5 ft on the southern side, while it is only about 1-1.5 ft on the northern side. The tank at its full capacity irrigates nearly 600 acres. The tank gets water only during the rainy season and dries up by the end of February.

In 1920, the *neerkatti* (one who irrigates water to the fields) system of water distribution was introduced to the village by the village committee. Under this system, the committee appointed two persons for distributing water to different fields in the village. Initially they were paid half or one *anna* for their work, which has now risen to Rs 30-50 per day. This is paid from the village fund. The village committee collects 10 rupees per acre of irrigated land from each farmer. The job of the *neerkatti* is to see which land needs water and to irrigate it without any bias. There are different sluices in the tank to irrigate different sizes of land.

The *neerkatti* after discussing with the committee and the villagers looking after the level of the water in the tank has to irrigate the land according to the wish of the village and the committee. During times of scarcity, there are more people to guard the sluice gates and a rationing system of water sharing is followed. Anybody caught stealing water is fined heavily by the village committee.

Chittirangudi attracts a large number of waterbirds, which roost here in the monsoons, and is hence referred to as Chittirangudi heronry. For the birds to continue to visit a waterbody, it is important to have an assured food supply and good cover for nesting. A heronry needs other waterbodies in the vicinity as well to provide food to the birds. Chittirangudi has many tanks in its vicinity, including Vettangudi and Kanjirkolam, which are also legally notified bird sanctuaries. The other small tanks in this region have now gone dry because of mismanagement. In recent times, however, interests in tank management and upkeep has revived. Birds visiting Chittirangudi include storks, ibises, herons, egrets, cormorants and several other migratory birds. Chittirangudi is very safe for the birds as there is practically no poaching or stealing of eggs. The canopy cover in the surrounding area is good and there is adequate food, as fishing is not allowed in the tank.

The villagers have great love for the birds and are committed to safeguarding them. The following steps have been taken by the villagers to ensure safe and favourable habitat to the birds:

1. Villagers do not burst crackers during Diwali (which falls in the month of November) as they feel it would frighten the birds during the nesting season (which is around October and November).

2. Many other tanks have been leased out by the village *panchayat* for fishing. This does not happen here as it would disturb the birds and would affect their food consumption.
3. The eggs of the birds are not collected by the people (in some other heronries close by, the local villagers take away eggs by bagloads). The villagers neither hunt the birds nor allow anybody else to hunt.
4. The villagers do wish to cultivate a second crop in February but the water in the tank is usually not enough for irrigation, and they leave it for the birds. It is possible that lack of consensus of how to share the water for the second crop might result in not using it for cultivation.
5. One of the important functions of the village committee is to safeguard the birds; in this task it is supported by the entire village. The villagers quote an incident: 'Some strangers walked into the tank one night to steal some birds. Then some of the birds flew over to the village and made a big noise. The villagers ran with some weapons to stop the strangers; in the struggle one of the villagers was very badly hurt and was admitted to the hospital.' This is to indicate the importance placed by the villagers on their winged seasonal guests.

Constraints and opportunities

Constraints

1. Ever since the plantation of acacia trees around the tank by the forest department, the villagers are not allowed to use the dry tank bed for vegetable cultivation. This has caused resentment among the villagers, as vegetable cultivation is an important source of supplementary income.
2. After the declaration of the sanctuary, cutting of karavel trees for fuelwood was banned. This has further intensified the conflict between the FD and the people.
3. Excessive silt in the tank has reduced the storage capacity. Lack of regular desiltation leads to inadequate water supply for irrigation. Also the water table in the village has dropped because of a long drought. This has had serious impact on the economy of the village, as agriculture is the primary source of livelihood and the tank is the main source of irrigation. Management of the tank and regular desilting was a responsibility of the village committee in the past. The forest department, which is currently in charge of tank management, has (for several reasons) not been able to manage the tank effectively. One of the reasons cited is that management of Chittarangudi sanctuary is low on priority in the FD's allocation of funds, and even when funds are allocated they usually come at the end of the financial year and not when money is required. This seems to have had an impact on the nesting birds as well; according to the villagers, the bird population in the monsoon of 2000 was much less than in previous years.

Threats

1. The number of trees in and around the tank has gone up (mainly *Acacia nilotica*) but canopy cover has gone down, and many of the old trees are dying because of age (and excess bird droppings on the leaves of the trees). This will have an impact on the nesting birds in the heronry.
2. The nature of association between the villagers and the tank is changing. There is increased out-migration of young people and thus agriculture may not be the primary source of livelihood for the village anymore. The reduced dependence on the tank may have negative impact on the heronry.

Conclusion

Chittarangudi sanctuary presents a strong case for joint tank management. It is strongly felt that given the tradition of the villagers protecting the birds and the fact that they depend on the tank for their livelihood, joint tank management would help in protection of the heronry. A management strategy can be worked out jointly by the forest department, villagers and NGOs working in the field of community-based tank management.

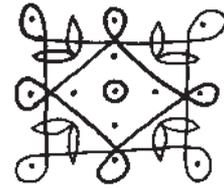
Tourism as a source of revenue is a distinct possibility. The people here take great pride in the tank and the birds that it attracts. The infrastructure is very poor and at the best of times there

is only a single daily bus trip from Mudukulathur to this village. There is a watchtower, which is not in good condition and needs repair. Yet eco-tourism, if carried out with social and ecological sensitivity, can provide revenue and incentive for conservation.

This case study has been contributed by Shantha Bhushan, member, Kalpavriksh, in 2002. The primary research for the case study was done by P. Anand Kumar from DHAN Foundation, Madurai. Mr Karruppsami and his colleagues from the Muddukulathur office of DHAN contributed by providing a complete picture of tank restoration in Ramanathapuram district. DHAN Foundation was also very helpful in arranging the field visit and establishing contact with the villagers.

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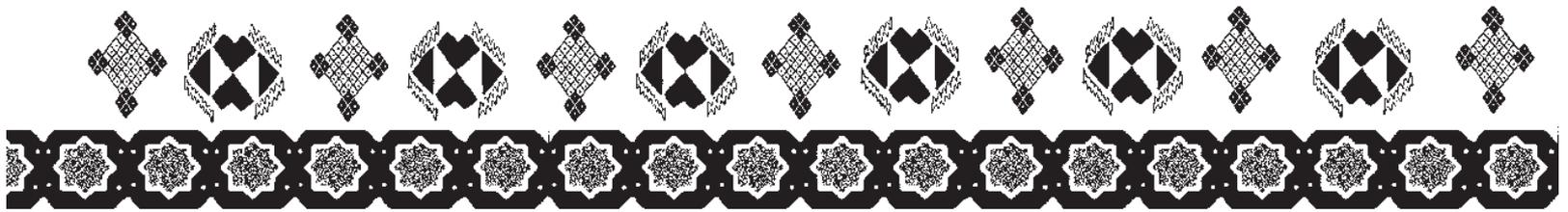


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Endnotes

¹ Under the current system, the first unit of administration is the panchayat, the village executive council, constituted of the elected members of the villages which fall under the panchayat. The panchayat system does not take into account the existing traditional systems of administration in a village.





CCA/TN/CS5/Tirunelveli/Koondakulam/Heronry

Koondakulam, Tirunelveli

Background

The village of Koondakulam is a site where painted storks, known to the villagers as *sangulavlai narai*, come to breed and have been protected by the villagers for more than 200 years. Koondakulam village is located in the Tirunelveli district in Tamil Nadu. The population of the village is around 9000, with most of the people being agriculturists. The villagers are mostly vegetarian. Their avian visitors include painted storks, spot-billed pelicans, egrets, Eurasian spoonbills, black-crowned night herons and flamingoes. These birds arrive in November-December every year and their nesting



Painted storks roosting at Koondakulam

Photo: S. Subramanya

homes are in almost every neem and tamarind tree in the village. At times they are even found on the low-slung *prosopis* trees. All the species of birds that come here can be easily spotted in the village except for the grey herons and the spoonbills which home on the trees on the farther side of Koondakulam tank. Hundreds of grey pelicans, spoonbills and darter birds nest on *Acacia nilotica* trees on the Koondakulam lakeside.

Towards community conservation

The 129 ha Koondakulam lake gives its name to the village, as *kulam* means a lake in Tamil. Koondakulam receives water from the Manimuthar canal and lies to the western side of the village. This lake and neighbouring waterbodies like Kandankulam, Ilamalkulam, Sungulam and Vijayanarayanam lake are brimming with fish and other small aquatic life after the monsoons and serve as feeding ground for waterfowl. Pate, a former Collector of Tirunelveli, has recorded in the District Gazetteer in 1914 that pelicans fed regularly in the Vijayanarayanam Lake.

The villagers consider these birds as harbingers of rain, prosperity and a good harvest. The bird droppings, called *guano*, is rich in nitrates and phosphates and provide a good source of manure in the fields. Apart from this, large quantities of the guano also settle in the tanks, the waters of which are used to irrigate the fields.

The significance of fostering the birds is well-embedded in young and the old alike. The children in the village are trained to monitor bird casualties and report to the elders. The cause of death of the birds is then ascertained, and any person found guilty is punished. Once a man was found guilty of killing a fledgling. As a punishment his head was shaved and he was paraded on a donkey with the bird tied around his neck.

There are some instances where fledglings fall out of their nests. The villagers make efforts to put them back in their nests or nurse them at home till they are old enough to fend for themselves. Koondakulam has a small 'nursery' where these birds are reared and fed fresh stock of fish. One villager is appointed in charge of the nursery. Birds can be very closely observed in this village. With the owner's permission, bird lovers can literally peep into the nests from the terraced houses of the villagers. The birds are not perturbed by any such human intrusive activity since they are accustomed to the villagers and the village.

The *acacia* trees, which now provide shelter to the birds, were planted under the Social Forestry Scheme by the forest department. In 1993, FD tried to auction off these trees for fuelwood. This is when the villagers got together and through their *panchayat* persuaded the FD to spare the trees. In 1994, this place was declared a sanctuary and a village committee was formed to look after the birds.



Impacts of community conservation

Waterfowl gather in these lakes in large numbers during the breeding season and nest in colonies in secure spots where food is plentiful. In the countryside around Koondakulam, a large number of other species of birds are also seen, such as the brahminy kite and Montague's harrier, black ibis, cattle egret, and Indian roller. All the birds that nest in Koondakulam are local ones and not migratory. Migratory birds also come to these lakes, but they come only in the winters and only to feed. Such birds include the black-winged stilt, sandpipers, godwits, Northern pintails, mallards, blue-winged teals, comb ducks and the bar-headed goose. The bar-headed geese breed in Ladakh and come south in the winters. This is the southernmost point where they can be seen. The presence of such high numbers of fish and bird population indicates low or no pesticide contamination of the lakes.

Constraints and opportunities

Till recently, Koondakulam was a remote and unknown village because of which few visitors frequented the village. The scenario started to change when an enterprising travel agent included this village in his itinerary. During the season, hundreds of tourists have now started coming here more as a picnic spot rather than to observe birds. Since these tourists are unaware of the importance of this site as a bird habitat, they end up causing much disturbance to the birds. The villagers need to make serious and conscious efforts against the dangers of such tourism to ensure that birds remain safe and undisturbed in this village.

It is believed that years ago painted storks used to nest in the tamarind trees in Moondradaipu village on the main Tirunelveli-Nagarcoil highway. With the increase in vehicular traffic and harassment, the birds have abandoned that spot and moved here. Efforts need to be made to ensure that the same situation is not repeated here.

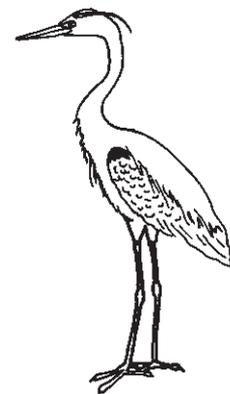
Conclusion

A heronry is an indication of the good health of a wetland. Critical to the environment, wetlands maintain subterranean water, sustain food chains, control floods and provide habitat for wildlife. By protecting heronries, villagers play an important role in conservation of biodiversity and maintaining ecological functions.

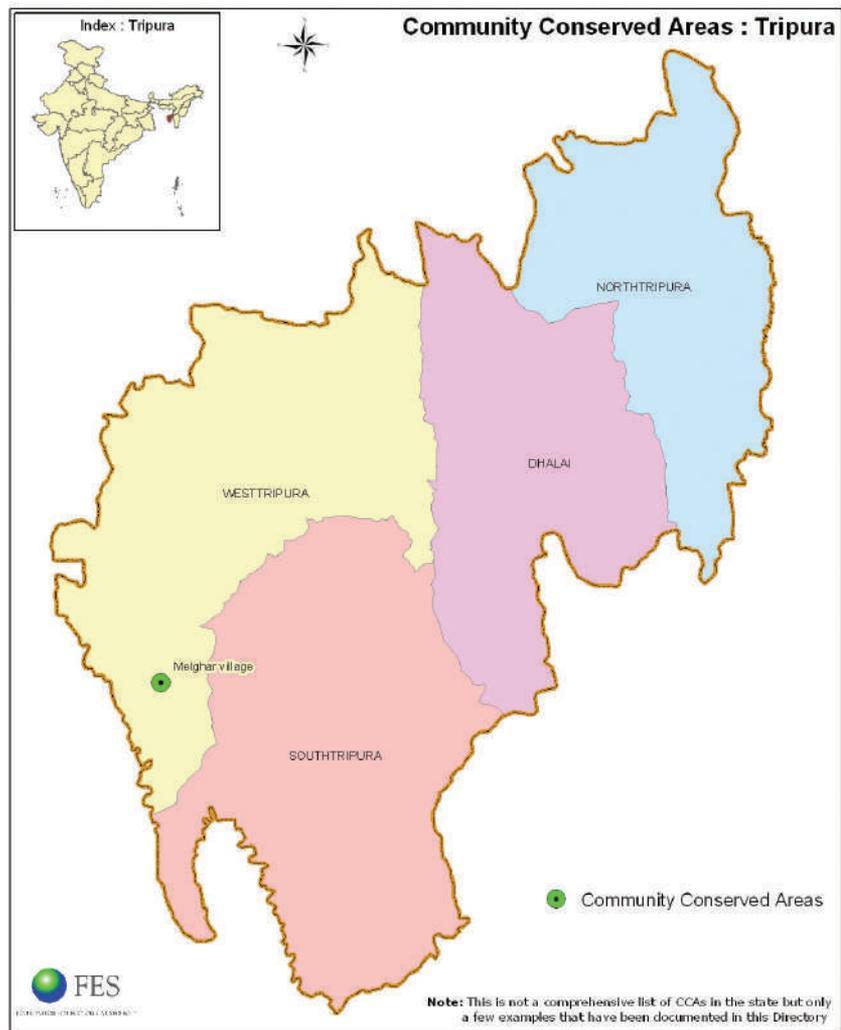
This information has been extracted from S. Vinayakumar, 'Koondakulam: A village heronry', *The Hindu*, 31 October 1999, and S. Vinayakumar, 'Visitors at Koondakulam', *The Hindu*, 17 December 2006.

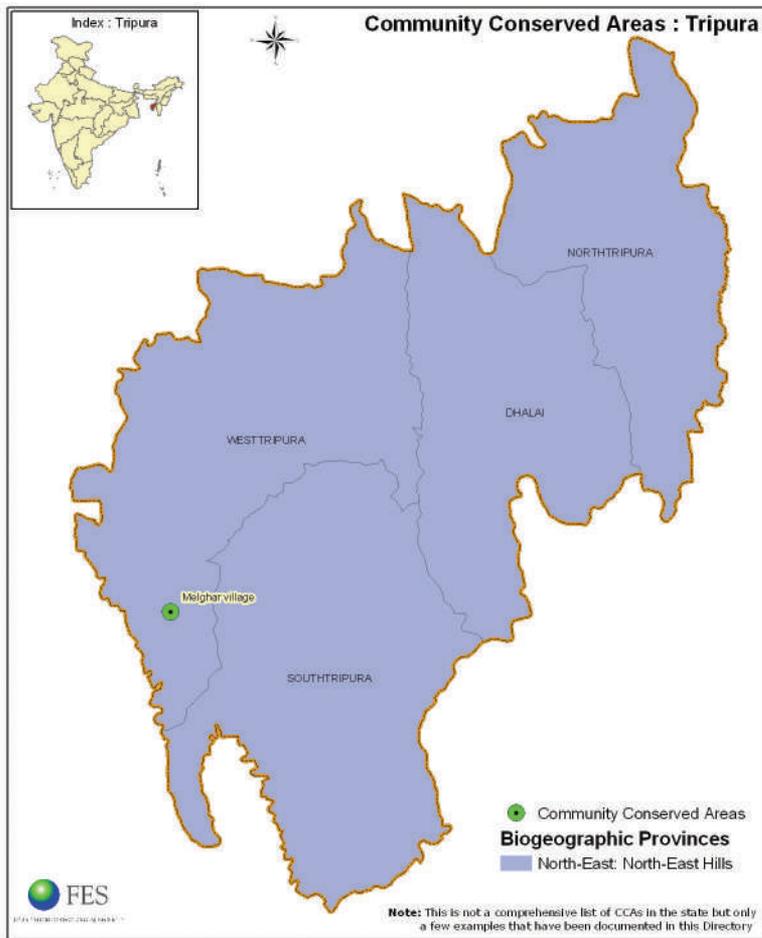
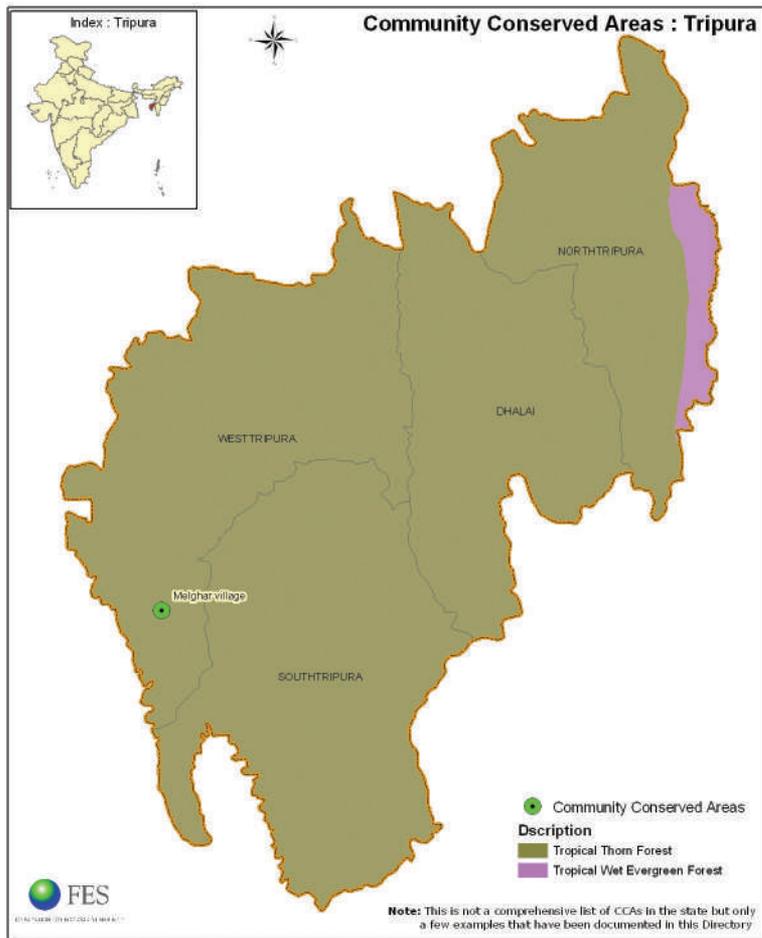
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Tripura







Tripura - an introduction

Location and biogeography

The state of Tripura, with a geographical area of 10,491 sq. km, is predominantly hilly. It is surrounded on all sides by the deltaic basin of Bangladesh except for a small part in the north-east which adjoins Cachar district of Assam, and Mizoram. The state is situated between 22°57' and 24°82' North latitudes and 91°10' and 92°20' East longitudes, with the Tropic of Cancer passing through it.

Tripura is characterised by a warm and humid tropical climate with five distinct seasons, namely, spring, summer, monsoon, autumn and winter. The winter is short followed by a brief spell of spring. Average rainfall is about 2100 mm.

Five major hill ranges traverse the state in roughly north-south direction and continue southward into Chittagong Hill Tract. The highest peak lies at Behliangchhip (Thaidawar, Shib-rangkhung), at 975.36 m above mean sea level (amsl). Gumti, Khowai, Manu-Deo and Muhuri are some of major rivers in the State. The State has three distinct physiographic zones: i) hill ranges ii) undulating plateau land and iii) low-lying alluvial land

60% (6,29,501 ha) of the total geographical area of this state is under forests while 27% of total geographical area is available for agricultural purpose. The remaining 13% is used under non-agricultural purpose and miscellaneous tree crops. 2.22% (22,921 ha) of the geographical area constitutes water bodies.

Legally, the forests are categorized as reserved forests (RF), protected forests (PF) and public forests (UF) (now called unclassified government forests). Out of the total forest area the reserved forests (RF) area is 4,09,700 ha, or about two-thirds.

Since Tripura has tropical/sub-tropical climate with high rainfall, the forest types are mainly: tropical evergreen; semi-evergreen; and moist deciduous. The most important minerals in the state are oil, natural gas and glass sand.

Biodiversity

The land mammal species recorded so far are 90. Of a total of 15 species of non-human primates in India, 7 are documented from Tripura. Around 342 species of avifauna and 289 species of faunal and floral aquatic diversity are listed as per available records.

The notable mammalian fauna include tiger, elephant, leopard, slow loris, sloth bear, Indian wolf, hog badger, binturang, marbled cat, leopard cat, Chinese pangolin, serow, goral, Malayan giant squirrel, orange bellied squirrel, with many species of primates like hoolock gibbon.

Socio-economic profile

The human population of the state according to 2001 census is 3,199,203. People can be divided into two predominant categories, namely tribal and non tribal Bengalis. Most of the tribal people are the original inhabitants of the land. Major part of the population comprises of Bengali Hindu migrants coming from Bangladesh, which was earlier East Pakistan. A small percentage is constituted by Manipuris. There are 37 scheduled castes (SC) and 19 scheduled tribes in the state. The major tribes are Tripura or tripuri or tippeara, reang, jamatia, chakma, halam, noatia, mog, kuki, garo, munda, lushai, orang, santhal, uchai, khasia, bhil, cheimal, bhutia, and lepcha. The tripura tribe is largest in numbers and is also socially dominant.

The lushai, kuki, and darlong tribes are Christians. Chakmas and mogs are Buddhists and rest of the tribes are mostly Hindus.

The main occupation in the State is agriculture. The Bengali community practices permanent cultivation on low lying and flat terrain lands. The tribal people have been practicing shifting cultivation (*jhuming*) on hill slopes since time immemorial. Both single crop system and mixed crop system are practiced in Tripura.

Administrative and political profile

Panchayats are exercising powers as per 73rd amendment of the Indian constitution. There are 874 revenue *Moujas*¹ in the State, whereas, the number of towns is merely 10. The State is represented by two Members of Parliament in the Lok Sabha and one Member of Parliament in Rajya Sabha. The State Legislative Assembly has 60 seats. At present there are 4 districts in the State, 15 civil Sub-Divisions, 31 Revenue Blocks, 183 *Tehsils* and 874 Revenue *Moujas*.

Special provisions in the Constitution of India are made to preserve the ethnic, cultural and religious identity of the people, and maintain demographic uniqueness of the region and hence Tripura is a sixth scheduled state under the Constitution Articles 244 (2) and 275 (1) which governs the Tripura Tribal Areas District Council covering about 67% area of the State². It is a self-governing institution. It has its headquarters at Khumulwng, West Tripura District. The Council has powers of administration and control in the following matters: allotment of land outside RF; use of canal for agriculture; *jhum* cultivation; village health, sanitation and policing; primary schools; markets; transport; waterways; fisheries; and dispensaries. It is responsible for management of Protected Forest under its jurisdiction.

Conservation

While the forests of Tripura are rich in floral and faunal diversity providing various ecological services, this fragile resource base has been diminishing due to various anthropogenic disturbances resulting in degradation and loss of forest cover which is directly affecting the ecological stability, biological diversity, economic viability & environmental security of the state.

A survey has revealed that about 10% of plant species and 21% of mammals are currently endangered. The state has 603.62 sq. km. of area under 4 wildlife sanctuaries namely Gumti, Rowa, Sapahijala and Trishna. Atharamura sanctuary is the fifth Sanctuary proposed. Gumti WLS and Trishna WLS have also been recognized as Important Bird Areas (IBAs)³.

In 2005, Rudrasagar Lake with an expanse of 240 ha was declared as Ramsar Site. The lake is abundant in commercially important freshwater fishes and freshwater scampi, with annual production of 26 metric tons. It is an ideal habitat for IUCN Red listed Three-striped roof turtle. Gumti WLS is another proposed Ramsar site.⁴

Various policies and schemes by the forest department operational in the state are joint forest management (JFM), medicinal plants resource improvement, state afforestation policy and state bamboo policy. Management of the forests of the state is under the north east forest policy. There are 231 JFM committees (up to June 2002) in the State looking after 34,179 ha of forest areas on care and share basis. These committees are responsible for the protection, afforestation, soil conservation, etc of the forests and are entitled to the benefit sharing in such areas.

Along with these, 36 conservation hotspots (CHS) rich in biodiversity and harbouring highly rare and endangered flora and fauna have been identified with the help of JFM members, NGOs and forest officials. The specific biodiversity conservation plans for these sites are yet to take off.

The fisheries department has taken initiatives to propagate threatened and endangered species of fish and some other aquatic fauna. A Policy has been formulated to train the rural masses for sustainable aquaculture with rational use. The department has taken up re-establishment of giant prawn, *magor*, *pabda* (kind of catfish) and fresh water turtle. There are also fish cooperative societies for propagation and harvesting of local fish.

Tripura is also known to have many areas under traditional community management and conservation. Not much information, however, could be collected on this. This compilation contains only one example of community conservation from Tripura.

This information is compiled by Saili S. Palande based on; Forest Department, Govt of Tripura. 2002. *Tripura State Biodiversity Strategy and Action Plan*. Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests (Government of India). Contained in CD with TPCG and Kalpavriksh, *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan*. (Pune, Kalpavriksh, 2005). Other sources for specific information are given in the text.

Endnotes

¹ A cluster of few villages brought together for administrative purpose, smaller than taluka/tahsil.

² Source: Advisory Panel on Decentralisation and Devolution; Empowerment and strengthening of Panchayati Raj Institutions (2001). A Consultation Paper on Empowering and strengthening of Panchayati Raj institutions/ autonomous district councils/traditional tribal governing institutions in north east India. National Commission to review the Working of the Constitution.

³ Source: M.Z. Islam and A.R. Rahmani. *Important Bird Areas of India: Priorities of Conservation*. (Mumbai IBCN, BNHS, UK: Bird Life International,UK. 2004).

⁴ M.Z.Islam and A.R. Rahmani. *Potential Ramsar Sites in India*. (Mumbai IBCN:BNHS and Birdlife International. 2006).







Melghar region, West Tripura¹

Background

The Melghar region in Sonmara Subdivision of West Tripura was once a dense forest of sal, mixed with *Vitex peduncularis* and *Terminalia bellerica*. Legally they have been assigned a status of Proposed Reserve Forest.

The India – Pakistan war in 1971 led to the creation of Bangladesh as an independent nation. The war also led to a large number of refugees from Bangladesh crossing over to India and took shelter in the forests in various states in India, including Tripura. Some of these were legal land allocations by the government and many unauthorised occupations. As a result soon the state of Tripura began to feel the population pressure and need for employment was huge. Unauthorised and authorised settlements, resorting to timber felling and smuggling to meet livelihood needs, increased population of livestock and increased hunting, along with other factors led to a fast degradation of forests in Tripura. Within a decade not a tree was within sight and the land had reduced to a vegetation of shrubs and coppice and severe shortage firewood and fodder and water in some pockets was felt.

Towards community conservation

Finally in 1984, after years of poverty and despair, Subodh Sur, a young graduate, formed a group of 15 youths in his village Rudijala in Melghar block. This group started spreading environmental awareness amongst the people. In 1987, the Acharya Jagdish Chandra Bose Briksha Mitra Sangha (AJCBMS) was officially formed. Group started its activities by initiating plantation activities in many villages and establishing a makeshift nursery with bamboo and other local saplings. According to Sur, the villagers who were earlier hesitant saw the results, and started to grow bamboo and other trees on their lands.

Their efforts received a boost when the Tripura Govt. decided to adopt Joint Forest Management in Tripura in 1993. The pilot project named 'Jeevan Deep' was launched in the Melghar region. The first coppice protection exercise was started in 40 hectares of degraded forest with 230 families with 1050² beneficiaries from four villages, namely, East Nalchar, Chandigarh, Mohanbhog and Rudijala³. AJCBMS played a major role as a local NGO in interfacing between Forest Department and the villagers. Devoted workers went door to door explaining the details of the new policies and organised several meetings emphasising on the benefits of JFM.

A Forest Protection and Regeneration Committee was formed as per the Govt. guidelines with the general body consisting of one member from each of the 230 families of the above mentioned four villages and the executive committee of seven members; one member from each of the four villages, one member from the local NGO (the secretary of AJCBMS), one woman member and one member secretary (forester in charge of Melghar region).

The objective and functions of the committee was

- To ensure protection of forests/plantations from theft, illegal grazing, encroachment, fire, etc. and to protect the wildlife in the area
- To facilitate timely execution of forestry programs
- To ensure smooth harvesting and benefit sharing
- To reduce the practice of jhumming by the beneficiaries⁴

To assist the Central Executive Committee, seven 'Para' or Local committees were formed. The major activities of the Executive committee were site management of the major works distributed in terms of protection, supervision and monitoring activities; regulation of benefit sharing, particularly extraction of non timber forest produce (NTFPs) by beneficiaries such as firewood, bamboos, fodder, broomsticks, wild vegetables/edible plants including mushrooms.

Decisions concerning collection of firewood, bamboo, fodder, minor forest produce and herbs are taken by holding a meeting once a month and carried out under the strict regulation formulated by the committee. They were assisted by Nehru Yuva Kendra, an autonomous organisation of the Government of India and soon 13,000 ha of land were forested and the number of involved families rose to 340.

Impacts of community conservation

Remarkable improvement has been seen in the vegetation cover, species diversity and return in minor wildlife since the protection. The quality of forest produce and availability of water has improved as assessed by the villagers

The role of the women in forest protection was realised and a small scale industry to generate an additional income for them in the form of sales of sticks for incense and ice creams was started. In 1996, a school was started in Melghar where youth from all over Tripura are taught the basics of Joint Forest Management with a grant from The National Foundation of India. Agro based projects, vocational training in cane and bamboo, and health awareness programmes were started.

The Acharya Jagdish Chandra Bose Briksha Mitra Sangha together with the Forest Dept. of Tripura have not only been successful in weaning away the youth from illegal tree felling but have also now made the people self sufficient in their needs. The success story of Melghar is now spreading fast and other villagers in Tripura are now taking up such works.

Opportunities and constraints

Although the timber has not yet been harvested, the beneficiaries have already started reaping the benefits of the protection by harvesting minor forest produce. Their NTFP demands for household requirements such as construction purpose, vegetables, and fuelwood and marketable commodities such as broomsticks are met.

Some of the constraints faced by the conserving community are

1. Although the local greenery has returned and NTFP needs met, the pace and volume of economic returns are slow and low (possibly because of the high density of humans and cattle in the area).
2. The input from other line departments for improved education, healthcare, nutrition supplements, co-operative activities is very low.
3. There is a need for improved agriculture, particularly for growing of winter vegetables, kitchen gardens etc. for supplementary income and nutritional needs.
4. There is also a need to build local capacity for skill development for value addition of forest produces and trade/market linkages.
5. Revolving funds for micro-credits need to be encouraged non-land based economic activities through sustainable micro-enterprises (low investment. quick returns)
6. Need for supplementing the program through organisation of self help groups, particularly the women (for eg. Handlooms poultry rearing, mushroom cultivation etc. for sustainable supplementary activities for income generation.)
7. lack of replicability of similar efforts in the immediate vicinity of the present CCA; need for adoption of neighbouring villages through supply of quality planting materials of trees, NTFPs etc.
8. Need for a conflict resolution mechanism (although there have been no major conflicts yet) but there is a constant need for non-politicalization of the program/efforts.
9. THE FD officials predict problems in 17 years when the major harvest will take place since many of the beneficiaries will be dead and there will be conflict in distribution between legal heirs

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Endnotes

¹ Yadav R., (2001) Born Again, *Down to Earth* Issue November 30.

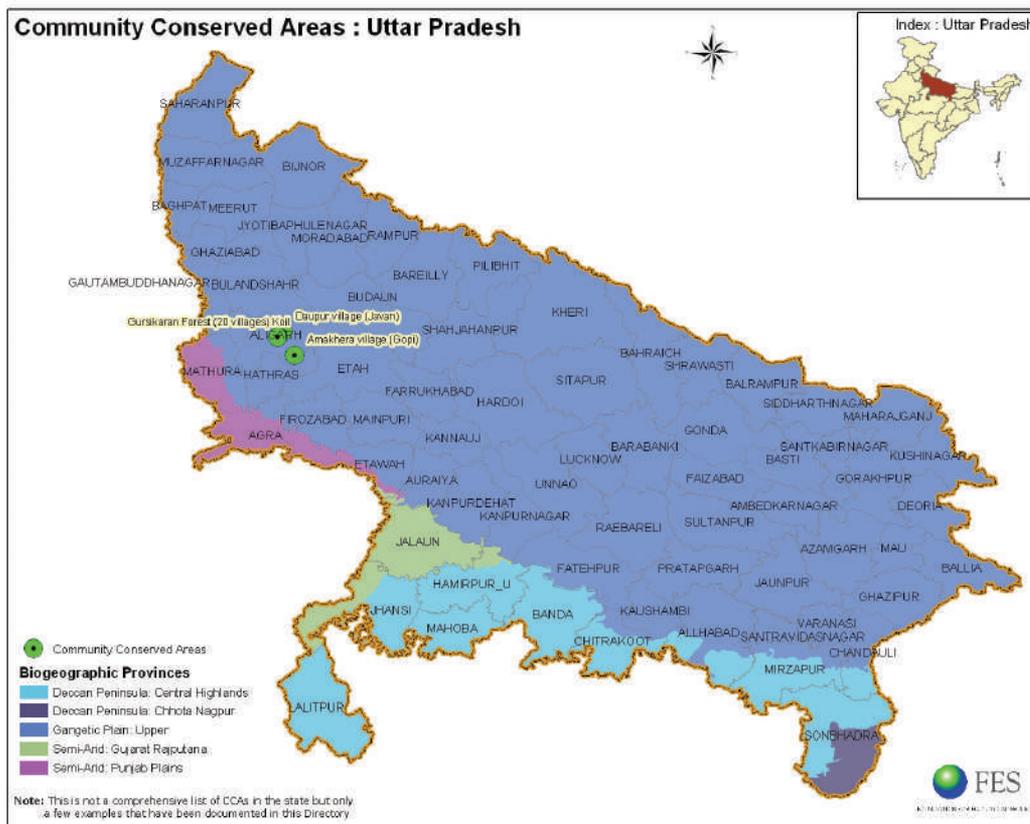
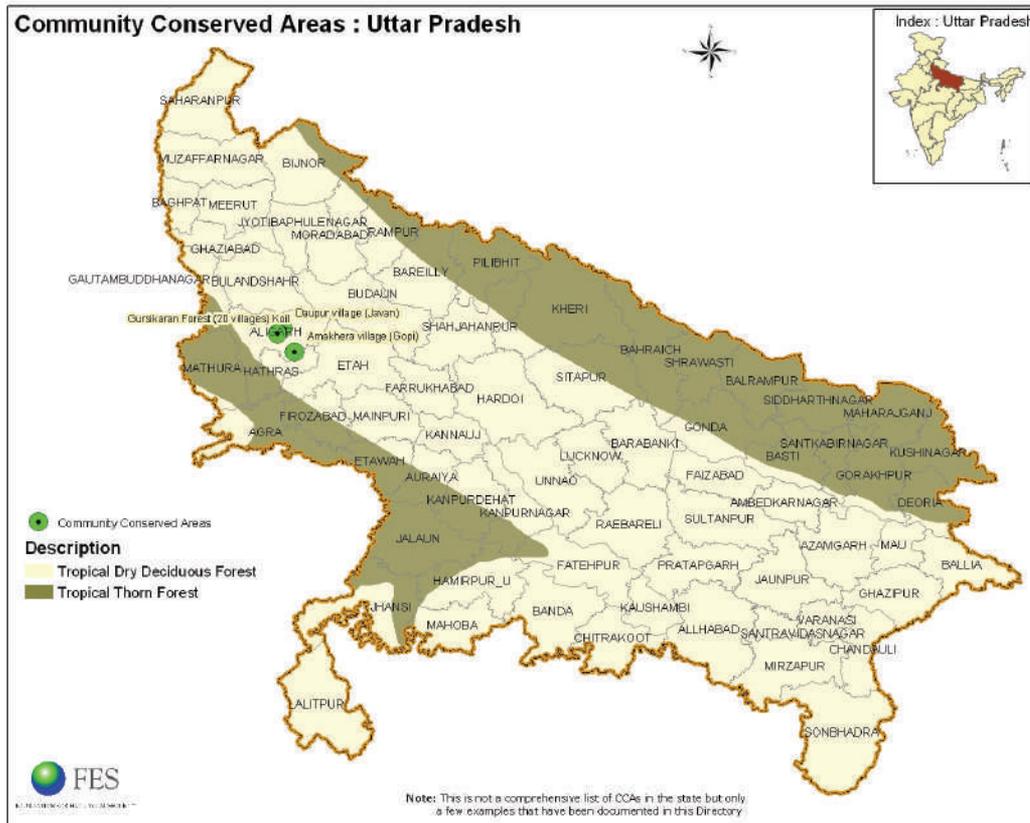
Presentation of Dr. Barik & Dr. Darlong at the Workshop on Community Conserved Biodiverse Areas in India, Bhopal, 2001. Organised by Kalpavriksh and Indian Institute of Forest Management.

² Beneficiaries were divided into three categories.

A. Families of daily labourers and the landless; B. Families with landholdings upto 4 kanis (0.16 ha=1kani); c. Land holding above 4 kanis or government employees

³ Presentation of Dr. Barik & Dr. Darlong at the Workshop on Community Conserved Biodiverse Areas in India, Bhopal, 2001. Organised by Kalpavriksh and Indian Institute of Forest Management.







Uttar Pradesh - community conservation in the Gangetic plains

Afifullah Khan and Faiza Abbasi

1. Background

Uttar Pradesh has a total geographical area of about 243,291 sq km (7 per cent of the total area of the country), supporting a total population of 166 million (about 16 per cent of India's population).¹ A little over 80 per cent of the population is Hindu, about 18 per cent Muslim, while other religions (Christianity, Buddhism, Jainism, and Sikhism) account for very small minorities.² Some 21 per cent of the total population belongs to scheduled castes. In 1996-97, 42.3 per cent of the rural population was estimated to be below poverty line (BPL), and in 1993-94, 35.4 per cent of the urban population was BPL.³ A vast majority of the population depends on biomass based subsistence economy.⁴

The state's geography is dominated by two of India's mightiest rivers. From the Himalayan foothills, the Ganga and Yamuna flow parallel to each other for about 500 km, at a distance of about 80-120 km from each other. This region is called Doab and narrows beyond Etawah till these rivers join in Allahabad. There are two distinct areas in the Doab: the *khader* or the river basin and the *bangar* or inter-fluvial lowlands plateau that lies 5-10 km above *khader* and is bordered by *bhur* (the sandy embankment). Between the *bangar* and the *bhur* is the clearance or the *bankati* area, which was first used in the 19th century for cultivation. A 20-30 km-wide protracted basin extends along the Doab from Muzaffarnagar beyond Etah and Mainpuri. In the course of thousands of years of agricultural activity in the Doab, highly refined farming and irrigation methods have developed that are appropriate to this region.⁵

2. A history of community and conventional conservation

The roots of civilization in Uttar Pradesh, known as the United Province in the British era, are as old as the Indian subcontinent. The tradition of nature conservation, an ancient practice in India, has also been observed in this most highly populated state in the North Indian plains.

Historically, Uttar Pradesh may be said to have passed through four major stages of the relationship of communities to nature: the hunter-gatherer stage, the agricultural stage, conservation under the monarchies, and the colonial stage.

Until the early decades of the 20th century, many communities depended on hunting and gathering for livelihood. The abundant rainfall and rich vegetation of their habitats facilitated the reproduction of subsistence almost exclusively through the collection of roots and fruits and the hunting of small game. From about 1200 to 600 BC the Gangetic plains were colonised by the dominant agricultural pastoral people of the so-called Aryan culture. With the introduction of iron tools in the 6th century BC, agriculture reached a level of development not to be significantly exceeded until the 19th century,⁶ when irrigation works began to be constructed on a large scale.

Government intervention in the management of natural resources was the most significant event in the history of conservation in India. By 1900 over 20 per cent of India's land area had been taken over by the forest department (FD). State reservation of forests by the colonial government in the mid-19th century sharply affected the subsistence activities of hunter-gatherer communities. As a result, these groups were forced to abandon their traditional occupations and to eke out a precarious living by accepting a subordinate role in the dominant system of agricultural production. The study of colonial forest policies has brought to the fore two contradictory notions of resource use: on the one hand, communal control over forests is paired with subsistence use, and on the other, state control is paired with commercial exploitation.



2.1. Traditional practices of resource management

Communities involved in conservation of natural resources possessed a variety of practices apparently leading to sustainable use of a wide range of biological resources and conservation of biological diversity as a whole. These practices include total protection of certain biological communities or species; protection of certain life-history stages or during certain seasons; restrictions on methods and amounts of harvest and on certain social, age or sex groups from harvesting certain species; and restriction of access to certain localities to certain groups or individuals. Whenever these decisions appear to be taken and enforced by the group as a whole, it suggests that what is being ensured is long-term group interest in resource conservation, which may be against the short-term interest of individual users. The reasons for such decisions may be the influence of a variety of factors in UP; some of these are religious associations, social structure by the caste system, regulations by a ruling monarchy and colonial efforts.⁷

2.1.1. Religious associations

The first traces of community conservation of resources are found in the religious, philosophical and artistic involvement of flora and fauna. The Vedas, Puranas and epics acknowledge the sacredness of forests and various animals. Generations of communities grew up taking lessons from the Hitopadeshas, Jatakas, Panchatantra and many other fables that assert the great qualities of animals.⁸ Religious associations of certain species of plants and animals or compassion for another living being also contribute in the formulation of conventional methods of ecosystem management in the area. There were no individual property rights that existed in UP before the British invasion. Religion was law, and various protective mechanisms such as *gauchar* (pasture), *abhyaranya* (sanctuary) and *aranya* (dense forest) were revered due to their religious association in scriptures, epics and folklore. For example, the peepal tree is worshiped; sarus cranes are not killed because they signify prosperity; killing of Gangetic river dolphins is considered as a bad omen by some fisherfolk; leaves of wood apple are a part of every *puja*; leaves of ashoka are used in religious ceremonies; monkeys and elephants are never killed because they are incarnations of gods; the house swift has a sacred mention in the holy Koran and hence Muslims protect its nest and never shoot one.

The Vamana Purana has established the connection of plants to various Hindu gods—e.g., the lotus is a symbol of Vishnu, wood apple symbolises Goddess Laxmi, khair is a sign for Lord Brahma and dhatura is the fruit of Mahesh. Various plants have also been attributed divine powers in mythology.⁹ Ber and mahua are considered harbingers of fertility, kush is supposed to be the abode of all gods, and turmeric is supposed to be the favorite of all gods.

In Padma Puranam the Srishti Kand had mentioned rgw gains of sowing and planting some species: peepal for acquiring wealth and getting rid of illness, ashoka for removal of misery, and pomegranate for getting a life-partner of choice. Neem has a lot of significance, besides being a measure for appeasing the Sun God. Ayurveda, which is the oldest system of curative medicine, depends on the extraction of medicines solely from plant parts. A herb of sweet basil is considered incomparable for the volume of goodness it brings to the household, as it is the abode of all dieties. Trees are also related to the various fasts that exist in the Hindu religion. They hold relevance in the fields of astronomy and astrology too.

2.1.2. Caste system

The age-old caste system, which was an unofficial rule for every village society, held innate rules for the effective management of resources. Some resources were commonly used and controlled by small multi-caste village communities, in which different caste groups are linked to each other in a web of reciprocity. This type of communal management favours sustainable use of common property resources, and it lasted till the colonial invasion when communally managed resource were converted into open access resources.



Caste society, which emerged at the conclusion of the wave of agricultural colonisation around 500 AD, was made up of tens of thousands of endogamous groups, each with its own, often highly specialized, hereditary mode of subsistence. Caste society differs from other hierarchical societies in being segmented and made up of discrete sub-groups. Each sub-group that belongs to this type of caste society is relatively homogenous, with all its members traditionally pursuing a well-defined, similar mode of subsistence and having very similar level of access to resources.

From an ecological perspective, social organization may be viewed in terms of distribution of access to resources. Caste society's sympatric endogamous groups had so partitioned the use of specialized biological resources that a particular resource tended to be monopolised by a particular endogamous group in a given region. This diversified the ecological niches of the different coexisting endogamous groups. For example, the Chamars draw their livelihood from dead animal carcasses and hides; the Karmis are artisans involved in woodcraft but they do not collect wood from the forest—instead, they buy it from the Lakadhara or woodcutter community, who derive it from the forest with sufficient concern for the regeneration capacity of the tree and other rules such as not cutting trees with nesting birds; clean drinking water is controlled by the Bhishtis; the Quereishi caste is responsible for lawfully slaughtering meat and selling it amongst Muslims; and so on.

The diversification of resource use promoted sustainability in two ways — by restricting access to many specialized resources of any given locality to members of just one endogamous group and by linking together members of different endogamous groups in a network of reciprocal exchanges and mutual obligations. Since each group adheres to a particular mode of subsistence, competition between them is little. Rather they are linked together and become interdependent. This system presents interesting parallels with the way resource partitioning takes place in ecological (plant and animal) communities.¹⁰

2.1.3. Regulations by monarchs

Emperor Ashoka had promulgated game laws in the 3rd century BC, which accorded protection to various species of animals. Under the Buddhist faith, some animals were considered as incarnations of the Bodhisattvas and were never killed.

The freshwater turtle (indeterminate species) and the wild pig were respectively called *kacchap avatar* and *waraha avatar*. The Gangetic river dolphin was also revered and protected under the game laws of Ashoka. Under the influence of those laws, some fishermen on the banks of the river Ganga still believe that for killing a dolphin their family will have to pay by the death of a family member.

The Gangetic river dolphin also finds a mention in the *Baburnama* (the autobiography of Babur, the first Mughal emperor in India). Modern Indian scientists consider the section of the *Baburnama* which deals with India to be the first illustrated natural history account of the country. Babur also describes the presence of the lesser florican and Himalayan monal near Agra.¹¹

Babur's greatest contribution was his introduction of terraced gardens. Bagh-gul-I-afshan, later known as Arambagh and now called Rambagh in Agra, is one of the many gardens he laid out. Many East India Company gardens were in fact founded on the sites of old Mughal gardens. The garden at Saharanpur, revived by the Marquis of Hastings and J. Forbes-Royal was an early example.¹² These gardens provided a reserve where plant biodiversity and various avian species were maintained.

Wild flora and fauna were considered as natural resources and although hunting for game was in fashion, it was quite regulated and probably rarely exercised to the extent of bringing the population of any wild species to the brink of extinction.¹³ During the reign of Jehangir, who ruled his empire from his capital Agra in Western UP, forests were maintained as game conservancies. Sporadic and unauthorized hunting was strictly prohibited. He maintained a hunting department, which made a list of all the animals killed by hunting. This list was produced in front of him whenever he left the city and re-entered. It was so detailed that it also mentioned the number of heads of wild cats, quadrupeds, wild fowl and other birds. While the emperor himself was on a hunting expedition, only his personal servants and the experts genuinely required by him were involved. No one else was allowed to remain in order that trampling horses should not trample the grain in the fields. Delimited by natural boundaries, hunting grounds called *shikargah* (game conservancy) were specified by the king. Any type of hunting was allowed only within these grounds.

Jehangir also announced a period of hunting, which lasted for several months. During this period, records of all animals killed were made, and beyond this duration no hunting was allowed all over the Mughal empire.

2.1.4. Community conservation of wild species

Keystone species such as ficus trees may receive total protection over a wide area and may serve to support a whole range of insects, birds, primates and other organisms. Similarly, there are many incidents of a single species accorded special protection by a community. For example, the ahir community near the village Etawah in western UP has a sentimental association with the sarus

crane population in the area. Under this they conserve the bird and take offence if any attempt is made to harm them. This protection lies deep in the traditions respected by this community.¹⁴

In the Mughal capital town of Agra, the most commonly seen animal was once India's largest antelope, the nilgai or blue bull. It is neither blue nor bovine, as its name erroneously suggests, but it is an antelope of larger size. In the 17th century AD, the Mughal emperor Jehangir, who had a keen interest in natural history, changed its name from nilghod (blue horse) to nilgai (blue bull) on account of its declining population, since it was the favourite target of game hunters. Since then, the Hindus, who worship the cow as a mother, began giving protection to the blue bull. Shrinking habitat made this antelope ransack the crop fields and gazetteers reported a century later, 'The blue bull has hitherto enjoyed immunity on account of its name but the villagers have now realized its capacity for destruction and they do not object to its being killed by *shikaris*.¹⁵ However, despite having licences many farmers would still not kill the blue bull themselves.

Other traditional restrictions included a restriction of seasons during which certain forms of harvests could be made as well as the quantities to be harvested. The trade in edible fish undergoes a period of rest every year for a duration of about four months. During this period people neither eat fish nor is fish caught or sold. This is because the duration between the months of May and August is supposed to be the breeding season of the ichthyofauna (species of fish) in fresh water. While harvesting the fruits of sacred groves such as *bagichas* and *akharas* belonging to temple trusts, it is customary to leave some fruits for the monkeys and birds. The Bahelia caste, which is involved in trapping and netting of birds and their trade, do not practice their occupation during the breeding season of the species they catch.

2.1.5. Land use practices by pastoralists

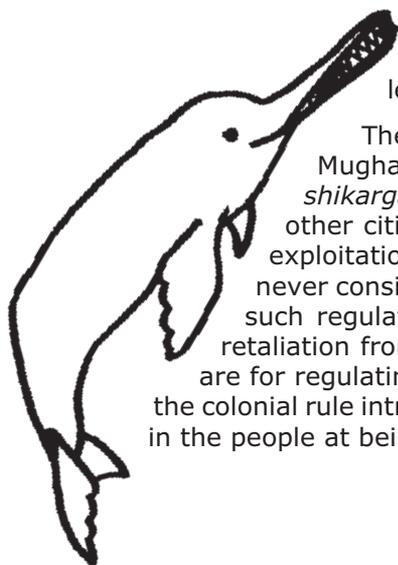
Many traditional land use systems include not only those areas inhabited by them at all times but also other sites that are used intermittently. For example, the Gujjars, an indigenous pastoral community, are seasonal migrants and use certain areas periodically at different times of the year. The systematic non-damaging land use practiced by intermittent users such as pastoralists¹⁶ following traditional practices have their innate advantages to the upkeep of natural wealth.

2.2. Past and current trends

The breakdown of traditional systems of conservation was the result of various trends with colonial state intervention being the most severe influence. The Gangetic plains were subject to systematic destruction of biological communities and subjugation of indigenous populations by the agricultural Aryans, whose activities led to a periodic alteration of forest cover and gradual denudation. However, irreversible ecological decline came only with the industrial revolution even in the Ganga Yamuna Doab.¹⁷ Technological innovations enabled certain human groups to break down territorial barriers and to usurp the resources of other groups. Colonial interests lay mainly in taking control of as much of the country's resources as possible.

The industrial revolution demanded a quantity of fuel and timber for the commercial sector in Europe, and this inspired the colonial government to put a moratorium on communities managing their own resource base. Artisanal industry declined under the twin pressures of diminishing sources of raw materials and competition from machine-made goods. This further affected the symbiotic relationship between communities and their forests, as they turned to other sources of livelihood. The redefinition of property rights by the colonial state imposed a system of management on the forest whose priorities sharply conflicted with earlier systems of local use and control. The new laws restricted small-scale hunting by tribal peoples but facilitated more organised *shikar* expeditions by the British. From the mid-19th century there began a large-scale slaughter of animals by British *shikaris* of all levels.

There is a characteristic difference between the hunting laws made by the Mughals and the British. The Mughals themselves also abided by the laws of *shikargah* and hunting periods, whereas the British rulers made laws only for other citizens while themselves continuing with uncontrolled poaching and reckless exploitation of natural resources. As far as the tribals are concerned, the Mughals never considered their subsistence killing of wild animals as hunting and never imposed such regulations as for game hunting. This is why there are no historical records of retaliation from the people against Mughal game laws. The people understood that they are for regulating game and not subsistence activities. On the other hand it is evident that the colonial rule introduced large-scale exploitation of natural resources and evoked antagonism in the people at being alienated.



Thus the new laws inspired a reactionary force which could be distinctly seen in the change in hunting practices. Since hunting expeditions by the British were not banned, villagers too hunted indiscriminately, trying to be one step ahead of them. In order to generate revenue for the state, high taxes were levied on the communities for deriving a living from their very own resources. One such example was found in gazetteers of Azamgarh district. It has been stated that in some *parganas* (present-day talukas) of Azamgarh, tar or toddy palm was abundant and a large income was annually drawn from the lease of the right to collect and sell *tari* (the sap obtained from sapping). Similarly, wildfowl in Azamgarh were netted and the dues levied on those who practiced this occupation often brought in considerable income.¹⁸

After the establishment of British rules in 1801, agricultural practices changed drastically due to the move from food crops to soil-intensive cash crop production. This resulted in desertification due to erosion, salinisation and ravaged agriculture. This led to serious ecological degradation in parts of south Delhi and as far as Kanpur. The British then built canals to irrigate these crops. However, this severely damaged the river ecosystem, disturbing the water tables in various areas and resulting in flooding, swamping and sloughing of crop fields. The significance of British intervention lies in the novel and often inappropriate modes of resource extraction made possible by the dominance of the Raj and the availability of technologies previously foreign to India.

3. Current status of community conservation

3.1. Continuing, revived or modified traditions of community conservation

3.1.1. Protection to a single species

Partly in continuation of ancient traditions (see Section 2.1), banyan, peepal and other fig species of the genus *Ficus* continue to be widely protected and even today are rarely cut down. Figs are now recognized by ecologists as keystone resources—dry-season staples for many species of birds and mammals, especially monkeys—that play a pre-eminent role in the ecosystem. It is a common sight in almost every village or locality to see a peepal tree with signs of daily worship. Also species such as blue bull and sarus crane continue to be protected by local communities.

3.1.2. Protection of a particular habitat type

There are instances of entire biological communities being associated with a deity and receiving protection, in the form of sacred groves or sacred ponds or any other habitat or its part. The sacred groves serve the preservation of biological diversity and genotype—which may be useful in breeding, and includes common as well as rare species, which are equally important. Being a climax form of vegetation, sacred groves are richer in diversity than all other successive vegetation. With the clearing of forests all around them, they are now the last refuges for many plants and other life forms dependent upon them in many areas.

Of late, people have also started recognising the importance of these groves on the grounds of ecological benefits and compassion for animal dwellers. As a result, in two major pilgrimage sites of the Hindu religion alone—Mathura and Benares—184 sacred groves have been listed.¹⁹ There may even be more because by tradition every village or a cluster of villages has planted some sacred trees near a place of worship.

In Mathura there are numerous temples and *ghats* (riverside platforms) with a stand of trees sacred to the people. They range in size from just one tree to as many as a few thousand. In the Mathura district alone there are 108 sacred groves and ponds held as sacred and revered by the community. Varanasi is full of *ghats* and temples where natural resources are given protection due to their association with a holy site. In this district there are 76 small and large sacred groves and ponds. Old *gurukuls* (places of learning) and hermitages of ancient *gurus* are maintained as sacred groves. For example, the Sarnath temple, which is known as the Mrigdava in Buddhist literature, draws its name from a legend. The Bodhisatva was born as a Nyagrodhmriga (deer) and granted herds of deer the freedom of moving without fear in the forest. Deer are still not hunted in this place.

Most of the sacred groves are situated either near a temple, *ghat*, pond or tomb. In Benares it has been found that the orchards near burial grounds are also considered sacred. Muslim and Christian communities also give protection to stands of trees with the belief that they bring peace to the dead in the graves.²⁰

3.2. New self-initiated efforts by the local communities

Conforming to their old traditions, some village institutions of western UP have taken steps to rekindle conservation of their own natural resources.

Patna Lake in Etah district was conserved as a sacred site due to religious associations, but was later notified as a sanctuary in 1991. The local community has been alienated from managing the resources and making sustainable use except for having access to a temple in the sanctuary premises. However they still oppose illegal poaching in the area and regard biodiversity conservation as their duty (See Case Studies).

The case of Sheikha Lake in the Dhanipur block of Aligarh District is one where there is not much intervention from the state in the management and protection of the natural ecosystem. Despite the fact that public powers are limited, the people take care in protecting the ecosystem by checking poaching and regulating the subsistence use of the natural habitat (See Case Studies).

Last, but not the least, the case of Gursikaran village in Aligarh District is a living example of how a tortuous maze of laws and slow judicial processes obstruct community-based conservation. The community was making sustainable use of an old patch of forest until it was declared a reserved forest by the British and then given to the state-owned Central Dairy Farm (CDF). All was well until the CDF decided to clear the forest and sell the land to industrial units. The community fiercely rose to oppose the move through a village-level NGO and is still struggling to save the forest in the courts. The financial cost of this battle is being borne by the peasants (See Case Studies).

3.3. New externally aided efforts

3.3.1. Private forests

Under the Indian Forest Act of 1927 (Section 3, 28, 29, 38 and 80 of IFA 1927), joint management agreements could be signed between private landowners and the state. In the old district gazetteers are mentions of groves of jhau and *Tamarix* spp., which were before Independence maintained as private forests owned by the Jats and Pathans in Aligarh district.²¹ Later these gave way to agricultural reclamation when the owners sensed an intention of the state to declare them reserved forests. Even today in Jaalpur and Saahanpur villages of Najibabad District in western UP there are some existing patches of khair forests.²²

3.3.2. Social Forestry

The second attempt to bring people into forestry and ecosystem management was in the mid-1970s. During this time the National Commission on Agriculture sought massive involvement of rural people in the Social Forestry Scheme, a programme of fuel and fodder plantations in order to check deforestation. Under social forestry, some village common lands or private lands are used for plantation of fuel and fodder species and looked after by the Divisional Forest Officer (DFO) for three years. Later, planted village commons are handed over to the *gram samaj* (Village Council). Sadly, this attempt gave way to socio-economic problems. The failure of social forestry was probably due to inter- and intra-village conflicts over use of resources. As a result, today social forestry areas do thrive—not as biodiversity refuge but merely as timber, fuel and fodder reserves.²³

3.3.3. Joint Forest Management

The third attempt to seek people's participation in forest management (in pursuance of the National Forest Policy 1988), is the Joint Forest Management (JFM) programme in government-owned forests. Various state governments took the necessary steps following the Government of India circular on JFM.²⁴

The objective of the JFM approach is to develop resource users into resource managers by complementing the scientific management practices for realising the twin objectives of ecological security and fulfilment of resource needs of the population.

Some fine examples of JFM in UP can be seen in the districts of Pilibheet, Jhansi, Lalitpur and Sheikhpur and in the Faridpur tehsil in Bareilly. Aligarh district has also received a World Bank-sponsored project for introducing JFM in ten villages of the district. This was sanctioned based on the satisfactory performance of the JFM programme in two villages, namely, Gazipur in Atrauli tehsil and Umrikala in Gabhana tehsil. The *gram samaj* of these villages had been sanctioned Rs

150,000 for applying for JFM in the years 1999 and 2000. Despite the success of a few examples mentioned above, JFM is not very successful in UP according to the FD, partly because of inadequate studies of the ground situation before implementing the scheme. We do believe that JFM would be an effective means to facilitate and promote community conservation in UP but only after adequate studies have been made on its current status and prospects. Also it is important to take people into absolute confidence as our interactions revealed that there was little information or knowledge about JFM among the villagers, even where JFM was being implemented.

3.4. Constraints and opportunities

3.4.1. Shortcomings of laws and policies

The edifice of colonial forestry has been taken over by the Government of India. It is by now well established that the imperatives of colonial forestry were essentially commercial. Community-based conservation faced serious threats in the form of state intervention and the scenario has not changed much. After the formation of an elected government in 1950, the colour and face of those that implemented state control changed but the laws remained the same. Needless to say, all these laws had done nothing but debar the community from taking charge of its habitat. So neglected was the idea of community-based conservation that the UP Forest Act that was implemented in 1927 has yet to be amended to involve a community element.²⁵ The IFA should give proper recognition to community conserved areas based on the ecological status of the area and the level of the people's interest in conserving it. The IFA also needs to empower the community to take action against vandalism and give them a stake in management.

Various laws and policies have been formulated to preserve biodiversity but none comprehend the spirit of community conservation and accord it due attention. Laws such as the Forest Conservation Act, 1980, have provisions within them that alienate the local people further by denying rights over minor subsistence operations in the forests. The UP Tree Protection Act, 1973, pronounces that even for cutting a tree from private lands, the owners need permission from the forest department. Under the UP Sawmill Act, 1972, the licenses for sawmills will be given by the forest department.

The UP Tree Protection Act is seen by people as an instrument to take over the control of natural resources from the community, and thus acts as a discouragement to conserve. On the other hand the UP Sawmill Act might be detrimental to community conservation if it provides licenses for logging areas being conserved by the local community, as in the case of Gursikaran village (see case study for details).

3.4.2. Impossibility of centralised protection and law enforcement

The forest department alone is incapable of protecting 61 million hectares of forest land in the country and the same holds true for Uttar Pradesh as well. In the face of growing demands on forest produce, this problem needs to be addressed from a different angle, which must have a community element in it. Limited funds and staff available to enforce resource-preserving rules is a limitation typical to developing countries like India, which have many pressing priorities that may appear more important than the long-term conservation of natural resources. Community involvement could help resolve trans-boundary problems, which are otherwise long-drawn and difficult to control. This problem gains extra magnitude in UP due to its near-1000 km-long porous border with Nepal that runs through tough terrain. Locals, who know their regions intimately, have a greater chance of being able to protect them.

3.4.3. Demographic constraints and opportunities: Population and poverty

UP is a predominantly agrarian state and topsoil losses in the productive agricultural land render the soil infertile. The only way to restore soil fertility and check soil erosion is to make vegetative bunds. Eco-friendly agricultural practices would produce a larger subsistence base for this densely populated state. It is clear that bringing more and more of the rural population into integrated management (that also provides emoluments to the customary right-holders) increases the subsistence base. By taking up the admittedly difficult challenge of motivating and organising the people to look after their own resource base, we can hope to bring our country on a path of development that would be at once environmentally and socially sustainable.²⁶



3.4.4. Ecological constraints: Inappropriateness of monoculture plantations

Centralised efforts of nature conservation in the name of forestry largely result in the plantation of timber tree species such as teak. Teak and eucalyptus are being planted in the name of forestry in the state for fast gains of wood and timber. The forest department also shows these plantations in the light of conservation imperatives when they have to show measures taken to combat soil erosion, siltation and deforestation. This is in spite of the fact that community forests' contributions to rural employment, agriculture, water conservation and other sectors far outweigh the revenue from timber. Exotic, fast-growing trees tend to expose the soil surface to erosive and desiccative forces like laterization more than does the native vegetation cover. Similarly other fast-growing trees of timber revenue such as safeda and poplar, that are preferred in forestry operations²⁷ also cause reduced soil productivity and low water tables in adjoining areas.

3.4.5. Failures of social forestry models and reserved forests

The demotivation to follow rules or non-cooperation on the part of the resource users is almost always increased by the antagonistic relations between them and the government.²⁸ This is attested by the utterly negative reaction of UP forest dwellers to India's National Forest Policy. It is to a large extent because of the dogged determination of villagers and activists that the forest management policies of the government were changed.²⁹

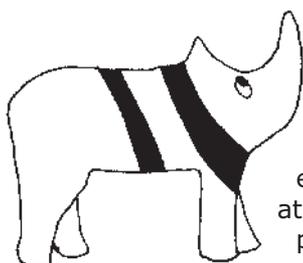
One of the major reasons for the failure of the social forestry programme was the top-down approach of the government agencies. In addition, one of the reasons that community woodlots or village woodlots failed was on account of the lack of interest shown by community members, which was mainly because of their basic distrust of the FD. In many instances, the administration had to enrol local inhabitants almost by force to have them participate in its social forestry programmes.³⁰

The model of village woodlots was modified as a consequence of its failure, to give considerable management authority to the village *panchayats* (local elected councils). When the *panchayats* are oversized there is always a possibility of internal politics stoked by corruption in the government officials. Such *panchayats* could not involve the local people on whom the success of the programme depended. Another reason is that these *panchayats* largely perceived the woodlots as sources of communal income and not as a perpetual source of fuelwood, fodder and grazing land for meeting the needs of the common peasants. In a large-sized *panchayat* comprising of councillors with varied interests it is difficult to arrive at a consensus over invoking the discipline needed for managing plantations, and most of them were thus doomed to ultimate felling after a minimum of three years. With these *panchayats* it was also not possible to develop the coordination of all village-level governing bodies needed for continuity in management and control of thousands of scattered pieces of planted village lands creating enormous problems of protection.

In Uttar Pradesh, villagers sometimes deforested woodlands because they were apprehensive that the demarcation of reserve forest would be followed by the government taking away other wooded areas from their control. More specifically, forest reservation evoked the fear that if the villagers looked after the forests as of yore, a passing forest official would say, 'Here is a promising bit of forest—the government ought to reserve it.' If on the other hand they ruin their civil forest, they feel free from such reservation.³¹

It is also powerful local bosses or patrons who may force the government to retrace its steps or to abstain from implementing management schemes. Thus in some areas of U.P., the administration does not dare to mete out legal punishments or impose legal fines for contravening regulations (e.g. to cut off electricity for well owners who ignored spacing regulations) for fear of violent reactions by the people concerned and their determined leaders or for fear that they may shift parties in the next elections.

3.4.6. Lack of information



A major difficulty with any centralised approach to resource management is a problem of information. Given the great diversity of resource types, it is difficult to establish straightforward management prescriptions that can be widely followed. No government agency can know local realities in sufficient details to conceive of valid solutions to the highly differentiated ecological problems that arise at village levels.³² The government is clearly at a disadvantage compared to the historic users who can be expected to possess extensive local knowledge of local resources and constraints.³³

On the other hand, the rapid socio-economic changes in the village environments result in a lack of information of ongoing processes of resource depletion to the local inhabitants themselves. Thus, the information gap between specialised government agencies has probably narrowed down and the villagers may actually need external assistance to help them better assess their resource problems and to conceive and put into effect viable solutions to them.



3.4.7. Problems in Joint Forest Management efforts

It is understood that JFM can work in three circumstances:³⁴ first, in the villages which are small, single caste-dominated, inaccessible from the markets and whose populations are highly dependent on the forest resources; second, where survival gains from JFM organisations are high, both for the village elite as well as the commons; and third, when there is a political will for non-monetary gains. With these conditions in mind, UP does not emerge as promising and a potential area for JFM because of what has happened in the past centuries to the natural wealth of the state.

The conversion to agriculture and then the commercial exploitation by the British have left the state with only a few patches of natural forest in the Terai. The remaining are chunks of plantations, raised by the government.

About half a decade after JFM was introduced in the state it has been realized that the laws in the state are often contradictory to each other. For example, on the one hand JFM is made to promote joint benefit sharing, and on the other the Forest Conservation Act 1980 (FCA) bans assignment or lease of forest land to the people and prohibits plantation of horticulture crops without the prior permission of the government. The NFP of 1988, which brought in JFM-like arrangements, also actually helped to curtail the rights and concessions of forest dwellers by relating them to the carrying capacity of the forest.

A result of this is being borne by the Tharu tribe in the eastern Terai districts of UP (from Lakhimpur and Pilibheet up to Gorakhpur). Here the FD had settled a large number of poor villagers on forest land to do *taungia*³⁵ plantation. For the last one hundred years they were cultivating forest lands in the first few years of raising plantations as well as looking after the new plants. However despite the fact that recorded rights exist showing their claims over forest lands for cultivation, the FCA has now denied them any rights to those lands. Coupled with the fact that the practice of *Taungia* has been given up, these poor people are now without work or assets. Moreover they are not even in a position to receive any alternative benefits from NGOs or Government development schemes because they are not even considered as 'locals'.

Suggested changes in Government Orders pertaining to JFM and community management:³⁶

- Use rights of communities should be revised and user groups recognized. Protecting communities should have clearly defined property rights over their forest in comparison to distant villages.
- FPC should be made an independent and spontaneous entity.
- Only the FPC should manage and control all natural resources within its domain.
- In the current age of globalisation and disinvestments, the markets for NTFPs should also be free of controls and they should be denationalised.
- The focus of JFM should shift from increasing the forest cover towards a plethora of other biomass-based products and conserving biodiversity. It should aim at empowering people and providing them sustained benefits. This can happen only if the FD does proper research for studying the needs and interests of people and then gearing up to shift to silvo-pastoral systems.
- The policies and programmes should be sensitive to gender and poverty issues too and not just to the wider national interest.
- Instead of prescribing norms for the community the government orders should leave more possibilities for flexibility and decentralization, so that many of the decisions are left to the judgment of the people.
- JFM requires a paradigm shift that cuts across sectors of other departments. Unless these radical changes are brought in defining people's rights and silvicultural practices, true participation will not be achieved.

3.4.8. The misuse of powers by the state judiciary

Local communities invariably lack legal powers to apprehend and fine offenders. Even in a community conserved area they have to inform the forest department, which has the powers to

book an offence. Often communities are disheartened and discouraged when, after taking the offenders to the officials, villagers find that the offenders are not convicted because of corruption. If magisterial powers are handed over to the community it might be helpful in preventing intruders from ransacking a community conserved area.

An example is Sheikha Lake, where, angry at the rampant poaching of migratory waterfowl in the lake, the community united to give a memorandum to the district magistrate with signatures of all individuals demanding immediate action to check the illegal shooting of birds. With the help of local NGOs they also decided to file a PIL against the violation of laws (Wild Life Protection Act 1972, amended 1991).

3.4.9. Cultural changes

With rapid urbanisation and the invasion of a consumerist culture, the structure of the community and its component unit, the joint family, have also been eroded. JFM policies and other participatory programmes depend heavily on the community work culture. In the absence of this culture, community forestry cannot achieve a success as big as that of agroforestry. A restructuring of social values to strengthen the community structure is needed to revive community conservation.

3.4.10. Inter and intra-village conflicts compounded by state control

The establishment of state control also severely affected another aspect, namely, the management of inter and intra-village conflicts over access to natural resources. Indigenous wisdom had managed and resolved these problems in the past.

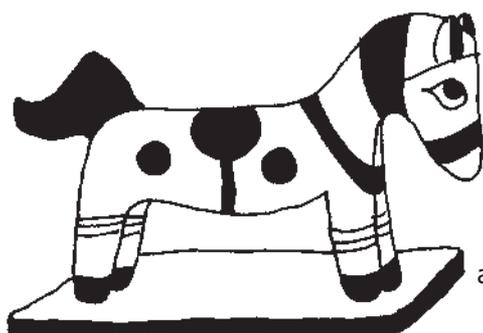
Once the community systems were broken and controls went into the hands of FD, it was impossible to enforce the discipline required in the people to manage natural resources on an equitable sharing basis. After having liquefied the rural controls, the FD and the *panchayats* failed to establish, define and publicise the rights to the resources and the procedures for marketing and allocating benefits. The shares which would go to the individuals, village *panchayats* and the FD were not clearly laid down. Insecurity about benefits led to differences in the people. In addition the conflicts arising due to encroachment, competition from other departments, competition from grazing and other existing local uses could also not be solved by the FD in an effective manner because the government does not possess an integrated approach towards solving conflicts that cuts across the sectoral powers of departments. For example, in the case study of Gursikaran it can be seen how FD is rendered powerless in establishing clear controls over the forest because other state departments such as Central Dairy Farm, Revenue Board and the Sugarcane Department are all taking independent decisions to manage the area. Meanwhile the people are struggling to win back their rights to use the resource base.

3.5. Emerging lessons

Having related the views of intellectuals, historians and scientists about community-based conservation, its history, present status and future prospects, it is time to put forward what we personally experienced while going through available literature and doing the case studies. We must start with the honest confession that the scenario of community-based conservation in UP is not picture-perfect. Rapid modernization and the lure of a high-class consumerist life have made the ethics and cultural values change

in the village communities of our state. In turn this modernization has also affected the age-old tradition of communities managing their resources in a sustainable fashion and imbibing it from the basic structure of their deep-rooted civilizations.

We do not have to go far back to trace the roots of this kind of disastrous ecological and ethnic alteration. The advent of colonial rule a couple of centuries ago was accompanied by the ransacking of the natural wealth and the cultural ethos of the native communities to cater to the needs of the industrial revolution in Europe. Sadly Independence also brought nothing new in this respect, and reckless exploitation of natural resources and alienation of communities from their natural resource base continued at the same pace.



By now it is well established that as the government imposes all its decisions on the public, native communities are losing the

wisdom accumulated by ages of experiencing their natural surroundings. The knowledge that has survived and thrived over years of passing from one generation to another is gradually being dissipated in a show where the government is the player and the communities have been reduced to mute spectators. As a result today community conservation is confronting the most alarming threat, which is the drifting away of younger generation from its values. This is where the chain of traditional systems has broken. In all our case studies we found that people have started relying on the government or some authorized urban person to come and take charge of the habitat so that poaching is checked and the habitat is saved. In ecosystems that were conserved as a sacred grove, such as the Patna Jheel religious association, remain the same but due to notification of a protected area communities are happy to give the charge to the government. Hence for the younger generation, conservation of biological resources has lost importance.

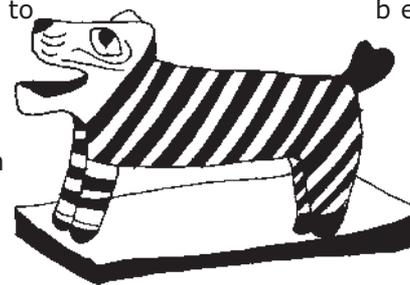
In other cases, where there is not much intervention from the state about management and protection of a natural ecosystem (like in the case of the Sheikha Jheel), and communities are well informed of the benefits and codes of conservation, they leave problems like poaching and urban invasion to the forest department. This is because public powers are limited only up to the marking of the ballot paper. After this the community's will and commands are so badly paralyzed that they feel handicapped in executing their own orders of resource use. This is why time and again the people of the conserving community in Sheikha have expressed the desire to have a status provided to them by the government that would authorize them to check poachers.

Last, but not the least, we feel that the tortuous maze of laws and the slow judicial processes are to be blamed for obstructing community-based conservation. Community conservation in UP is suffering in the potholes in the law, as is evident in the case of Guriskaran. The forest is pristine, the community is aware, and conservation goes hand in hand with development; but because our laws are framed the way they are, the community is having a tough time enforcing its conservation measures in its forest. To put the poor peasant through such an ordeal for a cause that is after all only a moral value for the community makes the peasant succumb more easily to the pressures of the timber mafia.

We conclude that this is just the right time to put community-based ecosystem maintenance in a legal framework and mobilize communities towards the scientific management of resources coupled with traditional wisdom. Problems of poverty, resource crunch and biodiversity depletion are inextricably intertwined, and hence participatory management seems to be the only answer. It has been accepted by hardcore scientists too that endangered species cannot be saved without the will of the people who are co-existing with them, drawing their livelihoods from the same resource base.

To sum up, in the wake of the undeniable realization that societies are incessantly being allured by an urbanized life style, it is an imperative to finely integrate conservation with the progress of a community towards prosperity. Notwithstanding the cultural ethos the younger generations are drawing impetus only from monetary and social gains. With such downfall of cultural values even sacred groves may lose their reverence. Thus, not excluding ecosystems with a religious association, it is time to give due recognition to community conservation and put material rewards at the other end. There is no barrier that can stop the ill effects of the cash economy from infiltrating into the systems of the forest dwellers or other ecosystem people living in perfect harmony with nature.

While working on the case studies we found that the trends shown by the generation in the making are evidence enough. They are struck by the stigma of the new lines of classification that cleave the society into backward and forward sections in modern terms. Where the conceptual meaning of backward equals living in a village, being uneducated and not having access to the latest consumerist goods or a chair in a high office, and forward denotes a public-school education, brand-savvy lifestyle and a job that can get things done. Needless to say all the strata of society nurture the dream to join the latter group. A youth in the village Sheikha told us that now he has reason enough to protect the heronries and the communal roosts in the village because we will keep showing up in the village since conservation is what draws a group of urban people to a remote village. He liked our company because he wanted to be like us one day. We found such trends to be detrimental for the tradition of conservation and now the only way is to club conservation with benefits that may be due to tourism, JFM or multiple-use protection. Having seen the failures of blanket protection to declared protected areas due to the non-cooperation and antagonism of the locals, we can only hope to use these obstacles as stepping-stones.



4. Conclusions

The years since 1980 have seen the emergence of many contradictions between the development process and the need for long-term sustainable use of resource base. There has been a slowing-down of the rate of diversion of forestlands to other purposes due to an official policy embodied in the Forest Conservation Act of 1980. It can be thought of in terms of a gradual transformation of the mode of resource use from foraging for subsistence to processing of commodities. However, with the state government taking charge of natural ecosystems came the misinterpretation that forests and other ecosystems such as the grasslands, wetlands and rivers are the property of the government and it is not the responsibility of the people to conserve them. As the mission to introduce participation of local communities in ecosystem management moves forward, the foremost requirement is to make people believe that communities are the born owners of the forests and other ecosystems. It is in the interest of their long-term benefits to preserve the ecosystem. In other words, a drive to make history repeat itself is needed because, and so that, nature conservation is integrated with the very cultural ethics of societies in UP.

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Endnotes

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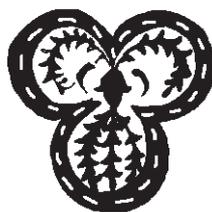
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Amakhera village, Aligarh

Background

Amakhera village falls in Gopi taluka of Aligarh district in Uttar Pradesh. Situated 40 km away from Aligarh city, it is accessible by jeep/taxi. This wetland habitat is typical of the Gangetic plains. The CCA is 0.5 sq km and each year attracts about 7000 birds belonging to 70 species like Indian skimmer and the threatened bar-headed geese. The legal status of the protected land is village commons.

The entire village, mostly comprising of the Hindu Jat community, is involved in the protection of these birds. The village has a population of around 3,000 and mainly sustains itself on agriculture and could be considered average economically.

Towards community conservation

This wetland lies very close to the village and has been traditionally used by the villagers for irrigation as well as fishing purposes. It is not known whether there is any active community participation of the community in the protection of the birds, although all inhabitants see to it that no one kills or disturbs birds. The village *panchayat* is believed to be involved in the process.

Constraints and opportunities faced

The wetland is now facing siltation as well as pollution due to chemical run-off from the adjoining agricultural fields, which use chemical fertilizers and pesticides.

Students from the Aligarh Muslim University regularly visit the area for studies on waterfowl and their habitat. This is a good opportunity for the university to make some positive interventions based on their research and for the villagers to benefit from the results of these studies. True to this, the fishing practice has been discontinued by the people on request from the Centre for Wildlife Studies, Aligarh Muslim University, as it was causing disturbance to the birds.

This case study has been contributed by Afifullah Khan of Wildlife Society of India in 2001, based on information provided by H.S. Yahya, Dept. of Wildlife Sciences, Aligarh Muslim University.

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Daupur village, Aligarh

Background

The wetland in this village with an area of 1.5 sq km attracts several aquatic birds including migratory species. Falling in Javan Taluka of Aligarh District in UP, the village has a population of approximately 4,000. The main source of income of the people is agriculture. The people depend moderately on this wetland for irrigation, drinking water and fishing purposes. The legal status of the land is village commons.

Towards community conservation

The main community residing in the village is Hindu jat. This entire community has been traditionally protecting these visiting birds and sees to it that no one kills or disturbs them. The *gram sabha* is believed to be involved in the conservation. This wetland is also regularly visited by the students of Aligarh Muslim University for conducting studies on bird identification, behavioural studies and for habitat assessment/ evaluation practices. On their request, the villagers have discontinued fishing in the wetland.

Constraints and opportunities faced

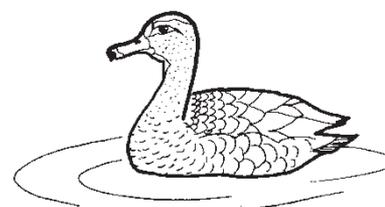
Though the birds do not face direct threats from the villagers, other factors such as the continuing expansion of agricultural fields, settlements as well as a road under construction pose a serious threat to the future of the birds visiting the wetland. The villagers have so far not received any support from the government for this initiative.

This information is provided by H.S. Yahya, Dept. of Wildlife Sciences, Aligarh Muslim University, in 2001.

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Gursikaran forest, Aligarh

Background

The Gursikaran Forest is a fine example of how 20 villages have sustainably managed their forests. The conserved area covers 440 acres of the scrub forest and *Usar*¹ grasslands in a saline alkaline soil belt.

The forest falls in Koil Tehsil in Aligarh District of the Indo-Gangetic plains of UP. The villages in the area are Talaspur Kalan, Darapur, Mahuwakhera, Ibrahimabad and Gursikaran. All these villages share their boundaries with the forest, but officially it has been under the ownership of the *gram samaj* of Gursikaran village.



Fields in front of Gursikaran forest
Photo: Afifullah Khan

A sweeping view of the forest gives the impression of a *Prosopis* spp.-based scrub forest. A road cuts through the core area as does the river Sengar. This region is a part of the well-integrated drainage system of the Ganges, and small tributaries and *nallahs* also traverse through the area. Gursikaran is a combination of several habitat types. The major part of the area is occupied by scrub forest of which ironwood or mesquite, pudding-pipe or shami, khejri, babul, white acacia and ber are the main constituents. These forests have stretches of dry thorny bushes interspersed with woody vegetation. The most frequently seen shrub species is karel. Next comes the *usar* grasslands, which provide open space for wild as well as domestic animals to forage. The common grasses are sarkanda, doob, cogon grass, garara, etc. The Sengar river that divides the area into two parts also supports a small tract of riverine forest on its banks. Many species of birds and mammals are found here, including six mammalian species and a rich avifauna with both land and water birds.

There are 20 more villages that use the forest resources but only in a sustainable manner. The eight villages that have been selected for this case study have a total human population of 55000. The population of Gursikaran village itself is about 8000. Societies in all villages are broadly divided into two classes: upper-caste groups, which includes brahmins and thakurs, and the lower caste that consist of dhobis, nais, mehtars, kumbars, baghelas, telis, julahas, fakirs, aherias, khatiks and jatavs. Several nomadic tribes also visit the forest from time to time for various resource benefits. The main source of income for the people is agriculture and livestock breeding. Some of the major crops grown here are wheat, corn, gram, mustard, oat, sugarcane, millet and masoor. The total livestock population in these eight villages is about 50000. Some villagers have also made their way to the city, working either as labourers at construction sites or taking up office jobs.

The only livelihood purpose that the forest serves is providing pastureland. The lower classes of the village also rely on the forest for fuelwood. Apart from this, babul timber is used to make small furniture and for poles. There is no commercial dependence on the forest. There are two temples within the forest and the forests are used as grounds for congregations. Although this is not a sacred grove the locals wish to protect the forest for religious reasons too.

At present, the legal status of the entire forest is under dispute. The case between the *gram sabha* and the official owners, the Central Dairy Farm (CDF), is lying with the Revenue Board. In future, if the case is decided in favour of the *gram sabha*, they plan to protect it as a multiple-use protected area.

Historically, the Gursikaran forest has changed hands several times during and since the British Regime. As per the records, in 1933 it was declared a reserved forest. In less than 15 years it was handed over to the Animal Husbandry Department. Once again, in less than 10 years a portion of it was given to the Agriculture Department. By 1950, the entire forest was given on a 30-year lease to United Project Dairy. After the commencement of the lease, the forest was given to the



gram sabha but by 1984 AFPRO (Action for Food Production)² projects were made operational and activities like dairy farming, land reclamation and plantation were initiated with the purpose of enhancing foodgrain and milk production and to provide employment opportunities to the villagers. This project, despite being limited to seven years, extended illegally till 1998. After the removal of AFPRO, the forest went back to Central Dairy Farm. The locals who were given jobs under it were now jobless and the infrastructure is now degraded. The CDF decided to clear the forest and give the land to the *ganna vibhag* (sugarcane department) for agriculture. In 2000 it struck a deal with the contractors to take the timber away for a mere Rs 16.5 lakh.

Towards community conservation

During all these changes of hands, the rights of the local people were not disturbed and they continued to extract fuelwood and NTFPs from the woods on a small scale. The locals do not recall any such date when they started to conserve the wildlife. They have lived with the belief that the wildlife is an integral part of the ecosystem and deserves protection. As a tradition they have inherited from their ancestors, they just leave the forest alone be and see to it that no external harm is inflicted on the ecosystem.

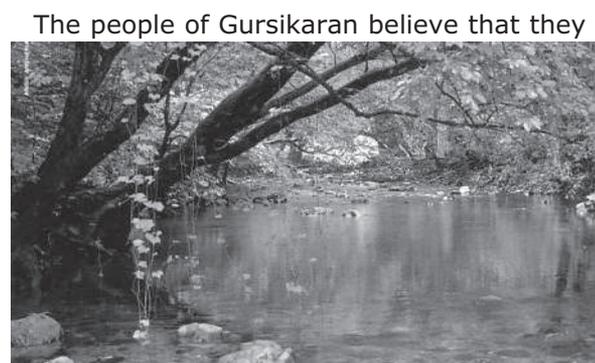
The course of action is oriented by the thumb rule of not harvesting more than the forest can regenerate. Lately, the influx of city poachers has instigated the community to keep a watch-and-ward system alive that would immediately call for action against poachers. On one alarm call for the presence of a hunter, the entire community gathers with *lathis* in hands to prevent damage to wildlife. The increasing nilgai or blue bull population sometimes damages standing crops but the villagers do not attempt to kill them as the cow is sacred amongst the Hindus. Tufts of high grasses, which are used as cover by ground-nesting birds, are carefully kept cleared off to protect them from the practice of burning grasses to obtain a fresh flush of grasses with high protein content. These grasses are used to feed their cattle for a better milk yield.

Minor conflicts over resource sharing between individuals have been solved amicably by the *gram panchayat*. The initiative demanded a tough battle only when the forest was returned to the CDF, which decided to sell it off to contractors. The fear of losing their age-old heritage alarmed the community in Gursikaran village and they rose to oppose the cutting of the forest.

The villagers learnt that the cutting was legalized and had commenced under police protection and the *gram panchayat* decided that they had no option but to turn to the district administration and the forest department for help. Unfortunately, they too could not provide help since the paper work for this destruction was firmly in place. It was then that the villagers filed a case with the Revenue Board and constituted an NGO named Bhu Mukti Jan Sangharsh Samiti. Meanwhile, the DFO found a way to stop the forest from being cut down. He exercised his power to stop a forest from being altered if it holds the status of the forest according to the dictionary meanings. Several meetings were called for at the district magistrate's office to discuss the issue. The CDF representative failed to appear at these meetings and the forest continued to be cut. The people of Gursikaran decided to stage a *dharna* outside the District Magistrate's office which turned into a hunger strike. At this, actions were expedited and orders were given that unless the pending case is resolved, any cutting at the site will be considered illegal.

All expenses to fight the case are being totally borne by the villagers themselves. Each villager has contributed a certain amount to the *gram pradhan* who has constituted the Bhu Mukti Jan Sangharsh Samiti and all steps taken to fight the legal owner are taken under his supervision.

Impacts of community effort



Sengar river, Gursikaran Photo: Afifullah Khan

The people of Gursikaran believe that they have better agricultural produce because of the rich biodiversity in the forest. The presence of birds like grey francolin and black francolin in the open scrub forest reduces with use of pesticides. Within the forest they have a good pastureland to maintain livestock free of any input, and this gives them an employment opportunity as well as a better economic status. The model resource use in Gursikaran is an excellent example of a village making an attempt to come out of ecological poverty to fight back rural poverty, and impacts are showing on the improved economic status of the village.

Due to the conservation provided by the villagers to the habitat and individual species, it has been possible for wildlife, otherwise extinct from other areas, to thrive in the forest. Clearing land for agriculture and felling trees for timber has not yet lured the community for short-term gains and the forest still remains in a very good state.

Constraints

Within the communities there have been no differences and all stand united to save their forest. However, when the orders for stopping the cutting of trees was given, an upper caste from the neighboring village withdrew its support. This may be because the contractor is related to some people in that caste group.

Another huge hurdle is that those genuinely interested in the conservation are largely uneducated and lack the expertise of baffling lengthy paperwork. The political pressure is being felt by the people who believe that that some MLAs have a nexus with the timber mafia with the aim of gaining monetarily from it. When political support was offered after the demonstration made local news, it was turned down by the community as they did not want political colour added to their struggle.

Written by Afiffullah Khan, Wildlife Society of India, Department of Wildlife Sciences, Aligarh Muslim University, with inputs from Pravendra Singh Sisodia, a resident of Gursikaran village, in 2001.

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Endnotes

¹ *Usar* is a type of soil that exists in the Gursikaran forest. These tracts are slippery and consist of white glistening soil called *reh* in the local language.

² See <http://afpro.org/>



Sheikha Jheel, Aligarh

Background

Sheikha Jheel is a lake situated 17 km from Aligarh (Uttar Pradesh) on Aligarh Jalali road near village Sheikha. It falls in the Koil tehsil of Aligarh district. The Upper Ganga canal flows adjacent to the lake. The lake and the village are less than a kilometer away from the Sheikha village bus-stop. The total area of the lake is 25 ha.

This Jheel came into existence after the formation of the Upper Ganga Canal in 1852. It is a fresh water perennial water body surrounded by agricultural fields on two sides. The Upper Ganga Canal divides the lake into two parts. The area receives moderate rainfall up to a maximum of 644 mm. The lake and its surrounding areas support a diversity of habitats, viz. wetland, grassland, forest etc. The wetland forms an ideal habitat for the waterfowl and other water birds especially during the winter months. Among the flora the dominant tree species that surround the lake are *Terminalia arjuna* and *Syzigium cumunii*. The other components of the vegetation include acacias, *Dalbergia sissoo*, neem, among others. The major weeds include *Lantana camara*, *Sida*, *Parthenium hysterophorus* and *Cassia tora*. The shrub species include *Ipomea aquatica* and *Muraya koenigi*. Only a few mammalian species are found in the area like the blue bull, blackbuck, five striped squirrel, Indian mongoose, black-napped hare, rhesus monkey and jackal. About 166 water bird species have been reported in and around Sheikha. Some of these include, the great crested grebe, painted stork, barheaded goose, purple heron, and so on.

Bhavavankhera and Sheikha are two villages that fall in the vicinity of the lake. The other villages are Edalpur, Changeri, Jalali, Gangary and Panaithi. The total population of Sheikha village is more than a 1000 comprising mainly of Rajputs and Jatavas. Agriculture is the sole source of income of the people with a mixed population of rich farmers who own tractors and other agricultural equipments and poorer peasants who either work in other people's fields or own small pieces of land. The major crops grown in the vicinity of the lake are paddy and wheat. Some farmers also grow sugarcane, maize and mustard. The lake is used by the people for cultivation of water chestnut and small scale fishing. The area around the lake is also used for grazing of domestic cattle.

During summers, there is less water in the lake and some ground vegetation grows. The villagers graze their cattle continuously during this time so as to prevent it from turning into a terrestrial ecosystem. Till 1952, the villagers used to depend on the lake for agriculture. Since the construction of the Ganga Canal, their dependency on the lake has become negligible.

Impacts of past and current land uses:

1. *De facto* cultivation of water chestnut in one part of the lake covers most of the water surface. This has resulted in less surface area for the birds to forage. However all care has been taken to leave a considerable part of the wetland for use by wild waterfowl.
2. The FD planted some trees of *Tamarix sp.* and *Prosopis sp.* on the canal banks under various social forestry programs which produced a good forest. Later, when this land was distributed amongst the Scheduled caste and other backward classes (disprevidged sections), under a government scheme, the *gram samaj* (village council) ordered the felling of these trees which led to the vanishing of the wildlife that had developed here. The conserving community holds a grudge against the government for this.
3. A tar road constructed along one side of the lake has rendered it an easy access for outside poachers.
4. In 1991, the District administration built mounds in the middle of the lake and a trail in the lake leading to the mound. This restricted the flow of water. Subsequently, these mounds and the mud road were left unattended, causing siltation and making the wetland shallower.
5. Water hyacinth grows here profusely causing eutrophication and hence fewer surfaces for the birds to use.



Legally, the jheel comes under the village common land and *gram samaj* has the ownership rights. The forest department's social forestry wing had carried out some plantations on the canal banks about ten years ago. These plantations come under reserved forests of the region and have been closed for hunting under the Wild Life Protection Act (1972). Also, plantations were carried out on the area on Ganga canal banks by Ganga Canal Department. Presently this area is also cultivated under the social forestry program and comes under protected forests.

Towards community conservation

The villagers are dependent on the lake and the surrounding area for their livelihood. The community uses the lake area for grazing, for fuel wood and fodder collection. During summers when water in the lake recedes, the grass and other vegetation grows on the exposed area. This is a very important source of green fodder for the villagers. The water chestnut grown also acts as an important means of subsistence.

Although the local people do not attach any religious association with the jheel, the lake is a precious matter of pride for the natives. Another important motive behind conserving the lake is to maintain the water table of the area for agriculture. Local people have also understood importance of the lake as wildlife habitat and refuge for migratory birds. They believe that their own future will be threatened if the natural resources around them perish. In 1986, Aligarh Muslim University's Wildlife Sciences Department, while conducting research and carrying out ecological monitoring of the area, also fostered scientific awareness about the importance of the lake among the villagers. This was further nurtured by a couple of local NGOs.

Due to the nature of the initiative (villagers' and FD's combined efforts) both village and forest department have decision making powers as far as conserved area is concerned. *Gram samaj* along with the two local NGOs takes the major decision and is also responsible for the protection of the wetland and the forests surrounding the wetland.

The area comes under the ownership of the *gram samaj* of Sheikha and Bhavan Khera villages. The *gram samaj* designs all the management strategies. All the sections of the local community are involved in the conservation initiative. Apart from Sheikha, the villagers of Bhavan Khera and Changeri are actively participating in the conservation efforts for preservation of the wetland.

The traditional rules for agriculture and wildlife that are observed by the community in the Sheikha are governed by the motive of preserving the habitat. Some of the rules that are observed by the community are as follows

- Only small portion of the lake is used for the cultivation of the water chestnut
- The villagers have avoided plantations on the bank of the lake, as it may prove harmful to wetland habitat.
- The villagers do not cultivate on land that gets submerged as such practice may alter the ecological succession.
- No draining of the lake water, for any purpose.
- No hunting of waterfowls or any of the birds and animals is permitted. The villagers have been known to draw swords against a particular nomadic tribe, Kanjar because these tribals visit the lake in the night and poach important wildlife such as otters, porcupine and turtles in the lake area.

Small conflicts are handled at the village level but larger conflicts are handled by the government bodies like the division of social forestry and the revenue department.

All castes within the community are involved in the conservation of the lake and its biodiversity. A few exceptions to total protection are when the youngsters help poachers for the sake of money. When the poacher is related either to some elderly or influential member of the community no action is taken on account of pressure by community members.

In 1997 when wrong restoration policies were implemented in the lake the Sheikha community stood up and united against them. A memorandum was submitted with the 'Haritima Environmental Group' to the District Magistrate to stop construction of the road around the lake because it delimits the wetland and gives easy access to poachers.

In 2001, when poaching took a massive toll of birds, a signature campaign in the village conducted by Department of Wildlife Sciences appealed to the District Magistrate to take action for putting practical moratorium on waterfowl shooting. The community has also decided to file a PIL against

those interventions of the government. that are conducive to vandalism.

Financially, the initiative is totally self sustained and does not receive any financial support from any agency. In case the lake is developed as a picnic spot there will be enhanced employment opportunities and consequently an improved economic status.

Impacts of community conservation

The local community is benefited by this conservation in many ways.

1. Assured regular supply of fodder, grass and fuel wood.
2. A portion of the wetland which is used for the cultivation of water chestnuts, is one of the sources of livelihood for some of the communities around the village earns their revenue from it.
3. Assured availability of natural resources for all villages surrounding the lake.

The habitat has balanced ecological elements like soil moisture, ground water table etc. Certain species of the ecosystem have regenerated and an increase in the biological diversity of the lake, and surrounding areas has been reported. The protection and conservation efforts by the local community have immensely benefited the wetland ecosystem and surrounding habitats such as grassy patches and forests. Hence it has become ideal wildlife refuge and supports highest diversity and numbers of waterfowls.

Costs incurred by the community for conservation

1. Plantation of trees on the banks gives a lot of revenue but the villagers have decided against such plantations since it is harmful for the health of the wetland.
2. The increasing population of blue bulls around the fields is causing damage to the crops. The community does not kill the bulls themselves due to the sense of respect that they have for these creatures but allow other hunters to kill them.

Constraints

1. One of the major constraints is relation of the villagers with FD and law enforcement agencies. At certain times the villagers have caught poachers red-handed while hunting. When the matter was taken to police they were highly disappointed due to apathy shown by them. The community has grudges against the government machinery and the way it functions.
2. Most of the population of Sheikha village is uneducated and suffer from a lack of confidence which hinders them from stopping savvy city dweller from poaching. They also lack awareness regarding the potentials of community conservation and need proper guidance and support from the official machinery.

Recommendations ¹

These recommendations are in total accordance with the community and have been formulated into a management plan submitted to the District Magistrate in 1997.

It proposes that:

1. The lake should be declared as 'Salim Ali Waterfowl Refuge' where people are allowed to exercise their traditional rights.
2. Grazing should be encouraged on the fringes so that the aquatic ecosystem does not turn into a terrestrial habitat.
3. Eradication of the water hyacinth which is the main culprit in the destruction of the wetland and *Ipomea carnea* which grows on the banks.
4. If the lake is developed into a picnic spot, the community should be given some kind of revenue for its conservation efforts and also associated employment opportunities.

5. The community should be organized into a committee such as the van suraksha samiti in order to overcome their handicap against city poachers under the guidance and support of the government. This would help bring a sense of self- confidence in them.

All the above recommendations have been lying with the district administration and no action has been taken.

Some of the NGOs involved in the initiative are Haritima Environmental Group, Aligarh, Bombay Natural History Society, Wildlife Society of India and Dept of Wildlife Sciences, Aligarh Muslim University, Aligarh.

This case study was contributed by Afiffullah Khan, Wildlife Society of India, Department of Wildlife Sciences, Aligarh Muslim University, with inputs from Layak Singh, a resident of Sheikha village in 2002.

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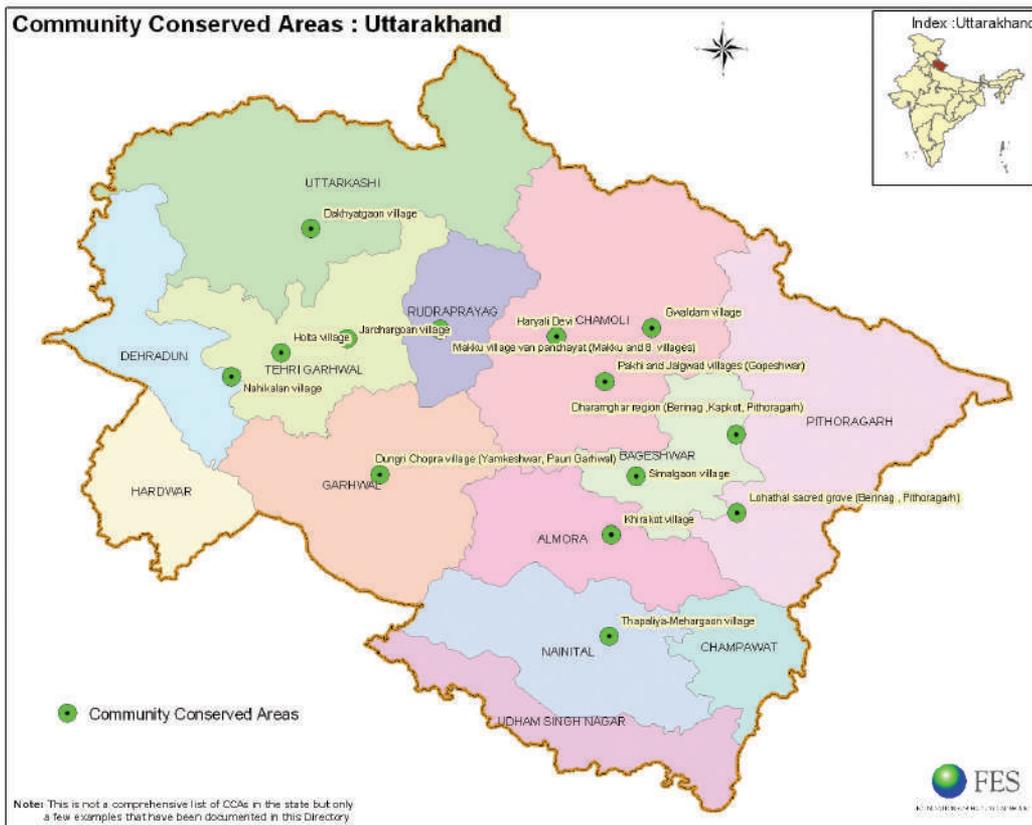
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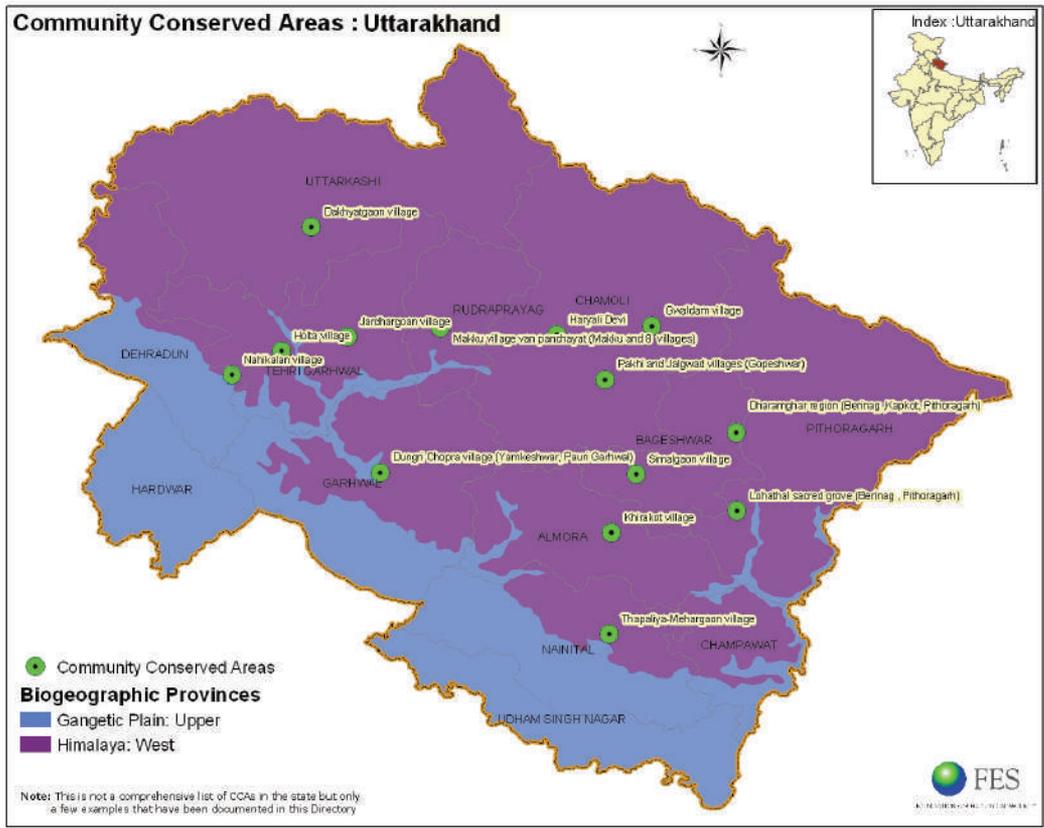
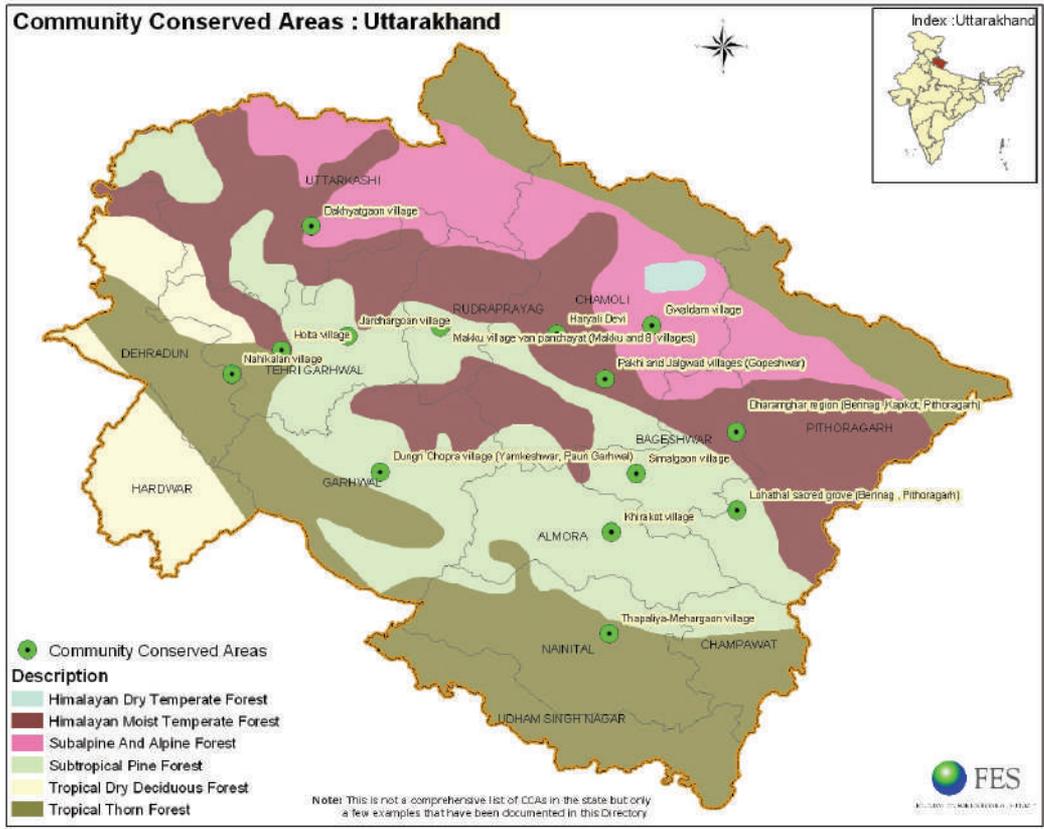
Endnotes

- ¹ Recommendations made by Wildlife Society of India and Haritima Environmental Group.



Uttarakhand







Uttarakhand

Darab J. Nagarwalla and Rakesh Agrawal

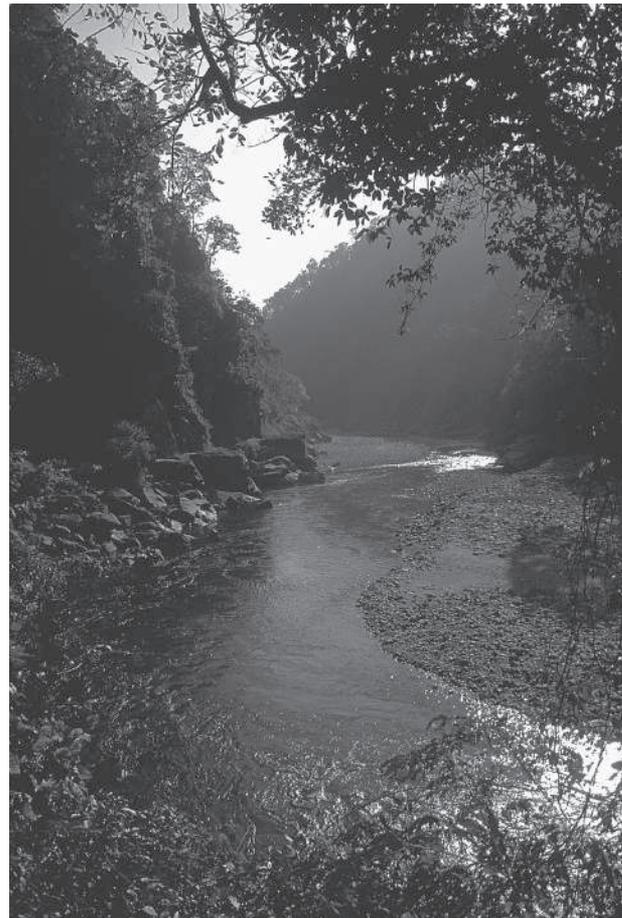
1. Background

1.1. Geographic profile

Uttarakhand (28°44' and 31°28' N and 77°35' and 81°01' E) came into existence as the 27th state of the Republic of India on 9 November 2000. It was carved out from the state of Uttar Pradesh, separating out the hill regions with a geographical area of 53,483sq.km constituting 1.63 per cent of the land area of the country (FSI, 1999). The state has 13 districts and is sub-divided into 49 tehsils and 95 development blocks. These community development blocks are further divided into 673 *nyay panchayats* (legal councils) covering 15,669 villages. Uttarkashi, Chamoli and Pithoragarh Districts share an international boundary in the north with Tibet, while Pithoragarh, Champavat and Udham Singh Nagar share a boundary with Nepal.

The high-altitude mountain ranges of the state are perpetually snow-covered and are perennial sources of water not only for the state but also for much of the rest of northern India. Four major river systems of the country—the Ganga, Yamuna, Ramganga and Sharada—originate here.

The state is also home to a number of Hindu holy shrines including Badrinath, Kedarnath, Gangotri, Yamunotri, Hemkunt Sahib, the Panch Kedars, Panch Badri and the Panch Prayags, earning for itself the name Dev Bhoomi (Abode of the Gods).



Rich *terai* and middle Himalayan forest, best represented in Corbett National Park
Photo: Ashish Kothari

1.2. Demographic profile

The Census of India, 2001 (Provisional), estimates the total population of the state at 8.47 million people, of which 4.31 million are male and 4.13 million are females. The state ranks 20th in terms of population and 18th in terms of total geographic area. There has been a decline in the decadal growth rate of the population in the districts of the state from 24.23 per cent to 19.20 per cent, which is lower than the all-India decadal population growth rate of 21.23 per cent. At 964, the sex ratio in Uttarakhand is better than the all-India ratio of 933, and shows a considerable increase from the figure of 936 in 1991. Literacy in the state has risen significantly from 57.75 per cent in 1991 to 72.28 per cent in 2001, of which male literacy accounts for 84.01 per cent, while female literacy is slightly below the national average (65.38 per cent) at 60.26 per cent. Quite a sizeable number of villages have very low populations, located in remote and relatively inaccessible areas.

1.3. Ecological profile

The state of Uttarakhand can be broadly divided into a number of topographical regions:

- The plains of Haridwar, Udham Singh Nagar and Dehra Dun districts
- The Bhabar and Terai areas of Dehradun, Garhwal and Nainital

- The Middle Himalayan region
- The Higher Himalayas
- The Trans Himalayas

The plains of the state are endowed with rich and fertile soil, while the hills are characterised by undulating and rugged topography with varied climate, soil texture, limited land for cultivation, preponderance of scattered and marginal land holdings, terrace farming and higher unit cost of infrastructure development.

The major area of the state is under forests followed by agriculture (see Table 1). As the terrain and topography of the state is largely hilly with large areas under snow cover and steep slopes, a substantial portion of land cover is not accessible for agriculture. The farming system in the hills has a number of characteristic features such as inaccessibility, fragility and diversity, a great variety of crops including perennial fruit as well as fodder, and different species of livestock. On the whole, the approach for land use in the Uttarakhand should not be agriculture versus forestry but agriculture with forestry. At present, less than 5 per cent of the geographical area in Uttarakhand has forest-cover densities over 60 per cent.¹

Table 1: Land use in Uttarakhand, 1996-97²

No.	Land use /Land cover	Area ha.	Per cent reporting area
1	Reported area for land use purposes	5,595,939	100
2	Area under forest	3,499,687	62.54
3	Barren and Uncultivable land	299,608	5.36
4	Land use for purposes other than agriculture	163,836	2.93
5	Cultivable waste	320,228	5.72
6	Permanent pasture and grazing land	227,398	4.06
7	Other land under tree /grooves/Misc.	218,817	3.91
8	Current fallow	11,423	0.20
9	Other fallow	67,659	1.21
10	Net area sown	787,283	14.07

1.4. Socio-economic profile

Forest produce has historically played a significant role in the economy of the region since ancient times. Classical writers like Pliny mention spikenard, costus root and lycium collected from forests and *bugyaals* (alpine grasslands) of Uttarakhand being brought to Rome, where they were in high demand, and bartered for other articles of commerce. Several items are mentioned in Mughal chronicles as being traded with the princely states of the plains at that time.³

Uttarakhand's tremendous natural wealth somehow continued to sustain the people over the first 60-70 years of British rule. Even after 50 years of depredation caused by the company Raj, the villagers continued to prosper on the residual bounty. In 1885 Hunter reported in the *Imperial Gazetteer*: '...people have grown rich in later years...they keep more cattle and get more manure... rice and *mandua* are in surplus.'

In 1869 when famine conditions prevailed in the adjacent Bijnore district, Garhwali peasants earned handsome profit by way of a vast export of grain to the scarcity-hit areas. The surplus was documented till 1881 and was being exported both to Bijnore and Tibet. Peasants paid their revenue in cash and indeed it was one of the few districts where revenue could be collected with such ease. Even in 1910 the Garhwal Gazetteer noted that 'miscellaneous earnings of hill men were high through the sale of ghee, woollen goods, and carrying loads by ponies, mules and goats.'

Today the major occupation in Uttarakhand is agriculture, although the net cultivated area is only 14.07 per cent, of which 22.4 per cent falls in Udham Singh Nagar and Haridwar districts. 49 per

cent of holdings are less than 0.5 ha and 21.51 per cent holdings are between 0.5 and 1 ha. Thus over 70 per cent holdings are marginal in nature with an average size of about 0.37 ha. These small land holdings coupled with the rugged terrain makes agriculture an unviable option as a full-time occupation. According to tentative estimates, the per capita gross state domestic product was calculated at about Rs 15323 in 1996-97, which is higher than the national average of Rs 12805. Similarly, per capita net state domestic product in Uttarakhand (Rs 13710) was above the national average (Rs 11,434). However according to a survey conducted by the Rural Development Department, about 36.44 per cent of rural families were living below the poverty line.



Uttarakhand is today considered to be a backward area, dependent on a 'money-order economy', where only a few families out of every hundred can still feed themselves from the produce of their own fields, while the vast majority are wholly dependent on the ration shops of an inefficient and corrupt Public Distribution System. On an average, each energy unit of agronomic yield (including milk) entails an expenditure of 12 energy units from village support systems and their adjacent forests. This massive input of energy at present only satisfies 50 per cent of the food needs. The rest has to be imported from the plains. In a recent survey, unirrigated cropland soil fertility was measured to be between 12.5 and 25.0 per cent of that of undisturbed forest, in spite of massive input of manure.⁴ The energy value of the inputs was calculated to be 1.5 of the agronomic yield or about 70 per cent of total crop yield including residues.⁵ This just goes to show how difficult it is to maintain good cropland productivity in the region even with massive inputs, all of which come directly or indirectly through adjoining forests and the rearing of cattle. As forests degrade, it becomes harder and harder to provide these inputs. Productivity drops and agriculture becomes economically unviable on small and marginal holdings, facilitating widespread migration to urban areas in search of jobs, and hence the 'money-order economy'.

2. A brief history of administrative control over land and resources

The Gorkhas of Nepal invaded Kumaon and Garhwal in 1804 and were driven out only after the Gorkha Wars of 1815. Before the Gorkha invasion different parts of Kumaon and Garhwal were administered by a few independent princely states. The British captured Dehradun and reinstated the Maharaja of Tehri. However, as payment for services rendered, they annexed more than half of his territories, naming this region British Garhwal, which became part of the British-administered Kumaon Division. The rest constituted the Tehri Riyasat,⁶ under the direct control of the *maharaja*. British Garhwal was administered along similar lines to the rest of the Kumaon division, while the *riyasat* functioned according to the traditional rule of the Parmar dynasty. From here on, the histories of the two regions diverge, including their forest management and conservation, and we consider them separately in the following sections.

2.1. The pre-colonial Tehri-Garhwal Riyasat⁷

Both the Garhwal *rajās* and the Gorkhali Government had derived considerable revenue from various items of forest produce grown in the Dun and adjacent hills. This was usually collected as a transit duty and was levied on every article of commerce entering or leaving the Dun. The total collected in 1809-10 through these duties was Rs 16,000.⁸

The history of large-scale resource exploitation from Tehri Garhwal can be traced back to 1840, when the *maharaja* leased a large area of the Bhagirathi valley to Frederick 'Pahari' Wilson, a resourceful entrepreneur, to exploit for forest produce including musk, monal pheasant feathers, animal hides, fuelwood, timber, etc. This was the first monopoly lease of its kind in the region, and represents the first step towards the development of what should be called the rise of 'anti-conservation' attitudes amongst the people of Uttarakhand. In 1850, the *maharaja* renewed Wilson's lease till 1864, giving him monopoly rights over commercial felling of deodar and chir in the Bhagirathi valley. Timber had never been exploited as a commercial raw material for profit before Wilson's lease. The fact that the *maharaja* was quite unaware of the value of timber can be understood by the astonishing sum Wilson paid for the monopoly timber-harvesting lease: just Rs 400.⁹ Wilson pioneered the technique of rolling timber down slopes and floating logs down the river to a depot at Haridwar. The Railways, happy to have him supply sleepers for their expansion needs, even appointed him as the Official Contractor.

As the *maharaja* became alive to the commercial value of his forests, he began to follow a pattern of wholesale exploitation similar to the British in neighbouring British Garhwal and Kumaon. After the expiry of Wilson's second lease in 1864, the government of the North West Frontier Provinces (NWFP) leased the same forests from the *maharaja*, and also opened up the extensive chir forests of the Tons river valley. In 1885, the *riyasat* established its own forest department (FD) with personnel on deputation from the state. The *maharaja* had become aware of the economic value of his forests after seeing Wilson's profits. Fire protection was initiated in deodar and chir forests for the first time.

In 1897, the *riyasat* introduced systematic forestry techniques, marked by the demarcation of the vast tracts of the mixed deciduous forests at Shivpuri that was completed in 1907. All further cultivation was prohibited, and lopping and felling was restricted, leading to repeated rebellions (see later). In 1908, three categories of forests were created, Class III Reserved Forests that were commercially valuable, Class II Protected Forests, which were kept aside for regeneration, and Class I Village Forests, which were mainly barren clear-felled patches with hardly any or no trees at all.

Between 1928 and 1929, at the invitation of the *Durbar*, Dr. Franz Heske, a German forestry expert came to inspect the *riyasat* forests and left detailed reports about future management, suggesting laws to be passed for the protection of wildlife on land, in rivers and streams.¹⁰ In 1938, fire protection measures were enforced in all *riyasat* forests. By 1940, the present forest divisions were created, and manpower for forest management recruited.

2.2. The colonial era

2.2.1. Management of forest resources by the state

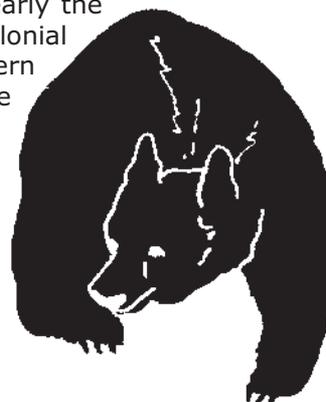
We identify two distinct phases of British forest policy: (i) an exploitative phase between 1818 and 1859, when the forests of Uttarakhand were controlled by the East India Company, and (ii) a period of 'conservancy and scientific management' that began with the replacement of the Company by Crown Rule in 1858. In 1868 an Imperial forest department of the North West Frontier Provinces was established.

Commercial timber harvesting in the sub-Himalayan forests of this region began in 1840, with the development of the railways around Haridwar and Najibabad. Thereafter, sustained pressures decimated large tracts of forests in the region, fed by the demands of the construction needs of the Upper Ganga Canal, establishment of large timber markets in Haridwar, Saharanpur and Meerut, a major spurt in railway expansion after the revolt of 1857, and the two World Wars.

The exploitative phase

The submontane sal forests of the foothills were exploited in the early years of British dominion.¹¹ Only after the thick jungles of the foothills had been denuded did the attention of the British authorities turn to the immensely rich deodar forests located in the higher Himalayan ranges.¹² The first attempt at conservancy came in 1826, just three years after the famous '*saal assi bandobast*', the first major land settlement where private lands were surveyed, mapped and demarcated on paper for the first time (see Section 2.3 for details). Traill, the British commissioner, excluded an area of *thaplas* (terrace land) in the sub-Himalayan tracts of Kumaon division from the lease system of forest produce to conserve timber and bamboo, and reserved this area. But this did not last long. No attempt was made to establish any system of conservancy and the old system of leasing out the forest dues to contractors was continued. Examination of old British administrative records, interaction with the residents of present-day village communities in Kumaon and Garhwal and direct observations on the state of the forests, all lead one to conclude that the political, social and economic crisis that we see today in the Uttarakhand region is clearly the legacy of British colonial rule. The origins of the crises are exploitative colonial policies based on the extreme conceit of the conqueror, and a Western urban-industrial model of development that views nature as a mere commodity to be exploited for financial gain.

Conceit is illustrated in the statement of Job Becket, Deputy Collector of Kumaon, speaking on the Kumaon Iron Works having leased 400sq.miles of virgin oak forest for fuelwood exploitation in 1868: 'No doubt such iron foundries have been found to be very destructive in Britain in the past where they were legally banned by the 16th century. However such action is deemed neither possible nor desirable here. And even if such laws were to be passed, for whom would these forests be preserved?'¹³



This statement implies that vast stretches of forest in Uttarakhand were totally uninhabited and unused by local communities, which is far from reality. At this point in the state's history, annual profits derived from forestry operations were about Rs 0.18 million. With the introduction of a regular forest establishment in 1855, revenues rose enormously,¹⁴ but unfortunately even then no system of conservancy was attempted. Between 1853 and 1858, one Captain Reid and a mysterious Mr. Finn were put in charge of the foothill forests of both Garhwal and Kumaon. The forests of the Ramganga valley, South Patli Dun and Sonali were, according to Major Pearson, the first conservator of the NWFP, '...felled to desolation by Capt. Reid as well as by Mr. Finn, and the native contractors before him, but perhaps even this does not give an idea of the waste that has occurred, and the mischief that has been committed. Thousands of trees were felled which were never removed, nor was their removal possible; and a large revenue has been realized during the last few years by allowing passes to the people of the lower country to cut up and remove the dead timber on the payment of a royalty.'¹⁵

Major Pearson's views were implemented thoroughly in the region, and it is worth noting his example of the prescriptions and the results of scientific forestry. He states: '...I have now been in the habit of watching sal forests for about ten years and the inspection of these Doons very much confirms the opinion to which my mind has for some years been tending—viz., that both for the free generation of the seed, and the effectual reproduction of the forest, as well as for the welfare of the trees, and their progress afterwards, sal requires a considerable amount of sun and light and that a sal forest will bear, and indeed repay (if it does not absolutely require) much more liberal felling than almost any other description of forest in India...[I have] no hesitation in saying that if half the trees were cut down in the untouched portion of the Palein forests as well as in the Mondhal and Nindhore valleys, the remainder would benefit beyond all calculations by operation.'

Nanda summarizes this phase of British Forestry thus: 'Ignorance can excuse many a crime, but British foresters were well aware of the role played by broad-leaved forests in the Himalayan ecosystem—and yet they advocated the reckless destruction of broad-leaved species for short-term financial gain, leaving the Himalayas to their inevitable fate. Since villagers depended on these broad-leaved forests for their livelihoods and sustenance, with their rapid disappearance through systematic girdling, even the remnants of oak forests along mountain streams came to be eventually lopped to extinction. This ultimately led to the situation that prevails today marked by widespread water scarcity and drought—a scarcity that has, in turn, completely destroyed the agricultural system of the hills....Through reckless destruction of broad-leaved forests undertaken by government fiat, the British government not only destroyed the ecosystem and local economy, it also failed in its avowed objective of advancing the monoculture of [commercial species].'¹⁶

The 'scientific' forestry phase

'Scientific' forest management introduced by the Crown copied European production forestry models and was based on conjecture and economic interests rather than any long-term study and scientific hypothesis. Couched in the language of 'conservancy and protection', these management systems were made palatable to the educated mind. The Superintendent of the Doon, one Mr. Williams, described the situation thus: '...everyone continued to hack and hew away as they pleased. Fine trees from 100-200 years old still abounded in the district. All these fell before the axe and probably the rest would have gone with them had the roads been better'.¹⁷ In 1860 forest revenues began to drop, and had by 1868 plunged to Rs 23,332. Between 1855 to about 1908, the sal forest tract of the sub-Himalayan belt of Uttar Pradesh had alone yielded well over Rs 1.5 crore (15 million) to the imperial exchequer.¹⁸

In 1858, one Colonel Ramsay took over as Commissioner of Kumaon. He prohibited the felling of trees and appointed forest officers to supervise management operations. He banned grazing and curtailed rights to use long-established *chhaans* (cattle stations) in the foothill forests in 1861-62, which had been totally worked out and hardly contained any valuable timber. These regulations lasted a decade, after which the new forest department took over. Attempts at conservancy continued ad hoc until the first Working Plan was prepared in 1881 for the North Patli Dun forests. These working plans systematized and institutionalised restrictions on traditional rights initiated almost fifty years earlier. On the other hand there appear to have been no restrictions on hunting and fishing as long as leases were obtained. Even dynamiting of rivers to stun fish appears to have been ignored if not condoned by the administration. This strongly indicates that the colonial government's efforts at conservation were largely restricted to species of commercial value.

Targets for timber harvesting were two main species: chir and deodar. Both were initially felled from accessible and later from far-flung areas, and then sought to be spread across the region at the expense of the broad-leaved climax forests (dominated by oak species) that '...protect the myriads of mountain streams which go to maintain the village *sera* (fertile irrigated fields used for paddy) and the water system of the hills which in turn goes to feed the Gangetic canal.'¹⁹

2.2.2. Changes in land-use and cover

In 1882, Atkinson wrote of the region, '...Many parts have been permanently injured, the land where once fine sal forests stood is now too denuded by exposure to admit of reproduction.'²⁰

In 1899, E.P Dansey, Conservator, Garhwal Forest Division wrote: '...over much of the Working Circle a soil which, from the dimensions of the standing trees we see, must have been very rich originally, has since then undergone deterioration through denudation which has been brought about by excessive felling and long exposure to the sun.'²¹ Dansey reported only 36sq.miles out of 79sq.miles that appeared to have soils suitable for good forest vegetation. He also noticed considerable frost damage to young sal poles on colder aspects. By the 1930s, large areas had been specially designated Frosted Sal Working Circles with special prescriptions for nursing and care in the Landsdowne Forest Division.²²

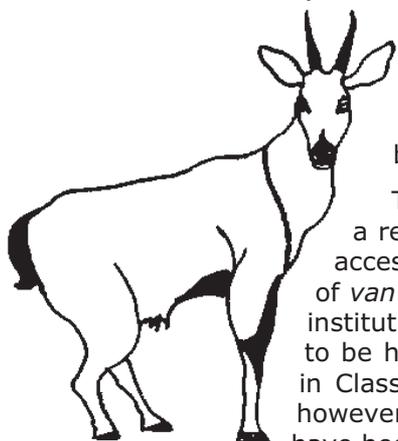
Successive Working Plans in the 1920s and 1930s for the Landour Cantonment Forests of Mussoorie suggested that the best oak forests be converted to deodar plantations, in part because the forest officer in charge, one E.C. Mobbs, decided that the timber needs of the British community for building could be met locally this way. Other oak forests on steep slopes were prescribed to be managed with a 'coppice and standards' system. The author of the next working plan, one O.E. Osmaston, remarked that building timber was freely available from Dehradun, while fuelwood and charcoal were in short supply for local residents. He concluded that the oak forests of the cantonment should not have been tampered with, and instead have been managed on a lopping rotation for fuelwood generation. Deodar plantations at the scale taken up had been entirely unnecessary!

Despite having acknowledged the importance of broad-leaved forests in the region, another forest officer, A.E. Osmaston, proceeded to give detailed instructions for the systematic girdling and encouragement of excessive lopping of broad-leaved species. This was to hasten their extinction and allow plantations and regeneration of chir to take over the area. Only narrow strips of broad-leaved forest were to be left along each mountain *khala* (stream) or *rauli* (ravine)²³. The results of this 'error of judgement' continue to contribute to the scarcity of good fuelwood in the region.

2.2.3. The legal context in colonial Uttarakhand

The Indian Forest Act was initially drafted in 1865, primarily to facilitate the declaration of forests as state property for the implementation of 'scientific forestry' operations. The Act notified all lands covered with trees, brushwood or jungle as Government Forest, but did not immediately curtail people's rights. The legislation was modified in 1878, as the establishment found that people's rights interfered with clear-felling operations in commercially valuable forests. A Forest Policy in 1894 established strategies for scientific forestry, giving economic interests primacy over all else, and justified the curtailment of people's traditional rights in the name of conservation.

To quote Nanda: 'From 1910-17, the colonial government attempted to tighten its control over forest resources by notifying over 7,500sq.km of the commons in British territory as Reserve Forests, severely restricting people's use rights. Following rebellions and incendriaism (see later in section 2.3.1), 4,460sq.km of the commercially less valuable new reserves were transferred back to the civil administration. Thus, by the early 20th century, the uncultivated commons had been divided into 3 legal categories of forests: commercially valuable class II reserves under the forest department; and commercially less valuable class I reserves and *civil/soyam* (in the Tehri State, non-reserve forest lands under the civil administration were called *soyam* lands) forests, under the civil administration.'²⁴ (With regard to rebellions, see section 2.3.1)



The Indian Forests Act, 1927, divided forests mainly into Reserved Forests (RF) and Protected Forests (PF) in which traditional rights were severely curtailed and henceforth called concessions. A third category of Village Forest (VF) was also provided for to meet the basic needs of village communities.

The Uttar Pradesh Panchayati Forest Rules, 1931, were drafted as a result of several protests over the curtailment of traditional rights of access to forests and forest produce. The Rules required establishment of *van panchayats* (forest councils) as democratically elected village-level institutions, to be entrusted with official sanction to manage patches of forest to be handed over to them. The *van panchayats* were mainly established in Class I reserves and *civil/soyam* forests. These *van panchayats* were, however, given extremely limited financial and discretionary powers (these have been discussed in greater detail in Section 3).

2.3. Rights and privileges of local communities

The forests of Uttarakhand were considered to be of little commercial importance to the people of the region and the tracts adjoining villages and *toks* (hamlets) were dense enough to meet the requirements of a thin and disperse populace. The state did not immediately impose too many restrictions over the rights of the people, as commercial interests were limited. Resource use was governed by traditional boundaries, where village control over common lands existed, and acted as a check to over-exploitation.

Ruling dynasties of the Tehri Riyasat allowed trees to be felled for legitimate household needs such as building timber, but not for commercial profit. Trees were not looked at in terms of commercial profit, and urban markets basically did not exist to absorb vast amounts of timber. Forest produce that regenerated every year, on the other hand, was harvested by village communities, and simply taxed on its way out of Garhwal. Local household consumption was exempt from taxation.

In the British-administered territories, prior to British conquest in 1815, the hill peasantry effectively exercised direct control over the use and management of cultivated lands and uncultivated commons, with little interference from earlier rulers. Resident communities regulated use within customary village boundaries by evolving their own rules rooted in cultural norms and traditions.²⁵

Considering that the local livelihoods were so directly and deeply interlinked with the surrounding resources of the hill people and that the area was fairly inaccessible, systems of natural resource management were deeply entrenched in the local cultures. Local systems of resource management included forest *panchayats* (councils), *lath panchayats* (see later for details), seasonal transhumance to alpine pastures to avoid over-exploitation of local resources, etc.

In 1823, the colonial regime undertook the first land revenue settlement. This recorded customary village boundaries, categorizing the land within them as cultivated *naap* (measured) and uncultivated *benaap* (unmeasured) lands. Although villagers continued to enjoy unrestricted use and the right to clear *benaap* land for cultivation, the state appropriated local authority for granting recognition to village boundaries. The *saal assi* (the revenue settlement year of 1823 is the 80th year according to the Hindu calendar) boundaries in the erstwhile Kumaon, and unrecorded traditional boundaries in Tehri Garhwal, continue to be the basis of community forest management and inter-village boundary disputes over rights in the commons, including in forest areas reserved 90 years ago.²⁶

In 1893, all unmeasured 'waste' lands in Kumaon were declared District Protected Forests under the control of the district commissioners. This legally classified all village common lands as 'forests', irrespective of whether they had tree cover or not, and converted them into state property. A resource base managed holistically was artificially and permanently divided into forest and non-forest lands. The division, and its implied freezing of land use, has not been reviewed since, despite dramatic changes in socio-economic and political contexts.²⁷

After the *assi saal bandobast* of 1823, while terraced lands immediately surrounding the lower hill ranges were reserved for the timber and bamboo requirements of the state, extensive forests below were still open to the villagers.²⁸ With improved access, the adoption of Wilson's technique of log transport and heavy increases in timber demand, however, the British Government drastically curtailed rights and privileges of local communities, overturning indigenous systems of exploitation in favour of systems that encouraged dealing with locals through *zamindars* or contractors. Indigenous rights were gradually extinguished and outsiders were introduced to deal with harvesting operations. Some of the more severe restrictions imposed on local people were:²⁹

- No person shall cut or remove any reserved tree (except chir trees 0.9 m or more in girth at breast height, and not standing within 30 m of any road) without a license;
- No person shall cut or remove any tree other than a reserved tree except for use within 8.3 km of the place in which such a tree or timber is produced for bonafide agricultural or domestic purposes;
- The cutting or removal of trees and timber, and the collection and manufacturing and removal of forest produce for purpose of trade is prohibited, except under, and in accordance with, the condition of a license granted by the deputy commissioner;
- Lopping of trees above 45.72 cm in girth for fodder or manure is permitted;
- No extension of cultivation when it involves the cutting of trees shall be made except with the permission in writing of the deputy commissioner;

- Except with the permission in writing of the deputy commissioner, no person shall set snares or traps;
- No person shall shoot or hunt or enter any forest in time of snow for the purpose of driving or otherwise destroying game therein except under and in accordance of a license granted by the deputy commissioner.

Scientific forestry, with its agenda of sustained commercial timber harvesting favouring only certain coniferous species, gradually learnt to manipulate local use patterns to the ends of the state. Some major examples of this manipulation are:

- Grazing was only permitted in areas where undergrowth posed a fire hazard;
- Lopping of oaks and other broad-leaved species was allowed in mixed forests which helped gradually transform them into pure stands of commercially favoured conifers like chir pine, oaks and other broad-leaved species were deliberately felled and girdled by the department to favour conifers in some mixed forests;
- Controlled fires with a system of fire lines and counter fires were lit annually by the forest department before villagers could light their annual fires.³⁰

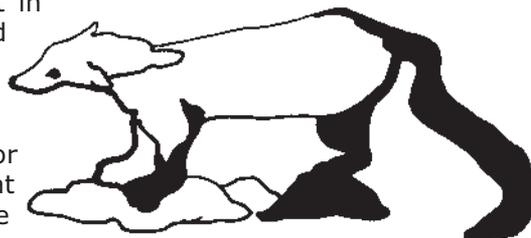
After the public uprising and based on the grievances committee's recommendations (see following section), people's rights were restored in commercially less valuable Class I Reserves. However, rights were given to 'all bonafide residents of Kumaon', thereby converting common property resources defined by the *saal assi* village boundaries into open access areas. Provisions for *van panchayats* to exercise community control over legally constituted 'village forests' demarcated from within the Class I reserves and civil forests was made, though applicable only in those villages which applied for them. This enabled sections of the peasantry to retrieve some space for local forest management. On the other hand, the *van panchayat* rules were operationalised only in 1931, ten years after the creation of Class I Reserves. During this time and in areas where there were no *van panchayats*, even subsequently uncontrolled extraction from Class I reserves was done by both the state (through giving contracts for making charcoal from oak) and the peasantry, due to creation of an open access regime.³¹

2.3.1. People's uprisings in the pre-independence era

The gradual destruction of livelihoods through the curtailment of traditional and customary rights, mass clear-felling, monoculture plantations and manipulated regeneration of only commercially valuable species led to several popular uprisings against the state, both in the Riyasat of Tehri-Garhwal and the British-administered Garhwal and Kumaon Divisions.

In Tehri-Garhwal, a major traditional protest or *dhandaak* was staged in 1906 over the demarcation and reservation of a sacred grove near the famous Chandrabadini temple in present-day Jakhnidhar block. The conservator was surrounded by villagers, attacked and branded with a red-hot coin. The incident has become folklore, and is even today remembered as the 'Chandrabadini *dhandaak*'. In 1913, the very first article denouncing the policies of Maharaja Pratap Shah of the Tehri-Garhwal Riyasat was published in a local newspaper, *The Garhwali*.

Following the takeover of common lands by the government and restricted access to resources between 1910 and 1917, Garhwal and Kumaon faced formidable shortages of fodder, fuelwood and timber in 1921. People in the hills decided to put an end to all kinds of co-operation with the government in the management of forests, including fighting forest fires or stopping 'illegal' cutting of green trees. Large tracts of Reserved Forest were burnt by local people to register their protest against the anti-people policy of the government that denied people's access to these forests. In order to avert an impending rebellion by the soldiers from Kumaon and Garhwal, the British government set up a Forest Grievances Committee under the chairmanship of P. Wyandham (the then commissioner of Kumaon).³² The committee's terms of reference focused on three major areas: (i) difficulties experienced by those living in and near forests as a result of existing systems of state forest management; (ii) eliciting local interest in conserving and managing forests; and (iii) securing and encouraging co-operation with the forest department. The Committee toured Almora from 16-27 May 1921 and British Garhwal from 28 May-19 July 1921, examining a total of 5,040 witnesses either in person or through their representatives. The committee felt that the most important problem faced by villagers was the



ban imposed on lopping by the FD, and proposed to remove all restrictions on the lopping of oak and kokat trees (a term signifying 'inferior timber', encompassing all tree species except the few recognized commercial timber species), except from areas demarcated for regeneration. It also proposed to remove restrictions on grazing animals including goats from these areas. To deal with 11 points of grievances, the committee suggested four sets of remedies. The first listed five kinds of forests (mainly isolated patches) which were to be excluded from the management of the state and handed over to villagers. The second involved the removal of existing boundaries of reserve forests where they were either too close to settlements or where the population had pressing needs. The third was to carry out enquiries into land acquisition cases and the last involved the removal of rules and regulations in reserves maintained by the forest department where they could be dispensed with. To achieve this, the committee divided these reserve forests into two classes. Class I were the forests having little or no commercial value, in which the FD's management was supposed to be nominal and there was no general restriction on the rights of people. Under Class II forests, the FD was supposed to continue its control, especially in matters related to fire control, resin tapping and the preservation from damage of all species having commercial importance, keeping aside one-sixth of the area for regeneration.³³



In the Tehri Riyasat, resentment again simmered and then exploded in the infamous 1930 'Rawain *kaand*' incident. A few villages in the Rawain area of the Jumna valley established an *azad panchayat*³⁴ to protest the exploitative forest policies of the *maharaja*, particularly the ban on grazing in the local forests. The villagers maintained that they depended on these forests for their livelihoods, and grazing cattle was their right. They believed that the *maharaja*'s chief advisor, and not the *maharaja* himself, was responsible for the curtailment of their rights. They held regular meetings on a flat field by the river and planned to march to Tehri to protest to the *maharaja*. The chief advisor, Chakradhar Juyal, arrived with a contingent of armed police on horseback and, seeing a crowd of people assembled, began firing indiscriminately. There was a stampede, and at least 30 people died; some shot, others drowned trying to flee.

The movement was dissipated, but the widespread condemnation of this brutality grew, and in 1939 the *praja mandal* was established in Dehradun as a platform for the public to express their views. At the forefront of this movement was a fiery young leader Sridev Suman, who openly criticized the policies of both the British and the *maharaja*. He immediately developed a substantial following in the villages of Tehri-Garhwal. Suman was arrested, and after a prolonged hunger strike, died in custody at the Narendranagar jail. His death led to a series of protests that culminated in the people of Tehri rejecting the *maharaja*'s leadership and the successive declaration of several *azad panchayats*. Growing disenchantment with the *maharaja* resulted in the Tehri Riyasat being merged with the United Provinces (later Uttar Pradesh), in 1949. Other important uprisings that reflected the fight for regaining control over traditional rights are the Tehri Andolan of 1946, the Saklana Andolan of 1947, and the Kirtinagar Andolan of 1948.³⁵

2.4. The post-colonial independence era

2.4.1. Management of forest resources by the state

By the time the Uttarakhand region became part of independent India, the forest bureaucracy had become well and truly entrenched, and profit remained the sole motive of management. Contrary to popular belief, the plunder of the Himalyan forests continued after independence with even more aggression than before, as urban markets greatly expanded. The Forest Policy Resolution of 1952 was passed to accommodate the demands of industry for raw material, pledging forests to the 'national interest'. Intensive road building was taken up after the Chinese invasion of 1962, for strategic reasons that helped facilitate transport of forest products to urban markets in the plains. The decade between 1966 and 1977 saw a dramatic increase of paper mills in the region.³⁶ In addition to the demands of industry,³⁷ expanding urban centres required large quantities of timber and fuelwood.³⁸ The forest department responded to these increasing demands by reaching its contractors to the remotest corners of the states through a network of roads.

Though these measures ensured that revenue generated from forests increased manifold, the production of timber and firewood reached a plateau after 1966-67. S.S. Negi notes an example of the official view of the forest department: 'The process of environmental degradation assumed significant proportions in this mountainous region after independence. This period saw a rapid increase in the cattle and human population; accelerated pace of road and canal construction and an unprecedented biotic pressure on the forest ecosystem.'³⁹

The fallacious nature of this view is illustrated by M.D. Chaturvedi, Chief Conservator of Forests, Uttar Pradesh, by relating the number of cattle to the region's population, total area under cultivation, and the requirements of milk and draught power. He states: 'From these figures emerges the startling fact that far from being in excess, the bovine stock is hardly sufficient to cope with the agricultural requirements of these provinces...there is one work animal for every 6.2 acres of cultivation in the Himalayan tract, 3.25 acres in the Gangetic basin, and 4.8 acres in the Central Indian Plateau. The position of milch and breeding animals is even worse. There is only 1 cow or buffalo for 9 persons in the Himalayan tract, 6 persons in the Gangetic basin and for 3 in the Central Indian Plateau.'⁴⁰

Increasing human populations being responsible for degradation is a hypothesis also not supported by facts. Decadal increases in population between 1940 and 1981 were well below the national average, and the increase between 1971 and 1981 was probably due to the increased activities related to the construction of the Tehri dam.

2.4.2. Rights, privileges and post-independent uprisings

The British discrimination towards local people and the curtailment of their traditional rights continued in post-Independence Uttarakhand. In 1980, rightholders' share of the overall timber output declined from the already miniscule 6.4 per cent to 5.6 per cent, while the purchasers' share increased from 88 per cent to an overwhelming 93 per cent. As a result of several State Forest Policies, the area under oak and other deciduous forests on which local people depended for their livelihoods had reduced by 23 per cent between 1939 and 1982 in the Tehri division alone. Tehri has been losing about 600 ha of oak forest every year for the last 40 years.⁴¹

Thus local livelihoods received even less attention than under colonial rule, as the state policy consistently favoured export of raw timber and resin for processing by large industry in the plains. By the 1970s, the Chipko movement had emerged to demand that priority be given to local employment in the extraction and processing of forest produce. Increasing incidents of landslides and floods and declining availability of biomass for subsistence needs propelled hill women into the movement, broadening the popular base of Chipko protests and giving them their 'eco-feminist' label.

Ironically, the Van Panchayat Rules were revised in 1976 at the height of the Chipko movement, substantially reducing the authority and entitlements of the *van panchayats*.⁴² The issue of local forest rights, however, was soon subsumed within the new national and global ideology of environmental conservation. Instead of priority to local forest-based livelihoods and employment, Chipko was used to justify a spate of centralizing environmental policies and laws. The Forest Conservation Act of 1980 empowered the central government to make decisions related to the alienation of even the smallest patch of forest land. The Uttar Pradesh Resin and Forest Produce Act, 1976, made tapping, sale and purchase of all resin a state monopoly.⁴³ The forest department and allied departments used the Uttar Pradesh and Hill Areas Tree Conservation Act, 1976, to create a nightmare for innocent villagers. Under this Act, villagers are forced to obtain permission from the District Collector/DFO to harvest trees standing on their own lands.

In 1981 (after a fast by Sunderlal Bahuguna against indiscriminate felling), a 15-year ban was imposed on all commercial felling in the Uttar Pradesh Himalayas above 1000 metres. In 1986, the ban was made applicable above an altitude of 2500 meters. At lower altitudes, green felling of pine as per the FD Working Plans is permitted. Today the only permitted fellings are for the villagers' timber rights (*haq haquque*). The quantities for these have not been revised since the forest settlements of 1910-17, and are completely inadequate. Major conflicts between people and protected area managers have erupted due to large-scale resource displacement caused by their non-participatory demarcation, affecting the livelihoods of an estimated half a million people.⁴⁴ On the other hand, despite the ban, it is mystifying to note that '...the availability of timber (after 1981), now exclusively obtained from fallen and windblown trees, remains almost the same as it was when the forests were commercially exploited!⁴⁵ Some important clues as to how this could be come from these facts:

- 7930 ha of forest were affected by fire between 1981 and 1987 as compared to only 1605 between 1973 and 1980.
- There was no increase in funds for fire-fighting measures, resulting in non-existent maintenance of fire lines after the green felling ban in 1981.
- Green trees are reported to be felled and sawn along with fallen trees in every forest division.⁴⁶

- A massive increase in outlay of funds for plantation on *civil/soyam* forest lands with dry, eroded soils and almost no tree cover.⁴⁷

As the largest custodian of state property,⁴⁸ the forest department has been unable to maintain the forests in good condition or meet people's forest-based livelihood needs. Its responsibility for enforcing the Forest Conservation and Wild Life (Protection) Acts has reinforced its image as an anti-people agency. Thus, in 1988-89 some of the Chipko activists started yet another, relatively less known, Ped Kato Andolan ('cut trees movement'). They argued that the Forest Conservation Act 'was being used to hold up basic development schemes for the hill villages while the builders' mafia continues to flout it brazenly under the guise of promoting tourism.'⁴⁹ More recently, resource displacement and loss of livelihoods caused by expansion of the protected area network has produced the Jhapto Cheeno Andolan (snatch-and-grab movement) reflecting the intense feelings of alienation and disempowerment. Women who earned international fame for stopping contractors from felling their forests during Chipko have come to hate the word *pariyavaran* (environment). As one of these women from Reni village complained '...they have put this entire (surrounding forest) area under the Nanda Devi National Park. I can't even pick herbs to treat a stomach ache any more.'⁵⁰ (See Box 1).

Centralized forest management based on a conservationist ideology was among a significant propellant for the movement for a separate state. A separate state, however, has not brought much joy to people in terms of control over local resources or preference being given to the local livelihoods. Soon after the new state was formed in 1999, the Van Panchayat Rules were amended in 2000 to bring *van panchayat* forests under greater FD control. Frustration among the local people is indicated by the statement of a *van panchayat sarpanch* during a *van panchayat adhiveshan* (gathering) being organised by the local groups at Bhowali in 2002 to oppose the amendments. 'We fought against the colonial rule, we thought they were colonials and did not understand us, our culture, our needs. As a result of this agitation we regained some of the lost powers and control. After Independence, we thought we had our own government but they went a few steps beyond the British to take our powers away. We thought these are plains people—they don't understand our circumstances. We fought for a separate state, many of our brothers and sisters lost their lives. After we got the status of a separate state we celebrated thinking we are now in control. But a separate state has meant even more restrictions and alienation for us.' Thus now there is a movement in the state to retain the powers of *van panchayats* forests rather than these being appropriated by the FD under Village Forest Joint Management Programme (VFJM).⁵¹

In Uttarakhand, JFM activities actively target already existing village level institutions, the *van panchayats* that have far more control under existing rules over the forests they manage as compared to the rights conferred by the JFM resolution. The argument trotted out is that *van panchayats* do not function properly, and are defunct institutions that should therefore be replaced. This is patently insincere. No attempts have been made to understand why *van panchayats* are not functioning effectively, or to address the problems in the Van Panchayat Rules that have led to this situation. JFM in the State is currently commercialising and politicising these institutions while at the same time disrupting traditional methods of managing forests jointly between several villages.

Box 1

Nanda Devi Biosphere Reserve and National Park and Local People⁵²

The Nanda Devi Biosphere Reserve and National Park came into existence in 1982 following the recommendations of a few conservationists and foresters. Villages included within the boundaries of the Biosphere Reserve are Reni, Lata, Peng, Tolma, Fagti, Markada, Kaga, Garpak, Dunagiri and Malari. There are no villages located within the National Park, but traditional resource use areas do fall inside the boundaries. The local community were traditionally traders with Tibet, manufacturing medicine and trading in medicinal plants collected from high alpine pastures and the high forest reaches. Some were migratory pastoralists, who made use of the alpine pastures in summers and the bhabbar grass areas in the foothills in winters. Some found additional employment acting as guides and porters to mountaineering and trekking groups to Nanda Devi and other peaks in the area.

Trade with Tibet has been closed since the 1962 Chinese incursions and traditional grazing routes in the foothills have either been developed or declared protected areas. Their last source of income disappeared with the decision to seal all entry points to the National Park, which destroyed the tourist trade and restricted people's access to the alpine pastures of the Inner Sanctuary.

Faced with few livelihood options in their harsh environment, villagers launched the Jhapto Cheeno Andolan (Snatch-and-Grab Movement). After 20 years of agitation, the National Park has been reopened to tourism and a decision has been made to share a percentage of the benefits with local people. Dhan Singh Negi of Lata village (Joshimath district, just outside the biosphere reserve), however, states that people have been given either doles or jobs that they are not very interested in. 'No one considers the fact that we are traditional traders and that is where our skills lie.' Though the current plan envisages a share of the profit to be directed to local communities, villagers are not involved with tourism planning and implementation. They will merely be the porters and beneficiaries of the profit. Greater involvement of the people in management and planning can ensure long-term ecological security of a sensitive area that would face problems of over-exploitation of resources, hunting, garbage and other problems related to tourism.

3. Community conservation initiatives

In this section four types of initiatives in Uttarakhand are discussed: (i) people's struggles for natural resource conservation; (ii) people's struggles for NR conservation community resource management institutions; (iii) traditional conservation management systems; and (iv) sacred elements in community conservation. It is estimated that 50 per cent of villages in Garhwal have some form of conservation system, 20 per cent have relatively inactive systems and 30 per cent follow open access regime.⁵³

3.1. People's struggles for natural resource conservation and local livelihoods

Struggles and movements for natural resource conservation and local livelihood needs have been a part of hill people's lives for decades now. Some movements like Chipko and Cheeno Jhapto have been mentioned earlier.

In the late 1980s, areas in and around Nahikalan in Dehradun District were leased out for limestone mining by the government. Initially local people participated in the mining operations as wage labourers. Subsequently, the impacts of mining started directly affecting the people with increased incidents of landslides, soil loss, destruction of water sources and forest degradation. The villagers requested a Delhi-based NGO, Kalpavriksh, to conduct an investigation on the impacts of mining. Based on the findings of the investigation, a case was filed jointly by the villagers of Nahikalan and Kalpavriksh. This case was clubbed with another case by an NGO against mining in the surrounds of Dehradun. Mining in and around Dehradun, including at Nahikalan, was finally stopped after a court order in the late 1980s.⁵⁴

Another noteworthy movement is the one started in Hemwalghati in Tehri Garhwal. Some Chipko activists from this region, belonging to villages like Jardhargaon (see case studies for details) in Tehri district, realised that their own villages were headed towards an unsustainable existence. Jobs were few and far between and youth were migrating out; forests stood degraded, incapable of sustaining local needs; and local seeds had been replaced by hybrid varieties often not able to tolerate harsh local conditions and diseases. Some of these people initiated forest protection activities in their respective villages: in Jardhargaon, for instance, several hundred hectares of forest were regenerated and are now under protection. They also started the Beej Bachao Andolan (Save the Seeds Movement). A group of villagers travelled from village to village to collect seeds of the indigenous crop varieties. These crops, including a few hundred varieties of rice and beans are now, among others, being grown by many villagers. Villagers also follow traditional systems of cropping like *baranaja* (growing twelve or more crops together in a single field to optimise growing conditions, sustain soil fertility and meet diverse needs). Thus this Andolan has done remarkable pioneering work related to *in situ* conservation of threatened indigenous Himalayan crop varieties through cultivation, awareness, and sharing of seeds and ideas.⁵⁵

3.2. Community resource management institutions

3.2.1. Lath panchayats

This traditional institution is little known outside the region and has not been studied much. In fact, unlike *van panchayats*, this system is pre-British in origin and is rooted in the village system of Uttarakhand. The system is based on the oral tradition of governance of surrounding forests

carried from generation to generation. How the name *lath* (stick) came to be associated with this institution makes for an interesting anecdote. The hill *panches* (village elders responsible for major village decisions) were famous for their community feeling and judicial acumen. Seeing this, a sage living in a village shrine showered his blessings on them and gave them a *lathi* (stick) with a condition that the stick should be used for the benefit of all the families in the village without actually dividing the stick. The stick was not to be used for private benefit, else its power would vanish and village society would disintegrate. The village elders fixed the boundary of the forest adjacent to the village and made each family responsible for the protection of the forests. As a symbol of the power and authority, the holy stick would rotate from one family to another for the whole year. The family at whose door the stick was kept on a particular day was responsible for protection of the forest on that day. With time this system came to be known as the *lath panchayat*. There are several other stories about the origin of *lath panchayats*.

Lath panchayats exist almost everywhere in Uttarakhand. However, it is estimated that they may be more numerous in Almora, Tehri and Chamoli Districts. Since many *lath panchayats* have been converted into *van panchayats* and no records have been maintained about the *lath panchayats*, it is difficult to estimate their exact number. One such *lath panchayat* exists in Bageshwar district where a large number of *banj* trees are still present and are well conserved by the people.⁵⁶

Structure

A *lath panchayat* is composed of a general body and an executive body. In the general body, all the households of a revenue village are represented through their heads. This means that almost always only men are the members of this body, while women are excluded. In the executive, 3-7 selected elders run the day-to-day affairs of the *panchayat*. They resolve the disputes among the members and evolve a formula to share the forest produce. The executive implements the decisions taken by the general body and discusses new rules. There is no formal *sarpanch* or *pradhan* in *lath panchayats*.

Rules and regulations followed

All rules on control and utilisation of forest produce are formulated on the basis of unanimity, when all families agree to them. These rules vary from village to village. These rules have evolved on the basis of the availability of forest produce, the condition of trees and species, people's awareness, carrying capacity of the forest, requirement of people and potent dangers. *Lath panchayat* rules are unwritten and are subject to changes. However, in some villages, a record of some sort has been maintained, like through opening of an account in a bank. Most villages have a rule to protect patches of forests on a rotational basis, often following a five-yearly rotation period.

Another common rule is that of not cutting large branches and green timber. During the closed period, no extraction is allowed from that part of the forest. In some forests, plantation works have been undertaken. In some villages grazing is totally prohibited, while in others hunting is prohibited.

Control and protection

In all *lath panchayat* villages, rules exist to control outsiders and livestock from entering the protected patches and also to control undesirable behaviour of their own people. Some villages appoint *chowkidars* (forest guards), with each family contributing towards his/her salary in cash and/or kind. In some villages, villagers carry out voluntary patrolling on a rotational basis. In other instances villagers have made a collective commitment towards protection of forests. In case of a forest fire, the entire village community helps by digging trenches, making fire lines and beating the fire with bushes.

Systems of punishment

Depending on the nature of offence committed, there are different punitive measures in *lath panchayats*. These punishments often discriminate between local villagers and outsiders. Usually outsiders are charged higher fines for the same offence than are local villagers. The most common types of punishment include fines and confiscation of livestock, weapons, etc.

Conflict resolution

At the village level, the *panches* of the *lath panchayats* preside over disputes between the parties. If the dispute is between two villages, the *panches* and *pradhans* of both the villages sit together to hear the case. Only in a few instances, where decisions have not been acceptable to all concerned, have the cases been taken to court.



Distribution of produce and income

Usually an equitable distribution of forest produce amongst all members is followed. In case of surplus the members are allowed to barter or sell their share to other members. The amount to be distributed is decided based upon the need of the people and the availability of the forest produce. In case of excess availability of grass and fodder, it is shared with neighbouring villages, usually in exchange for food grains. All income to the *lath panchayat*—usually by fines or selling produce—is deposited in the village post office. The legal status of *lath panchayat* forests is not very clear, as these forests have not been categorised under any existing class. The ownership in these forests rests with the community; individuals cannot sell forest produce. Only the MC of *lath panchayats* can sell, that too only when forest products are in surfeit and people of the neighbouring villages have a pressing need for them. This fund is used for community expenditure, such as purchase of utensils, loans to the members, salary of *chowkidars*, or plantations. It has been observed that the utilisation of produce from the forest under this traditional management system remains by and large sustainable. Broad-leaf species are most prominent in these forests. They yield fodder leaves that are an important biomass for the hill people. However, the harvesting of fodder leaves is done under controlled conditions once a year, and often areas are harvested on rotation. For agricultural implements and housing purposes, two or three trees are cut every year.

3.2.2. Van panchayats

Van panchayats are officially recognised village institutions legally constituted under the Uttar Pradesh Panchayati Forest Rules of 1931 of the District Schedule Act. After independence in 1964, the Class I forests were included within the Reserved Forests. In 1976, a revised set of Van Panchayat Rules was implemented and *van panchayats* were brought under section 28 of Indian Forest Act. Thus *van panchayats* got the status of Village Forests, and the FD now had a greater role to play in the management of these forests. Also Reserved Forests were debarred from being brought under *van panchayats*. The *van panchayat* provision was not extended to the erstwhile princely state of Tehri till 1991. After the formation of the separate state of Uttarakhand, VP rules were revised once again in 2001. These rules strengthened the presence of the FD in *van panchayat* matters.

As per the 1931 rules, any 2 or more right holding residents of a village could apply to the Deputy Commissioner (DC) to demarcate a specified forest area within the village's *saal assi* boundary as a village forest provided that one-third or more of the rightholders in that area did not object. After dealing with any claims or objections, the DC called a meeting of the residents and other rightholders for electing 3 to 9 *panches* for managing the village forest. The *panches* selected a *sarpanch* from among themselves.

The elected representatives signed an agreement that the village forest land would not be sold or partitioned⁵⁷ and that 'the produce of the *panchayat* forest shall be utilized by the *panchayat* to the best advantage of the village community and of the right-holders.' The *panchayat* had the status of a forest officer with the powers to fine or prosecute offenders and 'to sell forest produce,⁵⁸ including slates and stones without detriment to the forest, and to issue permits and charge fees for grazing or cutting grass or collecting fuel.' Resin from chir pine trees was the only product that could not be extracted or sold without the permission of the forest department and resin income had to be shared with the department where extraction was done by the latter. The *van panchayat* had full control over use and income from forest resources and all dues payable to it were deemed as dues payable to the government, recoverable as arrears of land revenue. The only role assigned to forest officers was to inspect the *panchayat* forests or their records, and report on their functioning or the condition of their forests, if requested to do so by the Deputy Commissioner.

According to recent estimates, there are 6,069 *van panchayats* managing 405,426 hectares⁵⁹ of forests (13.63 per cent of total forest area) in the UP hills. These forests are demarcated as village forests under section 28 of the Indian Forest Act and are entered in the land records in the *panchayat's* name.⁶⁰ Most of these have been carved out of civil (protected) forests under the jurisdiction of the revenue department prior to 1976, also out of Class I Reserve Forests now under the forest department's control.⁶¹ The area under each *van panchayat* ranges from a fraction of a hectare up to over 2,000 hectares.⁶²

Functions of the van panchayats

- To check indiscriminate felling of trees and tampering of fencing by villagers;
- To ensure the equitable distribution of forest products amongst the members;
- To earmark silviculturally fit trees for felling;



- To prevent encroachment on *van panchayat* lands;
- To fix boundary pillars and to maintain them; and
- To carry out the directives of the Deputy Commissioner or Sub-Divisional Magistrate regarding the administration of these forests.

In the discharge of its functions a *van panchayat* can levy fines upto Rs 500 with the prior approval of the Deputy Commissioner. A *van panchayat* can also seize cattle and the offending cattle can be impounded. In this respect *van panchayats* enjoy all the powers under the Cattle Trespass Act, 1871. *Van panchayats* can also confiscate weapons of offenders.

Financial powers of van panchayats

- *Van panchayats* can sell the grass, fallen twigs for firewood, and stones and slates to local people;
- Resin tapping and felling of trees can be taken up with the approval of the forest department;
- Auction of trees up to the estimated value of Rs 5000 can be undertaken with the approval of the Divisional Forest Officer;
- Auctions above Rs 5000 are conducted by the forest department with the approval of the Conservator of Forests
- The forest department charges all expenditure incurred in resin tapping from *van panchayat* forests. On revenues other than resin, the forest department charges 10 per cent as administrative expenditures. 20 per cent of revenue generated goes to the *zilla parishad* for creating and maintaining infrastructure, 40 per cent to the *gram sabha* for local development schemes sanctioned by the Deputy Commissioner of the district, and 40 per cent to the forest department, meant for maintenance and development of *panchayat forests*.
- In fact 'only 40 per cent of the proceeds from sales go into *panchayat* accounts and even these can be spent only with government's (i.e., the deputy commissioner's) permission.'⁶³ Income realized from sale of forest produce is thus not readily available to the *van panchayats* for developing roads, schools and hospitals in the village.

Constraints faced by van panchayats

Less than one-third of the villages in Uttarakhand have opted for *van panchayats*. Formation of *van panchayats* has not been an easy process for villagers as it involved getting official sanction from the Divisional Commissioner, which was never easy for villages in faraway places. 'Since its very inception, *van panchayats* have been facing a lot of problems and no serious attempts have been made to address them,' says R.S. Tolia, Director, Centre for Development Studies, an institution established by the Uttar Pradesh Administrative Academy. They face many administrative, financial and management problems.

Van panchayats in general do not have women members. The representation of other weaker sections is also low. This has led to great amount of dissatisfaction among these sections. Considering that women are more dependent on forests, management rarely takes into account their perspective and needs. After the 1976 amendment the FD has been responsible for drafting and implementation of working plans in the VP forests; however, no examples are known of VP forests where working plans have been made. Encroachment on the *van panchayats* and pilferage of grass, fodder leaves, fuel, timber, etc., is common. The *sarpanch* imposes fines on the recalcitrant persons. These fines are supposed to be realised by the Sub-Divisional Magistrate but the system seldom works.

The *sarpanch* and members of the *van panchayat* do not get any travelling or daily allowance for watch and ward and other work of the *van panchayat*. Therefore, by and large they either do not take much interest in *panchayat forest* work or try to take one advantage or other from them. Increasingly, the government is promoting hasty establishment of *van panchayats*. In Nainital district alone, about 450 new *van panchayats* have come up in the last two years. During 1997-98 itself, 229 new *van panchayats* were established all over Uttarakhand, most of them not more than a few acres large and hence completely incapable of supporting any local needs. This artificial and state-sponsored movement will lead towards degeneration of VPs, a fear being expressed by scholars and activists. It is also felt that this will further weaken the sense of community that has been already eroded by the UP Forest Conservation Act of 1980, 'and will introduce more cavalier attitude towards the forest which now came to be seen as government property.'⁶⁴



The state also has a very high agricultural diversity, as displayed by *Beej Bachao Andolan*, Tehri
Photo: Ashish Kothari

Quality of forests in VPs

In 1960, the Kumaun Forests Fact Finding Committee found the condition of *panchayat* forests to be 'generally satisfactory'.⁶⁵ A study of 11 VPs in five of the eight hill districts in 1983-84 by the evaluation unit of the state planning division found that all of them had prevented illegal felling and damage due to fire; ten had prevented undue damage to the trees; nine had prevented encroachments and eight had exploited forest produce scientifically. It also found that since the formation of the VPs, forest wealth had increased by 40-50 percent.⁶⁶ From a random sample survey of 21 VPs in Nainital, Almora and Pithoragarh districts, Somanathan (1991) concluded that *van panchayats* have, by and large, maintained oak forests very well, especially in contrast to the dismal condition of the reserves (except the ones distant from the habitations). The situation with respect to chir forests was not found to be so clear. They seemed to have done as badly under VP control as in the reserves.⁶⁷

Erosion of van panchayat authority

Even as the number of *van panchayats* increased after independence, from the late 1950s a number of policy and administrative changes started undermining their authority. In 1956 the revenue department abolished the post of the Divisional Van Panchayat Officer, centralising his responsibilities in an already overburdened Deputy Commissioner. This slowed *panchayat* related paper work and diluted other forms of support substantially.⁶⁸

The revision of the 1931 Rules in 1976 drastically curtailed *panchayat* autonomy, authority and entitlements. The new rules restricted the area eligible for new VP formation to that falling within the new village boundaries drawn under the revenue settlement of the early 1960s instead of the *saal assi* boundaries. As these excluded Class I Reserve Forests from village boundaries, this amounted to a steep reduction in the forest area available for *van panchayat* control.⁶⁹ While the villagers continued to depend on these areas, they were no longer permitted to manage them. This is a major reason for the degraded state of reserve forests near villages.

The revised rules also allocated 20 per cent of the *van panchayats'* income to the *zilla parishad* (district-level self-government) for development works and 40 per cent to the forest department for reinvesting in *panchayat* forests. The remaining 40 per cent share left for the *panchayats* could no longer be used without prior permission from the Sub-Divisional Magistrate or Deputy Commissioner. The *sarpanch* now required approval even to employ and pay watchers for forest protection. This effectively deprived the *van panchayats* in remote villages from access to their own drastically reduced share of income, as the costs of repeated trips to distant offices outweighed the benefits.⁷⁰ The revised rules made the forest department responsible for preparing working plans for all *panchayat* forests, thereby expanding its technical authority substantially. However, neither has this money been ploughed back nor any working plans formulated. Harvested or fallen timber which could only be auctioned by forest officers, often rotted in *panchayat* forests due to no officers coming to conduct sales.

The revenue department similarly developed no effective mechanisms for administering the expanded authority it centralized in itself for supervising the *van panchayats'* day-to-day functioning. Under overall supervision of the Deputy Commissioner in each district, assisted by the Sub-Divisional Magistrate, Forest Panchayat Inspectors are responsible for administrative support to VPs. However only 14 inspectors were expected to support 4891 VPs spread over 29 tehsils⁷¹ with a monthly travel allowance of only Rs 80 (less than \$2), which had not been revised for decades.⁷² Till the late 1950s the *panchayat* inspectors played a mediating and facilitative role. From the 1960s onwards, only the better-endowed VPs could bribe them to visit for essential procedural requirements.

The deputy commissioners and sub-divisional magistrates themselves abused their authority,

resorting to a host of ad hoc interventions in VP affairs. In many of our case sites, *van panchayat* councils had been suspended arbitrarily with no fresh elections held for years at a time. VP members were never clear about the money credited to them. Requests for assistance in dealing with encroachments on *van panchayat* forests were met with a stony silence, with some *patwaris* actually abetting the encroachments. While denying the *panchayats* access to their own funds even for essential forest protection needs, the Deputy Commissioners falsely claimed high achievement of district small-savings targets by depositing them in post office accounts. The administration also encouraged some *panchayats* to lease their forest land to government cattle breeding farms, which subsequently encroached on huge additional areas creating scarcity of fodder and pasture for the villagers' cattle. A number of *van panchayats* have ongoing court cases against government agencies for encroaching on village forest lands.⁷³

The revised rules also concentrated most responsibilities for the *van panchayat's* functioning in the *sarpanch*⁷⁴, weakening the strong tradition of collective decision making by *van panchayats* while reducing transparency and accountability.

After the ban on commercial fellings in 1980, many VPs were deprived of an important source of occasional income from timber/charcoal, often used for village development activities. Simultaneously, the Forest Development Corporation was given monopoly rights over salvage timber even from *van panchayat* forests (which earlier could be used by the villagers for their own needs). Permits for bamboo and cane harvesting stopped being given to artisanal producers in the mid-1980s. The Tree Preservation Order of 1976 deprived villagers of the right to cut trees even on their private lands without cumbersome forest department permissions. The latest threat has come in the form of externally determined expansion of the protected area network. Many *panchayats* have come within protected areas, with villagers often losing all or most of their rights in both village and other surrounding forests. Thousands dependent on resin tapping and collecting lichen and medicinal herbs from protected areas have been deprived of employment and incomes.

A large number of *van panchayats* are embroiled in boundary disputes as forests have been allocated and reallocated among various villages. Reallocations have also created dramatic inequalities among villages in the kinds of forest resources they can access. Some villages have no forest land of their own, compelling them to encroach on their neighbours' resources or on surrounding Reserve Forests.

3.3. Traditional community resource management systems

Strong local village-level land management and harvesting systems based on geographical and social realities of the region evolved over thousands of years. These systems appear to have worked well and remained in place relatively undisturbed until the colonial era of 'scientific' forestry. Figures in Atkinson's *Himalayan Gazetteer*, published in 1882, point strongly in this direction.⁷⁵ For example, roughly 5 tons of kutki/karvi, a commercially valuable medicinal plant from the *bugyaals* (alpine pastures), was being collected every year from the region and traded with the plains since ancient times. This large amount was being sustainably harvested year after year. Kutki/karvi is presently on the endangered list. Also 25 tons of jhula, lichens that constitute 80 per cent of the NTFP traded presently, was being harvested annually. It is now reported to be getting scarce in many areas.⁷⁶

Each of these management systems was built from the combined knowledge base of several generations of communities that closely interacted with their environments. We briefly discuss below community conservation systems in Uttarakhand in relation to (i) forest habitats, (ii) *bugyaals* and other grasslands, and (iii) agricultural techniques.

3.3.1. Forest management

The following are some of the common practices followed for conservation of forest patches. The basic principle that has been followed since time immemorial is rotation and rest. Village livestock is never kept in one place too long. Transhumance is an absolute must. This is what allowed the forests near villages to regenerate naturally year after year and provide a seemingly inexhaustible supply of forest produce, household needs and fulfilling livelihoods. Villages in the major river valleys seasonally take their livestock up to alpine grasslands (*bugyaals*); those that are self-sufficient in forest take their livestock to nearby pastures (*kharak/marora*); and before the destruction of the *bhabbar* sal forests, at least 40 per cent of the population of the region (those living in the outer ranges) used to migrate every winter down to the *bhabbar* with their livestock. Where transhumance has ceased, the greatest destruction is evident. Some common practices followed are:

- The *bari/palta* system where every family participates in forest protection taking turns.

- The *chaukidari* system where the village selects and hires an individual to patrol the forest and catch offenders. Payment is made either through the traditional *nali* system in kind—mainly food grains, and now the *tankha* or cash wage system.
- Rotational lopping of patches of forest with rules for fair distribution and use of speed breakers to over-lopping, e.g., opening certain patches every third day, lateral lopping, only tertiary and sometimes secondary branches
- The entire village forest is divided into patches for each family to use and manage.
- Exclusive women's management systems through village groups, e.g., *mahila mangal dal*, *mahila van panchayat*, and in some cases even through Village Joint Forest Management Committees.

3.3.2. *Bugyaals* and grass patches

Alpine grasslands are characterised by bugi or phichi grass, and are hence known as *bugyaals*. The basic principle behind traditional conservation is just like for forests: never stay in one place too long, keep moving. This practice alone gives a chance to each patch to regenerate adequately for the next season. The timing of each move to a new patch, arrival in the alpine zone, leaving the *bugyaals* at the end of the season—all these have been carefully worked out from long years of experience to maximize the grazing season and take advantage of favourable climatic conditions during the summer and monsoon months. Often, when a particular village has managed to maintain its rights over a patch of *bugyaal*, grazing taxes are levied to help pay for patrolling and stone-walling. In the Pranmati Gaad catchment near Tharali, district Chamoli, elders decide areas to be harvested. The mamala grass harvesting each year is a special event. *Puja* (prayer) is performed before the harvest, and special new clothes are stitched for both men and women. In other *bugyaals*, there are strict rules for harvesting of medicinal and aromatic plants. The significant point is the existence even today of regulation, restraint and prevention of unsustainable harvesting by social sanction, religious festivals, and superstition,⁷⁷ although these plants have been commercially traded with the outside world for centuries. For example, brahmkamal, a peculiar flower sacred to the goddess Nanda Devi and Shiva is harvested only with the teeth. Hands and tools are strictly not allowed, and considered a defilement of the sacred flower and the deity. Some mechanisms of grazing land protection in grasslands:

- *Ghaas ki maang* are family-wise plots demarcated by consensus.
- In grass-surplus areas, sub-plots are auctioned off to the highest bidder, who then has a chance to sub-contract smaller patches for harvesting.
- Where there is scarce grazing area, the grass patches are protected and allowed to sprout and be harvested before being opened to grazing.
- Fodder trees on private land are also auctioned off for lopping in scarcity areas, particularly during the dry season when no fresh grass is available.

3.4. Sacred elements in community conservation

The spiritual aspect of community conservation is often ignored. The greatest motivation other than the desire to protect one's livelihood or survival is to be conferred with the blessings of the local deities, and feel that one is connected with society, the earth and walking the right path as laid down by tradition. In the Uttarakhand region, this tradition directly means the supervision of the *isht devta*, who is specific to each family or clan, and is like 'a reporting officer' for the family. The *isht devta* must be kept appeased; otherwise he/she may turn against the family. In this context, conserving certain areas—sometimes restricted to one tree and a small shrine at the edge of a terraced field—becomes of vital importance in maintaining harmony between the members of the human family and the larger, extended membership of supernatural entities. Often, when rules and consensus have failed to regulate often-divisive village society, spiritual concerns have united the factions, and compelled them to agree on a joint course of action.

3.4.1. Tree worship

Tree worship has been an integral part of ancient Indian culture. It embodies reverence towards nature, and the spirit of conservation as practised in ancient times. Garhwali culture reflects reverence for trees even today through sacred groves on hilltops in practically every *patti* (cluster of villages), and small shrines dedicated to local deities scattered over villages, agricultural lands, forest paths and grazing lands. According to a prominent local historian, the Greek legend of

the oak tree being sacred to Zeus has been incorporated into local culture through contact and interaction during the reign of Indo– Greek/Bactrian rulers in Persia more than 2000 years ago, and the name *Banj* for the famous oak of the Western Himalayas is derived from the word *Vajra* (thunderbolt), associated with Zeus, Lord of the Skies. The sylvan deity and nocturnal herdsman Airi in whose name sacred groves exist even today is perhaps derived from the Greek deity Ares, god of war, son of Zeus.⁷⁸

Ancient Hindu scriptures also refer to tree worship. The Skanda Purana relates: 'Where the Kosi River breaks through the mountain barrier and flows down into the plains of upper India, and is joined by the Sita river, there has been from ancient times a beautiful grove of Asoka trees, where Ram and his faithful Sita are said to have sojourned. Sita was charmed with the beautiful forest, and said to Ram, "It is the month of Baisakh. Let us stay in this wood and bathe in the waters of this river." So they abode there, and on their return to Ayodhya, the name of the place was changed to Sitabani, the grove of Sita.'⁷⁹

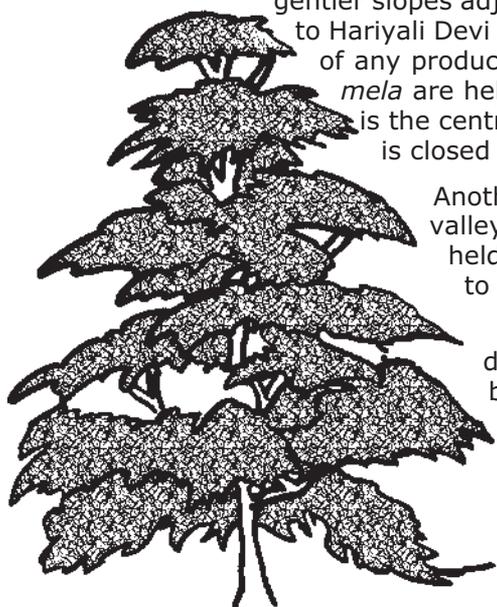
Several other species including the deodar are also revered. Leaves of the yew tree are offered at shrines to the local deities Jangli Devta and Kshetrapal, and leaves and flowers of several other species including Paiyya, Buraans and Bael are offered at temples and shrines dedicated to the goddess Nanda Devi.

3.4.2. Sacred groves

The sacred grove is the oldest traditional form of community conservation. It applies to forests, grasslands, wetlands, and sometimes riverbanks and beaches. In the mountains, nature has traditionally been the source of religion. Many peaks such as Nanda Devi have been considered sacred and worshipped. Areas surrounding these peaks have also been considered sacred. For example, Devi Ka Angan, an intermediary area lying around Nandakhot—a sacred peak—is also considered sacred. So, the protection of sacred forests around temples and sacred sites elsewhere has strong historical/mythological roots in the hills.

These *dev-van* or sacred groves once dotted the forest landscape of Uttarakhand; they especially proliferated in remote areas. This was because the forests were considered as the dwellings of gods and deities. The tradition of planting and protecting trees around temples and waterbodies is very old. In almost all the major temples of the region, trees that are hundreds of years old can be seen even today. Jageshwar, a famous pilgrimage spot housing one of the 12 Jyotirlingas, has a thick deodar grove surrounding it. The temple complex belongs to the Katyuri dynasty (c. 1000 AD). The age of a huge deodar tree behind the temple was estimated by the scientists of Birbal Sahani Institute of Paleobotany, Lucknow, as older than the temple itself! People believed that numerous local deities protect forests, cattle and fields. In some areas forest areas have been offered to these local deities. In many places of Almora and Pithoragarh, this tradition is alive even today. Several large tracts are still protected, albeit to a lesser extent, in the name of gods and goddesses. From these forest areas, people can take dry twigs and leaves but cannot cut green leaves and trees. The hunting of wild animals is a strictly forbidden. There are hardly any formal or written rules for the management of these forest areas. But as people are afraid of divine repercussion, no one violates this unwritten code of conduct, even surreptitiously. It is believed that if anyone harmed the *dev-ban*, the entire community will have to face the wrath of the deity.

The most famous sacred grove in Garhwal is Hariyali ki Danda, above Gauchar in the Alakananda valley of Chamoli District. This area, comprising a steep cliff overlooking Gauchar to the north, and gentler slopes adjoining the Dudhatoli *bugyaal* to the south, has a temple dedicated to Hariyali Devi on the hilltop and reportedly stretches over 100 ha. No harvesting of any produce is permitted, and every year in September a special *pooja* and *mela* are held at the mandir. Local villages participate actively. Jasholi village is the centre of reverence for Hariyali Devi. Entry to the Hariyali Devi temple is closed to women.



Another well-known grove is Shewri above Naugaon in the Jumna valley. This area in Uttarkashi district is called *rawain*. A *danda ki jatir* is held every year where all local villages participate in a procession up to the hilltop, where *pooja* is performed, and a *mela* is held.

Hariyali, Bhumiya Devta, Jangli Devta and Airadeo are all sylvan deities that have both protector and supervisor aspects. They are benevolent to those who respect the forest and use it wisely. But those who misuse the forest are first liable to be warned by a

frightening occurrence. If the warning is not heeded, then calamity can befall the offenders and their family. Depending on the severity of the crime, generations to come may suffer from the punishment of the *devta*. There are other *devtas* that are also associated with forests and worshipped at temples dedicated to them. The more prominent ones are Binsar, Latu and Bhairavnath. Some *devtas* that are worshipped at forest sites without temples are Heeth, Jaman Singh, Deo Singh and Bhau Singh.

Sacred groves are mainly constituted of oak forests, which hold great significance in the lives of the hill people by providing leaves for fodder and compost for agriculture. Many of these also contain perennial springs, indicating the significance of these groves in conserving watersheds.

Management of sacred groves



Sacred lake in Munsiri Photo: Pankaj Sekhsaria

Sacred groves are not managed the way reserved or *panchayat* forests are managed, as there are no formal rules to govern them. The basis here is a firm belief and faith in a deity and not in some secular power. Once a forest becomes sacred, harming it in any way becomes taboo. Cutting of a tree or even a branch is prohibited and hunting is out of question. In some sacred groves, no one can take away any forest produce. However, in most places there are no restrictions to collect twigs and branches fallen on the forest floor. Fear of the deity prevents any violation of these rules.

Current scenario

In many places, sacred groves are under grave threat. As population pressure mounts and the fear of the unknown gets reduced, people cross the forbidden boundaries. Also, as the legal status of these forests is highly skewed—some of the sacred groves are *van panchayats* while a few others are Reserved Forests—unclear legal status and judicial control confuse the surrounding population, leading towards indifference. In many places the timber mafia is ruthlessly exploiting these vulnerabilities. For example, the sacred grove around Jageshwar shrine is under threat from a powerful local leader, a block *pramukh* (head) who runs a furniture factory at Artola, a village three kilometres from the shrine. In village Eradi of Pithoragarh District, some part of the forest that was offered to a local deity in 1997 has not only been encroached but also used to extract fuelwood for small commercial enterprises. Market forces coupled with overall deterioration in governance on the one hand and loss of faith on the other is largely responsible for a slow demise of sacred groves in Uttarakhand.

Revival of sacred groves

The past few decades have seen serious degradation of forests in Uttarakhand. People in Uttarakhand are well aware of the fragility of their ecosystem and the ecological and social disasters that can be brought about by this degradation. Despite having a tradition of strong system of management, awareness about the need of such a management and a strong interest in conserving the resources, most communities have found it extremely difficult to decelerate the process of degradation. Increased government interference, increased petty local politics, migration of able-bodied youth from the villages, among other reasons have led to the breakdown of the *van panchayat*, and *lath panchayat* systems in most villages resulting in unregulated and indiscriminate use of the resources in these forests. Increased human and cattle populations juxtaposed with the depletion in available resources have caused a situation of desperation strong enough to overcome the fear of the wrath of the deity and sacred groves are now gradually being

violated. Consequently, resource depletion, drying-up springs, loss of lives and property due to frequent landslides and flash floods, migration of youth to the plains in search of employment, and increased hardships for women have become a way of life for the people of Uttarakhand.

It is under these circumstances of helplessness, when solutions were forthcoming neither from within the community nor from the government, that dozens of villages in Kumaon region of Uttarakhand decided to turn to the goddess of forests. Forests, which were being managed for local use, are now devoted to the goddess of the forest for protection. The phenomenon of sanctification of community managed forests started as a movement in the region sometime towards the end of 1980s. Most villages follow a similar process for sanctification. A decision is taken by some elders or respected individuals in the village to devote the forests to the goddess. A letter is written to the goddess specifying the rules and regulations and the time period for which the forests have been sanctified. A religious ceremony is performed in the forests to declare their sanctification. Usually the oak forests (and not the pine forests) falling under the village are sanctified for a specified period of 5 or more years. During the period of protection collection of live biomass or fallen leaves is strictly prohibited, while livestock grazing and collection of dry twigs for fuelwood is allowed. In special cases permission can be sought from the goddess to use some resource for community use. Those who do not adhere to the rules face ill health or misfortune. The goddesses to whom these forests are devoted are among the most feared goddesses in the region.⁸⁰

3.5. Mahila mangal dals and youth groups

Other widespread community forest management systems outside any formal legal framework are found in all categories of forest lands within or near villages include those managed by *mahila mangal dals* (village women's associations), informal *van samitis* and youth groups. Such systems are particularly prevalent in villages away from major roads due to the commons still being central for sustaining the local subsistence economy. These systems are regenerating and regulating use of reserve and *civil/soyam* forest lands, often compelling unofficial cooperation by Forest and revenue department staff.

Holta, a village without a *van panchayat*, initiated protection of its *soyam* land around 1986 entirely on its own. Village water sources had dried up and firewood and fodder had become scarce as a result of unregulated forest use by surrounding villages and encroachment on common land by local families. Some village youth successfully persuaded the encroachers to vacate the commons, setting an example by giving up their own encroachments. Letters were sent to the *pradhans* of surrounding villages that anyone entering the forest would be fined. Major conflicts followed with one village going to court against Holta due to unclear boundaries of their respective *soyam* lands. However, with improvement in forest condition and availability of water, resistance declined. Today the village's biomass needs, excepting those of timber, are being met from the regenerated forest. Vegetable cultivation has become feasible with regeneration of three natural water sources. Rules framed for grass, tree leaf fodder and firewood collection and are strictly enforced, with all households contributing to pay a watchman.

The committee had representation from all hamlets and castes, and women representatives of the village *mahila mangal dal*, empowered by the government's *mahila samakhya* programme, have also been able to wedge their way in. Community relations with the forest department, however, are extremely sour. In the words of the village women, the department has made them into thieves. While they protect their own forest like their children, they look the other way when fire breaks out in the reserved forest.⁸¹ In Makku and Bareth, women's groups had asserted informal control over patches of civil or communal land closer to their settlements for day-to-day management for firewood and fodder.⁸² In both cases, the women perceived local *van panchayat* councils to be male domains. *Panchayat* forests were also far from the villages, and therefore not convenient for daily fuelwood and fodder collection. The formal and informal CFM arrangements complemented each other with the women occupying informally carved out space. They could access such space with mediation of the *gram sabha* without having to deal with cumbersome official procedures. In Arakot village, the *mahila mangal dal* had been protecting the village *soyam* land for the past 20 years, paying a watchman with voluntary contributions. In Naurakh and Resal, civil land was being protected by individual families through private enclosures. Officially 'encroachment' on government lands, such informal systems are fairly widespread as these have low transaction costs.⁸³

Box 2**Movement against mining in Kataldi village⁸⁴**

Hemwalghati was one of the centres of the pioneering Chipko movement in the 1970s. In the decades that followed, the people of this valley have been involved in several sustained environmental protection initiatives including community-based conservation, forest regeneration and the Harit Himalaya campaign.

Limestone mining was first undertaken around Kataldi village, lying in the heart of Hemwalghati, between 1974-79. Strong opposition from local communities forced the mining operations to close. Many subsequent attempts at mining have also been unsuccessful due to strong opposition of the local people. People of the area, especially the women, are clear that they will oppose any attempt at mining. They launched a determined non-violent *dharna* all through December of 2001 to make their views known. A 30-year lease has since been granted to M/s Parvatiya Mineral Industry Ltd. to extract limestone from 5.26 ha of common lands right above Kataldi village. This is a cause of great worry to local people and they are aware of the detrimental effects mining would have on their homes, drinking water supplies, agricultural yields, fodder and fuelwood availability and the biodiversity which they have struggled to conserve.

The people of Kataldi and other villages of Hemwalghati are determined not to allow the mining to take place. After having petitioned the concerned offices in the state with little success, they are currently preparing to take the matter to the Supreme Court.⁸⁵

3.6. Other initiatives**3.6.1. Private Forests**

In the post-independence era, the emergence of private forests lovingly and reverentially tended by individuals is being increasingly seen. These stand out as oases in a sea of barren brown. Some noticeable examples are Jagat Singh 'Jangli' of Jasoli village, Sobhan Singh Bhandari of Nagchaund, Visheshwar Datt Saklani of Pujargaon, and Narayan Singh Negi of Sankot, Narayanbagar block. Jangli has received a national award for his contribution to spreading environmental awareness. An ex-army man, he was inspired by his father to create a forest on unproductive family land, resulting in 50,000 trees of 50 native species cutting across altitudinal ranges. V.D. Saklani has spent 40 years raising a banj oak forest on degraded scrubland from seed, each one sown personally with a prayer for its health and survival.

3.6.2. Maiti andolan

A new initiative, the *maiti andolan*, involves all unmarried girls in a village forming a *maiti sangathan* to raise saplings of useful trees. At every wedding in the village, the groom is presented with a sapling and the bride and groom plant it together. The groom gives a donation to the *maiti sangathan* to help with the maintenance of their tree, and to help with raising other trees. Funds created in this way have also been used to support the education of girls from economically deprived families, and even to help out elderly women in distress. Shri Kalyan Singh Rawat, a teacher at the Gwaldam Inter College, now based at Gauchar, Chamoli District, originated this idea. In an estimated 200 villages spread across Uttarakhand (including Dharchula in Pithoragarh district, Karnaprayag, Gwaldam and Gairsain in Chamoli district, Budhakedar in Tehri-Garhwal district and Naugaon and Rajgarhi in Uttarkashi District), approximately 5000 ha of *civil/soyam* forest lands have been handed over to *maiti sangathans* to protect, plant and manage as *maiti vans*.

4. Conclusions

In today's world, with the increasing spread of education, the population of Garhwal finds itself becoming increasingly bewildered about the future. The region, unlike others with forest-based economies like Jharkhand and Chhattisgarh, has a populace with decidedly middle-class aspirations and expectations. The educated youth are increasingly frustrated by the perceived lack of employment opportunities in the region. They see no future in the traditional way of life and traditional professions. Whereas 90 per cent of the population live off agriculture, animal husbandry and processing of forest produce, now the only future they seek is in secure government jobs with pensions to cover old age.

As traditional lifestyles have been gradually replaced by consumerist values, a preoccupation with jobs as the ultimate security has resulted. Faith in traditional spirituality has eroded tremendously with the growing influence of the cash economy. The steady ingress of roads into remote areas has certainly brought convenience and ease of access. At the same time, they have trucked in modern, globalisation-influenced values, eroded local culture and many positive traditions.

Nature has been made into a commodity. People's systems of conservation and forest management over centuries of living close to the land have suffered immeasurably. The youth displays alienation from the land. The importance of agriculture, animal husbandry and consequently forests has been steadily decreasing in the village economy. A tendency is manifesting itself in the educated youth to agree with the official viewpoint that villagers are the destroyers of forests out of sheer ignorance and apathy, while the state is exclusively the protector.

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Endnotes

¹ S.P. Singh and J.S. Singh, 'Analytical Conceptual Plan to Restore Central Himalaya for Sustainable Development', *Environment Management*, Vol. 15, No 3 (1991).

² Source: Government of UP, 1998

³ M.P. Joshi, *Uttarakhand Himalaya* (Almora, Sri Almora Book Depot, 1990).

⁴ Consisting of animal dung, partly decomposed leaves used for bedding, and fodder residue.

⁵ J.S. Singh and S.P. Singh, *Forests of Himalaya* (Nainital, Gyanodaya Prakashan, 1992).

⁶ Princely state

⁷ E.T. Atkinson, *The Himalayan Gazetteer* (New Delhi, Cosmo Publications, 1882, reprinted 1989)

⁸ Ajay Rawat, *History of Garhwal 1358-1947* (New Delhi, Indus Publishing Co., 1989)

⁹ (As above)

¹⁰ The Annual Administration Report of Tehri State, 1943-44, states: 'Indiscriminate destruction of natural fauna is strictly forbidden and for the protection of wildlife, shooting permits are given in very special and rare cases. Besides there are several sanctuaries all over the state where shooting and fishing are prohibited.' Quoted in Rawat, *History of Garhwal*. (As above)

¹¹ G.B. Pant, *The Forest Problems of Kumaon*. Shree Almora Book Depot (Almora, reprinted edition)

¹² For instance, the forests of Jaunsar Bawar, North of Dehradun, near Chakrata. See Atkinson, *The Himalayan Gazetteer*, pp. 833-4, 869-72. (As above)

¹³ Neeru Nanda, *Forests for Whom?* (New Delhi, Har Anand Publications, 1999).

¹⁴ According to Nanda (*Forests for Whom?*) revenues doubled to Rs 300,000 annually at a conservative estimate.

¹⁵ G.F. Pearson, 'Sub-Himalayan Forests of Kumaon and Garhwal', in *Selection from Records of the Government of the North West Provinces*. Quoted in Nanda, *Forests for Whom?*

¹⁶ Nanda, *Forests for Whom?* (As above)

¹⁷ Atkinson, *The Himalayan Gazetteer*. (As above)

¹⁸ Nanda, *Forests for Whom?* (As above)

¹⁹ A.E. Osmaston, *Working Plan of North Garhwal Forest Division 1921-22 to 1930-31*. (Allahabad, Government Press, 1921). Quoted in Nanda, *Forests for Whom?*

²⁰ Atkinson, *The Himalayan Gazetteer*. (As above)

²¹ E.P. Dansey, *Working Plan for the Garhwal Forest Division, 1879-80*.

²² W. Coombs, *Working Plan of Landsdowne Forest Division, 1930*. Quoted in Nanda, *Forests for Whom?* p. 36. (As above)

²³ Nanda, *Forests for Whom?* (As above)

²⁴ (As above)

²⁵ (As above); Ramchandra Guha, 'Van Panchayats in Uttarakhand: A Case Study', *Economic and Political Weekly*, 25 September 1999.

- ²⁶ Nanda, *Forests for Whom?* (As above) Sarin, 'From Rights Holders to Beneficiaries'. (As above)
- ²⁷ Sarin, 'From Right Holders to Beneficiaries'.(As above)
- ²⁸ Atkinson, *The Himalayan Gazeteer*. (As above)
- ²⁹ Ajay Singh Rawat, *Forestry in Central Himalaya* (Nainital, Centre for Development Studies, 1998).
- ³⁰ Ramchandra Guha, *The Unquiet Woods* (New Delhi, OUP, 1989); and Ramchandra Guha, '*Paryavaran Par Ek Prarambhik Bahas*', *Pahar*, Vol. 9, 1998.
- ³¹ Sarin, 'From Right Holders to Beneficiaries'. (As above)
- ³² Thakur Jodh Singh, B. Negi (MLC, Garhwal), Mr R.G. Marriot of the Indian Forest Service and Pandit Lachmi Datt Pande representing Almora were other members of this committee.
- ³³ See 'Report of the Forest Grievance Committee for Kumaon', in Ramesh Pande 'Krishak' (ed.), *Van Panchayat* (Tehri Garhwal, Bhuvaneshwari *Mahila Ashram*, 1994), pp. 162-79.
- ³⁴ Independant village council.
- ³⁵ Rawat, *History of Garhwal*. (As above)
- ³⁶ The consumption of printing and writing paper increased from 100,000 tons in 1948 to 405,000 tons in 1970, and paper board from 46,000 tons to 158,000 tons.
- ³⁷ The extraction of industrial wood jumped from 4.46 million cubic metres (MCM) in 1956-7 to 9.28 MCM in 1966-7.
- ³⁸ Government of India, 'Plywood Industry May Run Short of Timber', *Commerce*, Vol. 126, No. 3231, 7 April (1973), quoted in Akhileshwar Pathak, *Contested Domains* (New Delhi, Sage Publications, 1994).
- ³⁹ S.S. Negi, *Garhwal, the Land and People* (New Delhi, Indus Publications, 1994).
- ⁴⁰ M.D. Chaturvedi, 1948. *The Role of Leaf Fodder in the United Provinces* (Allahabad, Govt. Press). Quoted in Nanda, *Forests for Whom?* (As above)
- ⁴¹ Nanda, *Forests for Whom?* (As above)
- ⁴² Sarin, 'From Right Holders to Beneficiaries'. (As above)
- ⁴³ (As above)
- ⁴⁴ Thakur et al. in Sarin, 'From Right Holders to Beneficiaries'. (As above)
- ⁴⁵ Nanda, *Forests for Whom?* (As above)
- ⁴⁶ Personal communications with Trepan Singh Chauhan in Chimiya, 2000; Ratan Mani Gaur in Airi, 1998; Dhoom Singh Negi in Khaddi-Jajal, 1996; Vijay S. Jardhari in Jardhargaon, 1996; and Devendra Bahuguna in Silyara, 1998.
- ⁴⁷ Nanda, *Forests for Whom?* (As above)
- ⁴⁸ Out of the 67 per cent of Uttarakhand's area classified as forests, about 69 per cent is Reserve Forests exclusively under the FD's jurisdiction. The rest, comprising of *civil/soyam* and *van panchayat* forests falls under the Revenue Department and the *van panchayat* jurisdiction respectively, with the FD responsible for technical supervision.
- ⁴⁹ Rawat, *History of Garhwal*. (As above)
- ⁵⁰ Based on field study by Neema Pathak, Kalpavriksh.
- ⁵¹ (As above)
- ⁵² Contributed by Neema Pathak, Kalpavriksh, Pune (November 2002).
- ⁵³ Pritam Appachyan and Trepan Singh Chauhan, Chamiya, Tehri Garhwal, personal communication, (2000).
- ⁵⁴ Personal communication with Ashish Kothari, founder-member, Kalpavriksh, 2002
- ⁵⁵ J. Suryanarayanan and P. Malhotra with R. Semwal and S. Nautiyal, 'Regenerating Forests, Traditional Irrigation and Agro-biodiversity: Community Based Conservation in Jardhargaon, Uttar Pradesh, India', Case study for South Asian Regional Review of Community Involvement in Conservation, sponsored by the International Institute of Environment and Development under its 'Evaluating Eden' project (Kalpavriksh and IIED, unpublished, 1999).
- ⁵⁶ See R. Agrawal, 'Lath Panchayats: Fading Away', *Economic and Political Weekly*, 6 January (2001).
- ⁵⁷ Although leasing was, and still is, permitted.
- ⁵⁸ This included timber.
- ⁵⁹ Based on a study of *van panchayats*, done by the Academy of UP Administration (Forest Department, Uttar Pradesh) Village Forest Joint Management Rules, August 30, 1997:3.1. Lucknow. Due to a rapid recent increase in the number of VPs through conversion of *civil/soyam* lands into village forests, the figures in different publications lack consistency. According to another source, there were 6016 VPs covering an area of 4,53,695 ha by March 2000. (Dubey et al, 2000: 41).
- ⁶⁰ Thus both the institution of the *van panchayat* and the village forests under their management are legally constituted. This is in contrast to administrative orders governing village institutions and forest lands brought under JFM in other states. Sarin, 'From Right Holders to Beneficiaries'. (As above)

- ⁶¹ See section on revision of VP Rules in 1976.
- ⁶² Some of the recently constituted ones in Nainital district have as little as .02 ha! In contrast, Makku VP, one of the case study villages in this volume, has a village forest of 2200 ha.
- ⁶³ E. Somanathan, 'Deforestation, Property Rights and Incentives in Central Himalaya', *Wasteland News*, Vol. VII, No. 1, Aug-Oct (1991).
- ⁶⁴ Nirja Gopal Jayal, 'Democracy and Social Capital in the Central Himalayas: A Tale of Two Villages', Unpublished manuscript (1999). Uppsala Conference.
- ⁶⁵ Kumaon Forest Fact Finding Committee (GOUP 1960: 33)
- ⁶⁶ State Planning Division (GOUP 1984: 28).
- ⁶⁷ Sarin, 'From Right Holders to Beneficiaries'. (As above)
- ⁶⁸ (As above)
- ⁶⁹ N.C. Saxena, *Towards Sustainable Forestry in the U.P. Hills* (Mussoorie, Centre for Sustainable Development, 1996).
- ⁷⁰ A common strategy used by the VP leadership to cope with this restriction is to maintain two sets of accounts: an official one subject to audit by the Van Panchayat Inspector, and an unofficial one, in which fines, voluntary contributions, and fees are deposited for running the VP's day-to-day affairs. The all-women *panchayat* council of Dugri Chopra deposits such *panchayat* income in the *mahila mangal dal* account for the same reason.
- ⁷¹ Sarin, 'From Right Holders to Beneficiaries'.(As above)
- ⁷² (As above)
- ⁷³ (As above) Makku *van panchayat*, one of our case studies, also has an ongoing court case against the Garhwal Mandal Vikas Nigam for encroaching on 150 *nalis* of the VP's land when it was leased only 3 *nalis* for building a tourist guest-house. The VP is also trying to prevent a government cattle breeding farm from encroaching on land in excess of that leased to it.
- ⁷⁴ These include calling and presiding over VP meetings, getting all VP works executed, maintaining the VP's accounts, supervising VP employees, maintaining all the specified files, undertaking correspondence on behalf of the VP, filing or defending court cases on behalf of the VP, etc. For all these responsibilities, s/he is entitled to spend the grand sum of Rs 50, a sum not revised since 1976!
- ⁷⁵ Atkinson, *The Himalayan Gazetteer*. (As above)
- ⁷⁶ Uttam Singh Sayana, Munsiri, Pithoragarh, 1999 and Trepan Singh Chauhan, 2000, Chamiyala, Tehri Garhwal, personal communication.
- ⁷⁷ For instance, *aanchri* or souls of dead girls are said to inhabit *bugyaals*.
- ⁷⁸ Y.D. Vaishnav, *Land and People: Himalayan Districts of Uttar Pradesh* (Almora, Sri Almora Book Depot, 1983).
- ⁷⁹ E.S. Oakley, *Holy Himalaya* (Nainital, Gyanodaya Prakashan, 1905, reprinted 1990).
- ⁸⁰ Information based on field study
- ⁸¹ Interestingly, the youth had applied for forming a VP 6 years ago but had received no response from the administration. Asked why they wanted a VP when their informal system was working so well, the men felt that VPs had greater access to government funds for plantations. They had heard about generous budgets for VFJM. The women, in contrast did not want any funds or government scheme. They were proud of their regenerated forest from which they could meet their biomass needs.
- ⁸² According to the *ex-sarpanch* of Makku VP, firewood and fodder scarcities are increasing conflicts over forests with women even having to resort to physical fights. He had encouraged the village women to enclose patches of civil and communal *gram sabha* lands for meeting their needs, while saving them from encroachments by the elite. He and the women faced a lot of resistance from powerful vested interests. Husbands objected as they were forced to do house-work while women patrolled. However, effective protection by the women has led to dramatic regeneration of the *mahila bans* (women's forests).
- ⁸³ Sarin, 'From Right Holders to Beneficiaries'. (As above)
- ⁸⁴ Contributed by Kanchi Kohli, Kalpavriksh, Delhi, November 2002.
- ⁸⁵ Editorial note: As of late 2006, the resistance was still going on, with the court having left the matter to the district administration to resolve. Vijay Jardhari, personal communication.

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Dharamghar region, Bageshwar and Pithoragarh

Background

This case study looks at the innovative manner in which several rural communities in Kumaon region of Uttarakhand tried to conserve their *van panchayat* forests¹ when all other means were proving ineffective. Changing social, economic, and political circumstances in the region have resulted in a recent breakdown of the forest-guard system of protection of *panchayat* forests. As a last resort for conserving the deteriorating forest resource base, villagers here have resorted to the customary means of resolving land conflicts, which entails sanctification of land and appealing to the local goddess of justice for appropriate action. This study presents the phenomenon of sanctification, and analyzes the ecological impacts of this dynamic process on one hand, and villagers' adaptation to the process to the closure of village forests on the other. Using the political ecology framework and common property literature, the study attempts to understand the reasons for the collapse of the *van panchayats*, the motivation for forest sanctification, changes in inter- and intra-village patterns of resource use, and the ecological implications of forest sanctification.

The study area

Referred to as the Dharamghar region in Kumaon, the study area incorporates villages scattered along the tributaries of the Ramganga and the Saryu rivers, at altitudes between 1500-2000 above mean sea level of the Lesser Himalayas. The villages lie on the border of two administrative districts of Kumaon: the Pithoragarh and the Bageshwar districts. All villages studied lie within the Berinag block of Pithoragarh district and Kapkot Block of Bageshwar district.

Disintegration of local commons management

Villages in this region as in other rural areas are under the influence of economic, social and political changes. Since local management systems are embedded in these broader social structures, the interconnected web of these changes has heavily influenced both the informal (*shramdaan*) and formal (*van panchayat*) systems of commons management in recent years. Thus, migration and unavailability of male members of the community, differential economic opportunities between the rich and the poor, and increasing differential in local dependence on resources within the village society have led to the emergence of managerial difficulties in the protection of *panchayat* forests. Mismanagement of these commons is also exacerbated by weakening systems of rule enforcement as they existed based on social, moral and, to some extent, legal sanctions. Management and legal sanctions have also been influenced by structural problems, embedded in government policies relating to *van panchayats*, which have contributed to the disintegration of these local institutions of management of *panchayat* forests. Despite difficulties posed by these changes however, and despite the changing dependence on *panchayat* forest resources, there is continuing interest among villagers across social classes in maintaining healthy *panchayat* forests. In response to the crisis of *panchayat* forest degradation and continued interest in preventing degradation, villagers in the Dharamghar region have attempted to redesign the system of *panchayat* forest management based on the use of supernatural sanctions.

Towards reviving community conservation

The meaning and mechanics of sanctification

The merging of sacred and secular in mythology and practice, and the conscious use of the sacred in secular concerns is nothing new in rural societies. Sanctification of *panchayat* forests represents one such conscious effort of ascribing to the supernatural in forest management concerns. Here villagers appear to have resorted to the supernatural due to the lack of a secular solution to the problem of encroachment in these *panchayat* forests. The nature of sanctification in this case however straddles between the customary means of resolving conflicts and seeking of justice against violators of forest rules reflected in the spatial dimensions of sanctification on the one hand, and a renewed attempt at forest management suggested in the temporal limits of sanctification on the other.

A total of 25-30 *van panchayats* in this region have sanctified their forests for the purposes of conservation. Sanctification in each of these cases is limited primarily to the oak zone, although not all *van panchayats* in the region lying within the oak zone have sanctified their *panchayat*





The Cheer pheasant's habitat is protected in the community conserved forests of Dharamgarh Photo: Raghavendra Singh

forests. The research presented here encompasses interviews conducted in villages of ten *van panchayats*, eight of which had sanctified their forests and two that had continued management through secular means. Five *van panchayats* that had sanctified their forests formed the focus of this study. The first *van panchayat* was sanctified in 1992. Villages incorporated in all these *van panchayats* lie adjacent to each other, with the respective forests sharing its boundaries.

The process and logistics of sanctification is similar for all the *van panchayats*. Each of these *van panchayats* sanctified its forests for a period of five years. Each *van panchayat* also sanctified its entire *panchayat* forest, except those *panchayats* that had under their jurisdiction pine forests. In addition, the basic rules of forest use under the forest-guard system of management remain the same as under sanctification. Neither of the systems allows the removal of live (biotic) resources from village forests, although both systems do allow for livestock grazing in these forests. Entrusting the forests to the deity has however resulted in slight variation between the two types of management, and therefore variation in forest use. Two of the main differences between rules of forest use under the guard system versus the rules of sanctification are: opening of forests on specific days during the winter months for the collection of fodder leaves, and the removal of understorey, especially thorny shrubs for use as fuelwood, both allowed under the forest guard system. With management of the forests accorded entirely to the deity, forests are no longer opened for green leaf collection, nor is the removal of understorey allowed. Only dry wood (branches) may be lopped or collected from the forest floor to be used as fuelwood. Despite the fact that rules of forest use under the two systems remain for the most part unchanged, the actual use of *panchayat* forests has changed significantly in most of these villages.

Political dimensions of sanctification

Given that any decision-making is inherently political, sanctification of forests also remains a political process. Interviews, especially in the first few villages that sanctified their forests in the region, leaves little doubt that the decision on sanctification came primarily from the elite. Sanctification in this case was not motivated by the elite asserting control over the forest; however, it is political in the level of democracy involved in the decision-making. In villages where the decision-making process was more or less democratic, the process remains political on who voices the decision, on what areas are sanctified, and on the time period of sanctification. With these specificities of sanctification left to the elite, concerns of those who are not in the positions of decision-making, which include the poor and the women, are neglected. Apart from the process of decision-making involved, there has also been differential impact of sanctification on the various classes of village society, the impact being greater on the poorer households with less access to alternative resources.

The experience of forest sanctification has been considerably different among the various villages studied. As noted above, while in some villages sanctification resulted out of a decision of the village elite, in others the decision was arrived at collectively through relatively democratic means, where the poor themselves recommended sanctification. This variation in the decision-making can partly be explained by local politics within these villages, but it is better explained by the community-based 'chain reaction' or catalytic effect that took place upon the sanctification of forest by the first *van panchayat* in the region. The first few villages to sanctify their forests, share their forest boundaries. Thus, sanctification of forests by one *van panchayat* created problems for the adjoining *van panchayats*. In other words, villages that had collectively decided to sanctify their forests were responding to the new problem of encroachment from neighboring villages of the sanctified *panchayat* forests. This chain effect was combined with a lack of foresight on the part of the villagers, including the decision-makers, on the unexpected ecological changes and the changes in resource use patterns that were to take place in these villages. The problem may have been exacerbated due to the lack of involvement of the women in the decision-making, leaving a gap between intent of the decision-makers, primarily men, and practice of the forest users, primarily women.

On a second visit to these areas in May 1999, it was found that several of the sanctified *panchayat* forests had been desanctified upon completion of the five years. While one *van panchayat* had joined the Joint Forest Management (JFM), another had reinstated the guard system on a temporary basis. Only one village had creatively adapted the system of sanctification to continue for another five years. This *van panchayat* sanctified a portion of the forest for three years, and upon desanctifying this section, it aimed to sanctify the remaining portion of the forest for two years.

While this study focuses on the Dharamghar region, it appears that other *van panchayats* in Askot,

Kapkot, and Koteswar areas may have sanctified their forests as well. In addition, examples from Tehri Garhwal noted in Neeru Nanda's (1999) book *Forests for Whom? Destruction and Restoration in the U.P. Himalayas* suggest that sanctification of *panchayat* forests may not be as localized as might appear from the Dharamghar cases.

Impacts of sanctification

Changes in patterns of forest resource use since sanctification

Changes in patterns of resource use due to forest sanctification have been significant in this region, with significant variations in adaptations among villages, as well as among the households within each village. Intra-village variations are based on existing social heterogeneity reflected in differences in land ownership, access to disposable cash income, and availability of adult labour to assist in daily chores. Inter-village variations, on the other hand, have been defined partly by problems of logistics of villagers' ability of meeting their basic needs, in particular by the ease of accessing alternative spaces such as secular government and private forests. Inter-village variations have also been determined by the type of ecological regeneration that has taken place since sanctification, and the resulting inability of accessing *panchayat* forests due to the growth of an understorey dominated by daru halad and other prickly shrub species.

Changes in patterns of land and forest resource use confirm that the decision to sanctify *panchayat* forest lands has wider repercussions than might be expected from the minor differences in rules of forest use under sanctification. The resulting patterns of livestock grazing and fuelwood and fodder collection suggest that sanctification has led to a spatial shift in the use of forests, resulting in conservation of sanctified *panchayat* forests at the expense of greater pressure on civil, reserve and private forests. Villagers' adjustment to sanctification has also resulted in transitions in the type of resources used, such as from oak leaves to the greater use of grass for fodder, and increasing use of alternative fuel such as kerosene rather than dry wood, reducing the overall pressure on local forests.

Although sanctification has in most villages provided means of enforcing forest rules in these commons forests, the success of sanctification may in fact have been determined partly by an underlying factor, namely, social relations. Limited access to *panchayat* forests has resulted in hardships for most households encompassing all levels of the village society, yet transgressions to the rules of sanctification, contrary to what might be expected, have been dominated by the wealthier households, implying that transgressions have occurred more for convenience than for meeting of basic needs. Sanctification has also ultimately resulted in the creation of differential pressure on the various classes of the village society, for while the wealthier households have taken advantage of the easily accessible alternatives or have transgressed the rules of sanctification, the poor households wait until the *panchayat* forests are desanctified. (Transgressions by the wealthy reflect not a lack of faith in the supernatural, but the greater risk-taking behaviour of these households). In effect long-term success of sanctification may be limited by the lack of provision of alternatives to *panchayat* forest resources.

Ecological change

The mixed temperate coniferous forests in this region are primarily the broad-leaved species of mixed banj oak and its associates including rhododendron and other *Quercus* species. On the lower elevations, particularly on south-facing ridges, are the dry temperate forests dominated by the chir pine forests.

Ecological changes in these sanctified forests, primarily the mixed banj oak forests, have resulted in enormous forest regeneration. This regeneration can be characterized by the rejuvenation of the overstorey, particularly the increase in crown density, changes in the maturity-class structure due to the emergence of new oak and associated trees, changes in composition of forest vegetation in some forests resulting from the excessive regeneration of specific shrub species, and changes in discharge of water sources, as well as abundance of forest fauna. Some sanctified forests in the region are also in effect being preserved rather than conserved, leading to unexpected changes in the emerging floral compositions, particularly the overgrowth of *Berberis* shrub species, inhibiting the regeneration of oak species in sanctified forests.

Ecological changes since sanctification have also taken on distinct spatial qualities. Thus, in addition to the above reversal in trends of biophysical change in *panchayat* forests, pre-sanctification trends of degradation in civil forests and large private forests in the region have been exacerbated due to sanctification of *panchayat* forests. These regional level forest dynamics suggest that despite a net decrease in the use of local forest resources, net degradation may in fact have accelerated due to *panchayat* forest sanctification in the region.

Conclusion and broader implications

In conclusion, this paper suggests that the use of supernatural sanctions has limited viability in the long run, both in terms of conserving forest resources at the regional level as well as in its success in limiting encroachment in *panchayat* forests for an unlimited time. More important are spiritual and deep ecological responsible relations with the natural surroundings. Social sanctions based on the mere protection of social reputation are unlikely to be effective. However, strong community ties based on a moral economy are likely to be more effective, where the material conditions or a group identity produces values that encourage cooperation. In other words, generating individual responsibility to the commons and the community is likely to be much more effective in adequately maintaining these areas than any form of sanctions. Where scholars have placed greater emphasis on the strength of the legal system (and supernatural system of sanctions in this study may be viewed as an attempt of strengthening the legal sanctions in its goal of strengthening the monitoring and penalty system), this study shows that only one village that had strong community bonds was able to successfully avert transgressions through these means. This does not imply that legal sanctions are unnecessary, but that the maintenance of a cohesive community appears to be indispensable.

Local institutional change that would prove particularly helpful would be more democratic decision-making. This would include active participation of women, not because of the current emphasis on the gender issue, but because today women increasingly happen to be the primary, and in many households the sole, users of forests. The commons institutions will also need to adequately address problems arising from political groups with divergent interests. For political exclusion, often due to domination by a set of elites, leads to failed cooperation, resulting in ecological degradation. Current human-environment relations in this region also suggest that meeting of local needs are more of a priority for villagers than long-term sustainability. Hence, along with problems of rule enforcement and management, technical issues will need to be sufficiently dealt with. Such technical issues include the generation of fodder alternatives to prevent excessive lopping, and attempting to ease off pressure experienced by women in accomplishing their daily tasks.

Both political ecologists and scholars of common property have criticized the determinism of economic forces. This study agrees with the criticisms in assuming that economic forces revolving around market and money economy and individual benefit will prevail and that human actions will automatically be defined by these economic forces. However, in analysing the current trends of socio-economic change, it is clear that alternative economic incentives in this region will continue to rise for local communities. While local use of resources need not be *defined* by these economic incentives, nor do local institutional arrangements need to cater to these incentives, the competing incentives *will* however need to be understood adequately to understand villagers' interest, or lack thereof, in maintenance of local resources.

Local solutions such as sanctification of the commons will provide a solution as long as the strategy provides a link in the adaptive process of seeking a balance between human needs and the natural environment. Given that human relation to natural resources are defined by numerous factors, individual and societal, and given the uncertainty of ecological change, it is necessary that adaptive management takes place such that it allows constant adaptation to the changing human-environmental circumstances. To this end, self-mobilization by taking independent initiatives through active leadership is likely to be much more effective than constant reliance on external institutions.

This case study has been compiled from a report of a study conducted by Safia Aggarwal between February and November 1998, with updates from May 1999.

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Endnotes

¹ Forests handed over to the democratically elected institution, called *van panchayat*, under the Uttar Pradesh Van Panchayat Rules of 1931. For more details see Uttarakhand chapter in this volume.



Simalgaon, Bageshwar

Background

Simalgaon is located at a walking distance of 16 km from the district headquarters of Bageshwar. Alternatively, it can be reached from Kanda which is located at a distance of 24 km from Bageshwar, on the Berinag road. From Kanda, one has to walk 6 km to reach Simal Gaon. From Bageshwar regular buses and jeeps ply on this road. Direct buses are available from Almora, Pithoragarh and Delhi as well. The nearest railhead is Kathgodam, about 185 km away. The climate is semi-temperate with the temperature climbing to 35°C during summer and remaining close to the freezing point during winter. It receives a good amount of rainfall during the monsoon months. The altitude varies from 1300-1600 metres above mean sea level.

There are 30 households in the village, with a total population of 178. Most households belong to the Rajput community, although a few are Dalits. Agriculture and animal husbandry are the main sources of livelihood of people. The cattle population is quite high, though it was difficult to arrive at an accurate estimate. It is said that centuries ago the ancestors of these villagers migrated from Rajasthan to settle in this remote part of Uttarakhand. There was a big forest here and people were afraid of wild animals, so the then village head had no problem giving them some land to settle down.

The area of the forest is 30 ha. It is mostly banj oak. In fact, the thick oak grove is so famous in the entire area that the forest is called 'Simal Gaon Ke Banj'. Even the village and the villagers are known by the same name. However, some other species such as rhododendrons, mahal bamboo and deodar also exist, though their percentage is low. These forests have a good wildlife population, as hunting is strictly prohibited. Some species are kakar (barking deer), leopard, Indian wild boar and ghurad. Birds such as red-billed blue magpie, pine bunting and chestnut bunting, munia, rufous wood pecker, long-tailed mountain thrush, and several flycatchers are also sighted.

Towards community conservation

The village has a traditional system of forest protection for generations, called the *lath panchayat*. In this system a stick rotates from one family to another for the whole year. The family at whose door the stick is kept by the previous family has to go for forest patrolling and protection on that day. However, in Simalgaon this system has been somewhat modified. All 30 households in this village are members of the *lath panchayat*. Functioning of the *lath panchayat* is very informal. Elders from each family usually take keen interest in protecting the forest. There is no formal rule for a periodic meeting, though, if a need arises, the heads of the households are called upon for a meeting. Meetings are usually held on some social occasion when all the families anyway gather at some place in the village. No system of any kind of election exists.

To protect the forest, two types of patrolling are practised. The first is voluntary patrolling. Anyone who has free time can patrol the forest; there are no rules about this. The second is the system of keeping a constant vigil. As the forest is adjacent to the village, people keep a constant vigil over it, and the moment they sight a thief or spot a fire they raise an alarm and people gather to do the needful. No formal punitive system exists and when an offender is caught, an on-the-spot decision is taken. Usually, outsiders have to pay double the fine that a villager would pay.

For the people of this village, the forest is open round the year to collect dry leaves, fallen twigs and branches and grass. Outsiders cannot collect any produce. Hunting is totally prohibited. Usually there is no dearth of fodder and, if the situation demands, a part of the forest is open to harvest oak leaves. 'However, this is usually done only once in five years or so,' says Ummed Singh, a village elder and *ex-pradhan*. This facility again is for the residents of this village only. The matter is decided in a meeting of all the households. A part of the forest is marked for harvesting and one person from each family goes to collect leaves. Everyone has to go together. There is no limit for an individual to cut fodder leaves, but no extra labour can be employed, nor can an outsider do this job. Even the ultimate size of the oak branch that is permissible to be cut is decided in the meeting. Anyone violating this rule is debarred from harvesting the leaves for the rest of the season.



Oak is also used for making agricultural tools. To meet this requirement, each year some trees (two to five) are marked and each family is given an equal amount of wood. The villagers themselves do the job and the persons cutting trees are paid additional amount of wood in lieu of labour charges. The neighbouring villages are sold 3-4 trees each year. For fuel, the villagers have rights over the nearby reserved forest (RF) and most fuelwood comes from the pine forest.

Forest fires are the biggest threat to oak forests. 'We try hard not to let fires rage through our forest as we are vigilant enough to control them on time,' says Laxman Singh, an elderly farmer. Sometimes, even during the night, people fight fire to extinguish it. For regeneration, one part of the forest is shut for a period of 5-7 years and no grazing is allowed there. This way, two compartments of 4 ha each have been added to the forest during the last 17 years. There is a reserve forest of pine at the edge of the jungle and people have to take care that chir pine does not ingress into the oak forest.

The village earns some income from the forest, mostly by selling oak wood and dead and dried trees to the neighbouring villages and by imposition of fines. Though not very significant, this is usually spent for buying utensils, generator, tents, etc. and to organise social events. These common utility articles are given to the villagers on a nominal rent that goes to the kitty of the *lath panchayat*. No formal bank account has been opened for this. The money is kept with some responsible elder in the village.

Impacts of the initiative

This is a very old institution, protecting its oak forest for a very long time. So, it was not possible to compare the tangible results of protection. However, it can safely be said that people are getting enough biomass for all their needs from this forest, and the forest too remains in a very healthy condition.

Conclusions

The tradition of *lath panchayats* has worked in the hills of Kumaon for generations; however it is gradually dwindling now as more and more of these institutions are either getting formalised as *van panchayats* or youth are losing interest in such traditions.

Felling of any tree in areas above the height of 1000 m, whether privately owned or government property is not allowed. In 1981, the Government of India imposed a ban on the felling of green trees above 1000 meters by contractors for the State Forest Department for pulpwood and timber, accepting one of the demands of the Chipko Movement in the late 1970s.

To harvest one's own trees, one has to take permission from the district magistrate, who is usually unsympathetic to the needs of the villagers. The permission is, therefore, almost never given. In these circumstances and other factors affecting the village, some people, mostly youth, are increasingly getting less enthusiastic about forest protection.

Compiled from information sent by Rakesh Agrawal, an independent researcher, in 2001.

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Pakhi and Jalgwad villages, Chamoli

Background

Pakhi and Jalgwad villages share the same *van panchayat* and *gram panchayat*. The *van panchayat* was formed 1958¹ to protect an area of 240 hectares. Both villages are located in the Chamoli District near Gopeshwar town, where the famous Chipko movement² began in the 1970s. These villages are also well known for the active participation of women and men from here in the movement to stop the felling of their forests by the forest department during the Chipko movement.

Out of the 180 households, only eight are scheduled castes and the rest are upper-caste Hindus. The forest area consists of mixed species dominated by oak and rhododendron and a sprinkling of deodar. Fuelwood, fodder, animal bedding, and some non-timber forest produce, rather than cash income, are the primary benefits the villagers get from the forest.

Community forest management

Both villages have an active *mahila mangal dal*, whose leaders have received considerable exposure during Chipko and still continue to interact with various NGOs, are also members of Himvanti.³

One of the elected women *van panchayat* members has received training in marketing skills from an NGO promoting economic development in villages and has successfully initiated the processing of locally grown fruit into jams, pickles and juices. The villagers' returns from fruit have increased significantly since this time. The *mahila mangal dal* (MMD) is also empowered to wrest control over the day-to-day management of the village forest from the male-dominated *van panchayat* council. Prior to the introduction of the Government Village Joint Forest Management (VJFM) scheme in 1999, the MMD was involved in forest management in a number of ways:

- Made decisions about when to open the forest for grass, leaf and firewood collection, rules for collection, fines for violations etc. and communicated them to the *van panchayat*.
- As no external funds were available, the women would repair the forest boundary wall with voluntary work.
- They even employed a woman forest guard and paid her through voluntary contributions.
- Fines were collected by them and deposited in their account.

Women's control over the forest enabled them to ensure that forest produce collection does not interfere with periods of heavy agricultural work. Soon after the monsoon harvest, they would open the forest closest to the village for grass collection. The furthest forest was opened up in December when all agricultural work was over and women could devote more time to collect firewood and fodder before the snowfall. Cutting of bushes and pruning was undertaken from April to May.

Before VJFM, the men-folk of the village did not concern themselves with forest protection work and left it completely to the women. The women attempted to coax the men into voluntary patrolling, but the men refused saying that it was the women who needed the forest. The women also complained that when outsiders came to enquire about Chipko, the men pushed the women forward to speak with them. However, when it came to making important decisions related to the village, the women were left in the dark.

On the introduction of the World Bank-aided VJFM scheme in 1999, and the availability of generous funds for the *van panchayat*, there was a sudden gender-based shift of power and control. The men suddenly became overenthusiastic about forest protection and employed three watchmen at salaries of Rs 1,000 a month. After three months of working without a salary, when the *sarpanch* offered the woman forest guard Rs 200, she refused to accept the payment. After a lot of arguing, she was finally paid Rs 700 and then laid off on the grounds that it was difficult for a woman to protect the distant parts of the forest.



The men also monopolised wage work in the nursery and only after strong protests were women also employed. When no funds were available, the women were left to take care of matters with voluntary labour, and when the money came in, women were labelled incapable of doing the work.

The men were not entirely victorious in their takeover of forest management. The *van panchayat* suffered a similar loss in local decision-making control to the forest department:

- Maintenance of a muster roll for wage work was taken over by the guard or forester instead of the *sarpanch*.
- The villagers' role in VJFM had been reduced to providing information for preparation of a micro-plan and working as paid labour for forestry operations.
- Neither the men nor women were clear about the new VJFM rules or the legal agreement they were supposed to sign.
- Neither was there a copy of the agreement in the *van panchayat* records, nor was there a copy of the micro-plan with the *sarpanch*.

Conclusion

Although the current status of what is happening in the village is not clear at this stage, this case study is a perfect example of how strait-jacketed and unimaginative policies and their implementation can cause serious damage to well-established and effective community institutions. This also shows how externally aided programmes can cause complete disruption in local social and political powers, responsibilities and obligations, eventually threatening the natural base which is crucial for the survival of local communities. External interventions therefore need to be well thought-out and need- and context-based.

This case study has been adapted from: M. Sarin, Empowerment and Disempowerment of Forest Women in Uttarakhand, India. *Gender, Technology and Development* 5:341-364, Sage Publications. (New Delhi/Thousand Oaks/London 2001).

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Endnotes

¹ Geeta Gairola, 'Field case study of VJFM with Pakhi Van Panchayat, district Chamoli', unpublished (1999).

² The Chipko movement was started in some parts of Garhwal in early 1970s against the policy of the state government to clear fell the forests in the region. This policy attracted much opposition from the local residents as they depend on these forests heavily for meeting both their every day needs, providing ecological functions, and for religious, and aesthetic needs. Women from many villages where such fellings were planned came forward and hugged the trees and dared the FD to chop them before hacking the trees. The government had to bring about substantial changes in its policies as a result of this Movement.

³ A multi-country federation of mountain-womens' organizations for the Hindukush Himalayan region.





Nahikalan village, Dehradun

Background

On the first outer Himalayan range, overlooking the Doons, nestled in a valley called Sinsyarukhala, is Nahikalan village in Dehradun District. The outer Himalayan range stretches across an altitudinal range of approximately 3000 ft (from 2,500 to 5,500 ft). The gradient is often between 60 and 80 degrees. In striking contrast, the hilltops are flat or gently undulating with rolling meadows or forests. The geology is extremely fragile. The area receives heavy rainfall, especially during the monsoon months, called *chaumasa* in Garhwali. Over the last ten years or so, the rainfall pattern (seasonal distribution etc.) has become highly unpredictable. The site is a critical catchment and birthplace for perennial springs and streams, together birthing the river Bhidalna that later flows into the Jakhan river. The natural springs of this area are the (often sole) sources of drinking water for 12 nearby and downstream villages. More drinking and irrigation water projects are underway and proposed. A combination of all these factors has bestowed this area with a unique and rich biodiversity.

A range of landscape and forest types as well as ecological niches exist in this area. One of the main forest types is the Temperate baan oak or silver white oak type, and others include moist evergreen, mixed and deciduous forests, meadows, grasslands and agro-ecosystems. Baan oak forests occupy the upper reaches of the hills. Most of the numerous natural springs of the area emerge just below these forests and these exercise a determining influence on the climate and ecology of the area. All the villages and hamlets are located strategically (often just) below the oak line because this is the ideal place for water availability/security; fertile, moisture-retentive soil; maximum proximity to year-round diverse wild fodders; etc.

The factors behind the rich and wild biodiversity (including wild floral diversity itself) have enabled the evolution of diverse indigenous crops and varieties, further characterised by their organic and rainfed nature.

The main occupations of people are agriculture and pastoralism. Some people are also employed in government and private jobs, primarily as government schoolteachers. Agriculture and pastoralism are symbiotically linked with each other and the neighbouring forests and grasslands. Pastoralism is, if anything, more secure than agriculture, as agriculture depends upon the benevolence of the skies and the crop-raiding wild animals.

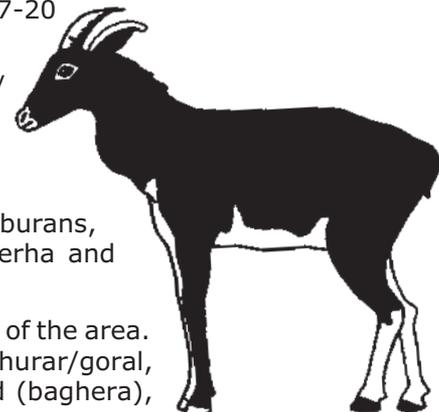
Agriculture is characterized by its entirely rainfed nature, organic fertilization and a wide range of indigenous crops and varieties. Numerous traditional fine and coarse cereals, millets, pulses, tubers, vegetables and spices and condiments are grown to meet food and nutritional security and incomes. For the area's inhabitants these are the primary sources of sustenance and income. All families possess agricultural land; the size of holdings varies, though far less than in most parts of India. The landholdings of the few dalit families are marginal. Some other families too have smallholdings. The two major caste groups are farming rajputs and dalits.

Three revenue villages—Nahikalan, Nahin khurd and Kotla and the hamlets of Barkot and Semalsari with a total of 38 families (as of five years ago)—lie in the area. Most families own some land in villages in the plains of the Doon valley. Parts of most families and some entire families have migrated there. Some families live here and travel down 7-20 kilometres to farm the land in the plains.

A minimum trek of 8 km is necessary to reach the roadhead/bus stop. Basic needs such as health, education, and electricity are intermittently and inadequately available. The nearest school is about 16 km away.

Among the main tree species found in this area are banj oak, burans, semla, tun, the now rare sandan, bheemal, timla, amla, baherha and raini/rohini and kingorha, among others.

An impressive faunal diversity complements the floral diversity of the area. Many species of herbivores, such as serow, sambar (jarhaoo), ghurar/goral, barking deer(kakar); carnivores including tiger (bagh), leopard (baghera),



jungle cat (van billi) and leopard cat (ban bijju), Himalayan black bear (bhaloo), wild boar (Suar), Rhesus macaque (bandar) and Hanuman langur (langurs), Himalayan yellow throated marten (totriyala), Indian porcupine (saulla), rufous-tailed hare (khargosh) and a variety of rodents and reptiles are found in the area. (Of the above, serow, Himalayan black bear, tiger, leopard and leopard cat are on Schedule I of the Wild Life (Protection) Act, 1972.) This is in addition to a wide diversity of avifauna, insects, and other invertebrates.

On the agricultural terraces of the area grow a vast array of indigenous Himalayan crops and varieties, well adapted to the local agro-ecological niches. Completely rainfed and organically grown, these diverse crops are dependent on neighbouring forests and grasslands for fertility and a suitable agro-climate. Multi-cropping and crop rotation systems are elaborately worked out and strongly believed in. The traditional crop rotation systems are, however, now undergoing changes. Another defining feature is a traditional agroforestry system, with numerous and diverse useful trees lining and stabilising the agri-terraces. Wild relatives of many cultivated crops like ginger, turmeric, mandua/ragi, amaranthus varieties, sunti/lobia (cow pea), cucurbits and ridge gourd are found in the area.

Considering the extremely steep slopes, with an average gradient of around 60 degrees, the dominant rock types are fragile, loose and fractured. Given the exceptionally heavy, especially monsoonal, rainfall, the only way these slopes remain stable is when they are covered with a dense and diverse floral mantle.

In the last 15 years or so whenever there have been big threats to biodiversity and the environment: extensive forest fires; excessive goat-grazing (particularly from the migratory graziers); contractor-driven medicinal plant extraction; hunting (which was traditionally small-scale but increased raiding and crop losses to wild animals, leading to anger and resentment, provide a fillip to hunting); severe soil and rock erosion, landslips and landslides; mining etc. Degradation and biodiversity loss have also depleted the exceptional water sources of the area.

Towards community conservation

For 25 years, till 1986, this rich, fragile valley saw reckless, wanton limestone mining. Never sticking to the leased area, blasting all over the valley including village land, no mining plans or inspections and continuing years after the lease got over—everything that can be wrong with mining was so here. Boulders rained on homes and agri-terraces endangering humans and cattle; perennial springs and streams choked under mining landslide rubble; and timber smuggling was rampant. The biggest impact perhaps was how a mountain of blasted, loosened rock transfigured the Bhidalna into an angry torrent of hurtling boulder and stone, swinging madly till it got lost in an ever-widening boulder wasteland. Where once forests stood or agriculture thrived.

When reasonable requests were met with violence and arrogance, the youth of Nahikalan wrote to the Chipko movement and Kalpavriksh (then a youth environment action group from Delhi) for help.

Meetings, folk songs, slide shows, slogans, and innovative direct actions were soon in full swing, invigorating and mobilizing the valley. The mining road was closed to trucks and trees were planted on it; alongside came up a hut camp, Chipko activists dug pits to bury themselves in the way of mining trucks; a memorial was made in the forest for hundreds of Hanuman langurs who died due to indiscriminate blasting. Local women and youth were at the forefront, organized into Yuvak and *mahila mangal dals*.

Soon, downstream villagers, dependent on this area for their drinking and irrigation water joined up, and villages still further downstream whose lands were laid waste by the now stony Bhidalna and Jakhan rivers.

Youth were inspired further by Chipko movement slogans such as '*Aaj Himalaya Jagega, pathar wala bhagega! Paharh ki haddi tootegee, Desh ki dharti doobegee! Upar dekho jahan khadan, neeche kheti, registan! Dongiya bagh, hatt, hatt, hatt!*' ('Today the Himalayas rise to ensure that those who are digging its rocks are stopped! Mining will break the mountains and flood the plains! Mining in the hills will turn farmlands into deserts! O rock-eating leopard, go away!') The Chipko poet, Ghanshyam Sailani, composed a Garhwali folk song on the movement.

The movement was also strengthened by support from a small but enthusiastic band of environmentally active individuals from the Doon Valley and way beyond. Money, iron rods, revolvers, trucks...the mine owner tried all these. The local people responded with Gandhi-inspired Chipko movement methods and their greater knowledge of the mountains to evolve ingenious 'non-violent' guerrilla tactics. As the violence and injustice grew, so did people's determination.

Many brave people refused to cower even in the face of threats to their lives. Realising or accepting the value of non-violence, even when faced with an unscrupulous adversary, was a big challenge. This was met by collective and individual creativity, the space for which was likely created by the non-violent nature of the movement. Finally, local people's resolve, the creative commitment of Chipko veterans and diverse contributions from so many won the day.

This wanton mining was fought in the courts too and in the first environmental PIL (Public Interest Litigation) before it, the Supreme Court ordered the mine closed. This became part of the famous Doon Valley Limestone Mining Case, and all mines in the Doon valley were declared closed. Some years later, the Union Environment Ministry declared the entire Doon Valley an Eco-Sensitive Zone (under Section 3 of the Environment Protection Act), and mining is one of the prohibited activities.

Degradation and revival in the 1990s

Quite a few years of lull followed. In 1995 some of the activists and researchers who were associated with the anti-mining movement returned to the area and found significant new threats to local environment and livelihoods. They then started a long Forest Yatra from this area, walking through areas of the worst forest fires. The *yatra's* focus, naturally, shifted to understanding the causes behind increasingly frequent and widespread fires.

The full scale and intensity of changes underway dawned only in 1997-98, through the process of making an action plan for wild biodiversity conservation for this area, as part of the nation-wide Biodiversity Conservation Prioritization Project (BCPP). As the entire population of the area got into collectively understanding and assessing the status and changes in their natural environment, what emerged shocked everyone! Natural regeneration was strikingly absent, important plant species were vanishing (most showed decline); exotic bio-invaders were replacing natives, there was drying or reduced flow in natural springs; and frequent landslides, and landslips. Degradation (often severe) was evident across sites—only the extent varied—as unbearable threats combined to ravage biodiversity and threaten the hills.

How did such degradation occur within less than a decade of a passionate anti-mining movement? Overall, long-standing neglect of basic needs and aspirations like education, health, transport, livelihoods; changing social attitudes and declining community feeling; small government programmes and a big watershed project bringing corruption alongside. Strong feelings of neglect, disillusionment, and apathy were palpable, fuelling and fuelled by the growing movement for a separate Uttarakhand state. The deepest bonds with environment and amongst the community began to be ignored.

Vis-à-vis forests, an alienation from responsibility (with traditional dependence, rights, conservation initiatives and role never clearly acknowledged), changing attitudes (including taking natural resources for granted) and a virtually absent forest department (perhaps caused or exacerbated by relative remoteness). Above all the fact that the entire community seldom met anymore and the nature and pace of ecological changes was considerable.

A People's Plan for Conservation of Wild Biodiversity (henceforth BCPP Plan) was formulated and prioritized in elaborate village meetings. The local communities took on responsibility for most of the strategies. Together with some village people, some researchers and activists who facilitated environment and livelihoods aspect in the plan decided to formulate a group called Vividhara. Vividhara was set up with the intention of implementing and monitoring what villagers had together decided for the village during BCPP.

The fact that Nahikalan was selected as one of the sub sites for National Biodiversity Strategy and Action Plan provided Vividhara and the village an opportunity to evaluate what they had been able to achieve between 1998 and 2002.

From 1998 started a phase of implementing the BCPP plan. Almost all initiatives were voluntary community initiatives, often facilitated by Vividhara; only two programmes were supported through small external funding for four months:

- a) Awareness, sensitization and social mobilization
- b) Lessening the human-wildlife conflict

To start with the biggest current threats were countered head-on. To meet the biggest threat of frequent and devastating forest fires, villagers and Vividhara initiated an awareness and mobilization campaign through evocative poems, slogans, songs, and posters, created in art sessions and workshops with interested villagers, children and Vividhara members. Soon, frequented locations

like schools, water springs, forest paths, village walls, etc. hosted these art works. Village meetings and children's groups chose ways to prevent and control fires.

In 1999 the villagers of Nahikalan set out to control fires. On one such mission, along with a large regenerating forest they also saved a village from being burnt. This created a positive atmosphere for conservation initiatives across the valley. Wilful or accidentally lit forest fires are now significantly low in this area.

While finalizing the plan, determined village women finally got the entire village to back their priority issue of not selling forests to migratory goat herders, the second biggest threat to forests.

Box 1

How the women managed to get their priorities addressed

"HUM TO NAHIN DAIN DINDA!"(We won't let the forest be sold), said the women emphatically. As the goatherders pay money to the village *panchayat* for forest use, it became a question of money to the *panchayat* versus forest well-being and fodder availability, with the men thinking about the money and the women about fodder and forest. Suddenly, it was women versus men and the differing gender perceptions became strikingly apparent, though some men quietly supported the women. The herders offered to double the money and more, from the existing Rs 2500-3000. Even as the men got tempted, the women put their foot down. 'You may get Rs 50000 or a lakh, and you'll sell the forest. But we don't care about the money. We'll chase the goats away if they come. For good measure the men were warned that if the forest is sold, from the next day, it will be the men who'll go to the forest for fodder, and the women will stay at home.'

This happened in the final meeting to formulate the BCCP Plan, in 1997. The women are clear and determined to this day.

Controlling grazing by the migratory goat herders has protected significant tracts of top- and middle-hill forests near the main village. The women continue to hold the village steadfast on this and goats are at best allowed passage rights as earlier. The immense pressure of village goats on proximate areas has eased too, with their numbers down to 20 from 125 (from 5 herds to 1). The awareness initiative and falling goat prices have played a role in this.

Callous non-regenerative methods of fodder/fuelwood collection that were coming into vogue have been substantially controlled through an awareness and sensitization approach based on traditional knowledge.

The main village spring existed under perpetual fear of landslides, having been buried under one such landslide twice within a decade. After discussions the Doon Valley Watershed Project agreed to support the work of making check-dams and contour walls in this area and repairing a drinking water tank for cattle. Reviving an old tradition the area above the natural spring was declared out of bounds for goats and loppers. Later cuttings and saplings were planted by the community through *shramdaan* (voluntary labour). Dramatic natural regeneration and enhanced water in the spring can now be seen.

Since 1998, many experience-cum-work camps have been held for college students from Delhi. These mutually enriching experiences have often been the high point for awareness and *shramdaan*. Exposure to Himalayan biodiversity and the ecosystem and nature experiences through forest and agriculture treks, acquaintance with the key challenges, first-hand experience of life and culture in hill villages, interactions with villagers, voluntary work on chosen priority tasks along with villagers, sessions with children at the activity center, cultural evenings and feedback sessions are the main activities in these camps.

Many environment enthusiasts from different lands have also had rich stays and sharings. These last two activities have been the Vividhara's chosen version of eco-tourism. Based on the experience and learnings of these years, the local communities are enthusiastic and there is considerable scope for expansion.

In 1988, a library-cum-activity center, with nature and environment as focus areas, was started in the *panchayat ghar* of Nahikalan. With its few hundred books and art materials, this is a favourite space with the village children and some grown-ups. Story-telling, thematic posters, and singing are other occasional activities. The teachers of the local schools and parents vouch for the positive

learning and other effects this has had on the children. Several environmental workshops and sessions have been held in the local schools and the enthusiastic students and teachers are keen on Vividhara members continuing these activities.

Cultivated diversity initiatives

As stated earlier, the biggest threat before agriculture and agro-biodiversity is spiraling wild animal raiding of crops. The first half of a two-pronged strategy involves enhancing water and food availability in the forest habitat. To meet animals' needs and regenerate the ecosystem, half a dozen *joharhs/pokhars* (ponds/pools) were revived/made anew on hilltops and as many natural springs were revived. Implementing actions for reducing threats of forest fires, goats, etc. helped improve the food situation for animals. Over the last few years several innovative methods have been identified and tried out, resulting in some reduction in crop losses. This complex challenge however requires further engagement.

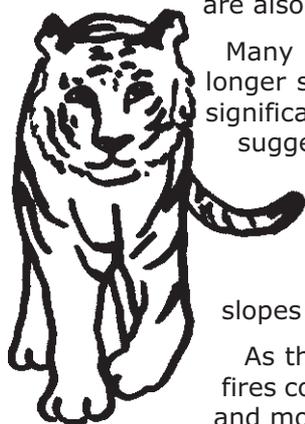
To counter economic and social devaluation of traditional organic agriculture, an organic food marketing initiative was initiated in 1992, between the farmers of Nahikalan and consumers in Delhi. This first organic food marketing experiment in Delhi revealed an enthusiastic niche market. In 1995 this evolved in a collaboration between the farmers from Nahikalan and Beej Bachao Andolan (Save the Seeds Movement, a pioneering farmers movement in the Garhwal Hills to save dwindling Himalayan crops and varieties, see case study on Jardhargaon) facilitated by Vividhara. Since then they have been participating in an annual exhibition on Himalayan cultivated (and some wild) biodiversity and sale of organic foods and natural products. This is as part of Dastkar's Nature Bazaar, the best-regarded annual crafts *mela* in Delhi, at the popular exhibition site of Dilli Haat. These exhibitions have reached a few lakh urban citizens. Small-scale direct selling and retailing of their products through a few outlets is on through the year.

On the hill end, numerous farming families spread over six villages are getting higher returns for their surplus crops, providing a fillip to several devalued and neglected indigenous Himalayan crops with exceptional nutritional/medicinal attributes. Locally developed naturally processed products, including pickles, *chooran*/mouth freshner, jams from (locally abundant) amla, a candy from medicinal ginger, a traditional cough medicine, a natural insect repellent/air purifier from a wild marigold relative, etc. are also being sold. As a result, cultivation of some locally suitable crops is going up and hundreds of amla trees have been planted. The potential for expanding the scale is immense and is needed to further benefits to more organic farmers and make healthful organic foods available more widely at non-exorbitant prices.

Impacts of the initiative

Due to the above initiatives significant overall species and micro-site level changes/improvements were observed in the ecological and biodiversity status of the area. The most striking and heartening change is the natural regeneration of native floral diversity, including on the most degraded lands. Local women specifically mentioned the return/regeneration of small trees of prioritized species. Grassland management seems to have arrested further decline of important grass species and some species have even shown an increase in numbers. Despite some efforts by people to control the exotic species *Lantana camara*, it continues to exist in large expanses of land.

Landslide and landslip occurrence has shown a noticeable decline. Some years have had nearly no landslides. Rock and gully erosion has gone down. However, most of the check-dams and gully plugs are now filled with stones and soil and need some intervention. Soil moisture levels are also showing improvement.



Many natural springs now have increased water flow throughout the year or longer seasonal flow. Local women feel the *joharhs* and *pokhars* on hilltops have significantly helped in this and more *joharhs* need to be made for which they suggested appropriate sites. Some revived springs need further watershed works in their immediate catchments.

Most of these changes are nascent and fragile, merely indicating a discernible change in trends towards the better. Local contextual factors like steep slopes, heavy rainfall, predominantly south/south west facing slopes are ever present.

As the village women warned, excessive goat grazing and/or rampaging forest fires could wipe out the benefits in a year. The good efforts therefore must sustain and more needs to be done.

Opportunities and constraints

1. The efforts at environmental and ecosystem regeneration have meant an increase in wild fauna populations. The incidents of crop raiding have increased manifold, making farming very difficult. Local people, though very active in conservation efforts, are not happy with this increase in the numbers of wild animals. Reactions against wild animals are very strong, particularly towards wild boars, porcupines and monkeys, which cause maximum damage to the crops.
2. Another constraint that the villagers face is a total indifference and lack of support from government functionaries, particularly the FD. According to the villagers, in the last 30 odd years the FD has not addressed the major threats facing the forests. Remoteness due to lack of a motorable road is probably the reason. According to all local accounts, the only time the forest guards visit the area is when someone is building a house; he comes to collect fines or bribes for timber use. And yet, there is an arrogance in the Department that they are the protectors of the forests. All this breeds resentment and alienation from the department, which could have been the greatest ally of the villagers.
3. A lack of recognition in the government departments, including the FD, and an ambiguity about conservation responsibilities and ownership make continuation of this initiative difficult. The FD can play a very significant role in the long-term sustainability of this initiative by recognizing rights, roles and responsibilities and clearly defining areas of partnership. They also need to recognize local villagers as their rightful partners in the management and protection of forests and environment.
4. Changing social and cultural values and attitudes among the newer generations is a major challenge to sustain this initiative. Growing needs and aspirations and large-scale out-migration (usually of part of the family), external influence through TV, etc. if not handled appropriately, are likely to have a serious impact on the initiative in future. Inadequately met basic developmental needs of education, health, livelihoods, and lack of transport have generated strong feelings of neglect and apathy amongst the villagers. The paradox of nearness and remoteness, perhaps, fuels aspirations and makes their fulfillment difficult.
5. Inadequate availability of gainful livelihood and employment is a major challenge, priority and concern. Any plans for biodiversity conservation in this area will need to address these issues, to be effective and equitable.

This case study has been compiled from information in: Nahikalan Sub-state Site, Final Plan for National Biodiversity Strategy and Action Plan. Prepared by Vividhara in April 2003. Available in a CD with TPCG and Kalpavriksh, *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan*. (Pune, Kalpavriksh, 2005).

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Thapaliya-Mehragaon, Nainital

Background

Thapaliya-Mehragaon Van Panchayat is just a kilometre away from Naukuchia Tal, a well-known lake, popular with tourists in Nainital district. The Tal is about 35 km from Kathgodam, and is well connected to this nearest railhead. There are regular bus services from Haldwani and Nainital to the Tal. The 1 km distance has to be covered on foot. The climate of the area is semi-temperate. Temperature during summer shoots up to 34°C, while in winter it remains slightly above the freezing point. It receives a good amount of rain during the monsoon months. The altitude varies from 1100-1400 m.

There are 97 households with a total population of 587 in the village. Most households are brahmins (about 75); 14 are rajputs and the rest dalits. Most people are engaged in agriculture, though there are a few (about four or five) who are doing petty jobs in nearby hotels and resorts. There is no artisan family in the village, though a few are masons. The cattle population is close to 700 heads. There are no goats in the village. In fact, Thapaliya-Mehargaon Van Panchayat comes under one *gram sabha* but is comprised of two revenue villages: Vohra Gaon and Thapaliya-Mehragaon. The total area of the *van panchayat* is 385 ha. Wildlife is not significant. The animals most common in these forests include barking deer, leopard and monkeys. Before the initiative started, the number of wild boars was very high. After the removal of lantana their population has gone down. A few bird species such as red-billed blue magpie, pine bunting, blue robin, warbler, yellow-billed blue magpie and yellow-throated minivet also live in the forest.

Towards community conservation

Although the *van panchayat* came into existence way back in 1950, the condition of the forest under its control deteriorated by the 1980s. 'The forest that was very dense and thick was slowly razed to the ground by people and contractors. People faced immense difficulty to meet their biomass requirements and fields became barren,' says Mahendra Singh Varma, the *ex-pradhan* (village head). Meanwhile, an NGO called Central Himalayan Research Action Group (CHIRAG) started working in the area. The NGO was mainly carrying out land restoration and biodiversity conservation programmes. In 1988 Varma approached the organisation to take up his *van panchayat* under their project. The NGO agreed to take up one part of the forest and thus a unique effort of restoration involving people and workers began.

CHIRAG encouraged the villagers to establish a *van suraksha samiti* (VSS) to protect the forest and implement the restoration programme. There are eight members in the VSS, with four being women. This committee is independent of the existing *van panchayat* committee, although the members of the *van panchayat* can also join the VSS. There are two such persons who are members in both institutions. The *sarpanch* of the *van panchayat* is invited to attend the monthly meetings of the VSS, which are called on the first or second day of every calendar month. 'The VSS takes care of the project area and we are responsible for the entire forest and both bodies have similar rules, so there is a lot of co-operation between us,' says Rajendra Singh, *sarpanch* of the *van panchayat*. 'Both institutions want to protect the forest, so there is no question of conflict between the two,' Harag Singh Mahra, president of the VSS, echoes him. There is a third institution in the village as well. It is the women's group, which is a self-help group (SHG). This 12-member group is engaged in saving and thrift activities. It was established in August 1999 and all four women members of the VSS are also the members of this body.

For the revival of the forest, the NGO along with the villagers adopted a policy on fresh plantations and natural regeneration. Also, reducing pressure on the forest was considered a must. For plantation, a meeting of the villagers was called. People suggested plantation of fodder and fruit species. Every family of the village was taught how to raise a nursery on its own land. Each family was initially given 10,000 saplings. Then they were given seeds. CHIRAG provided money to make saplings, dig pits and to transport them to the forest. After some time, the NGO helped open accounts in the name of women from these families in the nearest bank. The forest was kept totally shut for five years to allow natural regeneration and protect new saplings. However, care was taken to meet people's biomass needs by providing them alternatives. First, they were convinced to sell unproductive animals, mostly goats and additional loans were given to buy milch cows. People, after some resistance, agreed. They were then provided *gobar gas* plants at subsidised rates. This also became popular in the village. This helped reduce pressure on the forest and became crucial in the success of the programme.



As already pointed out, the VSS meets every month to discuss plantation, protection and other issues such as imposing fines on offenders. Although, the successful protection of the forest has made people aware and they themselves protect forests, there are two *chowkidars*—one male and one female—appointed by the VSS. The woman is an old but extremely energetic and dedicated lady, Rewati Devi. It was a pleasure walking to the highest parts of the forest with this 65-year-old guard of the wild. 'I usually go to the forest in the night and hide to see if someone is harming my trees,' says an enthusiastic Devi. 'She shouts at people and if they don't respond, she starts throwing stones at them,' says Ganga Joshi of CHIRAG. However, Rewati rues that she gets only Rs 400, too paltry a sum in these days. No grazing is allowed in the forest. Twice a year it is opened to cut grass, and passes are issued for Rs 5 per sickle to people for this purpose. If there is excess grass, people from neighbouring villages can also collect it for double the amount. For special functions members can apply for fuelwood and for Rs 25 a bundle of wood is given to them. Regulated lopping of trees for fuelwood is done under the supervision of *chowkidars* during the winter and Rs 15 per person is charged for that. No harvesting of leaves is done.

The VSS also has a number of punitive rules. If anyone is caught stealing grass, a fine of Rs 15 is charged for a small sickle and Rs 20 for a large sickle. Rs 100 is charged if a domestic animal is caught grazing inside the forest. The sickles caught are seized. The amount raised by realising these fines and from plantation—each individual has to deposit 5 per cent of his income with the VSS—was close to Rs 14,000 at the time of writing this case study. The salaries of the two *chowkidars* and meeting expenses are met from this amount.

Impacts of the initiative

In the absence of any ecological research and based on conversations with villagers, *chowkidars*, CHIRAG workers and personal observations, the following benefits of this effort were clear:

1. The workload of women has been reduced considerably, as there are fewer domestic animals to look after and one does not have to walk a long distance to collect fuelwood and fodder;
2. The hills around the village, which once looked nearly barren, are now covered with green.
3. People have an additional source of income, thanks to the money given to them for raising nurseries and labour income for plantation;
4. Increased agricultural output coupled with fruit production from the plantations. The villagers are able to market fruits in the nearby fruit market at Bhowali.
5. Increased availability of water, confirmed by CHIRAG workers who put up hand pumps near water sources.

Conclusion

The main reasons of the success of the project have been the cooperation of people and dedication of CHIRAG workers. 'Initially some people, such as a few contractors and hotel owners, were against the project and we had a hard time convincing them, but a constant interaction with them got their support as well,' says Raj Mahra, Co-ordinator CHIRAG project at Naukuchia Tal. Women also feared the non-availability of fodder. But later women gave their maximum support and they fast understood the benefits of forest protection. People like Rewati Devi proved to be an inspiring factor. However, even today, a handful of people, mostly from the neighbouring villages, remain a stumbling block. Today, the 12 *van panchayats* spread over 3500 ha around Naukuchia Tal are protecting their forests in one way or another despite strong pressure from the builders lobby, as this area is among the hot destinations for people from Delhi to own farm houses.

Compiled from information sent by Rakesh Agrawal, an independent researcher, in 2001.

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Thapaliya-Mehragaon and its protected forest
Photo: Neema Pathak



Dungri Chopra village, Pauri Garhwal

Background

Dungri Chopra village is located in Yamkeshwar block of Pauri Garhwal district. The *van panchayat*¹ (VP) in this village was formed in 1939 to manage a small patch of forest spread over 40 acres (16 ha). The village consists of 36 households, including 30 thakur, four brahmin and two harijan households.

Dwarika Devi, the *sarpanch* in 2000, had with her records of the VP functioning from 1939 onwards. Internal changes within Dungri Chopra's Van Panchayat over its 60-year history provide a microscopic view of the dynamics of changes in gender relations in this part of Uttarakhand.

Pauri Garhwal district has seen high rates of male out-migration in recent decades. Male literacy rates are high due to which many men have been able to find well-paid jobs outside the state. Average housing is of high (conventional) standards, dominated by cement and steel acquired through the higher monetary earnings. Higher rates of deforestation are linked with poorer returns from agriculture highly dependent on substantial organic inputs from forestlands. Literacy rates even among women are higher relative to some of the other districts, and women from households with good salaried jobs have been substantially relieved from the drudgery of gathering firewood due to being able to switch to purchasing cooking gas. Such well-off households continue to depend on firewood for heating during the cold winters.

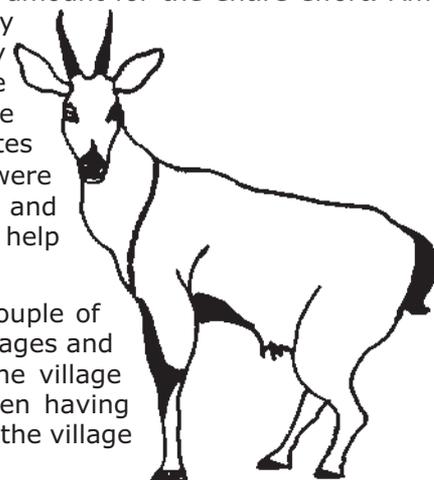
Towards community conservation

According to elderly Dilip Singh of the village, who was instrumental in his youth in getting the VP formed in 1939, the then village elders were dead against the formation of the VP. They feared that VPs were a ploy of the colonial government to snatch their village forest, leaving them with no area for grazing their cattle and collecting grass. Memories of the *begar* (free labour) system were still fresh and the village elders feared its return. All the same, 4-5 younger men, including Dilip Singh, got the VP formed and made Amar Singh, who was most resistant to the idea, the first *sarpanch*.

The condition of their forest had become deplorable after the Grievances Committee opened access to Class I forests to all *bonafide* residents of Kumaon.² Only a few sal trees survived. The VP's first major problem was to re-assert customary village authority over its forest. All women, men and children joined hands to build a protection wall. Neighbouring villages, which had started using the forest during the years of open access, resisted its enclosure. The residents of Khobra village even filed a case against Dungri Chopra, which was decided in the latter's favour. The forest was totally closed for 3 years and the villagers planted banj oak seedlings and pine seeds obtained for them by the DFO from Nainital.

It took them three months to build the protection wall. After finishing their agricultural and other work, all the villagers would assemble at the site. While women and children carried the stones, the men did the masonry work. The DFO gave them a small amount for the entire effort. Amar Singh, the *sarpanch*, called all the villagers, placed the money in front of them, and then distributed it equally among every man, woman and child. Dilip Singh, who remained the village *pradhan* for 30 years, said things were very different in those days. There was complete unity in the village and all disputes were resolved by the village *nyay* (justice) *panchayat*.³ There were few government schemes and the villagers built the school and the *panchayat bhawan* (community hall) themselves with little help from the government.

This was the situation till a few decades ago. In the last couple of decades, schemes worth lakhs of rupees have come to the villages and there is rampant corruption. No government official visits the village without negotiating a commission in advance. With most men having migrated out for jobs, there is little male interest in managing the village forest. Towards the end of the 1990s the village



women succeeded in getting an all woman *van panchayat* council elected. In 1999, the District Rural Development Agency sanctioned Rs 60,000 for undertaking plantation in the village forest. When Dwarka Devi, the woman *sarpanch*, went to collect the first instalment of Rs 30,000, the Van Panchayat Inspector made her sign a receipt for the full amount but gave her only Rs 24,000. She went to Dilip Singh to seek advice on what to do. He told her that in future, whenever any such payment had to be collected, she should always take other women *panches* with her and on returning to the village place the entire amount in front of the general house to prevent anyone from suspecting her. The villagers would themselves help her work out how to deal with the situation.

Dwarka Devi has internalized this valuable lesson in transparent governance. This has enabled her to maintain collective responsibility for managing the village forest and evolve coping strategies for dealing with the increasingly unsavoury and dramatically changed world outside the village. The *panchayat* forest of this village is one of the best in the district and the women meet almost all their forest needs from it. They even permitted every household to harvest one timber tree each for their own needs a few years ago.

Conclusion

Rather than strengthening such transparent governance mechanisms within *van panchayats*, in the year 2000 the government is promoting the 'Village Forest Joint Management' under the World Bank-funded forestry project. This scheme has not understood the lesson in transparency that Dwarka Devi has learnt from the history of the village. Instead the scheme assumes that misuse of funds can be prevented by merely appointing the forest guard a joint account-holder with the *sarpanch*. While perverting the tradition of the leadership's accountability to the general body of villagers, VJFM has created yet another avenue for lower-level FD staff forging alliances with male village elite for misappropriation of funds coming to the village.

This case study has been adapted from: M. Sarin, Empowerment and Disempowerment of Forest Women in Uttarakhand, India. *Gender, Technology and Development* 5:341-364, Sage Publications New Delhi/Thousand Oaks/London, 2001.

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Endnotes

¹ See state chapter on Uttarakhand for more details on *van panchayats*, which were formally elected village-level institutions for the management of forests, established under the UP Van Panchayat Rules 1931.

²In the 19th century the British nationalized the forests in Uttarakhand, ignoring people's rights and management systems over them. This led to widespread opposition in the region, including a threat of revolt from Uttarakhandis in the British Army. The British then established a committee to look into the matter and as a recommendation from the committee returned some forests back to the villagers. However, the land instead of being returned to those who managed it traditionally, was opened up for one and all. See state chapter on Uttarakhand for more details.

³ A traditional institution to resolve village conflicts.





Lohathal sacred grove, Pithoragarh

Background

Lohathal sacred grove is situated in Thal block of Berinag tehsil in Pithoragarh District of Uttarakhand. It is situated at a distance of three kilometres from Dharamgarh, with an unsurfaced road connecting the two places. The nearest bus stand is Kanda Parav, at a similar distance. Kanda can be reached by buses and jeeps from Bageshwar, Almora and Berinag. The altitude of the forest varies from about 1500 to 2400 meters above sea level. The climate is largely temperate with temperature hovering around 20-22 degrees during summer and plunging below the freezing point during winter. It usually receives a good amount of snow and rains.

The population of Lohathal is 955, living in about 200 households. There are four *toks* (hamlets) in the village. Mostly thakurs (kshatriyas or rajputs) live in three *toks* and one of the *toks* is a Dalit hamlet. Agriculture is the main source of livelihood for people. With a close and organic relation between the forests and farming in the hills, a healthy and dense forest is a must for good agriculture. Some people, mainly dalits, are also artisans. There are five carpenter families who are also dependent upon the forest to make agricultural tools. Hence, for livelihood (fodder, fuelwood, manure and raw material) people are highly dependent on the village forest.

The entire Lohathal forest is spread over an area of 235 ha. At the lower altitude, about 80 ha is mainly chir pine with a poor canopy cover. On the higher altitude about 155 ha is covered with dense mixed forest. Oak and rhododendron are some predominating species with a noticeable presence of mehar, utis, silver oak, deodar, surai and fir. Chir occupies only 5 per cent in the upper tracts. These forests also harbour a good population of wildlife. Leopard, Himalayan black bear, Indian wild boar, jackal, goral, kakar, Himalayan yellow throated marten (Chitrol) and monkeys are some key animals; red-billed blue magpie, Asian koel, pine bunting, streak-throated woodpecker, brown bullfinch and munia are some birds.

Towards community conservation

In 1994, a movement to offer the village forest to a local goddess, Kokilamata, considered to be an incarnation of goddess Durga, was initiated in village Jakhani of Almora district. As market forces and an ever-rising population had put an immense pressure on the *van panchayat* forests in Uttarakhand, this was seen as the last option.¹ Clearly, the local *panchayats* were not able to protect these forests and, 'everyone thought that the best way was to offer it to Bhagawati who is our goddess of justice,' says Kunwar Singh Karki, its chowkidar. In a ritualistic manner, everyone from the village went to the local temple and after worshipping the goddess a written proposal was submitted to her. In the proposal, the forest became a part of the temple for the next five years and the boundaries of the forest were demarcated by putting flags along the boundary. Lohathal Van Panchayat forests were offered to the goddess in 1993. In 1998, they were taken back from the goddess again after a ritualistic worship including sacrificing a goat. 'For five years, people can somehow survive, and the forest is restored to its pristine condition, but after five years in the long run it becomes difficult for the people. Also five years give enough time for the resources to regenerate to the level where they can be sustainably managed. So we take it back from the devi,' says Narayan Singh, *sarpanch*, Lohathal Van Panchayat.

Once the forest has been offered to the goddess, the effective management of the forest goes into the hands of the goddess. However, certain rules that were included in the proposal submitted to the goddess are enforced by the voluntary will of the people and everyone sees that these rules are observed. These rules include:

- No cutting of a green tree or a branch.
- No grazing in these forests.
- Only dry leaves can be collected along with twigs and branches fallen on the forest floor.
- Dead trees can be taken.

For house-building purposes, wood is available from the reserved forest (RF). For the period of five years a



chowkidar was appointed for these forests and people had to pay fines if they were caught violating these rules. Under this, anyone caught cutting green leaves was fined Rs 50 and those pulling down a small green tree were fined Rs 100. Once the forests were taken back from the goddess, the old rules of the *van panchayat* become operational again.

Impacts of the initiative

In five years, the forests had regenerated well in what can be seen as a highly dense forest cover, where sun rays find difficult to penetrate even in the mid-afternoon. 'We no longer have to walk a long distance to collect fuelwood and fodder,' says Shanti Devi, 32, member *mahila mangal dal* (MMD). 'Our fields have started yielding grains and we are able to feed everyone in the family,' says a beaming Pan Singh. The artisans initially found it difficult to get raw materials to make agricultural implants. 'We either stole from the neighbouring forests or bought the wood from the market. Then we stopped making readymade tools and if someone had to get a tool made, he would have to bring wood,' says Dhani Ram, a carpenter. But now, it is not so difficult as *banj* trees have become healthy again and people are allowed to trim them sustainably. This shows that the following three positive results of the protection are visible:

- An increased amount of biomass—fuelwood, timber, grass and fodder—to people.
- Farm yield has gone up, because of higher availability of water as well as leaves for mulching.
- Increased forest cover. Although the species variety remains more or less the same, the protection has resulted in a higher canopy density. It has also helped to increase the proportion of broad-leaved tree cover as the protection has stopped a mindless exploitation of these trees.

Opportunities and constraints

In the year 2000, when the UP Government launched a massive drive to implement JFM in the state, the exceptionally well-managed forest of Lohathal were one of the obvious choices for the department. The forest officials were able to convince the village leaders to be part of the scheme. An amount of Rs 7,96,000 was promised to make the forest even better during the next five years. 'If we could run the programme well, it will be extended for another five years,' says a hopeful Singh. Under the programme, a nursery of about 35,000 plants has been set up and a stone boundary wall is being erected. The executive community of the *van panchayat* has become the JFM committee. The committee has 11 members including two women. It has no working relation with the elected *panchayat* of the village. 'We thought that people would get jobs as for nursery and masonry work, people would get paid. Also, the salary of the *chowkidar* could be raised,' says Parvati Devi, a woman member.

Lohathal had adopted various local means to deal with the problem of forest degradation. An external scheme of this kind, bringing with it the lure of large money has a great potential of reducing the voluntary spirit of the village as also innovative local methods to deal with local problems. The JFM scheme, as has happened in many areas before, will eventually run out of funds. However by then the village would have been rendered powerless and spiritless to deal with its own problems. It is for the department to consider whether the support for successful initiatives like Lohathal should come in the form of an externally conceived and top-down scheme or as a process where need assessment is carried out and support is extended where it is most needed.

There are nearly 25 sacred groves of this kind that exist in the area and they are protecting their forest with a varied degree of success. The question is how they can be best supported and what should be the process by which such support is extended.

Compiled from information sent by Rakesh Agrawal, an independent researcher, in 2001.

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Endnotes

¹See the case study on Dharamghar region of Uttarakhand for more details and analysis on sanctification of *van panchayat* forests in Uttarakhand.



Makku Van Panchayat, Rudraprayag

Background

The Akash Kamini Valley is situated in the northern hill region of Uttarakhand along the Western Himalaya in India. Administratively and historically the area is called Garhwal and contains the upper watershed of two of India's major rivers, the Ganga and the Yamuna. This region also has great religious significance as it houses the ancient Hindu temples at Badrinath and Kedarnath and the Sikh Gurudwara at Hemkund. The Akash Kamini catchment lies in the Ukhimath block of Rudraprayag district. The Akash Kamini catchment roughly covers an area of 73sq.km with altitudes varying from 920 to 3,680 meters. 75 per cent of the land area in the valley is forested covering approximately 55sq.km. About 30 per cent of these forests are managed under *van panchayats*.¹ Apart from this area 1.2 per cent is under alpine pastures and 3.4 per cent is wasteland.² The economy of the Akash Kamini Valley is primarily subsistence-based agriculture, although agriculture is not a source of cash for most families. Nearly every family in the valley (irrespective of caste) has small land holdings, on an average 13 *nalis* (1 acre = 20 *nalis*). Agriculture is rainfed with no irrigation, and traditional methods are still used for cultivation.

Five kinds of village institutions are prevalent in the region but all may not necessarily be functional. In some cases a cluster of villages may have a common village institution. Table 1 gives a summary description of these institutions.

Table 1: Village institutions: A description³

Institution	Focus	Main activities
<i>Van panchayat</i>	Forest management for local needs	restrictions on extraction of forest-resources a rotation system for harvesting forest-resources hiring forest guards imposing penalties
<i>Mahila mangal dal</i>	Women's groups	village cleanliness use of forest resources maintenance of community buildings
<i>Yuvak mangal dal</i>	Youth	organizing village <i>melas</i> (fairs) village cleanliness organizing village sport's activities
<i>Gram sabha</i>	overall village administration forest management (sometimes)	village rules overall village administration forest management
<i>Dekh rekh samiti</i>	village maintenance and upkeep forest management (sometimes in the absence of a <i>van panchayat</i>)	maintain village infrastructure village cleanliness appointment of <i>chowkidaar</i> for the agricultural fields discussions on topics of interest to the village forest management (sometimes)

Members of the *van panchayat* (VP), *gram sabhas* (GS) and the *dekh rekh samiti* (DRS) are elected and in majority of the cases are men. One male youth member from every household can be represented in the Yuvak Mangal Dal ((YMD). Similarly one woman per household can be represented in the *mahila mangal dal* (MMD). The lower castes are represented in all village



institutions, although they may not be very vocal (this varies from village to village). There are some exceptions to this, e.g., the Makku Van Panchayat. Here village institutions have a large representation of the scheduled castes, who are extremely vociferous.

Besides VPs, which are officially registered and recognized forest management committees, MMDs and DRSs also play a very significant role in forest management in the valley. DRSs have been responsible for managing forests in villages where *van panchayats* do not exist. The forest land in these villages is *civil/soyam*⁴ and belongs to the *gram sabha*. MMDs in some villages have now got access to forest land for management. *Mahila bans* in many villages are *civil/soyam* forests that are now being managed by MMDs.

Towards community conservation

Makku village is located at the base of Tungnath Peak adjacent to Kedarnath Wildlife Sanctuary (KWLS). Tungnath pilgrimage site and surrounding forests as also some portion of KWLS fall within Makku area. The Makku village includes 2237.5 ha of forest within its boundary. Makku is the main village and eight other neighbouring villages are part of the Makku Gram Sabha. Makku and these eight villages are entitled to the use of these forests. However, there are 77 other villages that have varying rights over these forests.

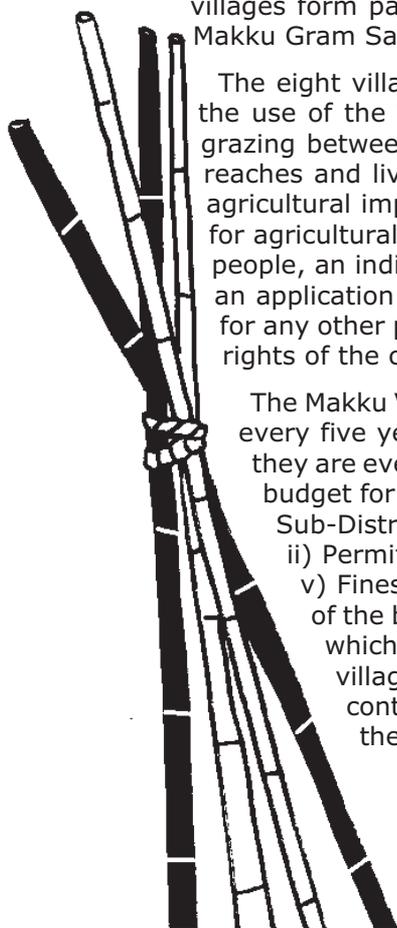
Management of forests by the *van panchayat* (VP)

The Makku Van Panchayat was registered in 1956 and subsequently recognized by the government in 1958. Before the formation of the *van panchayat* a traditional and informal system was prevalent for forest protection called the *lath panchayat*⁵. Makku is one of the two *van panchayats* in the Ukhimath block that are called forest *van panchayats*. These VPs have been established on Reserve Forest land which was delineated as such since 1952. The forest department exercises greater control in the management of these VPs than the other VPs of the region. The forest department is called upon for the evaluation of offences and has the right to make a decision in these cases.

The Makku VP administers the rights of all 85 villages in its forests and has diverse rules for protection and management. The eight villages under the Makku Gram Sabha have limited rights over the use of the forests for bamboo (ringal), grazing and fodder collection. The VP takes decisions regarding execution of these rights. Bamboo extraction is restricted to a period of six months, and the other 77 village members are permitted to harvest only after the eight right holders. Grazing requires a permit and a tax of Rs 30 is charged for grazing one buffalo in the forest. There is no rule laid down for the lopping of oak leaves. For extracting timber, the villagers from the three villages of Makkumath, Kail and Jagpuda are charged Rs 50 per tree. These three villages form part of the core management team for this VP. The remaining 5 villages from Makku Gram Sabha are charged Rs 150 per tree and the 77 villages Rs 1000 per tree.

The eight villages that form part of the Makku Gram Sabha also adhere to other rules for the use of the VP forests. Control on grazing is limited and part of the forest is closed for grazing between May and November. Grazing in summer months takes place in the higher reaches and livestock moves to lower areas during winters. If wood is required for making agricultural implements then a group of people would have to apply to the VP. Use of wood for agricultural implements is non-taxable, but the application has to be made by a group of people, an individual cannot make it. If wood is required for building/construction purposes, an application has to be made to the VP, with an assurance that the wood will not be used for any other purpose. If the VP finds that the wood was used for any other purpose, all user rights of the concerned person can be taken away.

The Makku Van Panchayat consists of nine members. Elections for a new *sarpanch* are held every five years. On an average four VP meetings are conducted every year. Sometimes they are even held once every month and sometimes once every three months. The annual budget for Makku VP is Rs 25,000. The amount to be utilized has to be sanctioned by the Sub-District Magistrate (SDM). Funds are derived through: i) Auction of forest products, ii) Permits for grazing, iii) Royalty, iv) Tax on collection of fuelwood by outsiders, and v) Fines. These funds have been utilized so far for plantation activities and repairing of the boundary wall. The VP had also attempted to develop a medicinal plant nursery which did not succeed. This land is now being used for cultivating fodder species. Two villagers have been employed by the VP for protection of forests. All the villagers contribute towards the guards' salaries. In case an unrecorded offence comes to the notice of the VP, then the salaries of the guards are slashed.



Conversation with the *ex-sarpanch* revealed that despite all the policing, illegal timber harvesting takes place from the forest. He mentioned the presence of a timber mafia, which operates in connivance with some of the villagers. The *panchs* (members of *van panchayat*) and *sarpanchs* visit the VP forests every two months. Officials from the forest department also tour the area on a monthly basis and report to the SDM. Records are maintained by the VP and are supposed to be examined by the Forest Panchayat Inspector (FPI) every year. The Makku VP is among the more active and the second largest in this block. Villagers who are the members of this VP belong to the higher castes, apart from being well educated. Interestingly even the lower castes in this VP are fairly vocal. Every decision taken by this VP is subjected to considerable debate and discussion where almost everyone participates.

Constraints faced by the VPs

The survival of VPs over such a long time is in itself a testimony of the validity of people's institutions. However, a question that remains to be explored is to what extent are they really peoples' institutions in terms of devolution of power? VPs have their own constraints that need urgent attention to ensure long-term sustainability. Some of these constraints are mentioned below:

1. The real empowerment: Most of the people feel that the VPs are only the caretakers of the forests while all the power lies in the hands of the SDM. If the SDM is dynamic and focuses his efforts towards VPs, then it would be beneficial to the VPs. The truth is that most often VPs feature very low on the SDM's list of priorities and are neglected. For example, the SDM of the Ukhimath block, of which Makku is a part, had been posted to this block only 10 months prior to writing this case study. He displayed a total lack of interest in VPs and confessed to not even having read the VP Rules. This reflected very clearly in the functioning of the VP, which had not had a meeting in a year when a field visit was made to the village in 2003.
2. Management of VP funds: Most people who were interviewed for writing this case study were resentful of the SDM's permission that is required to operate VP funds. The village elders suggested creation of a separate account that the VP could operate independently. The Makku VP *sarpanch* pointed out the danger of having the SDM as the final authority. He related an incident when a particular District Magistrate (DM) in the past had wanted the VP money to be transferred in another bank account to be used for another purpose that was not approved by the VP.
3. Equitable distribution of funds: There was a lot of displeasure over the distribution of funds derived from the VP. The *sarpanch* and elders of the Usada VP felt that the 40 per cent of the revenue claimed by the FD is not justified, since FD makes very little contribution towards the management of these forests. They also felt that the FD should rightfully divert at least a part of the revenue back into these forests (which it does not do). The villagers feel very strongly about this issue because even the money towards the salary of the VP guards is collected by the villagers rather than coming from the VP account.
4. Corruption within the VP: VPs are also based on representative decision-making rather than involvement of the entire village in the decision-making process. This leaves much scope for mismanagement of funds in connivance with the government functionaries involved as well as inadequate management of the forests. Smooth functioning of the VP as also its efficiency depends on the individual *sarpanch* and his commitment and leadership. In Makku too the management of the forests was much better under the leadership of *ex-sarpanch* Shri Maithani than it was at the time when this case study was written.
5. Pressure on surrounding government forests: It is acknowledged by most people in the region that the quality of VP forests is much better than the ones under the reserved forests. The ranger we met seemed to think that this quality is maintained at the cost of the reserved forests. People protect their own forests and ravage the FD managed forests. The people on the other hand feel that the reserved forests are just poorly managed in spite of adequate salaried staff to do so.

In light of above problems faced by the VPs in this region, it seems evident that they will continue to function in the same manner. The secretary to the SDM seemed to think that the existence of most VPs is only on paper. Only two out of 103 VPs in Ukhimath block had substantial funding for regular functioning. He felt that in order to activate the other VPs the funding mechanism has to be changed. The Forest Panchayat Inspector, who is supposedly the link between the VP, revenue

department (RD) and the FD, has rarely visited the area although he is responsible for VPs in six tehsils. The present system of financial incentives, in terms of salaries being paid and remuneration for travel, etc., is not lucrative for the FPIs to spend time in the field.

To ensure that these institutions perpetuate and flourish is certainly a challenge. Most of the people were receptive to the idea of a federation of VPs. This suggestion was brought up several times by the people in the course of discussion. This could provide the appropriate platform for VPs to air their grievances and find solutions to their individual and combined problems.

Forest management by *mahila mangal dal* (MMD)

MMDs are one of the five village institutions that are traditionally part of the village system and are exclusively for women. The Makku MMD was established in 1987.

One woman member from every household is entitled to be a member of the MMD. The representative is usually a senior woman member in the household, i.e., the mother/mother-in-law. There are four office-bearers (all women): the chairperson, vice-chairperson, secretary and treasurer. The vice-chairperson can officiate in the absence of the chairperson. The secretary takes down the minutes of the meetings and keeps a log of all financial matters relating to the MMD. Elections for office bearers are held once every five years. After the elections, the MMD has to register itself with the Block Development Office (BDO). Members of the MMD meet every month. MMD activities include: i) village maintenance and cleanliness, ii) Prohibition of alcohol, iii) Use of forest resources, and iv) Employment for underprivileged women.

Each woman of the village individually saves Rs 2 to Rs 5 every month and contributes this amount to the MMD fund, which is then deposited in a bank account. Registered MMDs are also eligible for funding from the BDO. For example, under a Women and Child Development Scheme, underprivileged women are trained and given employment by the BDO. These women are also entitled to Rs 25,000 as a recurring fund. The utilization of funds is need-based and much of it is spent on village social functions.

In the mid- 1980s the women of Kail village (which is part of the Makku Van Panchayat) expressed their frustration over the excessive use of resources from the VP forests. The women in the region are the major stakeholders in the forest land as they are responsible for collection of firewood, fodder and grazing cattle. Although, women had access to the VP forest, they still found it a long distance to commute, especially if they were leaving young children at home. The decision-making and management of VPs is largely male-dominated. Realizing this, the rather progressive *sarpanch* of the VP in the mid-1980s encouraged the women of Kail to start protecting a degraded patch of forestland, adjacent to their agricultural fields. This was the degraded *civil/soyam* land which belonged to the *gram sabha*. The *sarpanch* simply requested the women to form a system of patrolling this land. Initially, this plan received opposition, specifically from the men who had to put in some additional work at home while the women patrolled the protected forests. They even accused the *sarpanch* of inciting the women.

Gradually, the patrolling by the women yielded results and women could get enough fuelwood and fodder to meet their needs from this land, almost eliminating the use of resources from VP forests, thus saving resources, time and energy. In 1987 the women formally registered their MMD and have since been managing this land as their forest or *mahila ban*. The degraded land has with protection now flourished and the once barren land has been replaced by forests. Women continue to patrol the forests on a rotation basis every day. Sometimes the VP forest is still used as and when timber is required for house construction. For effective management of the *mahila ban* the women have divided themselves into smaller groups. A group of women manages a patch of forest closest to their agricultural fields and over which they would have usufruct rights. Regular meetings are held for the entire MMD, including all sub-groups, to discuss the rules, regulations and other issues. Some of the rules are laid down. Some of these rules include, fines for illegal felling (in an incident where a boy was caught illegally felling a rhododendron plant in the Kail forest, members of the MMD decided to fine the parents), and a ban on grazing.

Since the establishment of the Kail Mahila Ban, three more *mahila bans* have come up in other villages within Makku Gram Sabha. Women of each MMD make their own rules.

Effectiveness of MMDs

The emergence of MMDs to manage forest lands is a rather exciting development in the region. The women are the major stakeholders in forests and this in itself is an incentive for them to

undertake forest protection measures. MMDs provide a forum for them to express their opinion unlike in VPs. Management of *mahila bans* by MMDs may prove to be more efficient since the land in question is degraded *civil/soyam* land belonging to the *gram sabha*. MMDs are hence not answerable to the SDM, providing them a free hand in functioning. Women also have a greater incentive to manage forests in their vicinity and on a voluntary basis since they can balance the household jobs at their convenience. There are no paid guards in these forest patches. However the biggest shortcoming in areas where MMDs have come up is the fact that women are now not only burdened with all the household responsibilities but also the added responsibility of forest protection. This leaves them with little or no time to indulge in other social activities.

Ecological status of the forests

Although visibly the Makku VP forests look extremely dense, there is little biological data available to indicate the exact quality of forests. The Biodiversity Conservation Network project coordinated by WWF-India was supporting a silk production enterprise in the area for a few years. The BCN team was carrying out regular monitoring exercises to determine the sustainable harvest rate of oak leaves required for the silk enterprise. These studies revealed that there is very little second storey in the forests. The team also found that the oak trees suffered more harm because the method of extracting leaves for fodder was harmful. Several village meetings were organized in order to discuss this issue and it was concluded that sapling mortality was mainly due to cattle grazing by women. After a series of discussions the women, however, said that they just did not have the time to ensure that cattle do not trample on saplings while grazing. Since then the project has assigned tree guards around a lot of saplings in the area. This team also organizes regular village meetings to illustrate a less harmful method of extracting leaves. The project has used a lot of cultural methods such as songs to convey the message about protecting saplings in this area. However, no detailed studies have been done on the impact of protection on the over all quality of forests.



Opportunities and constraints

Imposition of Joint Forest Management

In 1998, as a result of the Uttar Pradesh Joint Forest Management (UPJFM) order, the Makku VP was selected as one of the two in the district where JFM would be implemented. Officials from the forest department held a meeting with the *van panchayat* members in mid 1998. The idea of JFM in the Makku VP was however rejected by the villagers. They saw it as another effort by the government to dilute their powers in the forests (see below for details).

Politics within the VP and role of the *sarpanch*

Very often the *van panchayat* functioning depends upon the *sarpanch* who is in power. When the women were assigned control over degraded village land, the VP then had a progressive *sarpanch*. However the subsequent leader has not been pro-active for the people to take positive initiatives towards forest protection. An ineffective and corrupt leadership led to various conflicts among the VP members along with non-maintenance of records of the meetings held. Subsequently, the villagers have changed the *sarpanch* and VP functioning has consequently improved.

Lack of trust and faith in the forest department

Although FD is appointed in charge of the forests and should be interacting with the people on the issues of forest conservation and forest-based livelihoods, the people are extremely distrustful of the FD and the other government departments. If given a choice between the FD and the Revenue Department (RD), people prefer to communicate with the RD. The SDM has much more contact with people on the ground as opposed to the DFO. The SDM is more accessible geographically too, since he is stationed at Ukhimath while the DFO is in Gopeshwar, which is far away. The FD is viewed as a 'policing' body with no attempts made to establish contacts with the people.

There is also a fear prevailing among people that the government's intention is to eventually take over VP forests. One reason for this is the presence of the Kedarnath Wildlife Sanctuary in the vicinity. In response to a petition filed by WWF India, the Supreme Court in 1997 directed all state governments to complete the process of rights and acquisition, as required under the Wild Life (Protection) Act 1972, within a period of one year. As a result of this ruling the FD has been carrying

out a process of settlements of rights of the people living in and around legally protected areas (PAs). Unfortunately, because of lack of communication, non-transparency and misunderstandings, villagers in this area do not have clarity about which of them fall within the sanctuary boundaries. The villagers of Makku are convinced that part of the area under their *gram sabha* falls under the sanctuary and hence access to the forest for the people living there will be curtailed. A visit to the Range Forest Officer's office revealed that Makku does not fall in the sanctuary at all. However, neither the FD nor the RD has made any efforts to clarify this or to provide an explanation to the people about the process of resettlement of rights. In the meanwhile, there is a growing degree of distrust towards the FD in Makku.

The villagers have had negative interactions with the other government departments as well. Makku VP had leased three *nalis* of their non-forest land to Garhwal Mandal Vikas Nigam (GMVN) (a semi-autonomous body) for a guest-house in Chopta (a popular tourist spot at the base of Tungnath). The GMVN encroached on another 150 *nalis* of the VP land. A case was filed in the High Court which gave the ruling to shut down the guesthouse. This resulted in discontent among Makku inhabitants since they were deprived of jobs. The land in question still lies unused. Land has also been leased to the Garhwal University in Tungnath and also for establishment of a sheep farm in the area but no progress towards these had been made till the time this case study was written.

Refusal to accept Joint Forest Management

The above distrust was also one of the reasons why the villagers were not open to the idea of accepting the government's Joint Forest Management scheme. They feared that they would lose control over their land if they were a part of the scheme. In addition, the villagers thought establishment of another institution under JFM was unnecessary, as they felt that the VPs were doing a good job. This decision was finally reached after nearly six months of deliberations in the village.

Conclusion

This case study has brought up several interesting points that perhaps are important pointers for new ventures in collaborative management.

Flexibility and adaptability

If the ultimate goal is to involve the local communities in natural resource management, it is important to first locate the existence of any such forest management system. If a well-functioning system already exists there are likely to be conflicts from imposing another system. The challenge is to derive maximum output from the existing system by implementing effective changes. Considering that the communities are so diverse, a uniform system that does not take into account local specificities is unlikely to succeed. The *van panchayats* have been in existence for 70 years and have been fairly successful in conserving forests. A programme like JFM needs to recognise this and adapt itself such that it can plug in the gaps in the existing system and overcome the constraints faced by that system to increase its efficiency. Also depending upon the need any system needs to be able to adapt itself to meet the challenges. The process of establishment of the *mahila bans* in Makku is a good example of that.

Transparency

There have been ill feelings and mistrust amongst the people of this area due to lack of or inadequate information about the KWLS. This led to rumours and FD made no efforts reveal the truth. The communities need to have adequate information about the actual situation before arriving at any decision.

Gender sensitivity

It is quite evident that women are important stakeholders in protecting the forests of this region. Hence gender sensitivity must be considered as a priority when designing any forest conservation programme. As in the case of JFM, just by ensuring that a percentage of women are committee members is not enough. The women of the region feel that men dominate these meetings with women only attending as a token. In some cases where a woman has been elected the *sarpanch* of

a certain VP, it is her husband who runs the VP indirectly. Thus it becomes necessary to recognise women's groups as separate entities and give them the due recognition with respect to forest conservation, as was done in Makku.

Legal endorsement

Despite the fact that community initiatives for conservation are successful, they do face numerous pressures from internal dynamics and politics and external commercial lobbies. It becomes important then that these initiatives have adequate legal backing to thwart such pressures. However, it must be kept in mind that for any kind of legal measures to be endorsed it must be well thought-out and sensitive.

This case study has been written by Seema Bhatt, a member of Kalpavriksh. This information is based on a CIFOR study on assessing devolution policies and their alternatives in the broader context of local governance, pluralism and negotiation. This case study would not have been possible without the help of the *ex-sarpanch* of Makku VP.

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Endnotes

¹ Village-level institutions established to manage the forests in 1931. For more details, see state chapter on Uttarakhand in this volume.

² Appropriate Technology International, 'Biodiversity Conservation through Small Producer's Enhanced Commercial Utilization of Natural Resources in the Garhwal Himalayas of India', Implementation Grant Proposal (1995).

³ EDA Rural Systems. 'Socio-economic Conditions and Village Institutions – A Baseline Survey of the Akash Kamini Valley (1997).

⁴ Commercially less valuable forests under the jurisdiction of the civil administration (Revenue Department as opposed to Forest Department). For more details, see the state chapter on Uttarakhand in this volume.

⁵ A system under which all villagers participated in forest protection patrolling, taking turns. A wooden stick was circulated from family to family, which would indicate whose turn it was to patrol the forest on a particular day.





Holta village, Tehri Garhwal

Background

Uttarakhand state has a long tradition of community forest management. This is also one of the first states where forest management by local villages was recognized in law. This was in the form of the Uttar Pradesh Panchayati Forest Rules, 1931. The Rules required establishment of democratically elected village *van panchayats* (forest councils) to manage the surrounding forests. Tehri Garhwal, however, was exempt from these rules as it was an estate not under the British jurisdiction. Holta, therefore, did not have any *van panchayat*. The village initiated its own protection practices of communal land conservation (*sanjaiti*) around 1986.

Agriculture is the main source of income for the villagers and employment is also available in the village as daily-wage workers in small shops along the road. The societal structure shows a visible dominance of men in the village, but the village has a woman heading the *gram sabha* (local self government institution).

Towards community conservation

According to the Holta villagers the water sources of the village had dried up and firewood and fodder had become scarce, as a result of unregulated and excessive forest use by surrounding villages and encroachments on the village land by local families. This compelled some village youth to lead by example as they began giving up their own encroachments, thus convincing the other encroachers to vacate the land. The village appointed an informal Forest Protection Committee (FPC), which had elected representatives from all hamlets and castes. The committee formulated a set of rules for grass, tree leaf fodder and firewood collection. These rules were strictly enforced. Written communications in the form of letters were sent to the village heads of the surrounding villages stating rules and penalties against anybody entering the protected forest area. All the village households mutually contributed towards payment of a guard appointed to patrol the forest area.

Initially the committee did not have any women representatives. However, within a short while the committee realized that the women from their village as well as the neighbouring village continued to steal firewood and grass from the forest. These failed efforts in preventing women from stealing forest resources led the committee to induct four women as members of the committee.¹

There was a major conflict that followed with one of the surrounding villages going to court against Holta village on the issue of unclear boundaries of their respective common lands. However, this conflict declined over a period of time as all villages noticed a marked improvement in the forest condition and availability of water.

Impacts of community effort

By the year 1999-2000, when this case study was carried out, the biomass needs (except timber) of the entire village were being met from the regenerated forest. Vegetable cultivation had also become feasible with the recharging of the three natural water resources in the village. According to the women, all their grass, firewood and bamboo requirements were now being met from the forest. Minor timber needs for the making of agricultural implements (such as sickles, ploughs, and axes) were also being met from the forest. All the villagers were satisfied by the work of forest protection carried out by the FPC.

Opportunities and constraints

The relationship between the forest department (FD) and the villagers is very sour. According to the village women, the FD has made them out to be thieves; however, when they take positive steps there is no help coming from the department. For example the FD does not provide any help for controlling forest fires even though they have provision for this.



Women and men have different perspectives on the gender-specific changes in the FPC. According to the women, after gaining exposure and self-confidence through a government programme called *mahila samakhya* program, they have had to put up a hard fight to survive in the protection committee. As there are few men migrating out of the village, this has further narrowed down the scope of leadership opportunities for the women. Apart from this, while men from all castes participate in the decision-making, women from the so-called lower castes are further discriminated against while constituting the FPC. The women are now insisting for reservation of seats in the village forest protection committee as there is in the local *panchayat*.

This case study has been adapted from: M. Sarin, Empowerment and Disempowerment of Forest Women in Uttarakhand, India. *Gender, Technology and Development* 5:341-364, Sage Publications, (New Delhi/Thousand Oaks/London, 2001).

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Endnotes

¹Geeta Gairola, 'Field case study of CFM in Holta Village, District Tehri Garhwal', unpublished (1999).



Jardhargaon, Tehri Garhwal

Background

Tucked away in a picturesque part of the Himalayan foothills, the village of Jardhargaon has a remarkable story to tell, a story of how a community organised itself to conserve precious forests, achieve equity in irrigation water distribution, and revive agricultural traditions which conserve and develop an amazing range of crop diversity.

Jardhargaon is situated in the district of Tehri Garhwal, Uttar Pradesh, at an altitude of 1500 meters. Access to this village involves a 3-km trek from Upli Nagri, which is the nearest roadhead on the Rishikesh-Tehri highway. Cutting across boundaries of administrative blocks, local people refer to this entire region as Hemvalghati, the valley of the river Hemval, which originates from the Surkhanda peak in the Garhwal Himalayas and merges with the Ganges at Shivpuri, about 16 km upstream of Rishikesh.



Community protected forests of Jardhargaon
Photo: Ashish Kothari

Jardhargaon is a typical hill village nestling in serene and picturesque surroundings. The higher ridges of the village consist of dense reserved forest of baan oak, apricot and rhododendron (burans) trees. The village has about 17 settlements/hamlets situated at quite a distance from each other. Each settlement comprises approximately of 4-5 houses, with the exception of the earliest settlement, quaintly referred to as Proper-gaon by the villagers. Cultivation is carried out on terraced fields and in the valley, the latter primarily dedicated to paddy and wheat.

The population of the village was about 3000 as per the 1991 census, up from 1,137 in 1981. The predominant communities are Rajputs and Harijans. As is usual in the 'money-order' economy prevalent in the hills, male members of majority of the households are employed in jobs outside the village. The women stay back and cultivate the fields and take care of the elders and children. Given the small landholdings, there do not seem to be any major livelihood possibilities to keep the youths back.

Agriculture and cattle-rearing occupy the foremost position in the economy, which is primarily subsistence in nature with the forest being an important source of sustenance. The main resource uses from the forest are collection of fodder, fuelwood, fruits, leaf litter, medicinal plants and wood for weddings and house construction. Quarrying is also done for purposes of house construction, but commercial sale is not allowed. Resin collection from pine trees was also done till a few years back, but is not practiced any longer.

Towards community conservation

Towards the end of the 1970s, the heavy dependence on fuelwood and fodder from the forest, along with other factors, led to indiscriminate felling of trees by the villagers. The resulting erosion of forest cover led to shortages of fuel and fodder, soil erosion and deterioration of soil fertility. It was in this scenario, that the community initiative to protect the forests was taken in 1980.

The late 1970s and early 1980s were the peak periods of activism of the famous Chipko movement, the famous Himalayan struggle to protect natural forests against contractors and other forces of destruction. Jardhargaon, too, came under its influence, primarily through the active involvement of one of its residents, Vijay Jardhari. In 1978, Vijayji and two other activists from Hemvalghati, Dhoom Singh Negi and Kunwar Prasoon, had been instrumental in mobilising the people of Badyargarh against commercial felling of trees in the surrounding forests.

On returning to Jardhargaon after working for the Chipko movement, Vijayji, along with like-



minded individuals in the village, succeeded in mobilising the villagers to protect their forests. The constitution of the *Van suraksha samiti* (VSS) was the first step in this direction. First and foremost, the VSS imposed a total prohibition on cutting of green wood. It also started regulating the distribution of dead wood to the needy for house construction and firewood, and the quantum of wood sold to people for house-building and weddings. It now also ensures that minerals and stones from the village are not sold commercially.

The VSS appoints Van Sewaks (*chowkidars*) to ensure compliance with the rules. Violators are fined. The VSS comprises around 10 members, although the number is not fixed. There is normally a woman member too. The members are chosen by common consensus in a meeting of the *gram sabha* (village council), which comprises all the adult members of the village. The *gram sabha* normally meets twice a year, after the *rabi* and *kharif* crop harvest. All the hamlets are by and large represented in the VSS.

Another institution involved in forest protection is the *mahila mangal dal* (MMD; women's committee), which started functioning around 1987. The members are selected by consensus. The MMD was very active in the beginning. It mobilised women to protest against limestone quarrying in the vicinity of the village and also against sheep grazing by migratory graziers. The MMD was also involved in plantation work in nurseries under the Government of India's Greening the Himalaya scheme in the 1980s. The MMD is not so active now on a regular basis, though in times of crisis it gets activated, as when there was a recent threat of mining near the village.

A 30-year lease was granted to M/s Parvatiya Mineral Industry to extract limestone from 5.26 ha of common lands right above Kataldi village, in the heart of Hemwalghati in Tehri Garhwal district in Uttarakhand. Hemwalghati (Hemwal river and valley) was one of the centres of the pioneering Chipko movement in the 1970s. Limestone mining was first undertaken around Kataldi during 1974-1979. Due to the strong opposition of the local communities the mining operations were stopped. Subsequent attempts to mine have also been unsuccessful due to strong opposition of the people of Hemwalghati, especially Kataldi and neighbouring villages. However, in the year 2001 the mining company managed to procure a 30-year lease. People of the area, especially women, are clear that they would not allow mining to take place and for this they launched a determined non-violent movement, including a *dharna* through December 2001, not allowing any kind of mining activity. However, the 30-year lease is a cause of great worry to the local people as it is likely to affect their homes, their drinking water, their agricultural lands, fodder and fuelwood availability and the biodiversity which they have struggled to conserve. Eventually, the villagers with support from groups like Kalpavriksh managed to obtain a stay on mining activity in the region.

Another area of regulation and sustainable use in the village pertains to grass cutting. A section of the *civil/soyam* forest (meant for village use) has been declared by the VSS as *bandh van* (closed forest) and is used as grass-cutting area subject to certain regulations. This area is closed from August to December to allow the grass to regenerate during the monsoons. When it opens in November or December, one member from each family is allowed to cut one headload of grass per day during specified hours only. The bulk of the grass that is cut during this season is stored for the dry months. During the monsoons (July to October), there is enough grass in the vicinity of the houses for the cattle to graze and women do not have to go deep into the forest for fodder.



Activist of Beej Bachao Andolan showing indigenous crop diversity Photo: Ashish Kothari

These regulations are enforced by the *pani panchayat* (water council), which functions under the supervision of the *gram pradhan* (village head). The *pani panchayat's* main functions are regulation of supply of water from the river to the fields, equitable distribution of irrigation water, warding off animals from the fields, and regulation of grass cutting. There are 8-10 members who are chosen by consensus. One of the members is chosen as the *thekedar* (supervisor) to oversee the entire team. The members are paid in grain, and this payment depends on the size of landholding and the nature of duties performed.

As if these initiatives were not enough, Jardhargaon is leading the way in yet another field: the revival of agro-biodiversity. Recognising that modern techniques of agriculture which the government extension officers were bringing them are only yielding short-term benefits, some of the village farmers have revived traditional practices. Vijayji, for instance, is trying out 150 varieties each of rice and beans, along with other traditional crops like millets, and then spreading back to other farmers those varieties that are particularly useful. He and his other Chipko colleagues named above, along with young people like Raghu Jardhari and

Saab Singh, have formed a Beej Bachao Andolan (Save the Seeds Movement). The Andolan has actively pursued the revival of traditional farming methods, such as *baranaja*, in which about a dozen crop species grown together yield a variety of produce which fulfils a variety of domestic requirements while maintaining soil fertility.

Constraints and opportunities

To be able to take on struggles such as the ones against mining, the villagers face a severe limitation of funds. The villagers do not accept foreign funds and are largely dependent on small schemes and grants that come for their village or personal donations to undertake plantation activities, travel, etc.

They are also making an effort to create a market for the indigenous and organically grown crop varieties from their village. They have been successful in this to a certain extent and have been tapping the markets in Delhi. However, regular marketing of products remains a problem because of the remoteness of the village

Among other constraints faced by them are difficulty in communication due to the terrain, and, above all, the burden of housework and agricultural operations, particularly on the women.

Impacts of the initiative

After almost 18 years of starting the VSS, the results are apparent. What was once a degraded and in parts barren slope now has several hundred hectares of dense mixed forest. A diversity of oak, burans, horse chestnut, pine and other species are present. In places, especially further away from the village, the forest is as good as any found in a wildlife sanctuary.

Indeed, wildlife has obviously benefited from the protection work. Villagers report that wild boar, deer species, tiger, leopard and Himalayan black bear have made their reappearance in the forests. For avid conservationists, the presence of tiger (though undoubtedly not resident) is indeed very encouraging. Visits to the forest by members of the environmental action group Kalpavriksh, which has been involved with the village over several years, have also yielded a long list of bird species. The resurgence of wild animal populations is indeed causing another problem, that of livestock and crop damage, for which the villagers have yet to evolve a coherent strategy.

Conclusion

By no means is Jardhargaon a perfect success story. Cohesion in the village organisations is not always present, and conflicts do break out. Hunting still takes place, though considerably less so than earlier. Women remain essentially underprivileged, and some conservation-oriented decisions may even cause them further hardships. Attempts to sustain the movement, including the Beej Bachao Andolan, through local-level processing of biological resources and subsequent sale, have run into problems of marketing and quality control. With a severe lack of funds, forest guards have sometimes not been paid for long stretches. But these are not hidden issues: they are vibrantly reflected in village-level democracy and conflict-resolution initiatives, and the more progressive elements in the village are trying to tackle them.

One main problem confronting the VSS today is lack of effective enforcement, as there is no way of ensuring that offenders comply with the imposition of fines on them. Perhaps the violations are not serious enough to undermine the very process of community involvement itself. On the other hand, what this raises is the urgent need to provide some formal authority to the VSS. So far, whatever the village has achieved is through sheer people's power, and there has been no formal recognition by the government. Indeed, the forest department has not even entered the forests for years now. Increasingly, however, it is being realised that with greater integration of the village into larger systems of governance and the market, some legal authority may provide the VSS the means for dealing with troublemakers from both within and outside. But if at all this is opted for, it must be done with utmost caution. The initiative's main strength has till now been the moral conviction of the people: that the forest is theirs, it provides them with fodder, fuelwood, water and clean air, and therefore it is their responsibility to conserve it not only for present but also future generations. It would be a tragedy if this sense of responsibility were to be replaced by a sense of fear of reprisal, which is how the government attempts to conserve forests. It would be an equal tragedy if the tolerance that people feel towards wildlife were to be replaced by hostility, which is what has happened in many a national park and sanctuary of India because conservationists have tried to protect wildlife *from* local people, rather than *with* them. Perhaps

these, along with the importance of empowering village-level institutions, are the greatest lessons we can learn from the remarkable villagers of Jardhargaon.

This case study has been written by Jaishree Suryanarayanan and Ashish Kothari, both members of Kalpavriksh, in 1999 as part of a study on community-based conservation in South Asia. The information was further updated by members of Kalpavriksh in 2006.

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Nagchaund village, Tehri

Background

Nagchaund village is located 40 km away from Tehri dam in the Tehri District of Uttarakhand.

Towards community conservation

The forest adjoining this village was one of the most eroded and deforested forests in Tehri District. Things changed in 1987, when a former army regular Soban Singh Bhandari retired and returned to his village and was faced with fragmented forests, dried-up water sources and unproductive terraced land. He noticed that due to the depleting resources, a large number of able-bodied men would migrate to other places for work, leaving behind children, women and the elderly.

In a short span of six months in the village he was elected as the village *pradhan* (village head). Initially hesitant, he later accepted the post. He then used this opportunity to spread his ideas of village reforms and called for a general meeting with the villagers. He proposed using the Jawahar Rozgar Yogna¹ more productively in the village instead of squandering these funds on petty development projects. The village people responded by deciding to construct a community centre. When this was completed, the cooperation received by the villagers propelled him to engage in more developmental works for the village.

In 1990, when the FD was surveying the area for implementing the micro-watershed scheme, they came upon Nagchaund village. After several discussions with the *pradhan*, a 30-hectare barren community land was selected for the project. To keep uncontrolled grazing in check, the village people erected a wall around the site with funds from the watershed programme. After the monsoons, the villagers undertook a tree plantation drive to meet their fuelwood and fodder requirements.

Impacts of community effort

In just a few years the greenery in the area was restored and the villagers had enough fuel and fodder to meet their consumption needs. Despite the small size of their forest, the ecological effects were amazing. The moisture content of the area increased and the water resources of the village were recharged.

Opportunities and constraints

After the watershed programme was withdrawn, the villagers were faced with the problem of how to maintain the protected land and wall. Since they had no surplus funds, the *pradhan* suggested selling the fodder collected from the protected land and using the money for maintenance of the area. Initially the villagers were opposed to the idea, but when he sold the fodder to the neighbouring village and collected Rs 3,600 for it, the villagers agreed and used the money for developmental work.

Next, under the leadership of the *pradhan*, the community took up plantations and soon the entire wasteland of the village had turned green. When the trees grew, the village was faced with the problem of protecting them. Bhandari assigned the village people the task of protecting specific pieces of land, trees and new plantations. Besides this, the villagers also had to deposit a stated amount as compensation for fodder, which was used to fund community projects.

Subsequently, check dams were constructed on the dry streams and deep V-shaped slopes in the wastelands to harvest maximum amount of water. Once the ponds were full, they were covered with



polythene sheets so that the villagers could have enough water to last through the summer while maintaining the humidity of the soil.

Conclusion

Efforts like this clearly emphasise the value of an efficient and committed leadership in order to initiate positive social action. This initiative may not be towards wildlife protection directly but indicates how local needs can be met with by people if they have security of tenure and right guidance. Once such needs are met by the people in a manner that is most acceptable by them, pressures are diverted from other areas, where biodiversity conservation can then be planned. Such efforts may be more successful than imposing external and alien programmes.

This case study has been adapted from J.P. Panwar in *Down to Earth*, 4 July 2007.

Endnotes

¹ A central government scheme towards employment guarantee in rural India, where daily wage employment is assured in a village where the scheme is being implemented.



Dakhyatgaon, Uttarkashi

Background

Dakhyatgaon is located in the Jumna valley in Uttarkashi district of Garhwal region of Uttarakhand. The village can be approached on a motor road from the nearest town of Barkot. The village is conserving an approximate area of 3sq.km (300 hectares) of forest. This particular patch of forest is called *Banali* or *Banai*, meaning place or habitat of baan oak forest.

The village forest is located on and around a hilltop near the village. It is a sloping land at an altitude range of 1800–1900 m, with a mean annual rainfall of 110 cm, a lowest winter temp of 0°C, and a highest summer temp of 30°C. The climate is monsoon sub-tropical to temperate. There are eight natural water sources present in the vicinity of the village, whose catchment is protected and maintained by this forest.

The ecosystem type is Montane – Himalayan Oak – Rhododendron forest, grassland, cultivated land, and habitation of four villages within 10 km of the forest patch. The flora is dominated by baan oak and rhododendron. Other associated tree species are ainyaar, lodhra, kaula/kawala, shurur, kaint/mohal, phaja, bhambela, pangoi/paranga, bashroi/bhainshra, kimu and dudhoi. Chir is also present, as this altitude is the upper limit of this species. Bhiyul and kharki are cultivated on terrace edges for fodder and other uses.

There is human habitation and cultivated land nearby. Therefore wildlife is generally scarce. Hunting is reported to be fairly common in the region, particularly of various species of deer.

Table 1: Demographic data and economic status

Community	Main sources of income
Jayara (rajput)	Agriculture, animal husbandry, service, wage labour
Mistri (dalit)	Masonry and carpentry, building construction
Bajgi (dalit)	Tailoring and stitching, playing traditional drums at festivals, weddings, spiritual ceremonies and rituals
Harijan (dalit)	Wage labour, agriculture

The village has about 600 people and a livestock population of about 2000

People are completely dependent on the conserved area for livelihood needs, including:

- For agriculture, for which leaf litter is required to produce air-dried compost,
- For animal husbandry—to provide manure for agriculture, milk, ghee, meat, wool, and cash income, for which both tree leaf fodder in the autumn, winter and summer, fresh green grass in the monsoon, and dried grass hay after the monsoon are required;
- Firewood is required for cooking all year round, and heating during the winter,
- Fibre is required for producing rope, fishing lines, etc.
- For medicines for common ailments,
- For wild edibles to help supplement nutrition and food security, especially for women who are generally nutritionally deficient
- For maintaining water sources and ensuring sustainable water supply

Additionally, the nomadic Van Gujjar tribe, originally from Jammu, and now settled in the Shivalik hill area around Dehradun and Haridwar migrate through this area seasonally with their buffaloes. On their way through to the *bugyaals* (alpine grasslands) at the head of the Jumna valley, they camp temporarily and use the surrounding forests for grazing. The local perception is that nomadic people's livestock and grazing, if maintained within certain limits, benefits the forest and grazing land by providing manure and keeping down weeds, and therefore helps maintain biodiversity.



Legally these forests are Reserved Forests declared in 1911. Since then officially there are no rights for local villagers in these forests as per the working plan for Jumna Forest Division. Only concessions are granted. These concessions include limited grazing, dead wood collection and extremely limited free grant timber. It is obvious that people's livelihood requirements are far more than what is officially allowed. Having understood this reality, the local forest officials have not been very strict if additional timber is occasionally required by the villagers.

Towards community conservation

The main objective of the community initiative was to re-establish an earlier existing system of sustainable resource use to yield fodder, firewood, catchment protection, medicines, wild edibles, fibres, etc. This traditional system had been disturbed and dismantled by the reservation of village forests by the forest department of Tehri Riyasat under the *maharaja*. The nearby forest that the villagers depended on for their livelihoods had become severely degraded from commercial exploitation and the resentment of local people who then began to use it excessively, believing that if they protected it, then the state would take it away from them.

The initiative towards conservation was started about 50 years ago. Reservation and curtailment of customary rights had caused alienation of local communities from the forests. By this time, a very large area of forest that included this particular patch had become extremely degraded. Many water sources had dried up; and firewood, leaf fodder, leaf litter and other forest produce was becoming scarce; and women's drudgery had increased substantially.

The entire village, after facing tremendous hardship in meeting their basic needs, sat together and took a unanimous decision to start protecting this patch of forest for their basic needs. The decision was supported by all sections of society in the village, including the disprivileged groups.

The village instituted a *van suraksha samiti* and a *mahila mangal dal* (MMD) for management of these forests. The MMD was originally formed on the request of the Assistant Development Officer (ADO) of the local *panchayat*. This was essentially to meet a target assigned to the BDO for setting up these bodies in the villages. The MMD was promised a *dari* (rug), a *dhol* (drums), a matching contribution to what they could save, and training programmes for women for income-generation schemes. (After the *dari* and the *dhol*, nothing further materialised.) The *adhyaksha* (president) of the MMD was elected democratically by about 50 per cent of the women in the village who had chosen to become members and started saving. Her term has been fixed at 3 years, after which another woman will be elected in her place.

The VSS has all male family members above school-going age as members. A *karyakarani samiti* (executive committee) of 5 members was democratically elected and is responsible for the day-to-day functioning of the *samiti*. The term of the committee is also 3 years. Seasonally, a routine meeting of all the families is called to take decisions about harvesting, rotation, etc. For resolution of conflicts, traditional systems are resorted to even today, which mainly include a council of elders. The management of the forests is based on the principles of equal access to natural resources for every family.

The village maintains a self-imposed ban on firewood and fodder collection from the area under their protection. This forest area is only opened every year for leaf fodder lopping and firewood collection for a definite short period as described earlier. This is strictly monitored by a committee appointed by the village. Every family gets an equal share of the resource, by the method of only allowing one person per family to participate in collection.

There are some important local rules to conserve the forest and ensure its sustainable use:

- Lopping for leaves and branches for fodder and firewood from a selected patch is allowed only every 5 years.
- Removal of leaf litter from the forest floor for manure purposes in a selected patch is allowed only every 2 years.
- Blanket ban on green felling of trees without following forest department procedures.
- Use of all forest produce is only allowed at a specified time, for a short period, e.g., 1 week, decided at an open meeting well ahead. Every family is allowed to send one representative to ensure fair and equitable distribution of produce.
- Specified areas are kept aside for grazing. Other areas are designated for grass cutting after the monsoon, where grazing is not allowed.
- Limited quarrying of flat roofing slates called *pataal*, and local stone for house construction.

Impacts of the initiative

No scientific studies exist to prove exactly how the initiative has benefited the ecology of these areas. However, the forests have regenerated over a period of time and supply of forest produce has increased. This has benefited the people in many ways. The women do not need to walk long distances for collection of firewood, water and other forest produce anymore. Water availability has increased in the village. There appears to be a return of some plants and animals that had become scarce when the area had become degraded. These include associates of oak like ainyaar, lodhra, buraans, etc., and animals such as kakar, serow, and various bird species.

Opportunities and constraints

Uttarakhand became a new state in 1999. There was a great hope that the new state would draft new policies for the benefit of the people. People had also hoped that the new government would be more understanding and sympathetic towards people's dependence on forests in this region as also the traditional systems of conservation, and also that there would be a greater trust in local people and government would hand over forests for management to the people. This expectation had, however, not been fulfilled till the time this paper was written. The Government of Uttarakhand could have learnt a lesson or two from the successes of neighbouring Nepal, where the government has handed over forests for management and use to village communities under their community forestry programmes and have had successful results in forest regeneration.¹

Local people speak of the existence of a bond between themselves (human society) and the forest. However, they feel that the 100-year-old conflict between the traditional subsistence use of the forests by local villagers and scientific commercial forestry has taken a heavy toll in terms of turning people against the forests, and resorting at times to destructive and irresponsible practices. Such practices are further fuelled because of the corruption in the official machinery. For example, in the hills above 1000 msl, the government banned green felling in 1981. Instead, the Forest Development Corporation (FDC) was handed over the responsibility of removing dead and decaying trees. The FDC now floats tenders for this task rather than handing it over to the villages. Villages have seen over a period of time that contractors have misused the situation by felling many green trees under the garb of collecting dead wood. Such practices are clandestinely supported by the government machinery. This has brought about a disillusionment among the villagers. The contracts being handed over to the outsiders has also severely restricted the possibilities of generating local ecosystem-based incomes and livelihood sources.

Villages like Dakhyat present a strong case for a larger area to be officially handed over to the villages to manage, conserve and use by restoring full customary rights and responsibilities over forest produce.

Villagers also feel that the schemes and programmes for development and protection of forests exist only on paper. The forest department seems to use them exclusively to make money from public development funds. Non-literate villagers say, 'We plant 5 trees for our basic survival needs. All of them survive and grow. The government plants thousands every year. But where are they? None seem to survive. Why? Because the forest department and the contractors and labourers they hire are only interested in the money, not the trees. They have no feeling for the forest. Why can't they hire local people?'

The legal framework governing Reserved Forests does not contain any rights for any local communities, only concessions originally granted by the earlier Maharaja of Tehri Riyasat after he had the forests reserved in accordance with British forest policy. The original settlements setting out timber requirements per family are ridiculously outdated and now reportedly legally provide roughly 1 tree per family every 5 years or so. This is simply not enough. So to meet their needs, villagers are forced to bribe the forest guard or forester to look the other way while they fell a tree to meet their legitimate needs. In 1995, a Supreme Court ruling curtailed even bonafide 'free grant' timber rights indefinitely, and this right has only been restored in 2000.

Conclusion and the way ahead

The village needs to be equipped with the tools to plan ahead for their future. They need to be trained in techniques to survey and estimate the extent of their available biomass resources, estimate their total and per capita demand, and project both into the future. This can form the basis of a plan to create and develop the resources required to provide sustainable livelihoods for the village. This will envisage re-establishing customary/traditional rights over a larger area including patches of reserved forest, and closing off part of the area for afforestation and to assist

natural regeneration. Establishing a *van panchayat* would be a big help. The basic requirement for leaf fodder has been worked out by Shri Sundarlal Bahuguna. He says an average family that keeps a milch buffalo, a pair of bullocks and a few goats or sheep requires a minimum of 300 mature fodder trees. One tree should be lopped per day, while the remaining 65 days during the monsoon, green grass can be collected from agricultural lands and supplemented with weeds and crop residues.

Contributed by Darab J. Nagarwalla, Prakriti, Mussoorie, in 2001.

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Endnotes

¹ For more details see www.icimod.org.





Other villages, Uttarakhand

1. Gwaldam village, Chamoli

In Uttarakhand, *maiti* means the parental home of the bride. The *maiti* movement started in the small town of Gwaldam and is now spreading fast throughout the state. The *maiti* ceremony fosters planting of trees at weddings as a part of the nuptial ceremony. During the ritual, the bride hands over a sapling to the groom, who plants it while the girl waters it in the presence of a priest, amidst chanting of *shlokas* and *mantras*. The parents and friends of the girl look after the plant when the girl leaves for the groom's house.

This ritual is the brainchild of Kalyan Singh Rawat, a zoology teacher in the government school in Gwaldam who was involved in the movement. He started this system in 1996, after observing his girl students' interest in nature while on a trip to *bedini bugyal* (alpine meadows). According to Mr. Rawat, deforestation in recent times has severely affected womenfolk, as they have to walk miles in search of grass, wood and drinking water.

A *maiti* group consists of unmarried girls, the eldest of whom is known as *maiti didi* (elder sister). This group prepares a *maiti* nursery in a village or town. On the day of the wedding, a sapling is brought to the groom, which is planted by him. The groom has to contribute some money towards the *maiti* volunteers. The money collected from such contributions is used for elevating the economically backward girls. Needy ones are provided financial aid to meet educational expenses. *Maiti* organisations also extend monetary support to destitute families who want to find a groom for their girls. The word '*maiti*' has blended emotions with the strong desire for eco-conservation.

After the Kargil war, the women in the remote Ochaty village developed a sprawling *maiti* forest dedicated to the soldiers. Recently some 300 trees were planted in the villages of Bageshwar district. In a bid to propagate the message of *maiti*, students from different universities have taken up tree plantations. With the assistance of *maiti* activists, farmers in Uttarakhand are planting fruit trees and also trees that provide firewood and fodder.

For more details contact:

Village and P.O. Gwaldam
Chamoli District
Uttarakhand 246441



2. Khirakot village, Almora¹

In the early 1980s a contractor from Kanpur obtained a lease for mining sandstone from the hills around Khirakot village. As the work progressed, the villagers and women in particular realized that something was terribly wrong. The mine debris was destroying their carefully preserved patch of forest. The narrow bridle paths to their reserve forests were overrun by mules ferrying the stone and villagers would have to wait for a long time for the procession of mules to pass before they could cross. During the monsoon, the dust from the mines swept down into the fields, creating a thick crust that made ploughing difficult.

The men stopped working in the mines and built walls to prevent the mules from using the paths. A criminal case was filed by the contractor against the actions of the villagers. This did not deter the women of the village, who went to each household to collect money to fight in court. Direct action also started by physically stopping the working of the mines. This was followed by retaliation by the contractor: throwing stones at the houses in the village, burning down of a cloth shop, and loosening a reign of terror in the village. When nothing worked, the women were even offered the bait of ownership of the mines, which they refused.

The District Magistrate was shown the destruction caused by the mines to the area and he ordered the cancellation of the mining lease. In 1992, the mines were officially closed.

The women of Khirakot now settled down to regenerate the forests and fields destroyed by the



mines. They filled the ditches created by mining, built a protective wall to prevent the debris from destroying the fields, and planted oak in the panchayat forests.

3. Haryali Devi sacred grove, Uttarakhand²

Haryali Devi is a densely forested area in Chamoli District of the Garhwal Himalaya. The temple of the goddess Haryali Devi stands about 10,000 feet above sea level, surrounded by a thick forest of banj oak, burans, kharsu, moru, kafal and dozens of other local shrubs and bushes. Pilgrims have to remove their shoes 200 m away from the temple and are required to visit it wearing clothes of sober hue as very bright coloured clothes are prohibited. One has to maintain total silence whilst visiting the forest. Bright clothes, whistles or shouts have been known to frighten the wild animals that reside in the thick sacred grove.

Fetching fodder or fuelwood from the forest is disallowed. People firmly believe that if someone hurts the trees, whistles or shouts the forest fairies (*acharies*) will be angered. All these traditions and myths were born out of local indigenous wisdom to conserve biodiversity. For instance, the *doli* (palanquin) of the deity Chalda Mahasu is accompanied by high-bred rams which are fed and protected by the villagers, probably for improving their breed. In some sacred places, killing of deer seen in a pair is a sin. Worshipping water sources, small canal (*gule*) and trees is fairly common in the mountains.

4. Sachidanand Bharti's efforts, Ufrain Khal, Pauri³

Sachidanand Bharti has transformed large parts of the once-denuded Dudhatoli range in Uttarakhand's Pauri district into some of the best and thickest forests in the state.

Since the 1960s, unrestricted industrialisation has made large tracts of the mountains mere warehouses for natural resources exported to the plains. In the 1970s, grassroots protest against the destruction of the forests famously found its most visible expression in the Chipko (literally means hugging the trees) struggle, which began in Gopeshwar in Chamoli district. Bharti was then in college in Gopeshwar and was an active participant in the movement, even forming a college group called Daliyon Ka Dagda (Friends of the Trees) to spread the word on conservation. After his studies, when he returned to Ufrain Khal, he found the same sorry tale of destruction there as well. 'Around that time, the forest department decided to cut down a stretch of silver firs near Dera village. Coming from the Chipko movement, I knew how to tackle this and I started a campaign and mobilised the villagers,' says Bharti. Thanks to his efforts, hundreds of firs were saved from the official axe—a small success which laid the foundation for big changes and, most importantly, helped give the people of the area a sense of their rights and the importance of unity.

Old-timers in the mountains speak of how the forests were once sufficient to provide both for the wild animals that lived in them as well as for the villages dependent on them for fuel and food. But, as deforestation spread out of control, not only did the villagers have to deal with severe resource scarcities but the animals of the forests became a menace, driven by the vanishing tree cover toward human habitation. Instead of killing the animals off, as happened elsewhere, at Bharti's suggestion villagers in Dera began building walls around their fields and settlements. The wall that was begun in 1980, with money pooled in by villagers not only from Dera but from other villages too, is 9 km long today, and the project has been replicated elsewhere as well. Around this time, Bharti also took up teaching at a local school. His long-time friend and doctor, Dinesh, says this was the single most important reason for the success his projects later had, as he was able to reach out directly to the young with his conservationist message.

By the late 1970s, the deforestation problem had sufficiently alarmed the government to spur it to official action—it began planting pine trees in empty patches in reserved forests. This, Bharti says, was disastrous. 'Pine forests reduce moisture levels, and that, together with the trees' highly resinous content, leads to forest fires. Besides, they don't grip the soil well and are poor protection against landslides,' he explains. In 1980, Bharti tried a different approach. With the help of the forest department, he established a nursery of indigenous mountain species: oak, fir, cedar and alder. This effort later grew into the Dudhatoli Lok Vikas Sansthan (DLVS), which undertakes indigenous tree plantation across the range and holds annual environmental awareness camps in the 150 villages that are part of it. From the beginning, the DLVS has also been a tremendous tool for women's empowerment. Women in Uttarakhand are invariably left to manage home and field, as the men migrate for work to the plains. It is the women who bear the brunt of the resource scarcity around them. To encourage their participation, Bharti formed *mahila mangal dals* (MMD) in every village he worked with, and entrusted them with taking up their own part in securing their

future. After the first plantation drive, the villagers who took part made a collective decision to enforce a 10-year ban on forest activity. Through the MMDs, it was the women who took on the task of posting a lookout for trespassers, with patrols working in shifts to keep the vigil.

Within a decade, the people of Dudhatoli regained a large part of their lost forest cover. Bharti says with pride that the villagers have not spent more than Rs 6-7 lakh on planting entire forests over 27 years. After initial help with the first nursery, the DLVS has never asked for any assistance from the government. Instead, it funds itself through a corpus created from the sale of saplings grown in its nurseries. Bharti is in fact critical of the government's role in conservation in the hills. 'Reserving forests meant that mountain people were severely restricted from accessing their woods,' he says, 'But, when money changed hands, the very same rules were flouted openly by the forest officials in cahoots with greedy contractors.'

In 1987, the entire range went through a severe drought. Worried, the DLVS decided to dig a small pit near every tree, so water could collect and allow them to survive a few months longer. At this time, Bharti came into contact with Anupam Mishra of the Gandhi Peace Foundation, who provided him with know-how on the making and maintenance of small-scale water bodies. Bharti turned the principles to meet local requirements and, with the DLVS, began to resuscitate old, dried-up water bodies and create several new ones. Twelve thousand such ponds, big and small, now bring water to about 40 villages. Satish Chandra Nautiyal of Simkoli village points to a small well by his house that Bharti helped build in 2005; this well, he says, is now the basis of the entire village's existence.

Endnotes

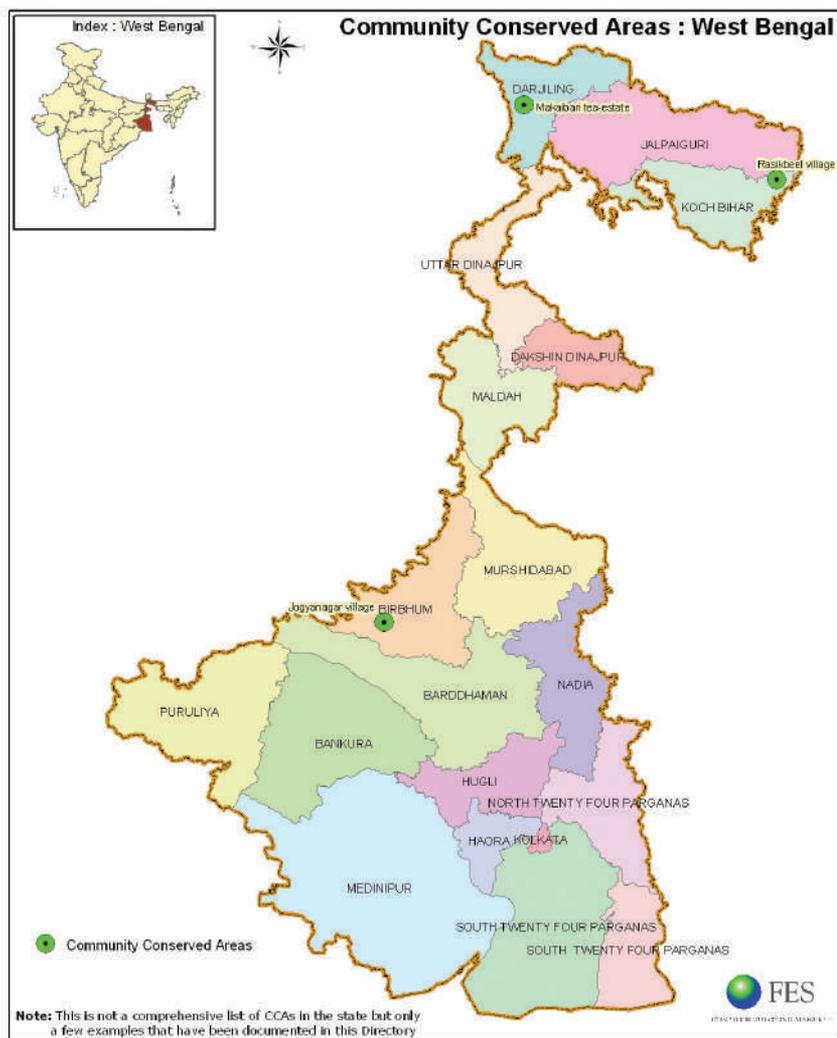
¹ *Source:* Anon. 'Woman Power' in *Humanscape*, extracted from *State of India's Environment 1984-1985: The Second Citizens Report* (New Delhi, Centre for Science and Environment).

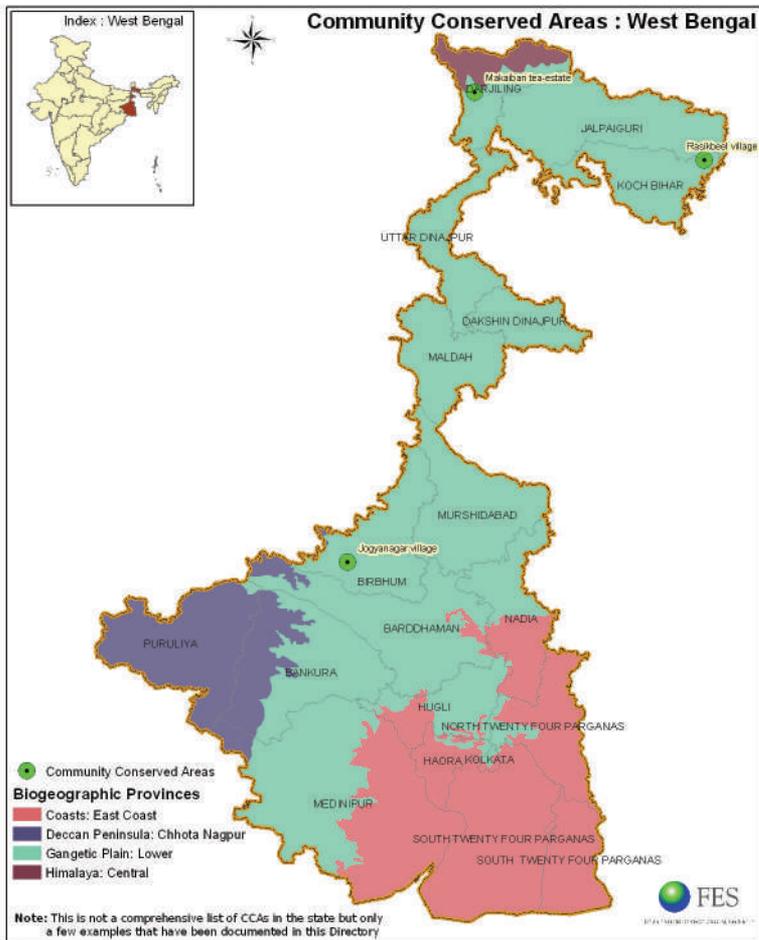
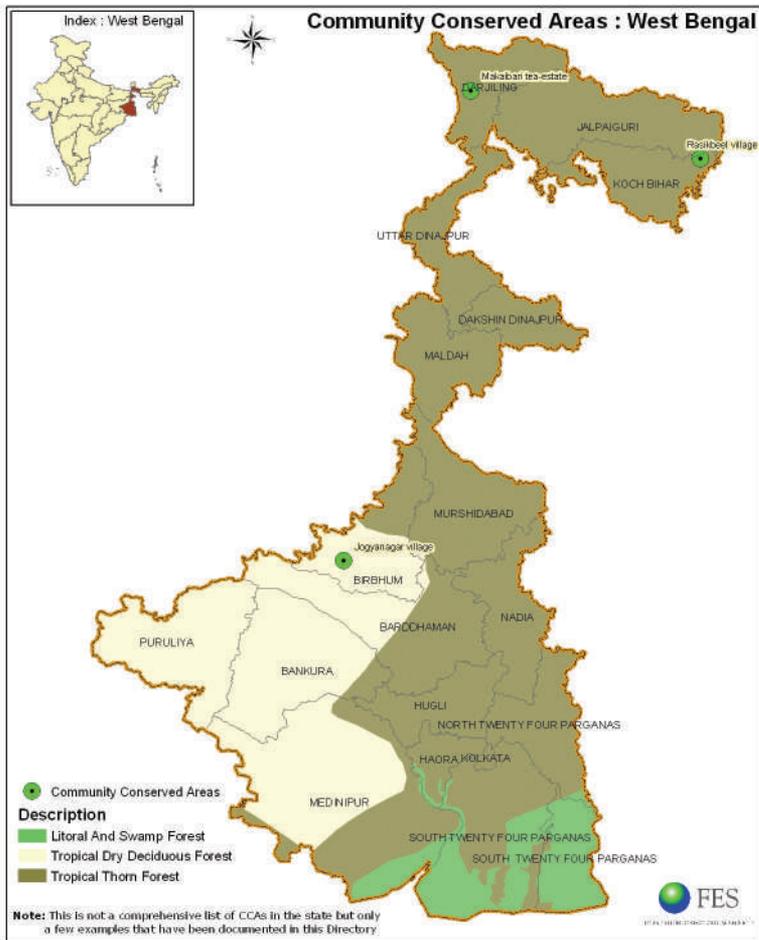
² *Source:* J.P. Panwar, 'Here we come, ecochums', *Down to Earth*, 31 May 1996.

³ *Source:* E-mail to defendingwildindia@yahoo.com sent on Saturday, 20 January 2007, based on a report by Sanjay Dubey on Tehelka.com



West Bengal







West Bengal - an introduction

Location and biogeography

Situated between 21°38' and 27°19'N latitudes and 85°50' and 89°50' E longitudes, West Bengal stretches from the Himalayas in the north to the Bay of Bengal in the south. West Bengal is bounded by five Indian states and three countries: Sikkim to the north, Bhutan to the north-east, Assam and Bangladesh to the east, Nepal, Bihar and Jharkhand to the west and Jharkhand and Orissa to the south-west. The total geographic area of the state is 88752 sq km. West Bengal has a 650 km-long coastline.

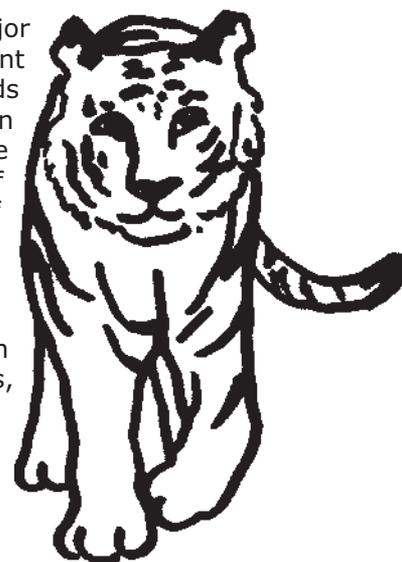
Due to altitudinal variations, the state experiences temperature ranging from below freezing point in the hills during winter to about 45°C in the southern plains during the summer. The climate varies from moist-tropical in the south-east to dry-tropical in the south-west, and from sub-tropical to temperate in the mountains of the north. At the higher altitudes (above 1800 m) of Darjeeling district, severe frost formation and snowfall occur in winter.

Annual rainfall of the state in the northern mountains and the sub-montane region is 2000-6000 mm, in the south-western region it is 900-1400 mm and in the coastal region it is 1700 mm. Around 11880 sq. km (13.4 per cent) of the total geographical area is under forest cover. The major rivers systems in the state are Ganga, Bramhaputra and their tributaries.

There are four biogeographical zones in the state: (i) Central Himalayas, (ii) Chhotanagpur plains of the Deccan peninsula, (iii) Lower Gangetic plains, and (iv) the eastern coast.

In West Bengal, there are about 54 natural and nine human-made major wetlands, totally covering an area of about 3,44,527 ha. The predominant wetland types of the state are marshes, *jheels*, Terai swamps and *char* lands (waterlogged land formed after floods) of the Gangetic plains, wetlands in the islands of the Bay of Bengal and coastal brackishwater wetlands. The largest stretch of mangroves in the country lies in the Sunderbans of West Bengal, covering an area of about 4264 sq. km (i.e., 36 per cent of recorded state forest land).

The total forest cover is 12343 sq km, i.e., 13.91 per cent of the total geographical area as per the Forest Survey of India 2003. The 10 forest types in West Bengal are Northern Tropical Wet Evergreen, Northern Subtropical Semi-Evergreen, North Indian Moist Deciduous, Mangroves, Tropical Seasonal Swamps, Northern Tropical Dry Deciduous, Northern Subtropical Broad-leaved Wet Hill, Northern Montane Wet Temperate, East Himalayan Moist Temperate and Sub-Alpine Forests.



Biodiversity

The flora of West Bengal comprises 3580 species. A total of 8037 animal species have been recorded here. Zoological Survey of India (ZSI) has listed 176 mammals' species and 497 species avian fauna in the state. West Bengal is known to have the richest species diversity of fish in India, with a total of 574 species.

Socio-economic profile

West Bengal is the third most populated state of the country with population of 80,176,197. The official language is Bengali.

Scheduled Castes (SC) and Scheduled Tribes (ST) comprise 23.62 per cent and 5.59 per cent of the population respectively. Nearly 72 per cent of the population resides in rural areas, in 43,000 villages. West Bengal has at least 38 major categories of tribal people. A majority of these tribes, such as Santhal, Oraon, Munda, Kora, Mehali, Lodha and Malpaharia, have migrated from Santhal Parganas during the 19th century and settled mainly in Medinipur, Puruliya, Bankura and West Dinajpur; while a few others, viz., Bhutia, Lepcha, Mech and, Rava are residents of the hill section of Darjeeling and Jalpaiguri.



Wetlands of east Kolkata form an important ecosystem in West Bengal
Photo: Ashish Kothari

The main occupation is agriculture, accounting for 95 per cent of the rural population, followed by industry, fishing, honey collection and woodcutting. The principal land uses in state are agriculture, forests, wasteland, wetland, human settlement and industrial sector.

Administrative and political profile

West Bengal was created as a constituent state of the Indian Union on 15 August 1947 as the result of partition of the undivided British Indian province of Bengal into West Bengal. As in other states, there is a three-tier panchayat system, except in Darjeeling district which is governed by the Gorkha Hill Council. There are at present 3437 *gram panchayats* (at village level), 331 *panchayat samitis* (at block level) and 18 *zilla parishads* (at district level).

Conservation

The protected area network comprises 5 national parks, 15 sanctuaries, 2 tiger reserves, 1 elephant reserve and 1 biosphere reserve.¹ Sundarbans (2585 sq km) and Buxa (759 sq km) are two tiger reserves. There are also the elephant reserves of Eastern Dooars and Mayurjharna in the state. Sundarbans is an important biosphere reserve (9,630 sq km) encompassing parts of the Ganges delta and the Brahmaputra river system.

The East Calcutta wetlands with an expanse of 12,500 ha is one of important 25 Ramsar sites designated by the Ramsar Bureau. These wetlands (22°25' to 22°40' N and 88°20' to 88°35'E) are critical for their waste recycling properties. The system is described as 'one of the rare examples of environmental protection and development management where a complex ecological process has been adopted by local farmers for mastering the resource recovery activities.'² Five more Ramsar sites are proposed in the state³. Many species in the deltaic Sunderbans like tiger, fishing cat, Gangetic dolphin, little porpoise, adjutant stork, osprey, saltwater crocodile, olive ridley turtle, etc. have been categorized under endangered status due to habitat destruction and deterioration of water quality.

West Bengal was among the leading states in implementing Joint Forest Management (JFM). In fact, its participatory forest management programmes seem to have inspired the Indian Forest Policy of 1988, which emphasized participatory forest management in the rest of India. The forest department currently recognizes 3545 forest protection committees (FPCs); of these 17 FPCs have only women members. In Sunderbans area there are 33 FPCs with 13527 members, protecting 567 sq km of mangrove forest. The state also has 52 watershed committees for better management of watersheds. Additionally there are 99 ecodevelopment committees (EDCs) in 2 tiger reserves, 2 national parks and 3 sanctuaries, for encouraging joint participatory action for biodiversity conservation in protected areas.

Table 1: Some of the notable examples of community conserved areas and community involvement in protected areas

Sr. No.	Name of Area	Location	Kind of Effort	Area
1.	Bankura Village	Bankura District	Protection of forest under Joint Forest Management	Not available
2.	Chandana and Harinakuri	Kharagpur District	Forest protection with forest department	160 ha
3.	Jaldapara WLS	Jalpaiguri District	Protection of Wildlife Sanctuary with help of villagers	Not available
4.	Jogyanagar	Birbhum District	Heronry protection	Not available
5.	Makaibari	Darjeeling District	Forest protection with tea estate	673 ha
6.	Rashikbeel	Cooch Behar District	Protection of wetland through formation of FPC	100 ha
7.	Singalila National Park	Darjeeling District	Afforestation and waste management in the NP	Not available

Out of the above, Jogyanagar, Makaibari and Rashikbeel are dealt with in detail in the case studies section.

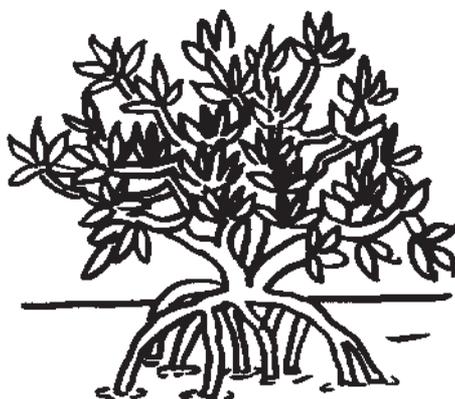
This information about the state has been compiled by Saili S. Palande of Kalpavriksh based on: State Steering Committee for NBSAP (West Bengal Chapter), *Biodiversity Strategy Action Plan, West Bengal*. Prepared under National Biodiversity Strategy and Action Plan, Ministry of Environment and Forests (Government of India). (Contained in CD with reference at endnote 1)

Endnotes

¹ TPCG and Kalpavriksh, *Securing India's Future: Final Technical Report of the National Biodiversity Strategy and Action Plan*. Prepared by the NBSAP Technical and Policy Core Group (Delhi/Pune, Kalpavriksh, 2005).

² http://www.ramsar.org/profile/profiles_india.htm

³ M.Z. Islam and A.R. Rahmani, *Potential Ramsar Sites in India* (Mumbai, IBCN:BNHS and Birdlife International, 2006).





Jogyanagar, Birbhum

Background

Jogyanagar is a village situated in Birbhum district of south-western Bengal. It is located at a distance of 13 km from Shantiniketan. This village is an abode for the open-billed storks that flock this area for nesting and breeding, and is well known for this in the region. The inhabitants of the village are Muslims and are dependent on rice cultivation.

Towards community conservation

The villagers of Jogyanagar have been traditionally protecting the habitat of the birds, which are the mango and tamarind trees in the village. According to the villagers, the avian visitors flock in their thousands each year during the nesting season, which begins from June and ends in October.

The relationship with the birds is traditional and symbiotic. While the birds get protection in the village, villagers benefit from using the bird droppings as fertilizer in the fields.

Opportunities and constraints

Very often these birds visit the rice fields of the neighbouring villages, where they are hunted or trapped. Any attempts by the villagers from Jogyanagar to oppose these activities leads to the action being given a communal twist. Though a series of ecological and social impact assessments of the system have been done by the Visva Bharati University and other institutions, for the villagers nothing much has come out of it. The forest department (FD) has shown little interest in supporting the villagers or protecting the birds. The villagers strongly feel that the FD must take up the responsibility of protecting the birds and also help the villagers in doing this.

Conclusion

This case shows that protection of species by local villagers often happens based on sentiments, tradition and mutual understanding. However, given the changing socio-economic scenario, these villagers need support to be able to carry on with these efforts. This support can be legal, financial or political.

This case study has been compiled Joy Dasgupta for this Directory in 2001. He is currently at ICIMOD, Kathmandu.

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Rasikbeel, Cooch Behar

Background

Rasikbeel is a wetland ecosystem in Cooch Behar district in northern Bengal. It is located around 34 km from the sub-divisional office at Alipurduar and around 37 km from the district headquarters at Cooch Behar.

The *beel* (waterbody) covers an area of 1 sq km. This wetland has been a breeding ground for diverse species of birds. The lake shelters around 40 species of migratory ducks such as mergansers that descend here during the winter season from late November till early March. The vegetation around the lake consists of a mosaic of crop fields, bamboo groves and degrading moist deciduous forest patches, along with a few plantations. The *beel* is a major attraction for bird watchers.

The government is also encouraging tourism here. The legal status of the wetland is reserved forest (RF) under the jurisdiction of the Forest Development Corporation (FDC).

Towards community conservation

According to the villagers, this area had severely degraded prior to 1991. Indiscriminate hunting of birds had led to a sharp fall in the bird population. Even the birds which came to breed here were facing serious problems because of the lake being nearly choked by the water hyacinth. This situation led to the forest department initiating a wetland restoration programme in the area. As a result, a forest protection committee (FPC) was formed in 1991. The overall management of the *beels* now rests with the FPC, which consists of 432 members from the three hamlets of Octamochor, Chengtimari and Rasikbeel. These three villages are forest villages, as they were part of the *taungya* system¹ since the 1960s. These villagers are inhabited by a diversity of communities such as the Santhals, Rabhas, Kochs, Bengalis and Kharias. After the forestry operations have nearly stopped in the area, the main occupation of the villagers is rainfed agriculture and collection of forest produce. Fishing is also carried out in the lake as a supplement to the income.

The protection efforts were further strengthened in 1995 when the FDC stepped in to build a tourist complex in the area. The FDC introduced eco-tourism, with the central objective of sustaining the natural habitat of the birds while promoting tourism. Tourism would also help the local livelihoods, increasing participation of local communities in bird protection.

Impacts of community effort

Involvement of the FPC in the protection of the birds is believed to have considerably reduced the extent of hunting in the area. Additionally, the forests in the vicinity have also regenerated.

Under an informal arrangement with the FDC, the FPC is entitled to 25 per cent of the total revenue generated through tourism. The FPC also earns from the sale of firewood and bamboo. This fund is used for common village development activities. Encouragement of tourism in the area has led to economic uplift of the villagers.

Opportunities and constraints

Although the FDC calls their effort an eco-tourism effort, the scheme is geared towards converting this place into a conventional picnic spot. There are few efforts if any to facilitate tourism that is sensitive to local needs, including the needs of the birds and people. Tourism, particularly between the months of December and early February and especially on weekends, has increased many-fold. The overnight tourists are usually the ones interested in birds, but the day tourists come primarily for picnics. There are approximately 250-300 cars that visit the area on weekends. Noise pollution generated by this influx causes serious disturbance to the nesting birds.



Although the FPC has managed to ban loudspeakers in the area, they have not yet managed to deal with enormous amount of waste generated by the picnickers. The rapid spread of hyacinth and the consequent choking of the native plants in the lake is another emerging problem that needs to be urgently tackled.

Despite all efforts the regular census since 2000 has shown a decline in the number of birds. The reasons for this could be a combination of the above-mentioned reasons and some others. However, currently there are proposals to declare this wetland as a legally Protected Area (PA). Once declared a PA, utilization of the lake for any purposes by the local people will be affected. This is likely to strain the relationship between the people and the FD. Whether the area needs any legal protection, and, if yes, what, is an issue that needs to be carefully assessed.

Conclusion

This case study reflects a fairly progressive effort towards conservation. The FPC has played a crucial role in implementing economic incentives for the villagers. However in doing so it has to maintain a balance between commercialisation and resource sustenance. Hence the FPC's objectives have to be focused on the people's benefit along with conservation.

This case study has been compiled Joy Dasgupta for this Directory in 2001. He is currently at ICIMOD, Kathmandu.

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Endnotes

¹ A system under which people were settled on government forest lands in order to carry out forestry operations for the FD. As an incentive the villagers were given some land to live on and cultivate for personal use. These villages did not have any rights over the forests or its produce.



Makaibari, Darjeeling

Background

Makaibari is one of the few tea estates in the world that has more land under forest cover than tea bushes. It offers a model for conservation, while also being engaged in production. It is one of the very few community areas that has been progressive. It is located in Darjeeling district, nestled in the foot of the Himalayas. Makaibari Tea Estate (MTE) is located about 3 km south-west of Kurseong, at an elevation of 900-1200 m above sea level. The tea estate covers 673 ha but only 274 ha are cultivated with tea bushes. Makaibari is neither a PA (protected area) nor a RF (reserved forest); yet it has all the components of an ecosystem that includes people, wildlife, forests and cattle, and has managed to enrich its biodiversity and protect the forest area.

The forest of Makaibari is a sub-tropical rainforest, and the tea estate retains 70 per cent of its area under forest cover. The average rainfall varies from 3000-3500 mm and the average number of rainy days is 120 in a year. The fauna species in the forest area are in abundance, and comprise leopard, barking deer, peacock, goral, monkeys, wild boar and various bird species including the hornbill.

The villages are inhabited by the Gorkha community, who are either Hindus or Buddhists. This village follows the system of caste hierarchy, wherein the brahmins are at the higher rungs followed by the limbus and rais. The kamis occupy the lowest rung of the ladder. The number of people inhabiting this area is 1500, out of which 610 are employed at the tea estate. The women are generally pluckers, as they pluck the leaves from the tea bushes whereas the men are employed as 'sicklers' who trim the tea bushes. The people are spread across the villages of Makaibari, Thapthally, Kodobari, Phulbari, Cheptai, Chunagai and Koilapani.

Towards community conservation

Makaibari is one of the oldest tea estates, established in 1859. It is being run by Rajah Bannerjee, the head of the family that has traditionally owned the estate. Despite the ownership of the forests by this family, the local villagers also depend on these forests for their everyday needs such as dry wood, fodder, etc. There are many myths, beliefs, customs and traditions associated with these forests, which ensure that while meeting the needs these forests are not over-exploited. Apart from this the villagers have appointed forest rangers who patrol the forests to keep a vigil on intruders interested in timber smuggling and poaching.

A joint body committee (JBC) is the local institution that implements and monitors various socio-economic programmes and issues, including conservation of all the seven villages. It consists of elected members from each village, along with some representatives from the MTE management. All the powers are vested in the hands of the JBC, meetings of which are held weekly. The JBC also discusses the issues of overall village development. Any offender is handed over to the JBC, which in turn decides the punishment or the fine. The women have organized a Mahila Samiti, which is an offshoot of local political parties.

Forest conservation greatly benefits the tea cultivation. The tea cultivation system followed here is based on the bio-dynamic method of cultivation that was developed in 1924 by Rudolf Steiner. Under this method the tea bushes become a part of the larger ecosystem that is typical of a sub-tropical rainforest. The ground underneath the bushes is full of life, and they also attract various birds and insects. The local people prepare the compost that is crucial to this method of farming. Each household at Makaibari looks after a compost heap that consists of cowdung from their own cattle, the pruning litter from the tea bushes, and the organic waste material from their kitchens. The compost is enriched with yarrow, nettle, cowdung and other natural plant materials. This is later sold to the management of the estate, which further treats it with homoeopathic preparations. The compost is applied to the tea bushes, which represents a symbiotic relationship between the forest and the tea bushes.

The forests contribute to the tea culture such that the canopy cover prevents the direct scorching of the tea leaves, thereby retaining the moisture. Insects are attracted to the plants in the forests



rather than the tea leaves. The forests also harbour the birds to feed on insect pests of tea leaves.

There are many local customs that further contribute towards the conservation of these forests. The people of Makaibari believe in the *Bandevta* or the jungle god, who resides in the 'koheli' bird (the scientific name of the bird could not be verified). This bird is never seen during the day and is only recognized by the peculiar sound of 'ku ku' at sunset. Another abode of the jungle god that they believe in is the *chillauni* tree (a kind of hardwood found in North-East Indian forests). These trees dot the forest and are found in the homesteads. A prayer is conducted during the spring season (*Baisakh*) by offering *sindhur* (vermilion powder), *mithai* (sweets) and *supari* (betelnut). Besides, a number of other trees are also considered sacred by the villagers, such as the ber that requires a *pandit* (priest) to conduct the ceremony, unlike the tulsi and peepal trees, which are worshipped by the villagers directly. The villagers also believe in *Banjhakri*, an evil spirit that roams in the forest and takes possession of small children in certain areas in the forests. This restricts the entry to those areas. These restricted areas are believed to have the highest concentration of wild animals. The cattle is stall-fed rather than taken to the forest for the fear of them being attacked by leopards. It is easier for the villagers to collect the urine and dung of the cattle, which is used in the compost in each household.

Each of the villages is provided a part of the forest for resource use and prevention of conflict among the different villagers. In order to reduce the pressure on the forests, each household has been provided with an LPG through partial contributions made by the workers. Timber for the construction of houses is procured from the nearby town of Siliguri by the MTE management. Other than fuel and fodder, some roots, tubers, fruits and medicinal plants are also extracted from the forest. There is no commercial extraction of NTFP, apart from a few women who sell fruits in the nearby town of Kurseong.

The MTE management emphasises direct and indirect benefits to the local people, in order to effectively implement forest protection along with motivating people. Every year the villagers select a part of the forest for planting tree saplings. The forest area and the plant species are decided by the respective village committees. In order to benefit the people, the management recommends one out of five trees to be a fruit tree that is to be planted and then nurtured by the people. All the villagers actively participate in protecting the forest from intruders, while a group of 18 forest rangers selected from the villages has been appointed to patrol the area. The rangers' group comprises representatives from the management too, including the owner of the estate.

Impacts of community effort

As a result of prolonged conservation efforts, this area has a dense forest cover. The forest cover results in the prevention of landslides and soil erosion. Peacocks that were never heard here can now be heard all over the forest. Interestingly, while the leopard population seems to be decreasing everywhere in Darjeeling, they appear to have increased in the forests of Makaibari. The forest rangers who patrol the forest area record the observations of wildlife made by them regularly in a logbook.

As an incentive towards conservation efforts, a number of schemes towards social upliftment of local people have been implemented. These schemes have improved the socio-economic, health, education and employment status of the local villagers.

Opportunities and constraints

The owner of Makaibari attributes the production of high-quality tea to the thriving sub-tropical rain forest in the area. The tea estate of Makaibari is a perfect example of conservation, wildlife management, and meeting local livelihood needs. There have been a few instances of poaching and timber smuggling that have been confronted by the forest rangers. In the nearby tea estates there are problems such as leopard poisoning and destroying elephant corridors to cultivate tea. The people working on the other tea estates have more difficult access to fuelwood and fodder. The fact that the youth are not keen on working on the estates and are looking for better opportunities on par with their education is an issue that will have to be dealt with by the management in future.

Conclusion

This case study reflects a very progressive and fruitful result of people's initiatives and action towards biodiversity and socio-economic progress. However, Makaibari cannot remain as an island

of success; if it is not replicated in other areas to reduce deforestation, the pressure will eventually fall on the forests of Makaibari as well. The model of the tea estate of Makaibari can be replicated in many other areas as well.

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Annexure 1: List of case studies in alphabetical order

Site	State	Page no.
Abhor (13 villages)	Punjab	565
Adiyal tekdi	Maharashtra	411
Ajeevali village	Maharashtra	402
Amakhera village	Uttar Pradesh	695
Apatani valley	Arunachal Pradesh	139
Aravanchal Kavu	Kerala	343
Ashtamudi lake	Kerala	346
Balukhand Konark Sanctuary	Orissa	530
Baripada village	Maharashtra	389
Behroonguda village	Andhra Pradesh	111
Belgata village	Maharashtra	372
Bhaonta-Kolyala villages	Rajasthan	587
Binjgiri hill (8 villages)	Orissa	510
Bolunda village	Maharashtra	410
Botha village	Maharashtra	367
Budhikhamari village	Orissa	502
Chakrashila Sanctuary	Assam	159
Chamanpur village	Chhattisgarh	194
Changtongya village	Nagaland	465
Chhitkul village	Himachal Pradesh	250
Chishilimi village	Nagaland	466
Chittarangudi village	Tamil Nadu	660
Chizami and 5 other neighbouring villages	Nagaland	460
Chorati village	Maharashtra	375
Dakhyatgaon village	Uttarakhand	768
Daupur village	Uttar Pradesh	696
Dengajhari village	Orissa	514
Dhani Panch Mouza (5 villages)	Orissa	517
Dharamghar region	Uttarakhand	733
Doddabail hamlet, Bhairumbe	Karnataka	314
Dungri Chopra village	Uttarakhand	749
Gadabanikilo village	Orissa	522
Ganeshpura village	Chhattisgarh	197
Garooru village	Jammu & Kashmir	279
Ghusuria village	Orissa	504
Gursikaran forest (20 villages)	Uttar Pradesh	697
Gwaldam village	Uttarakhand	772
Halkar village	Karnataka	316
Haryali Devi sacred grove	Uttarakhand	773
Hiware Bazaar village	Maharashtra	363
Holta village	Uttarakhand	760
Hunsur village	Karnataka	307
Huta village	Orissa	534
Iringole Kavu	Kerala	341
Jardhargaon village	Uttarakhand	762
Jarmal village	Orissa	538
Jharbeda village	Orissa	542
Jhargoan village	Orissa	498
Jogyanagar village	West Bengal	781
Junawani, Ulnar and 12 other villages	Chhattisgarh	191
Kaggaladu village	Karnataka	311
Kailadevi Sanctuary	Rajasthan	602
Kalpavalli (8 villages)	Andhra Pradesh	114
Kalikasole village	Orissa	506

Kamla village	Himachal Pradesh	245
Karundamunda village	Chhattisgarh	198
Kawant region (98 villages)	Gujarat	225
Khambi village	Manipur	428
Khawrakrai village	Assam	162
Khirakot village	Uttarakhand	772
Khonoma village	Nagaland	451
Khichan village	Rajasthan	623
Kikruma village	Nagaland	465
Kishori village	Rajasthan	599
Kodbahal village	Orissa	547
Kokare Bellure village	Karnataka	302
Kolavipaalam Beach, Iringal	Kerala	349
Kongan village	Nagaland	465
Koondakulam village	Tamil Nadu	666
Lakhapur village	Maharashtra	377
Ledhor-Kala village	Rajasthan	617
Lohathal sacred grove	Uttarakhand	751
Loktak lake	Manipur	417
Longwood shola	Tamil Nadu	656
Luzophuhu village	Nagaland	462
Mangaon village	Maharashtra	409
Makaibari tea estate	West Bengal	784
Makku and 8 other villages	Uttarakhand	753
Malekpur village	Gujarat	221
Maneshwar temple	Orissa	536
Manglajodi village	Orissa	488
Mantoor village	Andhra Pradesh	122
Mapum village	Manipur	429
Mcleodgunj and nearby villages (Pong wetland)	Himachal Pradesh	249
Mega, Molo and Dipu villages	Arunachal Pradesh	146
Melghar village	Tripura	675
Mendha-Lekha village	Maharashtra	392
Motichak village	Bihar	171
Nagavalli village	Karnataka	313
Nagchaund village	Uttarakhand	766
Nahikalan village	Uttarakhand	741
Nanj village	Himachal Pradesh	256
Nellapattu & Vedurapattu villages	Andhra Pradesh	125
New Kubing village	Assam	164
Ngainga village	Manipur	431
Padhar village	Himachal Pradesh	252
Pakhi and Jalgwad villages	Uttarakhand	739
Pambar shola	Tamil Nadu	659
Panjawar village	Himachal Pradesh	259
Patari Dang, Alampur village	Rajasthan	619
Patharghara village	Orissa	508
Pedullupalle village	Andhra Pradesh	119
Phuljhar village	Orissa	549
Pulicat lake	Tamil Nadu	652
Rajain village	Himachal Pradesh	247
Rasikbeel village	West Bengal	782
Ravangaon and Shirsuphal villages	Maharashtra	410
Rupabalia reserved forest (8 villages)	Orissa	483
Rushikulya rookery	Orissa	493
Sacred groves of Virajpet taluka	Karnataka	299
Saigata village	Maharashtra	379

Samantsinharpur, Andharua villages	Orissa	526
Sangti valley	Arunachal Pradesh	144
Satara Tukum village	Maharashtra	384
Sendenyu village	Nagaland	455
Shanag village	Himachal Pradesh	254
Shankarghola village	Assam	157
Sheikha Jheel	Uttar Pradesh	700
Shiroor Alalli villages	Karnataka	309
Shirui Hill, Shirui	Manipur	434
Siddheshwar village	Maharashtra	411
Simalgaon village	Uttarakhand	737
Sova village	Andhra Pradesh	127
Suali, Bhamti village	Rajasthan	625
Suruguda village	Orissa	553
Thalli village	Himachal Pradesh	257
Thapaliya-Meharagaon village	Uttarakhand	747
Thiang sacred grove (7 villages)	Meghalaya	441
Tizu village	Nagaland	466
Todar Majra, Makrian, Chunni Khurad, Makar & Majatri villages	Punjab	568
Toufema village	Nagaland	458
Udपुरia village pond	Rajasthan	621
Ufrain Khal	Uttarakhand	773
Uppalapadu village	Andhra Pradesh	121
Upper Ngatan village	Manipur	425
Veerapuram village	Andhra Pradesh	116
Zanibu peak	Nagaland	466

Annexure 2: CCAs with location, ecosystem/kind of initiatives and area (arranged state-wise)

No.	Village	District	State	Ecosystem/Kind of initiative	Area
1	Behroonguda village	Adilabad	Andhra Pradesh	Forest conservation, regeneration, soil and water conservation (also JFM)	500 ha
2	Kalpavalli (8 villages)	Anantpur	Andhra Pradesh	Forest conservation, regeneration and regulated use	59 ha wasteland regeneration + 108 ha Tamarind orchards + 3346 ha contiguous forests=3513
3	Mantoor village	Kowdipally Mandal, Medak	Andhra Pradesh	Forest conservation, regeneration and regulated use (under JFM)	24.28 ha
4	Nellapattu & Vedurapattu villages	Doravarisatram Mandal, Nellore	Andhra Pradesh	Wetland; Protection of heronry	458 ha
5	Pedullupalle village	B. Kodur Mandal, Cadappa	Andhra Pradesh	Wetland; Protection of heronry	NA
6	Sova village	Vishakapattanam	Andhra Pradesh	Forest conservation, regeneration and regulated use (under JFM)	NA
7	Uppalapadu village	Pedakakani Mandal, Guntur	Andhra Pradesh	Wetland; Protection of heronry	2.02 ha
8	Veerapuram village	Chilamathur Mandal, Anantapur	Andhra Pradesh	Wetland; Protection of heronry	12.14 ha
9	Apatani valley	Lower Subhansari	Arunachal Pradesh	Forest conservation and sustainable agriculture	5200 ha
10	Sangti valley	West Kameng	Arunachal Pradesh	Forest; Protection of blacknecked crane	NA
11	Mega, Molo and Dipu villages	Along	Arunachal Pradesh	Forest; Sacred grove	NA
12	Chakrashila Sanctuary	Dhubri	Assam	Forest; protection of golden langur and other species	2000 ha
13	Khawrakrai village	Karbi-Anglong	Assam	Forest conservation, regeneration and regulated use	670 ha
14	New Kubing village	North Cachar Hills	Assam	Forest conservation, regeneration and regulated use	600 ha
15	Shankarghola village	North Salmara, Bongaigaon	Assam	Conservation of forest and protection of golden langur	50 ha
16	Motichak village	Bhagalpur	Bihar	Protection of greater and lesser adjutant storks	NA
17	Chamanpur village	Pratappur, Sarguja	Chhattisgarh	Forests, soil and water conservation	220 ha
18	Ganeshpura village	Ambikapur, Sarguja	Chhattisgarh	Forest conservation, regeneration and regulated use	200 ha
19	Junawani and Ulnar (with 12 villages)	Bastar	Chhattisgarh	Forest conservation, regeneration and regulated use	2400 ha
20	Karundamunda village	Ambikapur, Sarguja	Chhattisgarh	Forest conservation, regeneration and regulated use	100 ha
21	Malekpur village	Bhiloda, Vadodara	Gujarat	Forest conservation, regeneration and regulated use	163 ha

22	Kawant region (98 villages)	Vadodara District	Gujarat	Forest conservation, regeneration and regulated use	20ha to 125ha
23	Chhitkul village	Sangla, Kinnaur	Himachal Pradesh	Forest conservation, regeneration and regulated use	10 ha-forest, 30 ha- alpine pastures
24	Mcleodgunj & nearby villages (Pong wetland)	Dharamshala	Himachal Pradesh	Wetland; Protection of birds	NA
25	Kamla village	Bhatiyat, Chamba	Himachal Pradesh	Forest conservation, regeneration and regulated use	5 ha
26	Nanj village	Karsog, Mandi	Himachal Pradesh	Forest conservation, regeneration and regulated use	70 ha
27	Padhar village	Manali, Kullu	Himachal Pradesh	Forest conservation, regeneration and regulated use	10 ha
28	Panjawar village	Haroli, Una	Himachal Pradesh	Forest conservation, regeneration and regulated use	250 ha
29	Rajain village	Bhatiyat, Chamba	Himachal Pradesh	Forest conservation, regeneration and regulated use	10 ha
30	Shanag village	Manali, Kullu	Himachal Pradesh	Forest conservation and regulation	200 ha
31	Thalli village	Karsog, Mandi	Himachal Pradesh	Forest conservation, regeneration and regulated use	35 ha
32	Garooru village	Baramulla	Jammu & Kashmir	Forest conservation, regeneration and regulated use	40 ha
33	Sacred groves of Virajpet taluka	Coorg Virajpet, Kodagu	Karnataka	Forest; Sacred grove	NA
34	Doddabail hamlet, Bhairumbe	Sirsi, Uttar Kannada	Karnataka	Forest conservation, regeneration and regulated use	10 ha
35	Halkar village	Kumta , Uttar Kannada	Karnataka	Forest and estuary conservation and mangrove regeneration	89 ha forest + 60 ha mangrove area
36	Hunsur village	Sagar Shimoga	Karnataka	Forest; Sacred grove	50 ha
37	Kokare Bellure village	Mysore	Karnataka	Protection of heronry	NA
38	Kaggaladu village	Sira, Tumkur	Karnataka	Protection of heronry	
39	Nagavalli village	Tumkur	Karnataka	Protection of slender loris	NA
40	Shiroor Alalli villages	Sagar, Shimoga	Karnataka	Forest conservation, regeneration and regulated use	40 ha
41	Aravanchal Kavu	Thaliparambu, Kannoor	Kerala	Forest; Sacred grove	2.83 ha
42	Ashtamudi lake	Kollam, Kollam	Kerala	Estuary conservation	3800 ha
43	Iringole Kavu	Perumbavoor, Ernakulam	Kerala	Forest; Sacred grove	NA
44	Kolavipaalam Beach, Iringal	Quilandi, Kozhikode	Kerala	Beach and turtle protection	8 km
45	Ajeevali village	Maval , Pune	Maharashtra	Sacred grove, sustainable resource use and development	22 ha
46	Baripada village	Dhule	Maharashtra	Forest conservation, regeneration and regulated use	445 ha
47	Belgata village	Chandrapur	Maharashtra	Forest conservation, regeneration and regulated use	141.64 ha
48	Botha village	Buldhana	Maharashtra	Forest conservation, regeneration and regulated use	1510 ha

49	Chorati village	Brahmapuri, Chandrapur	Maharashtra	Forest conservation, regeneration and regulated use	560 ha
50	Hiware Bazaar village	Ahmadnagar	Maharashtra	Forest conservation, regeneration and regulated use	976.84 ha
51	Lakhapur village	Brahmapuri, Chandrapur	Maharashtra	Forest conservation, regeneration and regulated use	240 ha
52	Mangaon village	Velhe, Pune	Maharashtra	Forest; Sacred grove	18 ha
53	Mendha-Lekha village	Gadchiroli	Maharashtra	Forest conservation, regeneration and regulated use	1900 ha
54	Saigata village	Brahmapuri, Chandrapur	Maharashtra	Forest conservation, regeneration and regulated use	280 ha
55	Bolunda village	Goregaon, Bhandara	Maharashtra	Forest; Sacred grove	3 ha
56	Ravangaon and Shirsuphal villages	Daund and Baramati respectively, Pune	Maharashtra	Protection of grassland and species such as macaques, chinkara, blackbuck and wolf	NA
57	Adiyal tekdi	Mul, Chandrapur	Maharashtra	Forest conservation, regeneration and regulated use	30 ha
58	Siddheshwar village	Rajura, Chandrapur	Maharashtra	Forest; Sacred grove	350 ha
59	Satara Tukum village	Pombhurna, Chandrapur	Maharashtra	Forest conservation, regeneration and regulated use	285 ha
60	Mapum village	Ukhrul (foot hill of Shirui Kashong peak)	Manipur	Forest conservation, regeneration and regulated use	NA
61	Ngainga village	Ukhrul (Western Ukhrul)	Manipur	Forest conservation, regeneration and regulated use	143 ha
62	Khambi village	Phungyar, Ukhrul	Manipur	Forest conservation, regeneration and regulated use	300 ha
63	Loktak lake	Bishnupur	Manipur	Wetland protection and conservation	4455 ha
64	Upper Ngatan village	Senapati	Manipur	Forest conservation, regeneration and regulated use	400 ha
65	Shirui Hill, Shirui	Ukhrul	Manipur	Protection of siroy lily plant	NA
66	Thiang sacred grove (7 villages)	Ri Bhoi	Meghalaya	Forest; Revival of sacred grove	NA
67	Chizami and neighbouring 5 villages	Phek	Nagaland	Forest conservation, regeneration and regulated use	>100 ha
68	Khonoma village	Kohima	Nagaland	Protection of forests, hunting ban, tragopan bird protection, and traditional agriculture	20000 ha
69	Luzophuhu village	Phek	Nagaland	Protection of forest, wildlife and fishes	500 ha- forest reserve + 250 ha-wildlife reserve
70	Sendenyu village	Kohima	Nagaland	Protection of forest and hunting ban	1000 ha
71	Changtongya village	Mokokchung	Nagaland	Protection of forest and hunting, fishing ban	NA

72	Kongan village	Naginimora, Mon	Nagaland	Protection of forest and hunting, fishing ban	NA
73	Kikruma village	Phek	Nagaland	Forest conservation, regeneration and regulated use	70 ha
74	Zanibu peak	Phek	Nagaland	Forest protection	> 10000 ha
75	Chishilimi village	Zonheboto	Nagaland	Forest protection and hunting, fishing ban	NA
76	Tizu village	Zonheboto	Nagaland	Regulated fishing	NA
77	Toufema village	Kohima	Nagaland	Forest protection ecotourism, and ban on hunting and felling in forest	1600 ha
78	Balukhand Konark Sanctuary	Puri	Orissa	Forest and mangrove conservation	7172 ha
79	Binjgiri hill (8 villages)	Nayagarh, Puri	Orissa	Forest conservation, regeneration and regulated use	360 ha
80	Budhikhamari village	Mayurbhanj	Orissa	Forest conservation, regeneration and regulated use	3247 ha
81	Dengajhari village	Ranpur , Nayagarh	Orissa	Forest conservation, regeneration and regulated use	80 ha
82	Dhani Panch Mouza (5 villages)	Ranpur, Nayagarh	Orissa	Forest conservation, regeneration and regulated use	839.75 ha
83	Gadabanikilo village	Ranpur, Nayagarh	Orissa	Forest conservation and bauhinia (mohul) regeneration	60 ha
84	Ghusuria village	Barasahi, Mayurbhanj	Orissa	Forest conservation, regeneration and regulated use	NA
85	Kalikasole village	Mayurbhanj	Orissa	Forest conservation, regeneration and regulated use	NA
86	Huta village	Sambalpur	Orissa	Mahashir fish protection	Village tank
87	Jarmal village	Sadar Sundergarh, Sundergarh	Orissa	Forest conservation, regeneration and regulated use	72.44 ha
88	Jharbeda village	Bonai, Sundargarh	Orissa	Forest conservation, regeneration and regulated use	NA
89	Jhargoan village	Jharsuguda	Orissa	Forest conservation, regeneration and regulated use	64.34 ha
90	Kodbahal village	Hemgir, Sundargarh	Orissa	Protection of spotted deer	200 ha
91	Maneshwar temple	Sambalpur	Orissa	Protection of freshwater turtle	2.5 - 3.0 ha
92	Manglajodi village	Chilka Lake, Ganjam	Orissa	Wetland; Protection of migratory birds	150 ha
93	Patharghara village	Chandua, Mayurbhanj	Orissa	Forest conservation, regeneration and regulated use	NA
94	Phuljhar village	Bisra, Sundargarh	Orissa	Forest conservation, regeneration and regulated use	> 100 ha
95	Rupabalia reserved forest (8 villages)	Dhenkanal	Orissa	Forest conservation, regeneration and regulated use	900 ha
96	Rushikulya rookery	Ganjam	Orissa	Beach and olive ridley sea turtle protection	Depending on the nesting site
97	Samantsinharpur, Andharua villages	Nayagarh	Orissa	Forest conservation, regeneration and regulated use	300 ha

98	Suruguda village	Sundergarh	Orissa	Forest conservation and regeneration	120 ha
99	Abhor (13 villages)	Ferozepur	Punjab	Protection of blackbuck and khejari (<i>Prosopis</i>) tree	7000 ha
100	Todar Majra, Makrian, Chunni Khurad, Makar & Majatri villages	Ropar	Punjab	Protection of peafowl	404.8 ha
101	Bhaonta-Kolyala villages	Alwar	Rajasthan	Forest conservation and regeneration and water harvesting	600 ha
102	Kailadevi Sanctuary	Karauli & Sapotra, Karauli	Rajasthan	Forest conservation, regeneration and regulated use	67400 ha
103	Khichan village	Udaipur	Rajasthan	Protection & feeding of demoiselle cranes	1 ha
104	Kishori village	Alwar	Rajasthan	Forest conservation, regeneration and regulated use	NA
105	Ledhor-Kala village	Karauli	Rajasthan	Forest conservation, regeneration and regulated use	375 ha
106	Patari Dang (Hill), Alampur village	Karauli	Rajasthan	Forest conservation, regeneration and regulated use	66 ha
107	Suali, Bhamti village	Udaipur	Rajasthan	Forest conservation, regeneration and regulated use	6 ha
108	Udpuria village pond	Kota	Rajasthan	Wetland; protection of heronry	2 ha
109	Chittarangudi village	Muthukulathoor, Ramanathapuram	Tamil Nadu	Wetland; protection of heronry	700 ha
110	Koondakulam village	Tirunelveli	Tamil Nadu	Wetland; protection of heronry	129 ha
111	Longwood shola	Kothagiri, Coimbatore	Tamil Nadu	Protection of shola forest and grassland	116 ha
112	Pambar shola	Kodaikanal, Palni Hills	Tamil Nadu	Protection of shola forest and grassland	100 ha
113	Pulicat lake	Nellore	Tamil Nadu	Wetland; regulated lagoon fishing	6000 ha
114	Melghar village	West Tripura	Tripura	Forest conservation, regeneration and regulated use	13000 ha
115	Amakhera village	Gopi, Aligarh	Uttar Pradesh	Wetland; protection of migratory birds	50 ha
116	Daupur village	Javan, Aligarh	Uttar Pradesh	Wetland; protection of migratory birds	150 ha
117	Gursikaran Forest (20 villages)	Koil, Aligarh	Uttar Pradesh	Forest conservation, regeneration and regulated use	178 ha
118	Sheikha Jheel	Aligarh	Uttar Pradesh	Wetland; protection of bird species	25 ha
119	Dakhyatgaon village	Uttarkashi	Uttarakhand	Forest conservation, regeneration and regulated use	300 ha
120	Dharamghar region	Berinag, Bageshwar & Kapkot, Pithoragarh	Uttarakhand	Forest protection through sanctification	NA
121	Dungri Chopra village	Yamkeshwar, Pauri Garhwal	Uttarakhand	Forest conservation, regeneration and regulated use	40 ha
122	Holta village	Tehri Garhwal	Uttarakhand	Forest conservation, regeneration and regulated use	NA

123	Jardhargaon village	Tehri Garhwal	Uttarakhand	Forest conservation, regeneration and revival of traditional agrobiodiversity	NA
124	Lohathal sacred grove	Berinag, Pithoragarh	Uttarakhand	Forest protection through sanctification	235 ha
125	Makku village van panchayat (Makku and 8 villages)	Rudraprayag	Uttarakhand	Forest conservation, regeneration and regulated use	2237.5 ha
126	Nagchaund village	Tehri	Uttarakhand	Forest conservation, regeneration and regulated use	30 ha
127	Nahikalan village	Dehradun	Uttarakhand	Forest conservation, regeneration and revival of traditional agrobiodiversity	NA
128	Pakhi and Jalgwad villages	Gopeshwar , Chamoli	Uttarakhand	Forest conservation, regeneration and regulated use	240 ha
129	Simalgaon village	Bageshwar	Uttarakhand	Forest conservation, regeneration and regulated use	NA
130	Gwaldam village	Chamoli	Uttarakhand	Forest; sacred grove	NA
131	Khirakot village	Almora	Uttarakhand	Forest conservation, regeneration and regulated use	NA
132	Haryali Devi sacred grove	Chamoli	Uttarakhand	Forest; sacred grove	NA
133	Thapaliya-Mehargaon village	Nainital	Uttarakhand	Forest conservation, regeneration and regulated use	385 ha
134	Ufrain Khal	Pauri	Uttarakhand	Eco-spiritual movement	NA
135	Jogyanagar village	Birbhum	West Bengal	Wetland; protection of heronry	NA
136	Makaibari tea estate	Darjeeling	West Bengal	Forest conservation and natural resource management of tea estate	673 ha
137	Rasikbeel village	Cooch Behar	West Bengal	Wetland; ecotourism	100 ha

Annexure 3: Checklists of approaches and activities for effective management, assessment and greater recognition of CCAs.

Source: Borrini-Feyerabend, G., Kothari, A., Oviedo, G. (eds). Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation Guidance on Policy and Practice for Co-managed Protected Areas and Community Conserved Areas. Best Practices Protected Areas Guidelines Series No.11. IUCN and Cardiff University. 2004

Check list 1: What to cover in a community-led in-depth assessment of CCAs

- The ecological and biological features, including habitat and species inventories, and trends in ecological status.
- The natural resources in the area and an analysis of the ecological impacts of resource use and other human activities.
- The social and economic features of the area, including its historical development, socio-cultural resources and socio-cultural relevance, current entitlements (both private and collective) economic benefits and costs, and equity issues.
- The objectives for which the area is managed.
- As appropriate, the relevant IUCN management category to which the CCA could in theory be assigned.
- The body of customary and modern laws and rules that communities have evolved to govern the areas and the extent to which such laws and rules are known and respected within and outside the community of concern.
- The key local actors and organizations that manage the area, including an analysis of their current vitality and effectiveness.
- The differential rights and responsibilities assigned to different groups within the community, in particular regarding socially disadvantaged groups such as women, ethnic and religious minorities, the landless and mobile peoples.
- The history of relationship between the community and official agencies, including how conflicts have been identified and dealt with.
- The extent to which the community management practices manage to maintain ecological values and address socio-cultural and economic needs.
- A threat assessment for the CCA, noting threats from both within and outside the community, including to the sustainability of their management practices.
- An identification of conservation needs and opportunities, including needs to protect and restore ecosystems, and of the community's collective vision for the future of the area.
- Extent and form of internal and external recognition and support given to the CCA, and by whom; and an assessment of the importance of such recognition and support.

Check list 2: Questions for participatory monitoring and evaluation of CCAs

- Is the community fully in control of governance and management of the CCA?
- Does it possess all the necessary capacities?
- Is the CCA, as currently governed and managed by the community, likely to be sustained in the long run in financial, institutional and social terms?
- Is the CCA well-managed? Is it helping to conserve ecosystems, species and environmental services?
- Is the CCA improving the community's social, economic, and political situation?
- Are the cultural, intellectual, and other values and skills of the community being protected and enhanced because of the CCA?
- Are the less privileged sectors of the community adequately involved in decision making about the CCA and benefiting from it? Are inequities being reduced?

Check list 3: Steps towards gaining recognition of individual CCAs within the national or sub-national protected area system

- Determine whether a CCA and its current governance system fit within the protected area definition and/or criteria

under national legislation and policy, as well as under IUCN and CBD definitions for the purposes of international registries and classification.

- If so, determine whether it fits within the existing protected area categories of the country concerned. Could the CCA qualify as a national park, sanctuary, game reserve, or other existing PA category? Importantly, would such a category allow for the community's own governance system to continue? Would it allow for management objectives that may be conceptually and/or practically different from conservation *per se*?
- When national legislation and policies are fully compatible with local practice, conservation agencies should grant, or formally recognise, that authority and decision-making powers for the management of the CCA should rest with local communities. Importantly, this will enable them to enforce their decisions (as in the case in which an ordinance for the control of fishing may provide the needed legal backing to a community declared marine sanctuary).
- When there is incompatibility between community management and national protected area categories, legal and policy adjustments will be required to the current statutory provisions so that the relevant community can retain its governance system.
- Often, what the communities request is a guarantee of customary tenure, use and access rights, usually sanctioned through a demarcation of territories and resources.
- For that to happen, however, it may be necessary that the community institution in charge of the management of the CCA be recognised as a legal persona. This may result in changes in the ways a community organizes itself and manages the area. It is important that the community itself determines such matters.
- After the incompatibility is removed, the agency should embark on a process of negotiation, which may end in a contractual arrangement between the community concerned and the national or sub-national conservation authorities. This contractual arrangement may recognise the CCA and provide to it some form of legal protection or support. In other cases, it may transform the area into a *de facto* Co-managed Protected Area.
- Once agreement has been reached between the community and the protected area agency about recognising the CCA as a protected area, jointly agreed rules and regulations are needed for managing it. These may simply involve recording the community's existing rules, without interference from the state agencies, or incorporating new advice, methods and tools. The rules should specify what kind of land and resource zoning exist, what community and individual rights (including ownership) exist, what institutional structures manage the area, whether and how sustainable resource harvesting is allowed to take place (e.g. with limits on quantity, species and seasons). It may also be useful to clarify and record the subdivision of rights and responsibilities within the community itself and to specify provisions against the misuse of rights and power on the part of both the community and government authorities.
- Clarify how the CCA boundaries are to be effectively enforced and protected against external threats. What kind of community-based surveillance and enforcement mechanisms are recognised by the state? For instance, can community members apprehend violators? Who judges in the event of controversies? Who is responsible for the information campaigns needed for the general public to respect CCAs?

Check list 4: Steps to strengthen community capacities and have their CCAs officially recognized

- **Assess the feasibility of putting new capacities into practice and elicit the community's felt needs.** Several issues are crucial here. Are the necessary human and financial resources available within the community and from external agencies? Is the policy environment supportive of community institutions playing their roles or is there a risk of raising false expectations? Is the community prepared to take on new capacities? Are there socio-cultural impacts to be expected as new capacities are acquired? Have capacity building needs been identified by communities and local organizations themselves or only by external partners?
- **Provide capacity-building initiatives as soon as possible.** Capacity building activities can begin as soon as an agreement to work together has been reached between communities and the protected area agencies. At the beginning, key community representatives may be asked to join information seminars and some training sessions. Over time, community capacities should be strengthened in a structured and sequential manner, involving as many local actors as possible.
- **Have clear and transparent criteria about who should be involved.** Relations within and between communities should be taken into account in choosing whom to involve in capacity building, as this may lead to struggles for influence within communities. To avoid this, clear and transparent selection criteria are important as well as relying on more than one or a few individuals only. The criteria should be elicited from the community itself.
- **Use locally appropriate methods, tailored to the specific situation.** Using locally appropriate language and methods is crucial to effective learning. 'Learning by doing' and visually oriented methodologies are generally much better than lectures. Whereas intensive crash-courses and one-time training sessions can "trigger" new initiatives, communities appear to benefit most from long-term support that is directly relevant to their specific situation.

- **Ensure that capacity building is accompanied by strengthened roles, responsibilities and concrete opportunities** to put new skills into practice. Building capacities without effective avenues of using them may be frustrating for the community.
- **Monitor and evaluate the capacity-building exercise in an on-going way.** Learning processes greatly benefit from self-assessment and evaluation exercises. Feedback can then be used to adjust further initiatives in terms of capacities addressed, participants, methods, etc.

Check list 5: Examples of economic and financial measures to support CCAs

- Cash and material rewards for outstanding conservation achievements.
- Grants to support specific work for conservation and local livelihoods.
- Financial incentives for conservation, including through compensation for lost opportunities.
- Payment for services rendered by the community to neighbouring communities or the wider world, e.g. protection of water catchment or CO₂ sequestration by forests, maintenance of genetic diversity with actual or potential wider use in agriculture, medicine, industry and other sectors.
- Royalties or fees for the use of genetic resources or related knowledge, developed or maintained by the community.
- Employment in works related to the conservation initiative or other unrelated works.
- Exclusive rights to business initiatives, including tourist accommodation and guiding, trophy hunting, producing and selling handicrafts.

Check list 6: CCAs as systems of community-based rights and responsibilities

Land and resource **rights** are fundamental to the socio-cultural and economic life of indigenous peoples and local and mobile communities. They provide them some measure of control over their own destinies and make worthwhile their investment in those long-term activities that are needed for conservation and sustainable resource use. Different communities claim different sets of rights to land and natural resources. Indigenous peoples may view Community Conserved Areas as part of a broader bundle of territorial rights connected to self-determination, while other communities may be more specifically concerned with accessing and using natural resources.

Most traditional rights are accompanied by corresponding **responsibilities** towards nature, natural resources and fellow humans. Throughout all forms of possible legal recognition of Community Conserved Areas it is crucial that this dual approach to rights and responsibilities is maintained, guarding against the possible misuse of rights to alienate or destroy natural resources, or conversely, ensuring that responsibilities are not assigned without the necessary rights and powers to enable their fulfillment. One of the major lessons learned in the last decades of field-based conservation is that management improves when the rights and responsibilities are assigned in a fair and balanced way to each of the parties to an agreement.

Annexure 4: Indian laws and policies relevant to community conserved areas

Act	Provision/s	Strengths	Weaknesses
National Acts			
Indian Forest Act, 1927 (IFA 1927)	This Act provides for the conversion of Reserved Forests into Village Forests if the local communities ask for the same and fulfil certain requirements as per the Act. The concerned communities are then vested the powers of the forest department for the management of VFs.	Many communities conserving forest ecosystems could apply for their CCAs to be declared VFs. This could be one of the best legal support for the forest CCAs as this leaves the institutional arrangements, rules and regulations largely to the local communities as long as the objective of effective management and protection is fulfilled.	In its true spirit, this provision has not been implemented anywhere in India in last 80 years. In the two states (Uttarakhand and Karnataka) where some areas have been declared under this category, powers to the communities have been diluted and government retains a strong say in the constitution of the institutions as also in actual management. There seems to be a reluctance in the government sector to hand over real power to local communities. As per the Act the government retains the power to grant or withdraw the status of VFs, with no clear provision on how and under what conditions such decisions should be taken.
Wild Life Protection Amendment Acts, 1972 as amended in 2003 (WLPA 2003)	Two new categories of PAs, namely, Community Reserves and Conservation Reserves, added. Community Reserves can be declared on privately owned or community lands (the definition of which is not clear). Conservation Reserves can be declared by the government on government owned lands in consultation with the local people.	<i>Community Reserves</i> can provide legal support to CCAs on private or community lands. <i>Conservation Reserves</i> for the first time in Indian wildlife conservation history provide a space for consultation with local people before declaration of the reserve and seeks their inputs in the management of the reserve.	Given the language used and the fact that the category <i>Conservation Reserves</i> specifically mentions government lands, it appears that <i>Community Reserves</i> allow inclusion of only community owned lands or privately owned lands. Most documented CCAs in India exist on government lands, so may not be eligible to be declared Community Reserves. As per the Act Community Reserves cannot be declared in existing Protected Areas (PAs) and existing PAs cannot be converted to CRs without de-notifying them first. The Act also mandates a uniform management institution, which is inappropriate to the very large diversity of management arrangements that communities have developed in CCAs across India. Most communities would not like to declare their CCAs as Conservation Reserves because the category does not recognise existing systems of community management and the overall in-charge remains the Chief Wildlife Warden, with the community's role being largely advisory.
Environmental Protection Act, 1986 (EPA 1986)	Ecosystems and landscapes can be notified Ecologically Sensitive Areas (ESA). This would enable control or restriction of certain identified commercial, industrial and development activities.	Potentially a strong tool to fight against commercial and industrial pressures.	Communities know little about this Act and how it can be used. There are a number of ESA in the country, but none have been created specifically to help CCAs. Its relevance for CCAs has not been really tested on ground yet.

<p>Panchayati Raj (Extension to Scheduled Areas) Act 1996 (PESA 1996)</p>	<p>Mandates decentralisation of governance to rural bodies, like <i>panchayats</i> (village councils) and <i>gram sabhas</i> (village assemblies) in predominantly tribal ("scheduled" under constitution) areas.</p> <p>Confers the ownership and decision-making rights over non-timber forest products (NTFP) to local institutions.</p> <p>Mandates consultation with local communities regarding many developmental and other issues relevant for a site.</p>	<p>Considered a revolutionary Act with a strong potential to integrate and enhance conservation and livelihoods needs, help communities to resist destructive forces.</p>	<p>In most states where implemented, its provisions have been diluted in the state adaptations of the Central Act.</p> <p>Additionally, government forests and PAs have been excluded from the jurisdiction of the Act.</p>
<p>Biological Diversity Act, 2002 (BDA 2002)</p>	<p>Mandates creation of Biodiversity Management Committees (BMC) at the village level. BMCs are supposed to help communities in management, protection and recording of local biological diversity.</p> <p>Provides for the declaration of areas being conserved for agricultural or wildlife biodiversity as Biodiversity Heritage Sites (BHS).</p> <p>This Act includes all elements of biological diversity, domestic and wild and provides for protection of all kinds of ecosystems.</p> <p>The National Biodiversity Authority and the State Biodiversity Boards established under the Act are required to consult the local BMCs while taking decisions related to the use of biological resources and knowledge associated with such resources.</p>	<p>The provisions could be used to increase local community participation in wildlife and biodiversity conservation, enhance livelihoods. The provision of Biodiversity Heritage Sites could be used to provide legal backing to CCAs, but this will depend on how BHS are defined and interpreted in the Rules or Guidelines for their implementation, which were not formulated at the time this annexure was written. BMCs could be strong local institutions for conservation, but again this will depend on what powers they are given under Rules.</p> <p>Some states like Karnataka and Sikkim have gone beyond the national rules, and provided for greater empowerment and responsibilities to communities for conservation and management of biodiversity.</p>	<p>The BD Rules 2004 fail to empower BMCs to manage, use and conserve natural ecosystems. Their primary function is limited to recording local knowledge, and to help the state and national level boards to grant permission for the use of biological resources and knowledge associated with it, in their areas.</p> <p>The rules for BHS have not yet been formulated (they were under formulation while this publication was going to press) so the category has not been implemented anywhere in the country yet.</p>

<p>Scheduled Tribes and Other Traditional Forest-Dwellers (Recognition of Forest Rights) Act 2006 (FRA 2006)</p>	<p>Provides the establishment of several rights to tribal and forest dependent communities, including to forest lands and resources. The Act also stresses co-existence in PAs.</p> <p>Empowers communities to declare any forest that they have been conserving and protecting as Community Forests.</p>	<p>Allows for a greater role and empowerment of Gram Sabha (local governing bodies) in determining claims, managing forests it has traditionally conserved, checking processes destructive of forest-dwellers' habitats, and protecting traditional knowledge.</p> <p>Allows for greater livelihood security for forest-dwellers who have been unjustly denied tenure, and mandates that any displacement and relocation can only happen by consent.</p> <p>Provides greater possibility of community involvement in government managed PAs.</p> <p>Provides for legal backing of forested CCAs in the form of "Community Forest". This is a category under which the local communities can legally protect and manage any forest that they have been traditionally protecting and can establish suitable institutions, rules and regulations.</p>	<p>There is lack of clarity on how the CF provision will be operationalised. Much depends on the content of the rules that are currently being formulated.</p> <p>The fact that 'encroachments' on forest lands upto December 2005 are eligible for regularization, gives rise to possibilities of misuse by vested interests who will incite fresh encroachments. In some parts of India there is a fear that CCAs could also be affected by this.</p> <p>Certain development projects and activities (eg. construction of roads) for the purpose of village development have been excluded from clearances under the Forest Conservation Act. This opens up a potential for misuse at some sites to allow destructive projects in forest areas.</p> <p>This Act has an unclear relationship with existing forest/wildlife laws. In particular, the institutional arrangement for enforcement of community rights and responsibilities is not clear.</p>
<p>Wild Life Protection Amendment Act 2006 (WLPA 2006)</p>	<p>This sets up a National Tiger Conservation Authority, and provides a process for notifying tiger reserves.</p>	<p>Some provisions could help explore people's participation in wildlife management. The amendment is too recent to see any impacts.</p>	<p>Remains within the overall framework of the WLPA, which provides very little say or power to communities.</p>
<p>State Acts</p>	<p>Some state level Acts are relevant, e.g. the Village Council Act of Nagaland mandates Village Councils (the local governance body) to manage wildlife within their jurisdiction. Unlike in rest of India, most land in Nagaland is under community or private ownership.</p>	<p>Under this act, dozens of CCAs are being established and protected in Nagaland. It provides them with a strong legal tool for fighting against commercial and industrial pressures.</p>	

Policies and Action Plans	Provisions	Strengths	Weaknesses
<p>National Forest Policy, 1988 (NFA 1988)</p>	<p>This policy deals with conservation and management of forests, afforestation and with the rules governing people's access to government owned forests and their products.</p>	<p>This policy for the first time after Indian Independence places greater importance on using local forest resources to meet local people's needs rather than industrial needs. The policy stresses the involvement of local people in the management of forests. In particular tribal communities' access to the forests and resources on which their livelihoods depend have been recognised. It was under this policy that the Government Resolution on Joint Forest Management (JFM) was passed in India in 1990. Since then millions of ha of forests outside PAs have been brought under JFM. JFM is aimed at regenerating degraded forests with the participation of local communities and sharing the benefits accruing from timber harvests from these areas with the local communities. JFM has been a miserable failure in some states and sites while quite successful in others, depending on the state policies and the methods of implementation, and often also on individual forest officers and concerned local communities.</p>	<p>The policy has not been translated adequately into law as yet (the IFA 1927 remains in place even today). It is for this reason that many of its progressive provisions have remained unimplemented.</p>
<p>National Wildlife Action Plan, 2002-2016 (NWAP)</p>	<p>This plan deals with policy imperatives and strategic actions to conserve wildlife in and outside PAs, to manage these PAs, to prevent illegal trade on endangered species, to ensure people's participation in the conservation of wildlife, to promote ecotourism in PAs, among others.</p>	<p>The plan envisages the involvement of local communities residing in and around PAs in the management of natural resources. Their participation is recognized as an effective tool for the management of PAs. According to this plan, local communities must participate in and benefit from ecotourism developments in wildlife areas. Community initiatives in conservation are also to be supported.</p>	<p>The NWAP does not go the full distance in establishing tenurial security and a share in decision-making of PAs for local communities. The most serious problem, however, is that even its progressive provisions have yet to make a difference, as implementation is seriously lagging. Despite having identified specific timelines for achieving its objectives almost no move has been made towards its implementation. However, in the 11th 5 year plan (2008 onwards), is a programme emerging, to support CCAs. The legal environment needed to implement the NWAP is also not in place as the Wild Life Protection Act does not envisage full participation of people in establishment and creation of PAs (as mentioned above).</p>
<p>Draft National Biodiversity Strategy and Action Plan (NBSAP) 2004</p>	<p>This draft policy recognizes community conservation initiatives and stresses on legal, administrative and all other kinds of support for CCAs. NBSAP also stresses on developing guidelines for implementation of Joint Protected Area Management (JPAM).</p>	<p>Contains a number of provisions for supporting CCAs and JPAM.</p>	<p>This draft of NBSAP had not been accepted by the government till the time of writing this Directory. Neither was any alternative policy suggested by the government. An alternative NBSAP has been prepared by the government in 2009, which does not take into account many of the crucial points mentioned in the earlier draft.</p>

Annexure 5: Suggested guidelines for establishment and management of Community Reserves under the Indian Wild Life (Protection) Amendment Act 2002¹

Some questions regarding community reserves

What is a Community Reserve?

Section 36C of the Wildlife (Protection) Amendment Act 2002 provides for the category of Community Reserves. As per this provision:

"The state government may, wherever the community or an individual has volunteered to conserve wildlife and its habitat, declare any private or community land not comprised within a National Park, sanctuary or a conservation reserve, as a community reserve, for protecting fauna, flora and traditional or cultural conservation values and practices."

"After the issue of notification under sub-section (1) (above), no change in the land use pattern shall be made within the community reserve, except in accordance with a resolution passed by the management committee and approval of the same by the State Government".

"The state government shall constitute, a Community Reserve Management Committee, which shall be the authority responsible for conserving, maintaining and managing the community reserve."

"The committee shall consist of five representatives nominated by the village panchayat or where such panchayat does not exist by the members of the gram sabha and one representative of the state Forests or Wild Life Department under whose jurisdiction the community reserve is located."

"The committee shall be the competent authority to prepare and implement the management plan for the community reserve and to take steps to ensure the protection of wild life and its habitat in the reserve".

"The committee shall regulate its own procedure including the quorum".

What kind of areas can be declared community reserves?

Any area that is privately owned or community owned and where the concerned individual or community volunteers to conserve wildlife and habitat.

Areas that are under the jurisdiction of the government but are being conserved by local communities cannot be declared as Community Reserves. It is also not clear whether land under institutions such as the local Panchayats, or under revenue department of the government but earmarked for use by local communities could be declared community reserves or not. In addition, there are large land areas the ownership of which is riddled with disputed claims – either by their ancestral/long standing inhabitants due to deficiencies in the processes by which these have been declared 'government lands' or even between different government departments.

Some examples of areas and initiatives that can *prima facie* be declared as community reserves include:

- Traditional conservation of Painted Stork and globally threatened Spot-billed Pelican nesting sites by villagers in Kakkare Bellur village, Karnataka; and many other villages across India, where the land belongs to the village or to individuals within it.
- Traditional irrigation tanks of South India which even today support a large diversity of water birds and other fauna and flora, and which are considered village land (generally, those below 40 ha. would be considered as such, those above this size would be under the government).
- Large areas in Punjab, Haryana and adjoining Rajasthan states that are being conserved and protected by the Bishnoi community.²
- Khonoma Tragopan Sanctuary, declared by the villagers on their community owned land in Nagaland.
- Some sacred groves which still exist on private or community lands.

Not so clear is the case of Van Panchayat forests in Uttaranchal, which are under community control and management, but are legally revenue or forest department land. Or the case of the 600 ha. of regenerated village forest in the Loktak Lake catchment by Ronmei tribe in Tokpa Kabui village, Manipur India, including a ban on hunting of the endangered Sangai deer; it is not clear who the land belongs to.

What kind of areas may not benefit from this clause?

- 1800 hectares of reserved forest protected by Gond tribal community in Mendha (Lekha) village, Maharashtra state, India.;
- 600-700 hectares of forest department owned land, regenerated and protected by the villagers of Jardhagaon village in Uttaranchal state ;
- Many hundreds of ha. of protected and reserve forests being protected and conserved as watershed of River Arvari by nearly 90 villages in Alwar District of Rajasthan.

- Protection of sea turtle eggs, hatchlings, and the nesting sites on the beach (it is unclear which government department this would be under) by fisherfolk community in Kolavipalam, Kerala, and in Morjim, Goa;
- Conservation of Gursikaran and Sheikha wetlands by surrounding villagers in Uttar Pradesh;
- Community forestry initiatives in several thousand villages of Orissa, Jharkhand and several other states in India, known to be initiated as a response to degrading ecosystems as early as in 1936. Many of the committees in Orissa now have district and state level federations for management, policy issues and conflict resolution. These committees sometimes protect hundreds of hectares of contiguous forests. Legally these forests are 'owned' by the government although till Independence, much of this area consisted of customary communal lands or common lands for meeting community needs.
- Sacred groves, though fast depleting and losing their religious significance, are still being zealously preserved by the local communities, including in Coorg district of Bangalore state, and Rajasthan state in India, although very often these are also under the control of or owned by one or the other government agency.

Barring some states in the North-East and the jointly owned shamilat lands in Punjab and Haryana, where community or shared ownership is legally recognised, the issue of 'community' ownership will need to be clarified. Even common lands under the jurisdiction of Gram Panchayats technically belong to the government. The same applies to Van Panchayat forests in Uttaranchal although these are mutated in the VP's name in the land records.

Who declares a Community Reserve?

The state government declares a Community Reserve, but only if the concerned village community volunteers to get their area declared as such.

What is the process of declaration of a Community Reserve?

The process of declaration of a community reserve is unclear from the Act. Although the resource owners are expected to 'volunteer' to get their area declared a CR, questions like who, which and how many members of a community recommend an area to be declared a community reserve require clarification. Similarly, how it is to be ensured that all members of the community are agreeable for the declaration as Community Reserve needs to be clarified. In the case of lands owned by one or more individuals, the adaptations required while declaring a 'CR' need to be specified.

Who holds the jurisdiction and control over a community reserve?

Authority responsible for conserving, maintaining and managing a community reserve is a Committee to be chosen by the panchayat and constituted by the state government, as described above.

How is a Community Reserve managed?

The committee shall be the competent authority to prepare and implement the management plan for the community reserve. No further details have been specified in the Act.

What will be the benefits to an individual or a community from declaring their privately or community owned area as a Community Reserve?

Apart from obtaining legal support in case of an external threat, it is not clear what other incentives individuals or communities will have for getting their lands declared as community reserves. An unstated assumption could be that government funds could be channeled into such Reserves. What impact such a declaration will have on the owners' access to the area for livelihoods is also unclear. The provision for the requirement of prior approval of the state government for any change in land use may generate apprehensions among land owners about their losing control over their own lands for future land use changes for strengthening livelihoods. The lack of clarity in the division of rights and responsibilities between resource owners/right holders, in fact, could act as a major disincentive.

What are the mechanisms for monitoring and evaluation of a Community Reserve?

Not specified in the Act. Presumably this falls into the functions of the Committee to prepare management plans and ensure conservation.

What are the limitations of this provision in the current Act?

1. Procedures to be followed for declaration and management of a community reserve are not specified.
2. Community reserves can be declared on private and community owned lands only, so the community efforts on government lands such as Reserve forests, cannot fit into this category. Barring the case of the north-eastern states, most examples of community conservation efforts have been reported from lands owned by government agencies.
3. The Act specifies the institution to be established for the management of the conservation reserve without actually specifying the process to be followed for creation of the reserve, process of establishment of the locally relevant management institution, roles and responsibilities, rights and powers, and so on.
4. Many communities/individuals potentially interested in getting their land/water bodies declared Community Reserves, have existing institutions and systems of management, rules and regulations. The Act does not either

recognise the existence of such institutions or their diversity and potential for culturally and livelihood sensitive approaches to conservation. Even where such institutions are not in place, it is unlikely that many individuals or communities would want their resources to be managed by committees nominated by panchayats with forest officials as members who may not have any connection with the resource or the conservation effort at all. This prescription of a uniform institutional structure specified by the Act is likely to make the communities more distrustful of government intentions instead of motivating them to bring their land and initiatives within the community reserve framework.

5. The Act does not specify any exit path for communities/individuals in case they want to withdraw their resources from the CR framework if they are dissatisfied with its functioning, or a mutually acceptable mechanism for resolving disputes when they arise.
6. The Act does not allow for an existing National Park or Sanctuary to be declared a Community Reserve, even though analysis may show that this would aid conservation. There is no clarity about the benefits to a community for declaring their privately or community owned resource as a conservation reserve although the Act clearly specifies duties and restrictions.

What could be done to overcome the above mentioned limitations?

The following two broad steps, in our opinion, are needed to meet the objectives of the WLPA towards creating a larger network of protected areas and in furthering participatory conservation:

1. Amendment of the WLPA to overcome those of the above-mentioned limitations that cannot be dealt with by Step 2 below;
2. Framing of guidelines under the existing provisions of the WLPA, in order to achieve benefits while further amendments are being considered. A number of the above shortcomings could be addressed through guidelines. An MoU signed between the committee, the GP and the concerned department specifying the management objectives of the CR, the rights, responsibilities and authority of the 3 parties, the process of setting up the CR, and so on, through a transparent and open process of negotiations, could help overcome some of the lacuna.

What can be the process by which the guidelines for creation and management of Community Reserves are framed?

Our suggestion is that a set of guidelines be drafted for implementing provisions of this Act following a fully consultative process, learning from the experiences of existing laws and policies and from on-ground, community based conservation efforts. This process could include:

1. Selection of a core group, including community women and men, FD, conservationists, NGOs, lawyers and others, to guide the process of framing the rules/guidelines.
2. Preliminary brainstorming meeting of the core group to finalise the methodology of drafting the guidelines and preparing an initial set of guidelines, based on existing information about community conserved areas (database to be made available by Kalpavriksh and could also be requested from other organisations working on the issue) and guidelines developed by other organisations/countries for similar objectives (eg by the IUCN WCPA/CEESP Theme Group on Indigenous/Local Communities, Equity, and Protected Areas (TILCEPA), or the IUCN Co-Management Working Group (CMWG)). The preliminary meeting could also prepare an initial list of potential sites where a process for declaring Community Reserves and/or Conservation Reserves could be explored and tested using existing information.
3. Wider circulation of these draft guidelines for feedback and comments.
4. Meetings with local communities and other actors at some of the potential sites (The facilitators of the local meetings shall ideally have participated in the core group's preliminary meeting).
5. Compilation of all comments and outcomes of local meetings by the core group
6. Final draft to be circulated again.
7. Finalisation of the guidelines.

Who could be part of the process of drafting the guidelines?

The Ministry of Environment and Forests, or a body like the Wildlife Institute of India (which has been mandated by the National Wildlife Action Plan for this) needs to initiate the process with the involvement of local communities, forest staff, line agencies, groups involved with social issues, conservationists and academicians.

What could the MoEF do to facilitate declaration of community reserves apart from drafting guidelines under the Act?

Prior to declaration of Community Reserves, it would be useful if the MoEF:

A. Carries out or commissions an exercise for gaining a better understanding of existing CCAs through:

- Documentation of Community Conservation Sites across the country (the Kalpavriksh Directory of CCAs, in final stage of preparation, could be a base document for this),

- Carrying out initial inventories and mapping at national and sub-national levels,
- Identifying key communities and community representatives managing CCAs,
- Identifying broad bio-geographic and bio-cultural coverage of CCAs,
- Tracing the historical context of CCAs (including traditional land/water use systems, relationship of such systems to pre-State and State regimes, including customary tenurial regimes, traditions of conservation and sustainable use, indigenous knowledge, etc...and their current status),
- Identifying community views on the pros and cons of the existing legal provisions and the modifications they would like in these for providing clearer incentives.

B. Announces the legal provisions available for support in national, regional and local media along with other appropriate means inviting applications/queries from interested parties.

2. Framework for guidelines on community reserves

(Note: this is a very tentative, suggested framework for the proposed guidelines on Community Reserves. It needs widespread discussion and revisions, and is being put out here only for the purpose of stimulating discussion and further development).

Process of declaration of a Community Reserve

1. Widespread dissemination of information among relevant communities, regarding the provision of Community Reserve, through locally appropriate means. These could include local language newspapers, radio, holding meetings with the communities, others.
2. Inviting interested communities/individuals to apply for declaration of their area as a Community Reserve . Each application should specify whether an existing institution is already in place and, if yes, its structure, representativeness, gender balance, decision making processes, functioning, rules and regulations (including whether written or unwritten) etc. Where there is no existing institution, how they propose to develop one and the nature of facilitative and other support expected from the govt/others in management of the CR. In the case of a community, a gram sabha resolution in which at least 30% men and women of different socio-economic groups participated in support of the application should be attached.
3. Application to be reviewed by relevant official agency, and decision to accept or reject it taken within a period of 3 months; process of review to involve local/national NGOs, other experts, with full chance given to applying community/individual and their interested neighbours to make their case and get their doubts/fears clarified. The proposal should also be publicised in neighbouring right holding/user communities to invite their objections if any (as done while forming Van Panchayats) to prevent future conflicts.
4. If tentatively accepted by the reviewing agency then preliminary notification to be issued specifying the boundaries of the Community Reserve (this will require surveying and mapping) and published in the local media inviting objections from other interested parties; if rejected, reasons for this to be conveyed in local languages to applying community/individual.
5. After the declaration of intention, a team would be constituted by the community and/or outside agency for initiating studies to gain a clearer understanding of the CR. The team would include:
 - a. Knowledgeable women & men representing all socio-economic groups of the proposing community, chosen by the *gram sabha* (A modified process will be required for land/water owned by an individual or a small group)
 - b. One or more NGOs/institutes focusing on ecological/conservation research.
 - c. One or more NGOs/institutes working on social (gender, livelihood, etc) issues.
 - d. Research wing of the forest department or other relevant department (where appropriate and possible).
6. The above team will initiate a study in consultation with and with full participation of the applying or relevant community(ies) on the following aspects (possibly using PBR as a tool, and participatory mapping):
 - a. History of land/water ownership/rights, including CPRs, administrative control, and land and resource use.
 - b. Current status of land ownership, tenurial status of and access/rights to CPRs, disputed claims over land/forests, if any, land and resource use pattern (including biodiversity-based livelihoods), legal and administrative control, rights and responsibilities.
 - c. Community composition, character, socio-economic and gender differentiated dependence on the resources, socio-economic and demographic profile, and so on.
 - d. Existing institutions, their characteristics, rules and regulations governing natural resources, women and the deprived's access to decision making.
 - e. Ecological profile of the area, critical wildlife/biodiversity (including agrobiodiversity) values, and threats and pressures to the biological diversity, if any.
 - f. Assessment of community's aspirations from the area.
7. Submission of the results of the studies (in local languages) to the community and to relevant official agencies.

8. Review by the concerned agency within a period of 3 months.
9. If accepted, final notification and announcement of the same in most appropriate local medium as well as at the state level.

Process of nurturing democratic and equitable institutions

10. Based on the findings of the study mentioned above the concerned official agency would initiate discussions with the proposing community/individual about accepting the existing institutions, strengthening the existing institutions or establishing new institutions for the purpose of management of the Community Reserve. Discussions could also focus on the smallest unit of decision-making, whether a community needs one single institution or in case of a large area many small units which will manage areas falling under their jurisdiction. The local institution must ensure:
 - a. All adult members of the community, including women, SCs, STs, the landless, and other disprivileged sections, have a right to participate in gram sabha decision-making.
 - b. All managing committees will be gender balanced and ensure proportional representation to all existing socio-economic and ethnic groups.

Preparation of the management plan

11. The community with support from the study support group mentioned in point 5 above or otherwise will prepare a management plan for the CR, which would involve the following:
 - a. Total area under the CR
 - b. Objectives for which conserved
 - c. History of the area, and current status of usage, rights and responsibilities
 - d. Zoning, if any
 - e. Institutions established:
 - i. Composition of the institution/s
 - ii. Relationship with other institutions in place, if any
 - iii. Quorum for the meetings
 - iv. Efforts taken to adequately represent all sections of the community
 - v. Frequency of meetings
 - vi. Functioning of the institution
 - f. Status of wildlife, and other floral/faunal biodiversity, including agro-diversity, in the CR
 - g. Status of natural resources and dependence of the community on those
 - h. The resource requirement of the community
 - i. Rules and regulations established for management of the CR, including customary rules that are being carried forward
 - j. Systems of fines and punishments, or incentives, established.
 - k. Prescriptions for conservation and management, including for wildlife conservation, livelihood security, maintaining or enhancing ecosystem services, and so on.

Process of interaction of the community institutions with district or state level institutions

12. Representatives from the smallest decision-making body, preferably selected unanimously, will be a part of the district level institution concerned with the CR (this needs further discussions with the groups and communities). This representation should be for a specified period of time. If the concerned community wants to change the representative before the specified period of time then a resolution would have to be adopted with 80% majority at the local institution when the issue was discussed with not less than the quorum of the institution and where all sections of the society were adequately represented.

Possibilities of CR forums or federations at village cluster/tehsil/district or other larger levels, interlinked with PRIs, other governance institutions, need to be explored.

13. Each Community Reserve must have a mechanism for sharing information
 - a. It would be the responsibility of each government department/private establishment/NGO concerned/individuals to inform the local community about any proposed activity (within the CR and around 10km of the CR, or any other activity outside this area that could have a significant bearing on the CR. It should

then be mandatory for the government to seek the permission of the concerned gram sabha(s) for such activity. In the long-run, mandatory guidelines/norms for development projects and commercial activities in areas around CRs, which must be followed by all govt. departments, need to be formulated.. The proposing agency should keep minutes of the meeting where such discussions were held, along with the time, date and place of the meeting, number of community members present, and names and signatures of those present, including community members and others (this should correspond to the minutes of the meetings taken down by the community). This should also specify the time and date fixed up with the community for further discussions on the matter, if required.

- b. The community should be encouraged or supported to establish study circles constituting of members interested in the issues of natural resource management (and involving outside experts at the invitation of the community). The study circles could be forums for discussion on a number of issues to facilitate informed decisions, but will not be a decision-making body. The composition of the study circle will be decided by the concerned community.

Process of monitoring and evaluation

14. Each Community Reserve will establish a monitoring and evaluation body (the above-mentioned study circles could also take on this function). The nature of this body will evolve through discussions with the community. This body could be the same as the village institution for regular monitoring. An institution similar in nature to that mentioned in point 5 above could be established to externally evaluate the ecological and social impacts of the CR periodically. This team (either on its own or with help from other organisations) with the participation of the concerned community will develop tools for self-monitoring as also the external evaluation of the CR.
15. The relevant documents including management plan, should also specify all the other institutions existing within the community having a bearing on natural resources in the area and the relationship between all these institutions. For example, the *mahila mangal dals*, the youth clubs, etc.
16. At regular intervals (time period to be specified), a full meeting of the concerned community, the groups/ institutions involved with monitoring and evaluation, concerned government agencies, other relevant actors will be organised to:
 - a. Discuss the results of the monitoring and evaluations and work on future steps to be followed
 - b. To evaluate constraints faced by the community while managing the CR
 - c. To review the composition and functioning of the decision-making body
 - d. To review the functioning of the support structures to the community
 - e. To approve the management plan for next specified period.

Endnotes

¹ This draft was prepared by Neema Pathak, with inputs from Madhu Sarin and Ashish Kothari, in 2004. This draft was subsequently sent to the Ministry of Environment and Forests and through them to the Chief Wildlife Wardens of all states. Contact: Kalpavriksh, Apt. no. 5, Shri Dutta Krupa, 908 Deccan Gymkhana, Pune 411004. Ph: 5654239. E-mail: neema.pb@gmail.com

² Both Punjab and Haryana State governments have declared a wildlife sanctuary each in parts of this area. Although officially declared Wild Life Sanctuaries, protection of wild life in them, particularly blackbuck, has been done by the Bishnois as a part of their tradition. The Supreme Court order of 1998 requiring time bound settlement of rights and issuing final notifications brought the legal contradiction of declaring these areas WLSs to the surface. Haryana Wild Life Department has submitted an affidavit to the SC that no rights can be settled as all the land belongs to the villagers. Consequently it has sought permission to denotify the Abubshahar WLS. After denotification it plans to convert it into a CR but the modalities are yet to be worked out. Punjab govt, on the other hand, on the advice of the ex-director of WII Mr Mukherjee, got the Collector to admit people's rights under section 26A and issued the final notification of the WLS in Abohar. Here, progressive reduction in the size of land holdings is leading to increasing conflicts between even the Bishnois and the blackbuck. Although they are not harmed, people try to shoo them away from their fields to protect crops. Promotion of kinnoo cultivation by the horticulture department has also eaten into the habitat of the blackbucks.

Annexure 6: Communities *do* conserve!

Statement of the National Workshop on Community Conserved Biodiverse Areas
(21st-23rd November 2001)

Participants at the National Workshop on Community Conserved Biodiverse Areas, held at Bhopal on 21-23rd November 2001, concluded that communities have been the strongest force in the conservation of biodiversity in several areas. However, enabling conditions and support are required in many such areas and in order to promote Community Conserved Biodiverse Areas (CCAs) in other parts of India. This conclusion was based on a series of case studies and state overviews of the very many examples of ecosystems and species being protected and conserved by communities across India. These examples are collectively called Community Conserved Biodiverse Areas. The definition of CCAs put forward by the organizers was:

Natural ecosystems (including those with minimum to substantial human influence) containing substantial wild and domesticated biodiversity value, being conserved or protected by local communities for various reasons. The bottom line being that the major players in decision making are the local communities and the efforts lead to the conservation of biodiversity. CCAs could include areas such as:

Village forests and pastures conserved to meet livelihood or other requirements; Van panchayats of Uttaranchal, betta land of Karnataka and others; Joint Forest Management (JFM); Areas conserved for their cultural/religious significance;

Wetlands conserved for drinking or irrigation facilities; Traditional agricultural systems with diverse agricultural niches; Watershed conservation; Coastal areas protected for traditional fisheries or for other reasons; and so on.

The main features of the workshop were as follows:

- It was organised by Kalpavriksh - Environmental Action Group, Indian Institute of Forest Management, Winrock International India, and Indian Social Institute;
- It was attended by over 90 people, including, NGOs, village representatives, forest and other government officers, scientists and academics, activists, and students. Many of the participants were from CCAs, or had worked with or studied such areas. The Chief Wildlife Wardens of Madhya Pradesh and Maharashtra, and representatives of the Ministry of Environment and Forests, were also present;
- Participants came from over 15 states of India;
- Presentations were made on CCA overviews from over a dozen states, on individual CCA cases from several parts of India, and on legal, social, economic, and ecological issues related to such areas;
- Three statements were signed by the participants in support of:
 - The demand to continue the control of fishing in the Tawa Reservoir (Madhya Pradesh) by the community organisation Tawa Matsya Sangh
 - The struggle against sand mining at Kolavipalam, as described below
 - The protest against mining at Kataldi and Nagni, Tehri Garhwal district, Uttaranchal, in areas protected by the community

Community Conserved Areas: Some Examples

CCAs were defined as areas with significant biodiversity, which are being conserved by or with the substantial involvement of communities. Some of the examples that were highlighted were:

- Protection of 1800 hectares of forest by Mendha (Lekha) village in Gadchiroli district, Maharashtra, by Gond tribal community;
- Regeneration and protection of 600-700 hectares of forest by Jardhargaon village in Uttaranchal state;
- Protection of sea turtle eggs, hatchlings, and the nesting sites by a fisher folk community NGO in Kolavipalam, Kerala;
- Traditional conservation of Painted Stork and globally threatened Spot-billed Pelican nesting sites by villagers in Kikkare Bellur village, Karnataka;
- Religious protection to the endangered Blacknecked crane in Sangti Valley, Arunachal Pradesh by Buddhist communities;
- Conservation of Gursikaran and Sheikha wetlands in Uttar Pradesh by surrounding villagers;
- Community-based monitoring and enterprise for Non Timber Forest Produce (NTFP) by the Soliga tribals at the Biligiri Rangaswamy Temple Sanctuary, Karnataka;

- Community forestry initiatives in several thousand villages of Orissa;
- 600 ha. of regenerated village forest in the Loktak Lake catchment by Ronmei tribe in Tokpa Kabui village, Churachandpur district, Manipur;
- Orans in the desert region of Rajasthan including Barmer district, by the local community.

There are also several examples of CCAs, including those initiated by official agencies such as at Kalakkad Mundanthurai Tiger Reserve (Tamil Nadu), Periyar Tiger Reserve (Kerala), and Khangchendzonga valley (Sikkim). Representatives from these areas were invited but could not come.

Significant benefits of CCAs are:

- Enhanced ecosystem services and goods, including water;
- Increased wildlife populations and habitat protection;
- Enhanced livelihood security and revenue for communities;
- Increased social respect and self esteem;
- Protection or revival of social and cultural values, and of traditional knowledge and management systems;
- Greater political empowerment, village cohesiveness and unity;
- Complementary role to officially protected areas;

Some Major Issues Emerging

1. Centralised, uniform models of development and conservation have undermined the diverse, site-specific traditions and initiatives by communities;
2. There is very inadequate understanding and recognition of CCA initiatives, and of their beneficial impacts to biodiversity, livelihoods, and social security;
3. Absence of decision-making powers with communities, and legal backing to CCAs, have hampered the initiatives;
4. Insecurity of tenure and control over natural resources, on which communities depend, have also hampered their initiatives;
5. Outside agencies have a role to play in CCAs, but very often bring in inappropriate (including financial) interventions that undermine the sustainability of these initiatives;
6. Many donor-driven or official initiatives towards community participation in conservation have failed due to lack of transparency and accountability, inadequate transfer of powers and capacity, and lack of involvement of communities from the planning stage;
7. Complex and unclear legal status of lands and resources, and a plethora of institutions and schemes, creates hurdles for CCA initiatives;
8. There are often serious inequities within communities, including between men and women, and different classes and castes, which undermine CCA initiatives and sustainability, or deny the benefits of such initiatives to disadvantaged sections;
9. Erosion of traditional CCAs and related institutions in many parts of India;
10. In some CCAs, habitat conservation has led to increase in wild animal populations. This in turn sometimes leads to property and life damage to the conserving communities;
11. CCAs often derive strength from the large number of people's movements across the country, specially to resist destructive commercial and developmental pressures;
12. CCAs face serious threats from the larger context within which they are placed, such as, party politics, centralised control over natural resources, national and global markets, privatisation of common property resources, mass tourism, insensitivity of decision makers, inappropriate education, consumerist lifestyles, and population dynamics.
13. Clear and secure tenure rights to land and other natural resources ensure a stake in conservation. CCAs work better where either *de jure* or *de facto* security of tenure exists;

Recommendations

Community conserved areas need to be given much broader recognition and support throughout the country. This

could be through documentation, legal backing, institutional support, and enabling conditions to secure the rights of communities to the resources they depend on and are conserving. In doing so, the tremendous diversity of approaches that communities have evolved, needs to be respected and supported.

Specifically, the following recommendations were made:

1. CCAs need to be better understood and documented, clearly demarcated, and highlighted at all levels including the mass media (but keeping in mind the need for communities to have the capacity to deal with issues such as tourists and researchers descending on them);
2. Ecological, social and economic impacts of CCAs need to be assessed at local, regional and national levels;
3. Simple monitoring and assessment techniques need to be developed which will include community perspectives and parameters;
4. Existing community institutions, practices and knowledge systems, should be recognised and built on, and where necessary modified based on lessons being learnt, rather than displaced by, new institutions as part of development and conservation programmes; efforts involved in organising community institutions should be simple and practical;
5. The great diversity of community institutions and approaches should be respected and strengthened, including neglected ones such as taungya villages;
6. Conservation and development initiatives should be seen as long term, dynamic processes rather than short term, target oriented projects;
7. Such initiatives must provide special opportunities to disprivileged sections (women, landless, tribals, children, aged, disabled), including separate forums where appropriate;
8. Forums for dialogues and conflict resolution involving all stakeholders need to be created;
9. As and when required, funds should be locally or regionally generated (including through NTFP policy reforms and other measures) and managed by the CCA institutions for conservation and development of the area;
10. CCAs need to be given legal sanctity and local institutions need to be legally empowered. Given the diversity of CCAs, a range of existing legal and policy spaces could to be used (including for the development of appropriate guidelines and rules), such as:
 - Village Forests in Indian Forest Act 1927
 - Van Panchayat Rules
 - Ecologically Sensitive Areas in Environment (Protection) Act 1986
 - Coastal Regulation Zone Notification in Environment (Protection) Act 1986
 - Gramdan Act
 - Panchayat Extension to Scheduled Areas Act
 - Honorary Wildlife Wardens under Wild Life (Protection) Act 1972
 - Existing State Legislations such as Anchal Forest Rules in Arunachal Pradesh
11. Given that the above might not be adequate to cover the full range of CCAs (marine and fresh water habitats, village lands), new provisions need to be explored of, such as:
 - Heritage Sites in the proposed Biodiversity Bill
 - Community Reserves in the proposed amendment to the Wildlife Protection Act 1972
 - Separate State Acts for CCAs
12. Relevant laws and policies need to be made accessible in simple and local languages;
13. Citizens must have a full right to information including through efficient and locally accessible modes of dissemination;
14. Political parties, armed forces, donor agencies, media and decision makers need to be sensitised to CCA issues. Urban citizens need to be sensitized to the destructive impacts of their consumerist lifestyles;
15. The increasing market for natural products (bamboo, medicinal plants, fish, honey) can be constructively used to promote CCAs;
16. Local tourism must be managed by local communities with sensitivity towards conservation and cultural dimensions;
17. The conservation and development planning and administrative process needs to be decentralised to local

levels, with the government providing a facilitatory role;

18. Environment Impact Assessment (EIA) procedures need to integrate CCA issues including mandatory provisions for involvement of local people in data generation and impact assessment, transparency in decisions and results generated, as also public hearings when sought by the community;
19. All new policy initiatives including the 10th Five Year Plan should integrate CCA as a strategy;
20. Success stories of CCAs need to be incorporated into the curriculum of all education and training institutions, especially NRM focussed;
21. Community members and institutions need to be helped in improving their capacity to handle the complex issues facing CCAs;
22. CCAs within official protected areas, wherever they exist, also need to be identified, recognized, and built upon to achieve a just and effective conservation strategy.

Follow Up Suggested

The participants decided to set up an informal network to further the above recommendations, which will take up the following activities:

1. Documentation and highlighting of CCA initiatives across the country, including developing formats and manuals for the same;
2. Exchange and dissemination of information amongst various sections of society;
3. Training of CCA participants and facilitating agencies, on research and documentation, and legal and policy issues relating to CCAs;
4. Creating a central database on CCAs, relevant materials, human resources, policies and laws, and funding sources;
5. Legal and policy advocacy to strengthen the enabling environment for CCAs, including through the development of detailed guidelines for various laws and holding workshops;
6. Facilitating exchange visits and workshops of community members, to enable sharing of experiences;
7. Integration of CCA issues and experiences into the training curricula of all institutions dealing with natural resources, such as forestry training institutes;
8. Integration of CCA issues and experiences into existing networks and forums;
9. Overall advocacy and campaign support, to strengthen CCAs, respond to threats, and in general spread their reach.

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Annexure 7: Some other Kalpavriksh and TILCEPA publications on Community Conserved Areas (2001 till 2006) and relevant international websites

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 49. Handbook on governance of protected areas http://www.iucn.org/themes/ceesp/Wkg_grp/CMWG/EVALUATING%20GOVERNANCE%20HANDBOOK.doc
 50. Publication of the special issue of *PARKS* 16.1, on community conserved areas http://cmsdata.iucn.org/downloads/parks_16_1_forweb.pdf