# Livelihoods and Biodiversity

## National Biodiversity Strategy and Action Plan-India

Thematic Working Group on Livelihoods and Biodiversity
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**Thematic Working Group** on Livelihoods and Biodiversity
**National Bio-diversity Strategy and Action Plan**

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# LIVELIHOODS AND BIODIVERSITY

## Executive Summary

### Introduction

India is a country of mega-biodiversity. It is also a country of mega-diversity in livelihoods dependant on natural resources and the biodiversity in them. Today this covers a vast majority of our rural population.

These livelihoods and biodiversity are inseparably linked. Over the years, dependence on biodiversity for their daily needs has generated a rich heritage of indigenous biodiversity knowledge and conservation values among the women & men of local communities. While conservation continues to be a way of life for a number of communities across the country, a complex array of social, political and economic factors are leading to evident changes in lifestyles among others. Nevertheless, the women and men of resource dependant communities are the strongest potential allies for biodiversity conservation.

### Major Issues

- Historical state appropriation and control over common property resources has disempowered local communities to manage resources to meet livelihood needs and priorities. Though denied legal access, resource dependence continues. This denial of legal access and control which restructured people-resource relationships has resulted in a breakdown of collective accountability, responsibility and interdependence.
- These trends have been exacerbated by internal dynamics of change within communities shaped by inequities of class, caste, gender, and age; changing lifestyles and norms; demographic patterns including localized increases in population, and other such factors.
- In many areas, intensified extraction and commercialization of resources accelerated by market driven globalization, is changing the lifestyles and aspirations of adivasis and resource dependant communities. They are becoming increasingly vulnerable to forces destroying resources for short-term gains. The same village men and women who worship trees can be driven to felling them for wages if their source of livelihood is snatched from them.
- There are several examples of resistance to development projects that displace local communities and destroy their natural resource base. Such resistance has literally come under fire. For example, the adivasi protest against bauxite mining in Kashipur, Orissa, and the Koel Karo dam in Takpara in Jharkhand.
- Resource dependant communities are being squeezed and facing threats of displacement, by both conservation programmes and development projects.
- The vast majority of resource dependent communities have no real say in their lands and resources being declared Protected Areas or being earmarked for development projects implemented in the 'National Interest'.

### Initiatives and Gaps

- The present official and dominant notions of biological resource utilization and biodiversity conservation are governed by the interests of the more privileged sections of society with little direct dependence on biodiversity. These do not reflect the biodiversity related livelihood needs and priorities of the largest group of primary stakeholders. This is because present utilization and conservation polices have been framed through social processes which reflect the unequal power between diverse social groups.
- Biodiversity has multiple uses and multiple users with potentially conflicting ways of managing the resource. This is so even within local resource dependant communities having diverse livelihoods and resource related needs. Besides, there are prevailing inequalities of class, caste, gender and age that need to be addressed within local community institutions.
- Hence, there is an urgent need to put in place more democratic and equitable mechanisms for redefining biodiversity conservation and use strategies which provide a legitimate voice to the vast majority of local communities dependent on bio-diverse resources for their livelihoods in articulating their differentiated concerns and priorities.

- This requires initiating a holistic review of existing policies, laws and development interventions to enable primary stakeholder groups of dis-privileged women and men with biodiversity based livelihoods to become key partners in achieving the goals of conserving biodiversity while being able to sustainably use local natural resources for their livelihoods.
- In the context of the prevailing structure of unequal economic and political power, developing institutional mechanisms that foster a strong democratic process giving legitimate weightage to the voices of disprivileged groups of biodiversity dependent women and men in decision making is required.
- Securing local resource rights and management authority along with conservation responsibility, in the context of market driven globalization is critical both for protecting livelihoods and the biodiversity on which they are dependent.

**Proposed Strategies**

In order to address the above mentioned issues and concerns the following strategies have been proposed for four major categories of livelihoods dependent on biodiverse resources namely forests, pastures, coastal and marine resources and inland fisheries. Due to various constraints, livelihoods based on agro biodiversity could not be covered.

### 4.1 STRATEGIES FOR FOREST BASED LIVELIHOODS

*4.1.1 STRATEGY*: *Promote a shift towards devolving management authority (based on evolving collective norms and responsibilities for conserving diversity) over communally used forest land resources to democratic and gender balanced community institutions or Gram Sabhas/ Panchayats with secure rights over all timber and non-timber forest products as well as eco-system services.*

*4.1.2 STRATEGY*: *Initiate holistic forest sector reforms with multi-stakeholder participation which take into account the multiple livelihood functions, often based on customary rights, of the uncultivated common lands legally designated as state owned forests over time.*

**4.1.3 STRATEGY: Create space for Community Institutions (CIs) of forest dependant user groups and right holders to develop collective norms for regenerating, conserving and exercising prudent extraction of NTFPs giving priority to local consumption needs. Move towards abolishing contract systems for procurement, storage, value addition and sale, and eventual de-nationalization of NTFPs, in order to enhance livelihoods depending on diversity in forest resources.**

**4.1.4 STRATEGY: Move towards greater community participation in the management of PAs with a focus on livelihood security of forest dependant people living in and around them.**

**4.1.5 STRATEGY: Bring about changes in policy, forest administration, style of management by Forest Department that enhances ownership by communities and move away from past alienation mode.**

### 4.2 STRATEGIES FOR PASTORALISTS

***Justification:*** Pastoralists play an important role in the conservation of indigenous livestock breeds (such as one humped camel, Toda buffalo, Nari and Malaimadu cattle, Deccani sheep). These breeds harbour a wide variety of adaptive traits, being able to cope with harsh climates and landscapes and resisting diseases that affect crossbreeds. It is imperative to conserve them and the pastoral livelihoods they support.

**4.2.1 STRATEGY*:* Develop land use policies that conserve and protect grazing lands and pastures to ensure legitimate space for the livelihoods of pastoralists.**

**4.2.2 STRATEGY*:* Protect livelihood security of pastoralists by revalidating their customary use of those lands which have been declared government owned forests within an agreed framework evolved through negotiations for combining conservation of natural biodiversity with sustainable use.**

**4.2.3 STRATEGY*:* Review the existing mandates of AH departments and ensure that conservation of livestock diversity is included in them through appropriate policy changes at national and state levels. Promote animal health and livestock extension services addressing the special needs of the pastoral groups, integrating their indigenous ethno-veterinary knowledge and supporting them for conservation of livestock diversity.**

**4.2.4 STRATEGY*:* Promote linkages between concerned government departments (AH, FD, Revenue and Tribal Development where appropriate) in order to enhance the livelihoods of pastoralists.**

**4.2.5 STRATEGY*:* Protect the intellectual property rights (IPRs) of pastoralists and other traditional domestic animal raisers in the light of the growing interest in making use of the genetic traits of indigenous livestock breeds.**

**4.3 STRATEGIES FOR COASTAL LIVELIHOODS**

**4.3.1 STRATEGY*:* Check industrial Aquaculture that degrades the coastal resources and promote sustainable practices that enhance livelihoods of fisher people.**

**4.3.2 STRATEGY*:* Legislative mechanisms to ensure sustainable fishing and promote ecologically sensitive and appropriate technology**

**4.3.3 STRATEGY*:* Safeguard the livelihoods of fishing community from cheap imports/dumping of fish.**

**4.3.4 STRATEGY*:* Enable community ownership, control and management of coastal resources. Acknowledge coastal communities as strong allies and involve them in the protection / conservation of coastal and marine resources.**

**4.3.5 STRATEGY*:* Protect and regenerate mangroves, a vital resource for coastal lives and livelihoods, with the active participation of coastal communities**.

**4.3.6 STRATEGY*:* Empower fishing communities to organize and manage their own community institutions (CIs) for pursuing their livelihood needs (to meet the challenges of globalization and the market economy) and using the coastal resources sustainably.**

**4.3.7 STRATEGY*:* Enhance livelihoods of fisher people by encouraging value addition**

**4.3.8 STRATEGY*:* Move towards ecologically and socially sound coastal tourism.**

**4.3.9 STRATEGY*:* Enforce norms for Industrial and infrastructure development along the coast.**

**4.3.10 STRATEGY**: **Enhance the scope of CRZ for conserving coastal resources and securing coastal livelihoods in the context of emerging intensive developments along the coastal region**

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### Forest based



**Pastoralists**



**Coastal Livelihoods**



**Inland Fisheries**

# Abbreviations

| | |
|---|---|
| AH | Animal Husbandry |
| BCN | Biodiversity Conservation Network |
| BR | Biosphere Reserves |
| CCBA | Community Conserved Biodiverse Areas |
| CFM | Community Forest Management |
| CI | Community Institutions |
| CMFRI | Central Marine Fisheries Research Insatiate |
| CRZ | Coastal Zone Regulation |
| DoT | Department of Tourism |
| EEZ | Exclusive Economic Zone |
| EPA | Environment Protection Act |
| FD | Forest Department |
| FDI | Foreign Direct Investment |
| FFDA | Fish Farmers' Development Agencies |
| FMIS | Forest Market Information System |
| FPC | Forest Protection Committee |
| GCC | Girijan Co-operatives Corporation |
| GIS | Geographical Information Systems |
| GMCL | Gram Mooligai Company Ltd. |
| GP | Gram Panchayat |
| GO | Government Order |
| GoI | Government of India |
| ICAR | Indian Council for Agricultural Research |
| IFA | Indian Forest Act |
| IFRA | Inland Fishing Regulation Act |
| IPR | Intellectual Property Rights |
| JFM | Joint Forest Management |
| JPAM | Joint Protected Area Management |
| KFDC | Kerala Forest Development Corporation |
| LAMPS | Large and Multi Purpose Society |
| MFRA | Marine Fishing Regulation Act |
| MPEDA | Marine Products Export Development Authority |
| MoA | Ministry of Agriculture |
| MoC | Ministry of Commerce |
| MoEF | Ministry of Environment and Forest |
| MoL | Ministry of Labour/ Ministry of Law |
| MoRD | Ministry of Rural Development |
| MTO | Mass Tribal Organisations |

| | |
|---|---|
| NBS | Nari Bikas Sangha |
| NCDC | National Cooperative Development Corporation |
| NFFPFW | National Forum for Forest People and Forest Workers |
| NFP | National Forest Policy |
| NGO | Non Government Organisation |
| NIO | National Institute of Oceanography |
| NP | National Parks |
| NSS | National Sample Survey |
| NTFP | Non Timber Forest Produce |
| OGL | Open General License |
| PA | Protected Area |
| PCS | Primary Cooperative Societies |
| PESA | Panchayat Extension in Scheduled Areas |
| PI | Peoples Institutions |
| PIM | Participatory Irrigation Management |
| PRI | Panchayati Raj Institutions |
| SEZ | Special Economic Zone |
| SHG | Self Help Group |
| TRIPS | Trade Related Intellectual Property Rights |
| UPOV | Union for Protection of new Verities of Plants |
| VFC | Village Forest Committee |
| VSS | Van Samrakshana Samiti |
| WII | Wildlife Institute of India |
| WLAP | Wild Life Action Plan |
| WLPA | Wild Life Protection Act |
| WTO | World Trade Organisation |

# 1. INTRODUCTION

India is a country of mega-biodiversity. It is also a country of mega-diversity in livelihoods dependant on natural resources and the biodiversity in them. Today this covers a vast majority of our rural population. These livelihoods and biodiversity are inseparably linked.

Over the years, dependence on biodiversity for their daily needs has generated a rich heritage of indigenous biodiversity knowledge and conservation values in local communities. While conservation continues to be a way of life for a number of communities across the country, there are evident changes in lifestyles among others. Nevertheless, resource dependant communities are the strongest potential allies in biodiversity conservation.

*Brief Background To TSAP*

The Thematic Strategy and Action Plan (TSAP) for Livelihoods and Biodiversity forms the part of NBSAP, which is a project of the MoEF. NBSAP has been a participatory process to produce implementable action plan to conserve India's vast biodiversity, orient utilisation of biological resources into sustainable directions and ensure that decisions regarding access to such resources are taken democratically and equitably.

Recognising this, the two bottom lines that are considered pre-requisites in the NBSAP are: **Ecological Security** of the country or of any region within it, and **Livelihood Security** of those most critically dependent on biodiversity and its components:

- **Ecological Security** refers to the maintenance of: the diversity of ecosystems and habitats; the diversity of species, subspecies/verities, population and communities; the interaction between species, populations, communities and their habitats and ecosystem; their integrity including biological productivity of ecosystems and taxa; the evolutionary potential of natural and agricultural systems; and critical ecosystem services. This reefers to both wild and domesticated biodiversity.
- **Livelihood security** refers to the security of human communities and individuals critically dependent on biological resources, including guaranteed access to, and control over, such biological resources and related knowledge.

*Scope of SAP*

***The focus***

Historically, communities have depended on using local biodiversity for sustaining their lives and livelihoods. This has shaped diverse cultures, gender relations, resource use and management traditions, and spiritual beliefs. In India, an estimated 100 million forest dwellers living within and near forest areas with a preponderance of poor women among them and another 275 million people continue to depend on forest biodiversity as an important source of their survival livelihoods. Several tens of millions more women and men depend on freshwater and marine biodiversity for their sustenance. Even in the country's present predominantly agricultural belts, several communities, particularly women have preserved and maintained cultural traditions centered on conserving biodiversity through sustainable use for meeting livelihood needs.

However, current models of development have devalued the critical links between biodiversity and livelihoods. A predominant thrust towards urban and industrial oriented development has often differentially alienated women and men of communities from their natural surrounds, and forced them into producing or working for urban markets and industrial processes or be compelled to resort to unsustainable use. In forestry, pastoralism, fisheries, agriculture, and other 'primary' sectors of the economy, external market-driven extraction and production has resulted degradation of resources, reduction of biodiversity and destruction of biodiversity-based livelihoods. There is concern that this is further compounded by the impact of globalisation on biodiversity and livelihoods.

Simultaneously, instead of building upon the wealth of indigenous knowledge and conservation traditions in official conservation programmes, wildlife protection approaches treat communities as threats to be excluded. The sudden delegitimisation of their livelihood systems, resource rights and access alienates the very people with primary stakes in biodiversity conservation and sustainable use, thereby leading to damaging conflicts and loss of indigenous knowledge.

It also needs to be noted here that the nature of dependence on biological resources, livelihoods and lifestyles of both rural and urban people are not static. Livelihoods and lifestyles are continuously evolving

and responding to market situations and new opportunities that are coming up. Together with this there are changes in consumption patterns, which have both positive and negative impacts on biodiversity.

In recent times, however, an encouraging trend is being seen. Thousands of communities, on their own or aided by NGOs or government officials, are reviving their natural resource-base and livelihoods dependent on this. Self-initiated forest protection measures, Joint Forest Management, organic and bio-diverse farming, community-based coastal and marine conservation, and widespread resistance to destructive commercial and industrial processes, are rapidly increasing.

Biodiversity conservation is embedded in a set of potentially conflicting ways of managing biological resources. Deciding how particular resources are to be used and conserved is therefore the outcome of a social process. This social process is flawed and ridden with inequalities of social economic and political power. Hence there is a need for a strong democratic process that gives greater weightage to communities that are:

- Poor and socially disadvantaged
- Proximate to the resource
- More dependant on the resource and
- More knowledgeable about the resource

This needs to be understood in the overall context where there are divergent views regarding conservation and use of biological resources. Besides, there are inherent conflicts among the components of biological resources also. For example, 'domesticated ' biodiversity is in conflict with 'natural' biodiversity, because hundreds of cultivars of rice could be generated only after a few wild rice varieties were selected and cultivated over a vast area that was previously natural.

Again, each component of biological resource (eg. Forests) can be managed in a number of ways. Each management regime generates a different set of multiple benefits, which are not simultaneously maximised. These benefits flow to different sets of beneficiaries. Hence there exists a multiple benefits – multiple beneficiary nature of human relationship with biological resources. Maximising a benefit like biodiversity can result in increased benefits for some at the cost of others. Therefore, the core values of biodiversity conservation also need to be examined in the light of 'who gains' or 'who loses'.

***Limitations***

The TSAP does not go into the details of themes like; access and benefit sharing, policies and laws, domesticated biodiversity and cultural biodiversity. Separate thematic working groups have been looking into these themes. Hence this TSAP needs to be seen in co-ordination with the above TSAPs.

While there are large number of different kinds of livelihoods dependent on biodiversity the effort covered in this document looks at the following; forest based livelihoods, pastoralists, coastal fish workers, and inland fish workers.

*Objectives*

Given the above context, this thematic group has felt the need to focus on disadvantaged groups whose survival and livelihoods are dependant on biological resources and the biodiversity in them. These deprived sections are usually left with little choice and lose out the most when there are overwhelming changes in resource use , resource degradation and biodiversity loss. Besides they also tend to be voiceless in community and other forums. The objectives of this TSAP are to,

- Assess the current situation of biodiversity based livelihoods
- Analyse initiatives and experiences in conservation together with impact on livelihoods
- Evolve strategy and action plans to integrate livelihood security with biodiversity conservation in the context of a shift to a market driven globalising economy

*Methodology*

- The Thematic Working Group on Livelihoods Lifestyles and Biodiversity was constituted in July 2000 with representatives from forums working with different livelihood groups, academicians, activists representatives from NGOs.
- First meeting of the Thematic Working Group was held on 16$^{th}$ – 18$^{th}$ August 2000, at Bangalore. Members developed work plans and agreed to work on the different sections.

- The second meeting of the TWG that was held on 28th February to 1st March 2001 at New Delhi, focussed on forest based livelihoods.

Other interactions and meetings were held with different livelihood groups and other groups involved with the NBSAP process. These include,

- Meeting of the Western Ghats Eco-regional Group held on October 12th 2000 at Bangalore.
- National Workshop on Biodiversity and Adivasi/ Indigenous Peoples organised by All India Coordinating Forum of Adivasi/Indigenous Peoples in association with Kalpavriksh and NBSAP.
- Workshop on Biodiversity and the Adivasi People held on 23rd –24th February 2001 at Thandarai, Chengelpet.
- Meetings of the TWG Economics and Valuation in March and July 2001.
- Meeting of the TWG on Domesticated Biodiversity held at Bangalore in July 2001.
- Meeting organised at Malpe, Karnataka for interaction with fisher women and fishing communities.
- Workshop on Biodiversity and Livelihood Rights on 6th -7th October2001, organised by Ekta Parishad, Raipur, focussing on livelihoods in Protected Areas.
- Meeting at Goa on 15th October to discuss the Goa State Plan for NBSAP.
- The Southern Regional Meeting of the NBSAP held at Pastapur, AP, in January 2002.
- The 6th Consultation on Conservation and Livelihoods held at Bongaigaon, Assam, in February 2002.
- All India meeting of Pastoralists and Herders Organisations at Sadri, Rajasthan, hosted by the Lokhit Pashupalak Sansthan on 22nd –23rd March 2002, attended by pasroralists and their support organisations from different parts of India.

Information was gathered, and issues were discussed during these interactions. This was further supplemented by review of related literature and drafting the write-up. Further Strategies and Action Plans were drafted and comments were sought. Finally this Thematic Strategy and Action Plan was drafted, based on the inputs received.

# FOREST BASED LIVELIHOODS

*2.1 Forest Dependant People*

India's existing forests are primarily concentrated in three regions: the Himalayan band stretching from the north to the north-east; the central forest belt with its nexus in the Chhotanagpur Plateau of Orissa, Bihar and Madhya Pradesh; and the north-south belt of the Western Ghats. Significantly, the location of India's predominant tribal population is closely superimposed on the nation's forest tracts. With the greatest economic dependence on forest resources, it is not surprising that perhaps tribals possess the most extensive knowledge of India's forests, as well as the strongest motivation to ensure the continuity of these ecosystems. Barring a few isolated patches, the tribal communities co-exist with other local communities, whose production systems exhibit a close linkage with forest biodiversity. These combined local communities (estimated population 200 million) therefore constitutes the critical segment of the Indian population whose survival depends on the sustainability of forest biodiversity. There are also a strong correlation between the locations of tribal people, forests and India's concentrated poverty areas (Poffenberger et al. 1996)

Historically these communities have been dependent on forests and related resources for multiple uses. These include (i) Consumptive use for food, fuel, fodder, fiber and construction materials (ii) NTFPs as a critical source of income (iii) subsistence agriculture and (iv) as forest labour. The National Forum for Forest People and Forest Workers (NFFPFW) refers these communities as forest workers.

*Box: 1*

NFFPFW's Definition of Forest Workers

*According to National Forum for Forest People and Forest Workers (NFFPFW), forest workers are primary producers among the forest dwellers in India, ecosystem people linked to a forest system through their energy and livelihood needs.*

*The primary producers linked to a forest system include all groups of people who create, nurture, protect, harvest, pre- process and process forest products for the State and other market forces like traders and contractors. In other words, people directly or indirectly employed by or serving the Forest Department, the traders, contractors, and getting direct or disguised wages from them are all primary producers who generate surplus value.*

*The primary producers thus include the large number of 'self-employed' people who collect and sell non-timber forest produces to the State agencies, business houses, local or outside traders, in addition to forest or taungya villagers or similar groups of people termed as 'forest labour'. The primary producers also include, along with traditional food-gatherers and hunters, all people within the agrarian or semi-agrarian communities, traditionally using forest areas for jhoom or other types of subsistence-level cultivation.*

*The forest workers include all primary producers, irrespective of caste, race, gender and ethnicity. The definition of forest workers excludes those sections of forest dwellers that use the forest systems for generating surplus, and therefore do not come under the category of primary producers.*

*Source: NFFPFW undated a*

*2.2 Degradation of Forest Biodiversity and Threats to Livelihoods*

Some of the factors leading to degradation of forest biodiversity are:

Development projects like agricultural expansion, dams, roads and mining have destroyed more forests than any other single cause. Approximately 1.883 million hectares of forests were lost for these purposes in India between 1952 and 1980. In the first two decades after independence, serious concern about food deficit and inability to implement genuine land reforms led to a large-scale diversion of forest lands for agriculture purposes. Even after the passing of the Forest Conservation Act in 1980 (which prohibits transfer of forest land for non-forestry purposes without central government permission), 1,14,809 hectares of forest lands were transferred for other uses.

Modern economic processes have subjected the traditional economies to the requirements of production and consumption of distant places and populations, hence breaking the fragile balance between supply and demand. Urban and industrial consumers' demand (national and international) has no relationship with the

carrying capacity of forests and no societal control, as it is independent of the ecosystems, which are harvested to satisfy it.

The invasion of commercial forces with exclusive interest in particular species displaces biodiversity with monocultural industrial plantations. After the enactment of the Forest Conservation Act in 1980 this process has slowed down considerably. Yet destructive activities continue, as Forest Departments (FDs) supply raw material to industries at concessional rates, and tribal/local community rights to certain quantities of timber are exploited for commercial purposes leading to massive deforestation in North-east India and other areas. There is also sustained pressure (so far unsuccessful) on the government to lease forestland to industries. Monocultural commercial plantations are of very little use to local communities whose livelihood strategies are dependent on multiple outputs from biodiverse forests. (Khare 1998)

**Some of these developments have adversly affected forest dependent communities even displacing them from their homes and living spaces. The Upper Kolab and Upper Indravathy dams have displaced 8000 of which half are Adivasis in the districts of Koraput and Kalahandi of Orissa. The public sector National Aluminium Company in Koraput district displaced over 300 Adivasis in 1981, to site a few examples.**

Massive destruction caused by these kinds of development triggered official conservation efforts to protect the resources and their biodiversity. However conservation programmes have also not been people friendly. The PAs in general have contributed to the displacement of communities in India. For example, about 800 families are to be displaced by the World Bank aided forest development programme to create a Biosphere Reserve in Andhra Pradesh. Polavaram in Andhra Pradesh will probably displace, 11 lakh, majority of whom would be Adivasis. Besides industralisation and urbanisation, the Great Himalayan National Park and the Rajaji National Park in Himachal Pradesh have severely affected the way of life of nomadic cattle grazers -Gaddi and the Gujjars – through prevention or restriction of use of these vast resources. Similar is the fate of 7000 people affected by the proposed World Bank sponsored ecodevelopment project in Karnataka. Such displacements are on the increase (Adivasi /Indigenous People in India).

*Table: 1*

**A Conservative Estimate of Persons Displaced by Various Categories of Projects (Year 1951 – 1990)**

| No | Type of Project | Total Displaced | No Rehabilitated | Backlog. |
|---|---|---|---|---|
| 1. | Mines | 25,50,000 | 6,30,000 | 19,20,000 |
| 2. | Dams | 1,64,00,000 | 41,00,000 | 1,23,00,000 |
| 3. | Industries | 12,50,000 | 3,75,000 | 8,75,000 |
| 4. | Wildlife | 6,00,000 | 1,25,000 | 4,75,000 |
| 5. | Others | 5,00,000 | 1,50,000 | 3,50,000 |
| | Total | 2,13,00,000 | 53,80,000 | 1,59,20,000 |

*Source: - Fernandes 1994.*

The impact of deforestation and destruction of natural resources affects the women more due to their multiple responsibility for gathering firewood, food and fodder for their households. Importance of forests is also there in their day to day life. By cutting down the traditional rights and disturbing the nature-based economy, these women's job of collection has become more traumatic. They have to walk longer distance for collecting firewood and drinking water and also they have been harassed by officials on entering the forest area. Though women being much closer to environment have always been excluded form the decision making process. Any development process and technical change, the women are the first suffers. They have fewer earning opportunities, enjoy lesser job search mobility and typically receive lower pay for the same job. Given women's limited access to private property resources, to cash and marketed goods, their dependence on common property resources has always been much more substantial than that of the men of the same households.

New International Developments: The TRIPs provision in GATT 1994, and the 1991 revision of Union for Protection of New Varieties of Plants (UPOV) are some of the international developments which pose a potential threat to the knowledge systems of forest – dependent communities. The developing countries are under extreme pressure to harmonize their legislation with global IPR standards. These provisions could end up conferring monopolistic ownership rights to products made in laboratories from the knowledge of indigenous peoples and local communities.

If one were to take a look at who is patenting and what is being patented then the implications for the countries of the South become clear. It is not surprising that the overwhelming majority of patent claims originate in the industrialized world, and the South is virtually unrepresented despite the fact that much of the patented germplasm originates there. (Khare 1998)

**The local inhabitants of bio-diversity-rich pockets, the PA's, are generally blamed for destruction in the form of increasing biotic pressure on wilderness areas. However, the fundamental causes, which lie behind the proximate causes, are rooted in economic, institutional and social factors.**

*2.3 Nature of dependence*

**2.3.1 Consumptive Use**

Food: Forests are an important source of food especially for the tribals and the rural poor. Reportedly, 60 per cent of non-timber forest produce (NTFP) is consumed as food or as a dietary supplement by forest dwellers. In Bastar district of Madhya Pradesh, about 75 per cent of forest-dependent people supplement their food by tubers, flowers and fruits all the year round. In the Andaman and Nicobar Islands, several tribes wholly subsist on the food derived from forests and the sea. In a survey of 216 households (tribal and caste) it was found that, of the 122 uses of plants or their parts listed by the people, the maximum were for food (44), followed by fuel (39) and medicinal purposes (18) (Malhotra et al. 1991). During draught years this dependence on the forest increases thus forest serve as an insurance against draught and famine.

Fuel: Seventy per cent of the rural and 50 per cent of the urban people use fuelwood for cooking purposes. Forests meet nearly 80 per cent of the rural energy requirements (according to India's submission at UNCED). Apart from subsistence fuelwood needs, 'head loading' of fuelwood is also an importance source of income for many poor families especially during the lean agricultural season.

Fibre and Construction: Rural communities require timber, bamboo and grass for houses construction, bullock carts, agricultural implements, fencing, etc. Most of these needs are fulfilled from forests. The consumption of bamboo alone for this purpose is estimated to be around 1.6 million tons per annum.

**Fodder: Fodder from forests is yet another critical survival resource. A study shows that 66 per cent of small and marginal farmers in Andhra Pradesh would not be able to cultivate at all in the absence of forest resources, as they would not be able to maintain a pair of bullocks. It is therefore not surprising that the Forest Survey of India recorded widespread grazing in forest areas across the country (FSI 1987). Of the 174 protected areas (PAs) surveyed, 67 per cent of national parks and 83 per cent of the sanctuaries reported grazing incidence. (Kothari et al. 1989)**

**2.3.2 NTFP as a Critical Source of Income**

Non-timber forest produce or NTFP, play a vital role in village and tribal economics. In the Indian forests NTFPs are derived from around 3000 species of which 126 have developed marketability. The total value of NTFP is estimated to exceed one billion dollars annually (Saigal et al. 1996). The NFFPFW reports that the estimated annual revenue from NTFP is Rs.3 billion. More than 20 lakh person days of self-employment is generated annually through collection of NTFP, accounting for 70 per cent of the employment in the forestry sector. (NFFPFW undated) Where as World Bank 1993 estimation put these figure as 50 per cent of the forestry sector employment. Around 100 million forest dwellers, more than half of them tribals, are basically surviving on NTFP. They are among the poorest.

*Table: 2*

| **NTFP and Livelihoods** | |
|---|---|
| Total Value | 8 billion Rupees/year |
| Employment | 2 million person days/year |
| Employment as per centage – Forestry sector | 70per cent |
| Totally dependant | 100 million forest dwellers with 54 million tribals |
| Partially dependant | 250-350 million |

*Source NFFPFW*

Millions are engaged in tendu collection and beedi rolling.

Many tribes like the Kotwalias, Sengmas, Bansfodias, Banjaras and Kamars eke a living as bamboo artisans

Around 2 lakh women and men in Saharanpur District of U. P. engage in grass harvesting and rope making.

In a survey of 9 villages in West Bengal, 72 per cent of households were engaged in sal leaf plate making

A study in 7 villages across 4 districts of Orissa found 91 per cent men and 98 per cent women engaged in NTFP collection. For many of the women this was the primary occupation. Households with less than Rs.3000 annual income derived 50per cent of their earnings from NTFP, while those with more than Rs.6000 annual income, NTFP contributed 21per cent.
A detailed study undertaken in Jamboni Range of Midnapore District of West Bengal found that tribal families earned 27per cent while caste households earned 16per cent of their income from NTFPs. (Saigal et al 1996)

*(Refer Annexure I for a picture of people in Kamardanga Village, in West Bengal, where NTFPs from the forest are very much a part of their life.)*

## Declining Yields and Over Harvesting

Strong local village -level systems based on the geographical and social realities of various regions had evolved over thousand of years to manage forests and regulate the harvesting of NTFPs, so that it could regenerate year after year, and continue to provide livelihoods for the collectors year after year. These 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. For example, roughly 5 tons of *Kutki/Karvi (Picrorbiza kurooa)*, a commercially valuable medicinal plant from the bugyaals (alpine pastures) of Garhwal and Kumaon was being collected every year from the region and traded with the plains since time immemorial. This large amount was being sustainably harvested year after year. Kutki/Karvi is presently on the endangered list. Also, 25 tons of Jhula (*Parmelia kamtschadalis, P. spp)* lichens that constitute 80per cent of the NTFP traded presently from Uttarakhand, was being harvested annually. It is now reported to be getting scarce in many areas. (NFFPFW undated). Yields of all major NTFPs all over the country are presently in a state of decline**,** the major reasons being:

- As more and more forests were clear felled through 'scientific forestry', the NTFPs also disappeared along with the trees.
- As the colonial obsession for maximizing profits increased, the understanding and awareness of the crucial role played by NTFPs in the local subsistence economy disappeared and became replaced with an attitude of indifference and apathy.
- As middlemen who were outsiders to the region were inducted into the NTFP economy, production declined. They had no cultural link with the forests, did not have any knowledge of harvesting levels, and lived only to squeeze maximum profits out of their business.

This resulted in tremendous over harvesting beyond nature's capacity to withstand.

On the other hand, well defined access rights appear to reduce destructive harvesting practices, ensure the harvesting of the product at the appropriate time, and slightly increase the bargaining power of the rights-holders even under monopsonistic conditions. If the monopsony were replaced by an open market, the collectors are likely to gain significantly more in the case of high-value-high-volume products like uppage. If a collectors' cooperative is established that can counter the might of the cartels of traders, then even for the NTFPs having low-value-low-volume markets the exploitative prices can be eliminated. (Parikh et al.)

## Nationalisation and more Exploitation

According to a Planning Commission document entitled "NTFP *Policy and the Poor in India*" of April 1999, Nationalisation of NTFPs has severely affected the livelihood of tribal communities by creating corrupt and bureaucratic systems, entry of middleman, increased pricing and also contributed in promoting illegal activities.

The document further goes on to say that initially this right was acquired by the government to protect the interests of the poor against exploitation by private traders and middlemen. There is general agreement on this fact. On paper, the state agencies were working with three major objectives:

- To earn revenue
- To protect the interests of collectors, processors and artisans, and
- To satisfy the demands of industry and other end users

But in practice the industry gained priority much to the detriment of local artisans and others dependent on NTFP. The corporations set up by various states (Kerala Forest Development Corporation (KFDC) in Kerala, Girijan Co-operatives Corporation (GCC) in AP, TDCC in Orissa, Large and Multi Purpose Society

(LAMPS) in West Bengal etc) have been running into massive losses. High overhead costs, inefficient management systems and low returns to the collectors are the outcome of these corporations.

Despite positive prescriptions in the forest policy (for domestic requirements of fuelwood, fodder, minor forest produce and construction timber should be the first charge on forest produce.) in the case of bamboo this has been openly flouted in favour of big industries. An example is given below from the sale figures of bamboo from a depot in district Nayagarh, Orissa:

*Table: 3*

| **Bamboo Sale Details from Nayagarh** | | |
|---|---|---|
| To industry | 33,60,000 pieces | roughly at 15 paise/ piece) |
| Through open auction | 27,275 pieces | Rs. 10-13/ piece |
| Sent to other divisions | 2,892 pieces | Rs.4.30/piece |
| Local sale to cultivators (only land-owners) | 350 pieces | -- |
| To artisans | NIL | -- |

*Source: NFFPFW*

## Tendu Patta Policy in Madhya Pradesh

Since 1947, the Government had made interventions to increase revenue and earnings from the Tendu Patta Trade. However, middlemen continued to control the trade and the tendu patta gathers benefited little. A landmark decision by the Cabinet Committee in 1988 changed the nature of the trade in Nationalised Forest Produce. It was decided that:
"The collection, storage and marketing of Tendu Patta, Harra and Sal seed has to be completely freed from the middlemen. Henceforth, the collection, processing, grading and trade in these produce would be done through the cooperative societies."

A study on the implementation of this policy, highlighted the following:

- There has been a significant increase in wages as a result of the Tendu Patta policy. The wage shot up from Rs. 85 per standard bag to Rs.150 in 1989 when the policy became operational. This further increased to Rs.400 per standard bag in 2000.
- Though income from Tendu Patta accounts for less than 5per cent of the total income for most gatherer families, it is significant. Coming at a critical point of the year, when food grains with the poor are exhausted, it enables them buy almost 13-26 days worth of rice.
- Profit calculations are centralized and incentive wages (profit distribution to gatherers) do not reach all gatherers. Incentive wages received in the study villages were very small.
- The illegal practice of taking saran (free bundles) has got institutionalized. The quantity involved, being a function of literacy and awareness levels of gatherers.
- Low awareness in gatherers regarding insurance cover and leakages in the process.
- The Tendu Patta Cooperatives function as extensions of the Forest Department with nominated Presidents, Directors, Managers and a passive General Body. Attempts by Primary Cooperative Society leadership to assert their power are viewed with contempt by the bureaucracy.

The Policy attempts to make gatherers the true owners of the forest produce rather than remain mere wage earners. To realize this, there is need for:

- A clear commitment from the FD to make this a true cooperative managed by the people themselves.
- Checking the large-scale vested interests that have developed over time and also corruption/leakages in the present system.
- Focus on capacity building for Primary Cooperative Society (PCS) leadership, General Body and (especially) women gatherers. (Bhogal 2000)

## Role for Community Institutions

**Experiences in the trade of NTFPs that are not nationalised also indicate that exploitation is rampant, hence immediate denationalisation is not the answer against exploitative practices. NTFP collectors need to be organised in to associations/cooperatives to assert themselves and demand fair prices. There are instances like in the case of women from Kotra Block of District Udaipur, through their struggle won minimum wages from private contractors and the government.**

## Strengthening Marketing Efforts

The Report on the Task Force on 'Greening India for Livelihood Security and Sustainable Development' recognizes the importance of marketing NTFPs (and agroforestry products). It identifies lack of proper marketing channels and the huge transaction and opportunity costs involved for small and marginal farmers. The report recommends:

- Forest produce marketing facilities to be managed either by farmers cooperatives of State FDs. However, this involves huge investment in capacity building of both.
- Forest Marketing Information Systems (FMIS) to be set up. While this can be crucial, there are questions regarding its implementation.

While these marketing strategies are challenging, inefficiencies in existing bodies (Forest Corporation, LAMPS, GCCs) have not been addressed or tackled in this report. (Borgoyary 2002)

## NTFP and Legal Tangle

The recent Supreme Court (SC) order, in response to an Interlocutory Application (IA) in the Writ Petition (Civil) No. 202 of 1995, (TN Godavarman Thirumalpad Vs Union of India and others) prohibiting 'removal of dead, diseased, dying or wind fallen timber trees, drift wood and grass etc from any national park, game sanctuary or forest' was detrimental to the livelihoods of the people dependant on forests for their survival. The usage of the term 'etc'. in the order has led to various interpretations, as a result of which, in many places the removal of NTFPs was also being stopped. Urgent corrective action/intervention and a national level collection of information from PAs in relation to this order is needed, based on which action could be suggested/initiated. (Conservation and Livelihoods Network. 2001)

### 2.3.3 Enterprise and the Conservation Challenge

**As discussed in the previous section, the NTFP trade has been exploitative, marked by unfair practices and underpayment, with sellers having little bargaining power. In order to address this and enhance the livelihoods of women and other marginalised groups dependant on NTFP, there have been several efforts to organise community based enterprise around NTFP. The feasibility of such enterprises depends on the conservation and sustainable use of the forest resource. There have also been efforts where conservation of the forest resource has been the driving concern for promoting / encouraging community based enterprise. These enterprises, (organised by both the above approaches) often struggle to establish themselves dealing with hostile trade, uncertain markets, unfamiliar production systems and issues in management of collective activities. Even so, they need to focus on the conservation challenge.**

**The critical issues and lessons emerging from the experiences of these enterprises are discussed below:**

*Choice of Activity*

**The Mahila Samities of the Nari Bikas Sangha (NBS, an apex organisation of Mahila Samities organised by Centre for Women's Development studies in Bankura, West Bengal) decided to explore activities based on available local resources. They took up activities like tasar silk rearing, sal-plate making and babui rope making. These involved upgrading women's traditional knowledge and skill base with available technology. Ability to manage the activity (with some training), reasonable employment and economic viability of the activity were the deciding factors. (Banerjee 2001)**

**In Himachal Pradesh, Samridhi Mahila Vikas Sangathan (SMVS) and its member women's groups have identified processing fruits and vegetables as a key activity. A variety of items gathered from mixed forests, village commons and some cultivated lands, are processed into pickles and preserves by the women's groups. This has kindled a stake for conservation of resources among local women's groups (Ahal undated).**

*Resource Access and Sustainable Use*

**This is an important factor influencing the success and potential scale of NTFP based enterprise. Besides, legitimate access and control over resources instills a sense of collective responsibility for regeneration and sustainable use.**

**In the case of NBS, private wasteland (some of it erstwhile forest land) was handed over to women's groups and legally registered in their names after much effort in persuading the male owners of the land. With the demonstration effect of regenerating the wasteland and making it productive (with good employment generation), more and more women's groups got access to land in their respective villages.**

**The BCN (Biodiversity Conservation Network) supported project in Garhwal, promoting community-based enterprise, has been designed with in-built mechanisms to monitor resource use. While the project has a Biodiversity Team, there is also a Joint Monitoring Team, involving the community, to monitor resource use. For the tasar rearing activity, this enables: rearing volumes to be decided based on carrying capacity; awareness for improved sustainable harvest; and enforcing community norms. The BCN project made efforts to get recognition and legitimacy for tasar rearing in FD territory. Though FD appreciated the concern for sustainable use in the project, no commitments were made regarding the use of PAs for the purpose (Rawat 2001). Further, there is a need to document and disseminate cases of such conservation based enterprise development. This will enable effective learning from their successes and failures.**

**Community based enterprises like the Gram Mooligai Company Limited (GMCL) has been organised in the medicinal plants sector. The fact that 80-85% of the raw drugs (available in the country) comes from collection by forest dependant marginalised groups, has implications for both conservation and livelihoods. A balance is required in official policies and its implementation regarding collection and cultivation of medicinal plant species. A general ban on collection will not help poor gatherer communities. Cultivation packages must be developed and proven to be beneficial to cultivators. With the Biodiversity Act in place, there are likely to be increased controls over collection. However, the rules that follow should ensure management of the supply areas by local communities (Raju 2003).**

*Adapting to Changing Market Conditions and Finding Niches*

**In a dynamic environment, constant access to relevant information on the market is essential for the success of community based enterprises.**

**NBS's sal plate making unit found it difficult to organise production in the face of seasonal and fluctuating demand. After much effort at campaign, they began selling their product in Calcutta. However their hopes crashed after urban units that came up later began selling sal plates at a lower price. Inspite of efforts to cut costs, NBS realised that they could not compete with the urban units which had good access to electricity. Hence, NBS abandoned ideas for large-scale production and focuses on production and marketing in local areas.**

**The BCN project, on the other hand, had to revise its understanding of the tasar market. On attempting to sell tasar yarn they found the market dumped with cheap yarn from China and Korea because of reduction in excise duty. This yarn was also preferred for its longer length and minimum breakage over the yarn produced by the enterprise. Hence it was decided to go in for further value addition to tasar fabric. Efforts are being made to focus on a unique fabric blend with necessary professional inputs. This involves new challenges like developing weaving skills. A centralised sample loom has been set up to train and guide local weavers in order to revive and upgrade traditional skills to suit market needs (Rawat 2001).**

**With the Planning Commission's emphasis on increasing exports in the medicinal plants sector, there is tremendous potential for enterprise. Besides, introduction of good manufacturing practices for production of herbal medicines gives room for community enterprises to compete with traders. Hence Self-initiated and JFM communities, SHGs and their Federations must be encouraged to develop enterprises. It is important for such enterprises to be financially sustainable and profitable even if it requires a certain gestation period in the beginning. Suitable incentives need to be provided for such enterprises. Industries may be encouraged to invest in forest regeneration and have buy back arrangement with local community enterprises.**

**In addition to the above-mentioned issues, NTFP enterprises also have to deal with the challenge of addressing equity implications of commercialisation of a resource. Norms evolved at the local level need to ensure that the enterprise serves the interests of the weaker sections and does not marginalise subsistence needs (Raju MS 2002).**

### 2.3.4 Cultivation and Shifting Cultivation: Subsistence Agriculture

Cultivation and shifting cultivation continues to be practiced to varying extend in various parts of the country. Unrecorded land rights during demarcation of forests along with vagueness in demarcation form colonial times has victimised traditional communities depending such subsistence agriculture. These issues remain unresolved till date.

Unrecorded Land Rights

**The tribal economy was based on variations of shifting cultivation (jhum) combined with the produce of the forest. The land holding system was one in which the individual rights of enjoyment of**

**land/land based resources were enmeshed with communal system of access to land based resources. (Adivasi/Indigenous People in India – a Brief Situationer).**

Dwelling and working in the forest over years, bestowed upon the local communities, occupancy rights or communal native title derived from their ancestral dominion of land. An existence of ownership titles not formalized in any government statutes, notices or proclamations, nor recorded in any land revenue or land settlement codes but nevertheless enjoyed by the locals as a kind of community right which entitled them to feel that they owned and processed the forests. However, forest and wildlife laws in India have ignored rights enjoyed by the inhabitants of a specific area under traditional law, norms and practices laid down by customary usage. (Customary law is now recognized and accepted in many countries of the world where native community titles to land existed eg. among Aborigines of Australia and New Zealand). Nor, was any attempt made by Forest settlement officers (from colonial times onwards) to trace and record the history of land titles and other rights.

Thus, tribals and forest dwellers, who were the erstwhile owners and right holders, became encroachers of state owned forest resources (Sarkar Undated)

***Box: 2***

*Bastar: A Case for Rational Land Use Policy*

***During colonial times the British began demarcation of forests in Bastar as exclusive state property through a process of 'reservation'.***

*This was ostensibly to protect forests from the impact of shifting cultivation, but in practice was meant to reserve areas for timber production for revenue generation. Thus there were:*

- *Reserved Forests closed off to the public,*
- *Protected forests where villagers had some rights, and*
- *Nistari forests where villagers could take fuel, fodder and NTFPs free.*

*This reservation of forests, along with a re-definition of NTFPs as state property and imposition of grazing fees, led to a major local rebellion in 1910. The rebellion slowed the pace of reservation, but the forests continued to be exploited during the world wars.*

*Post independence saw much industrial exploitation with reduced local access, monoculture replacing natural species and transfer of forest lands for development projects. While this destruction of forests continued, Forest Department also appropriated more land from peasants. In 1949, all nistari forests of Bastar were declared as Government Protected Forests (PF) with the condition that the nistari rights of the people would not be affected (Govt. of CP and Berar, Notification No. 3282 to 3284 – 2845 – 1x dated 17.10.1949. Despite the fact that all forest in Bastar is now legally protected forests, villagers continue to refer to various patches as their nistari forest and feel proprietary towards it). Since this was done under a blanket notification, many of these forests remained unsurveyed, with control shared uneasily between Revenue and Forest Departments. The better blocks were subsequently surveyed (1963-67) and classified as PF (under section 4 of the 1927 Forest Act), while others were left unsurveyed and painted orange in the maps.*

*The vagueness of demarcation and legal classification meant that several long-term cultivators were subsequently declared 'encroachers' and subject to FDs attempts at removal.*

*However, encroachment has also become a major problem. In more recent years, not all encroachers have been landless (they need money to bribe the FD/pay fine/undergo time-consuming expensive legal cases). Since the 1950s, the MP government has been settling encroachments recognizing lands colonized by the poor farmers more for political gains. This has caused much pre-election destruction of forests. However, other groups and people's organization like the Ekta Parishad have been demanding a solution to the problem with enforcement of ceiling laws, land distribution and forest protection.*

*Unfortunately, there has been no consultative discussion with villagers on rational lane-use policy, and whether the land is better maintained under forests or agriculture. (land use patterns existing before 1980 have been further frozen by the FCA). Without an attempt at resolving the basic issues in the lives of most Indian villagers – access to land as a means of livelihood – attempts at devolution in the forestry sector will not be meaningful*

*Source: Sunder 2000*

Land Alienation and PESA

A related issue critical for the survival of forest dependent tribals is the danger of land alienation.
The legislative history indicates that from the 19th century, scheduled areas inhabited by the tribals have been exclusively under the control of the central government through the governor of the state by providing special statutory measures. It is obvious that from the earliest time till the making of the Constitution, it was all along felt that the transfer of land in the scheduled areas by a tribal to a non-tribal be totally prohibited and if such a transfer was made, it was to be treated as null and void. Government land in the scheduled areas could also not be allowed to them but only under the regulations made by the governor. The basic concept was that the land of the Scheduled Tribes should be protected and should neither be frittered away by transfer nor any non-tribal be allowed to infiltrate into the scheduled area by getting allotment of land made in his favour. In case of transfer of land, which was void, the power to restore land to a tribal or his heirs after evicting the non-tribal was also vested in the government.

Article 40 of the Constitution states that the state shall take steps to organize village Panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-governance. After a long wait of 42 years the Constitution was amended through the 73rd and 74th Amendments regarding Panchayats and Municipalities respectively. These amendments had the clear injunctions to exclude the Schedules V and VI areas besides the states of Nagaland, Meghalaya and Mizoram, the hill areas of Manipur and the Gorkha Hill Council Area, for which the parliament was to make separate enactments. In 1994, the government appointed a 22 member committee to recommend guidelines for the law to extend the Panchayati Raj to Schedule V areas. The committee submitted their report in 1995. Finally, after a long delay, the provisions of the Panchayats (Extension to the Scheduled Areas) Bill, 1996 was enacted becoming law on December 24, 1996.

Section 4 (d) of this act provides that "not withstanding anything contained under Part IX of the Constitution, every Gram Sabha shall be competent to safeguard and preserve…. Community resources" and under Clause m (iii), the power to prevent alienation of land in the scheduled areas to take appropriate action to restore any unlawful alienation of land of a member of ST. This provision makes a significant departure in that the power regarding prevention of alienation of lands and restoration of illegally alienated lands is vested in the Gram Sabha. (Bijoy 1999)

### 2.3.5 Forest Labour: Forest Villages and Taungya Villages

The British initiated using forest dwellers as labourers during the 19th century for little or no wages. Labour charges were given in the form of 'use of forest' or advance money to be adjusted against labour charges or in a few cases, cash payment was made. The habitations of these forest labourers were termed Forest Villages (1890 – 1910).

Taungya villages which were similar to forest villages, came up later (1910 – 1947), were allowed to practice a variant of swidden agriculture before raising plantations mainly Teak and Sal monocultres. Forest villages in post colonial India (1947 –1980) did not change much and continued till the 1980s. Even after the Forest Corporations were ushered, new villages continued in Bengal, Assam and U. P. (possibly in other states as well). These settlements had typical populations of migrants (North Bengal), landless peasants (U.P) and victims of natural disasters (Assam). Gradually, the Forest Departments of most new Indian states realised that forest villagers would no longer work without wages. Though the stipulated minimum wage provision was nowhere adhered to, forest villagers started getting at least some wages in cash.

Several major changes took place: Agricultural holdings broke up as number of families increased. The FD did not recognize most of the second-generation settlers as registered villagers. Fragmentation of agricultural lands badly hit the basic subsistence economy of forest villages. To make the situation worse, in 1970s, Forest Departments of all states declared land ceilings for forest villages. Under these new agreements, no family in a forest village could have more than 2.5 to 3 acres (the figure varied from State to State) of agricultural land. A qualitative change occurred, from the bonded peasant and food gatherer of yesteryears, a forest villager finally became a wage-labourer. In 1970, the Forest Department of West Bengal sent a directive to its divisional officers in North Bengal, asking them to stop all cultivation activities in permanent forest villages, and employ the villagers solely as day-labourers. Another directive called for wholesale eviction of forest villagers from forest villages and, if that was not possible, giving no work to non-compliant families (Working Plan, Jalpaiguri Forest Division. 1970). However this was not implemented. Today forest labourers, who have been engaged in the welfare of the forests, have been left in the lurch. Mostly dependent on the FD, they suffer:

- Inadequate employment
- Deprivation of basic facilities in labour colonies (provided prior to FCA 1980)

- Loss of land holdings.

The NFFPFW has demanded that:
- All forest villages of the country must be immediately converted into revenue villages, and the GOI must immediately initiate necessary legal and administrative measurers to this effect.
- All inhabitants of all types of forest settlements must be given hereditary and inalienable rights over their homestead and agricultural lands.
- Conversion into revenue villages may solve many development problems of forest villages. Panchayati system must be extended to all forest villages of the country to facilitate this.
- In addition, the forest villages would need special development plans and integrated projects that can address the health and education needs of the villagers. (NFFPFW 2001)

*2.4 Conservation Initiatives*

**2.4.1 Joint Forest Management**

The 1988 forest policy of India aims to combine the objectives of environmental stability and biodiversity conservation with those of social justice. Recognizing the symbiotic relationship between the tribal and other poor people living within and near forest, the policy provides that:

- The villagers' customary rights and concessions should be fully protected.
- Their domestic requirements of fuelwood, fodder, non-timber forest produce (NTFP) and construction timber should be the first charge on forest produce.
- Their income and employment should be enhanced by improving and increasing production of NTFPs and,
- That a "massive people's movement with the involvement of women", should be generated for achieving the policy objective (GOI, 1988; Sarin et al, 1998).

Following this 1988 policy, the Government of India (GOI) passed an order on 1st June 1990, recommending the participation of village communities in the regeneration of degraded forests. This marked the launching of the JFM in the country. This order recognizes the rights of organized communities over clearly defined degraded patches of forest. These communities are eligible for receiving benefits in return for protecting and conserving their forests.

After almost 10 years of experimenting with JFM in different states, GOI circulated guidelines for various activities of JFM on February 21, 2000. These guidelines seek to address some of the problems encountered by the people involved in participatory management of forests. (Ravindranath et al, 2001)

Twenty-seven (out of 28) States in the country have issued JFM orders specifying their respective bases for working in partnership with local village communities. Officially, over the past decade, 14.25 million hectares of forest land (over 18 per cent of the country's forest land) has been brought under JFM, with the involvement of 62,890 local groups (Saigal, 2001)

The positive impacts of JFM are:
- JFM has marked a beginning towards greater decentralization and participation of local communities in forest management. While this process is expanding, there are variations in experience across states.
- Improvement in the condition of the forest has been recorded in location specific scientific studies.
- JFM has also contributed to an increase in incomes to local communities. This has been possible though entry point development activities (4 crore person days in AP); microplan activities (Rs.9.7 lakhs per Forest Protection Committee (FPC) in Maharashtra) and interim and final harvests (Rs.70,000 per FPC in South West Bengal).

The emerging issues in JFM have a bearing on the livelihoods of forest dependant people and the sustainable use and conservation of the resources.

Lack of Livelihood Focus

While the NFP 1988 stresses that the domestic requirements of fuel, fodder, NTFP and construction timbers as the first charge on forest produce, it also mentions the sharing of benefit with local communities. Both the Government orders (1990 and 2000) mention usufructory rights to 'people as an incentive and then go on to suggest a share in the benefits from harvest of timber. Thus, veering a focus towards management of the forest for timber. JFM has betrayed expectations raised by the NFP regarding access to and increased availability of NTFP for forest dependant groups. Village communities have free access to fodder, leaf litter, fallen twigs, mushrooms, tubers, flowers, unreserved fruit and medicinal plants. They are entitled to only a share in benefits from more valuable NTFP like cashew, bamboo and fibrous grasses. Collectors continue to earn mere wages for commercially valuable Nationalized NTFP.

CIs taking up protection and regeneration of forestland under JFM, were usually dominated by village elite, less dependant on the forest. The livelihood of the most forest dependant women and men were neglected. This was reflected in community norms and regulations/restrictions regarding extractions from the resource. Regulations for extraction of fuel wood have increased the hardships of poor women (who engage in fuel collection to meet domestic and survival needs). They trudge longer distances to collect fuel, suffer harassment by outsiders and forest staff; switch to smoky, time consuming inferior fuels; and suffer loss of livelihoods and supplementary income from head loading.

Grazing bans have adversely affected the livelihoods of nomadic and sedentary pastoral groups; forced people to sell off their goats, depriving poor of a valuable asset; and increased the work load of women with stall feeding. As a result, these forest users struggling to meet their needs were looked upon as offenders and were further marginalised in their Cls.

With increasing evidence of this process, gender and equity concerns have been raised and strategies explored, to leverage participation, resource use and benefit sharing of the poorer forest dependant women and men (Raju M.S. 1997; Sarin et al 1998).

*Box:3*

*Enabling Women's Participation in JFM*

*Seeking Niches: Both Saksham and NBS/RBS have suggested a practical move for enabling participation of women in the PIs. They are seeking manageable and seemingly non-controversial spaces for women in the PIs. Their pleas has been to allow women take decisions regarding fuel, fodder and NTFPs within the PI, these items being mainly collected by women. Perhaps experience in managing these activities would help build their confidence, credibility and acceptance in the PI. This can be a key move.*
*If so the structure of the PIs have to be modified to have sub-group and sub-committee of women users to manage selected activities. This sub-group should also have an independent identity to provide women the much needed forum. Besides, the Government Orders on JFM and its operating guidelines should make it mandatory for giving priority to this sub-group of women to take decisions and manage the forest for their needs of fuel wood, fodder and NTFPs of interest, right from the planning stage.*
*The fact remains that an empowering experience is necessary to enable marginalised women assert themselves. A range of capacity building interventions and cluster forums of women's subgroups make a headway.*
*Source: Raju, M.S.1997*

## The Nature of Participation and Decentralisation

- JFM does not address devolution of control and integration across sectors. For example, success of forest management may depend on management of grazing lands or increase in agricultural productivity.
- Lack of autonomy to Community Institutions (CIs) has been a basic drawback. CI roles have been confined to involvement in execution of works with FD staff as ex-officio Secretary in most States. Management Committee decisions of CIs are subject to veto by FD.
- There has been reluctance in FDs, to enter into an agreement with CIs (Gujarat)
- Departmental permission is needed for each harvest though already approved in Microplans
- There is a need for transparency at the field level regarding funds and their ulitisation.
- Extending JFM to traditional and existing institutions has been cause for concern. Such CIs need to be recognised, without destroying them and making them conform to a rigid framework.

Concern regarding FDAs: In some of the states, JFM committees have felt the need to come together and form Federations and even state level forums. These Federations have been taking up issues of common concern, providing mutual support and even playing a crucial role in intra-village and inter- village conflict resolution regarding resource use. However official response to this phenomenon has not been enthusiastic. Hence, there is much concern regarding the Forest Development Agencies mooted by the MoEF. FDAs termed as "federations of VFCs" are in reality FD controlled bodies, headed by the CF with DFO as Secretary. Hence they are not autonomous federations of VFCs. Promotion of such FDAs will undermine true Federations of JFM/ CFM committees and constitutionally created PRIs. While the idea of coordinating funds for Integrated Village Afforestation and Ecodevelopment with people's participation is appreciated, joint forums need to be explored for the purpose with existing autonomous Federations and PRIs.

## Management Options

**With the regeneration of forests under JFM the availability of some NTFP like tendu and sal leaves has been declining. Traditional silvicultral practices like multiple shoot cutting, thinning and block felling, khurchi and sal twigs suitable for necklace making, together with medicinal plants, herbs seeds and flowers and leaves used by women and marginalised groups get destroyed. This causes much hardship to artisans and collectors. (Sarin et al 1998, Raju M. S. 1997)**

Recognizing the limitations of the 'timber focus' in JFM, some committed senior forest officers in MP have initiated management of teak coppice shoots for fuel. Initiatives have already been taken to increase grass production to address local needs in MP, Rajasthan and Haryana.

The forest management system developed by Gadabanikilo village in Orissa focuses on ensuring fuel wood, NTFP and grazing (for livestock) needs of the community. Different sections of the forest have been earmarked and managed for meeting each of these needs, rather than closing the entire forest area. (Sarin et al.1998).

A coordinated study in JFM areas has shown the potential for promoting natural regeneration as a cost-effective option for re-vegetating degraded forests. This facilitates moderate to high biomass growth and also promotes biodiversity.

Forest user groups have diverse, multiple and often competing needs. Sustainable modes and extraction needs to be location/forest type/and species specific. Hence, forest management practices addressing the needs of communities, have to evolve locally. *(Refer Annexure II for A step by step PRA for addressing this)* Adaptive forest management with participatory monitoring will enable village communities to: assess vegetation status; develop and adopt practices. Research by external agencies could also feed into the decision making process at the community level. (Ravindranath et al 2001).

### 2.4.2 Eco Development

In 1980, the World Conservation Strategy proposed by the World Conservation Union (IUCN), United Nations Environment Programme, and the World Wide Fund for Nature, emphasized the importance of alleviating rural poverty as a component of conservation planning. From this emerged the concept of eco-development. In 1982, a task force was set up under the Indian Board for Wildlife (the central advisory body on conservation), to recommend measures to gain public support for conservation. It suggested that in the populated areas surrounding strictly protected core areas, eco-development should be perused measures to help divert pressure from the PAs (IBWL 1983). In 1990, a centrally sponsored programme on eco-development was started; and in the mid 1990s India negotiated a grant-cum-loan of US $56 million with the Global Environment Facility (GEF) and the International Development Agency (IDA) for eco-development around seven selected PAs (World Bank 1996). Another 40 PAs may be targeted early next decade.

Recent eco-development proposals have been framed with a certain amount of NGO and local community consultation (a process earlier completely missing), and individual eco-development initiatives by officials are going far beyond conventional approaches to conservation. Several states have issued notifications to enable the creation of eco-development committees, which will facilitate regulated access to biomass resources from inside PAs, while helping to protect wildlife.

Yet, the programme as a whole remains unwilling to tackle the root causes of conflicts in and around India's PAs. Amongst the major weaknesses are the following:

- **Since the major objective remains that of reducing people's 'pressure' on natural habitats (with the mistaken assumption that all human activities in the area are necessarily negative), the dominant model is still one of 'separation' or 'exclusion' rather than 'integration' or 'inclusion'.**
- **The process still does not centrally involve local communities in the management of PAs, largely restricting such involvement to the actual eco-developmental activities.**
- Eco-development largely limits itself to working within the existing framework of law, essentially the Wild Life Act and related legislation. This framework is not yet conducive to a fully participatory approach.
- There is very little attempt to build on available local community institutions, knowledge, and practices; on the contrary, official agencies come asking villagers to create institutional structures in formats pre-determined by the government. The use of traditional knowledge has been restricted to PRA mapping exercises and building up ethnobiological checklists (see, for instance in the case of Great Himalayan National Park, Baviskar 1998).
- State governments are still very reluctant to reorganize their plans and allocations in such a way that all official agencies would cooperate with wildlife officials in providing conservation-oriented developmental inputs. Indeed, it can be argued that if this were seriously done, it would eliminate the need for World Bank or any other foreign funding, since there is a lot of money available with rural development agencies!
- It is not yet clear whether the strategy of diverting people's pressure by providing alternatives does actually help wildlife conservation. Some conservationists have argued that rapid development of the peripheries of PAs could attract many more people, thereby increasing pressure.
- Finally, and perhaps most important, eco-development does not attempt to reverse the historical process of state take-over of community lands, and the common (though not universal) denial of rights and tenurial security over resources for local people

To sum up, eco-development could be an important part of the overall strategy, but it is by no means the full answer in itself.

Some states have attempted to defuse tensions in PAs by using relevant provisions of the WLPA to allow biomass extraction by local people. For instance, in Rajaji National Park, northern India, an extremely volatile situation has been partly calmed by granting access to the park for a particular species of grass for making ropes, one of the region's main livelihood sources. (Saberwal et al 2001)

Illegal Vayana bark collectors been organised under eco-development committees and assimilated into tourism activities in Periyar Tiger Reserve, Kerala.

### 2.4.3 Joint Protected Area Management (JPAM)

**JPAM is an evolving idea driven by the concern that the existing laws have failed to protect PAs and people's livelihood rights. JPAM is a method of conserving the environment within an official PA, whereby communities who live in the area share the responsibilities for looking after it along with government officials, while they have a legitimate access to forest resources to meet their livelihood needs. It thus aims to develop in local communities a stake for conservation.**

**JPAM aims at integrating villagers' livelihood with the PA ecosystem. It differs from ecodevelopment, which tries to wean people away from their dependence on the PA ecosystem. The box below indicates the benefits of the JPAM from the PA and community point of view.**

***Table: 3***

*ts of JPAM*

| For Protected Areas | For Communities |
|---|---|
| Local human power and ecological knowledge will supplement the often inadequate forest department funds, human power, equipment and training | Guaranteed access to natural resources essential for survival |
| Effective (not just "paper") protection will be given to inviolate areas as sacred sites or core zones | Sustainable livelihood |
| A stress on diverse rural livelihoods will provide an incentive to conserve diverse ecosystems | Sense of control over ones destiny and of ownership and responsibility towards the PA |
| Combine strengths will help counter powerful and destructive commercial and industrial forces | Empowerment through social recognition of traditional ecological knowledge |
| | Employment in PA related activities including share in revenues |

| | |
|---|---|
| There will be possibility of increasing the PA area to more than ten per cent of India's territory | |

*Source: Apte & Kothari 2002*

JPAM will have to be based on the building of trust between conservation officials and village communities. Implementation of JPAM will involve:

- Informal and formal dialogue at PA level between communities, FD, local NGOs, researchers and conservationalists with a corresponding state level forum to discuss issues
- Participatory research indicating history of land use, livelihood needs, while life needs including impact of human activity on wildlife.
- Setting PA management committees at each PA and a standing committee on people and PAs within each wildlife advisory board. These forums would work out details of implementation, funding, sharing of responsibility and administrative arrangements.
- A formal agreement between communities and FD indicating mutual agreement regarding rights responsibilities and duties
- Making necessary changes to make WLPA more facilitative of community participation at state and national levels
- A mechanism for monitoring and evaluation JPAM and addressing emerging issues (Apte & Kothari 2002)

### 2.4.4 Biosphere Reserves

**Another potential attempt to incorporate human concerns into conservation is the creation Biosphere Reserves (BRs) inspired by a global programme launched by UNESCO in the early 1970s. These reserves were set up with the basic objective of conserving and developing a knowledge base about the biodiversity of a region, with the emphasis on humans as an integral part of the ecosystem and the philosophy that local communities should be involved actively in conservation programmes. However, actual management of the seven Biosphere Reserves created so far (covering 2,106,700 hectares) continues to be based on the conventional PA approach, with the Forest Department being in charge. Scientists of the Indian Institute of Science, Bangalore, in a national survey, noted that there are very few attempts to reconcile development activities with conservation, to harness the knowledge of local communities, to involve such communities in management, or in other ways to achieve the objectives originally set for BRs by UNESCO. Biosphere reserves also continue to have no legal status, as they are not recognised by the WLPA or other laws. (Saberwal et al 2001)**

### 2.4.5 Community Initiatives in Conservation

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 (CCBAs) 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 CCBAs put forward by the organizers is as follows:

"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".

CCBAs 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; 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.

Some examples of CCBAs:

- 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 Kolavippalam, Kerala'
- Traditional conservation of Painted Stork and globally threatened Spot-billed Pelican nesting sites by villagers in Kokkare Bellur village, Karnataka,
- Religious protection to the endangered Blacknecked Crane in Sangti Valley, Arunachal Pradesh by Buddhist communities,
- Conservation of Glursikaran 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, and
- Orans in the desert region of Rajasthan including Barmer district, by the local community.

Significant benefits of CCBAs 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, and
- Complementary role to officially protected areas.

Emerging Issues
1. Centralized 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 CCBA initiatives, and of their beneficial impacts to biodiversity, livelihoods, and social security,
3. Absence of decision-making powers with communities, and legal backing to CCBAs, 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 CCBAs, 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 insititutions and schemes, creates hurdles for CCBA initiatives.
8. There are often serious inequities within communities, including between men and women, and different classes and castes, which undermine CCBA initiatives and sustainability, or deny the benefits of such initiatives to disadvantaged sections.
9. Erosion of traditional CCBAs and related institutions in many parts of India.
10. In some CCBAs, 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. CCBAs often derive strength from the large number of people's movements across the country, specially to resist destructive commercial and developmental pressures;
12. CCBAs 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 national resources ensure a stake in conservation. CCBAs 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. (Kalpavriksh 2001)

*2.5 Policies and Laws*

The existing legislations attempting to conserve forest resources do not address the livelihood needs of the forest dependent communities. These legislations have also proved to be inadequate in conserving forest resources and the biodiversity. Yet, they have increased the hardships of forest dependent communities. Even upcoming legislations like the biodiversity bill gives room for more commercialisation but fail to tackle adverse impacts on livelihoods.

## Wildlife

The realization that entire habitats were threatened, led to the passing of the Indian National Parks Act in 1943, and the creation of India's first National Park, Corbett (then Hailey National Park) a year later.

The most comprehensive act on biodiversity conservation since independence was the Wild Life (Protection) Act of 1972 (WLPA), which consolidated existing state wildlife laws. The Act provides for three categories of protected areas; National Parks, Sanctuaries, and Closed Areas, with the last one rarely being used. National Parks are by law more strictly protected, allowing virtually no human activity except that which is in the interests of wildlife. In sanctuaries, there is scope for traditional resource collection and land-based production activities to continue. However, this is left to the discretion of the wildlife and civic authorities. By and large, the strictly protectionist interpretation of the Act has caused severe hardships to communities living in and around these protected areas. On the other hand, it has also helped to keep out destructive commercial and industrial forces that could have disrupted not only the ecosystems but also the lives of local people.

**The nearest to an actual policy on protection of wildlife is contained in the National Wildlife Action Plan (1983). The Plan's main focus is on establishment of a network of protected areas, on controlling trade in wildlife products, and on research and education/training. It did contain recommendations for fulfilling the needs of local communities through eco-development outside PAs, but was silent about those living inside PAs. It also contained nothing on involving people in the management of PAs. However, in a subsequent move, the Indian Board for Wildlife set up a committee to recommend measures to involve citizens in conservation. Its report (IBWL 1983) contains some broad recommendations towards this.**

The National Conservation Strategy (NCS) and Policy Statement on Environment and Development, (1992) provide guidelines for integrating environmental concerns with development. It also stresses that the requirements of the rural and tribal population dependent on forest should be met. Further, it recommends the development of skills and knowledge for conservation, rehabilitation of the people displaced from protected areas and the involvement of NGOs, citizen groups and village level institutions like Forest Panchayats and Gram Sabha in development activities.

The latest policy pronouncement is the Wild Life Action Plan (WLAP) 2002. This WLAP brings a new focus to community-conserved areas and ways to tackle commercial threats. However the involvement of people in conservation has been weakly stated inspite of being potentially powerful. The areas of concern in this WLAP are

- Lack of commitment to ban forcible displacement of people from PAs;
- Denial of traditional rights over resource for domestic and livelihood needs;
- Denial of civil amenities and land based activities

While it proposes special development areas for sustainable development, the mechanism for implementation is not clear (Conservation and Livelihoods Network 2002).

## Forests

All the colonial provisions relating to creation and declaration of Reserved and Protected Forests and other provisions of the 1927 Forest Act continue to be in force in modern India. The major development after Independence was the 42$^{nd}$ constitutional amendment in 1976, bringing forest and wildlife conservation into

the concurrent list of subjects over which both the central and state governments have power to make law, with central laws judicially superseding the state laws. There was increasing concern over the destruction of forests due to development projects like dams and industries, or their clearance for agriculture. To regulate further diversion of forest lands into other uses, the Forest Conservation Act 1980 was passed, making it obligatory for state governments to obtain central government clearance before conversion of any forest land. Under the Act, the state government cannot do the following without prior central governmental approval:

- Dereserve any reserved forest
- Use any forest land for non-forest purpose (including cultivation of cash crops)
- Assign or lease any forest land to any private person or to any other authority under the government
- Clear naturally-grown trees which have grown naturally from any forest land for the purpose of re-afforestation.

In its fervor to step up conservation and protection of resources the FCA 1980 has marginalised forest dependent people further. However, the National Forest Policy of 1988, which, in a clear departure from the approach that characterized India's colonial and post-colonial period, recognized that communities living in/adjacent to forests were entitled to share the benefits of conservation; that the rights and concessions enjoyed by them should be fully protected; and that their requirements for forest produce should be the first charge on forests. The policy also aimed at maintaining ecological balance through the conservation of biological diversity, soil and water management, increase of tree cover, efficient use of forest produce, substitution of wood and ensuring peoples' involvement in achieving these objectives. (Kothari et al 2000) But as of today, the above mentioned legislations do not reflect any of the positive concerns stated in the NFP 1988.

**Yet there seems to be some room for participation of local communities in conservation and use of forest resources. For example Section 28 under Indian Forest Act 1927 gives room for devolving authority to community institutions for management of forest. Hence forestlands managed by community initiatives or with the active participation of local communities should be brought under this provision. Similarly provision such as PESA also enable devolution of authority.**

Hence there is a dire need for review of forest related laws to weed out contradictions between them in the light of proposed Forest Sector Reforms (Strategy II)

**Annexure I**

***Forests and its Uses:***

*The regenerating forests of Kamardanga have a good growth of Sal with a number of other species. People collect a large number of items for consumption and sale at the Motgoda haat (daily and weekly).*

*Sal leaves are collected all round the year except in the month of Sravan when the trees become hosts to hairy caterpillars. The leaves are bunched into 'tadis' of 25 and sold at to the rate of 5 paise per 'tadi'. Sal seeds are available for one month, each year. The seeds are procured by Large and Multipurpose Societies (LAMPS) in exchange for salt (2 kgs. salt for 1 kg. sal seeds.). People thus stocked their year's requirement of salt from sal seeds collected. The tree yields good resin after an age of 10 years. Hence the resins (dhuno) collected from the trees today are just sufficient to meet home needs of use as incense during pujas. All family members in the village are involved in collection of Tendu leaves in the season each year. The leaves collected at intervals of 2 to 3 days, are procured by the LAMPS depot in the village.*

*Mahua flowers are collected and dried. It is brewed in to the popular Mahua liquor. Besides, people also cook the mahul and eat it in the form of 'laddus' and 'pithe'. The fleshy fruit of mahua ('Konchra') is consumed as a vegetable, usually combined with rice flour. The seeds are taken to the crusher (jantha) at a nearby village to extract the edible oil used for cooking food. 'Chatu' or edible mushrooms are available in the forest during the festive season following the monsoons (i.e. beginning from Viswakarma Puja till Kalipuja) and is hence called 'parab chatu' (parab' meaning festival). Those who go into the forest earlier in the day usually manage to gather more mushrooms even upto 3 kgs. in a day. Some of the mushroom is consumed and the remaining sold at the Motgoda bazaar at the rate of Rs.20-25 per kg.*

*While on a trek through the forests that they protect, enthusiastic men, women and children keep collecting and tucking away a number of items in the folds of their clothes. These include items consumed as*

*vegetables, fruits, medicinal plants and other useful items. 'Bon Kundri', 'bon pui sag' and 'merom' flowers, banalu or wild potato; fruits of the kendu, piyal, golgoli (also a favourite of elephants), amla, custard apple, amchur (grape like) and 'bel' are all collected and consumed.*

*Some of the surplus is sold. Three fourths of the people in Kamardanga (baro anna or 12 annas) have knowledge regarding herbal medicines. Medicinal plants available include duthiloha, sothmool, kalmegh and anatamool. Trees have a religious significance: 'Karam' tree for worshipping Karam Thakur and flowers of the 'bhadki' tree for Saraswati puja. The sturdy sticks of the 'rohoda' are used as staffs or 'lathis'.*

*Fibre collected from the 'bon kapas' is twisted into cotton ropes for cots. The stalks of the 'aturi' is used for making baskets. Leaves of the ghomg plant are packed tightly and stitched together to make a thick coat called 'ghomg' used in the rains especially during agricultural operations.*

*Wood for agricultural equipments and furnitures like cots are obtained from the forest, based on an informal understanding with the Forest Department. Trees that fall during storms are also kept and used by villagers for these purposes. Species preferred for the following are:*

| | |
|---|---|
| *Lagol (plough)* | *: Sal and Akashmoni* |
| *Moi* | *: Sal* |
| *Rim of cart wheel* | *: Babla, Bad* |
| *Wheel spokes* | *: Sal* |
| *Poles* | *: Chokda* |
| *Window, doors, furniture* | *: Khurchi* |

*Today a Sal tree in the forest can give 2-3 ploughs and 1-2 mois. Each farmer household in Kamardanga needs a new plough each year as the stony land wears out the plough. However the 'moi' last for 3-4 years. Twigs of the palas and khurchi are used as 'fuel'.*

*Elderly people in the village remember the dense forests of days gone by. The population was so low at that time that there was no demand for even dry trees. Ploughs used to be made in the forest itself. An unfinished plough lying in the forest or a plough in use lying in the field used to be safe. But not any more. Big sized pieces of wood were collected for use as fuel in place of twigs used today. In those days, we just had to stand under a Mahua tree with a basket and it would fill up with flowers reminisced, a graying FPC member. (Raju et al. 1993)*

**Annexure II**

*A PARTICIPATORY METHODOLOGY FOR JOINT FOREST PLANNING AND MANAGEMENT WITH FOREST USERS (ADAPTED FROM HIREMATH, S., 1996 A)*

*Step One: Initial PRAs*
*These are used to identify all the different groups of exisiting users, both women and men (including people from other villages), and the purposes for which they use the area. The objective of understanding the diversity of existing uses with a special focus on uses by women and the poor(seed and gum collection, leaf plate stitching, firewood, medicine, etc.) must be clear to all those doing the PRA.*

*Step Two: Planning PRAs*
*The women and men participating in the 'planning PRAs' need to be representatives of the user groups identified during the 'Initial PRAs". Their number depends on the diversity of existing user groups. Efforts need to be made to ensure that at least one-third to half of the participants are women. The participants in the 'Planning PRAs' should be informed about the constraints and resources available to prevent unrealistic planning. The group divides into smaller sub-groups which walk over different parts of the forest to review what is actually there and what needs to be done to meet the needs identified during the "Initial PRAs'. The larger group then fanalises the plan after ensuring that needs of all the user groups would be met. External facilitators can facilitate the process.*

*Step Three: Monitoring PRAs:*
*The participants for these should again be from all the user groups, which did the planning. Before going to the field, the plan itself must be reviewed to remind everyone of what had been agreed upon and why.*

*Then the villagers, FD staff and/or NGO facilitators walk through the forest together to review progress and discuss necessary corrections.*

*Step Four: Management PRAs*
*Representatives of the same user groups who did the planning, should participate in these. The forest is divided into plots of 100 acres or less. One group of at least 12 persons is assigned to each plot. Each group is further subdivided into three teams. Each team is assigned the task of identifying:*
*All grasses in the plot*
*All shrubs, creepers and climbers in it.*
*All trees in the plot.*

*Each group moves together through its area, but each team looks for its own species. This ensures a focus on plants, which are often ignored because they are considered 'useless'. Each team also identifies the various uses of all the plants. IDS staff always start with the grasses and shrubs to prevent a focus, on only trees.*

*How each plant should be used, made more productive and protected and how its productivity is affected by other plants is also discussed. Multiple uses of the same plants by different users usually emerge from this exercise. In such cases, the various uses, and how one use affects the others, need to be discussed. When there is no negative effect of one use on the others, all uses can be continued. For example, using seed pods as fodder doesn't affect other uses of the tree and also assists propagation. However, lopping branches for fodder affects the trees' other productivity and, therefore, may be discouraged. A criteria for giving priority to one use over another is whether alternatives for a particular use are available. As men and women from all user communities are involved in this process, a wide variety of plants and their uses can be identified for working out management plans.*

*The entire group then meets and discusses each sub-groups proposal and some consensus about how to use and manage the forest under JFM is built up. Participants then go back to their communities and discuss the recommendations and how to implement them. If there is serious objection to any of the recommendations, further discussion and modification need to be done.*

*Besides facilitating equitable, need based planning and management, such a process also increases everyone's sensitivity (NGO and FD staff and village women and men) about what is growing in the forest and how to use it equitably.*

# 3 PASTORALISTS

**This section highlights the role of pastoralists in the context of their contribution to biodiversity conservation. It also discusses the threats to their livelihood and conservation activities. It draws largely on experiences shared by pastoral groups at the All India Meeting of Pastoralists held at Sadri in March 2002. The meeting brought to light the plight of pastoralists and the lack of acknowledgement of their role in biodiversity conservation. There is an urgent need to address the livelihood security of the pastoralists along with conservation of their indigenous breed and the natural resources they depend on.**

## *3.1 Pastoralists and Biodiversity*

Pastoralism has been practiced by large populations over considerable tracts in India for over 3500 years. Sheep, buffalo, cattle, yak, goat, camel, pigs and ducks have all been associated with a variety of specialist pastoral castes. (Gadgil and Malhotra 1982). Pastoralists depend on livestock for a living. They have little or no land of their own and depend on Common Property Resources to raise their livestock.

Pastoralists are characterized by a certain social/spiritual relationship they have with their animals and the feeling of responsibility they have towards them. For example, the Raikas of Rajasthan believe that God has assigned them the duty of taking care of camels. For many pastoralists, these farm animal genetic resources are the basis of their cultural identity and they have a moral and social attachment to them.

**Pastoralists play an important role on the conservation of indigenous livestock breeds (such as one humped camel, Toda buffalo, Nari and Malaimadu cattle, Deccani sheep). These breeds harbour a wide variety of adaptive traits, being able to cope with harsh climates and landscapes and resisting diseases that affect crossbred animals. Hence, it is imperative to conserve them and secure the livelihoods of pastoralists.**

Pastoralists also play an important role in the ecology of India. Pastoralism represents a means for seasonal utilization of specific, often disjointed, environmental niches (areas that otherwise could not be exploited for food production) in a sequential manner in a yearly herding cycle. Their production of organic manure contributes to the maintenance of soil fertility. Their grazing controls invasive exotic species. Contrary to their reputation of being destroyers of natural resources, pastoralists have many traditional practices for conserving vegetation, for instance by rotational grazing.

Pastoralists make a significant but largely unacknowledged contribution to India's economy in terms of food security (milk), provision of draft animal power, as well as foreign exchange earnings (meat, fibre e.g. Pashmina wool).

Since pastoralists usually do not own land, their produce is generated exclusively by dependence on communally and state owned grazing land. Due to neglect by officials and policy makers, pastoralists face deprivation from their traditional and customary rights to these grazing areas. Because their grazing areas are in decline everywhere, their populations are also declining throughout India. (Ilse 2001; Warsi 2002.)

## *3.2 The Threats*

### 3.2.1 Shrinking Pastures: Gauchars and Revenue Lands

The major problem faced by pastoralists is that the grasslands or grazing lands are shrinking. Degradation, encroachment and privatization (allotment to landless and other private purposes) of commons such as gauchars and other revenue lands has adversely affected the availability of grazing lands for pastoralists and their livestock. Pastoralists shared the following concerns and experiences:

- Government is allotting these lands to the landless and for other private purposes, without consulting pastoralists and without even considering their needs.
- In many places, these lands have been encroached, especially by influential people.
- There is an increased pressure on available common areas, with the influx of refugees in some areas of Ladakh and Tamil Nadu.
- As a result of allotment and encroachment of these lands, the small ponds/kuntas/drinking water resources on them are not available for livestock.
- In the Nilgiris, acid effluents from industries have been polluting available water and Toda buffaloes have been falling sick.

- Again in the Nilgiris, tourists picnicking on grasslands have been polluting it with plastics. Consumption of this plastic has been cause for a number of buffalo deaths.
- In addition to the above, breeders in Mahaboobnagar (AP) have been finding their paths to the grazing lands blocked by fences put up by private landowners. In fact, they have been selling goats at a low price and providing a free kid (for every 100 goats) to appease these landowners.
- During a PRA exercise done, encroached/privatized commons and blocked paths were marked on maps. This was brought to the notice of the Mandal level Revenue official, who in turn sent memos to free encroachments and blocked paths.
- Introduction of invasive exotic species like Prosopis in Rajasthan and Gujarat and Eucalyptus in Tamil Nadu has destroyed the grazing resources.
- Overall, negligence in the Government on conservation of grazing lands.

On the other hand, pastoralists have had traditional norms for conserving resources. They have also been able to assert themselves against the above threats when they have a real say in the local governance. (See box below)

*Box:1*

**4.2.4.1.1 Traditional Norms for Sustainable Use of Resources**

*The Raikas of Mandara Village said they had traditional norms for sustainable use of natural resources:*

- *While farmers cultivated agricultural land, the trees by these lands were kept/protected by Raikas.*
- *No cutting of trees was allowed in the 'oran' rear the temple. At first the cows were allowed to graze, followed by the sheep and then the camels.*
- *Norms for lopping trees was according to the season. For example, neem could be lopped only during certain months.*

*These traditions have broken down over the years. The All India Meeting of Pastoralists at Sadri in March 2002 expressed the need for revival of such traditions.*

*In Sirohi district of Rajasthan, villages with Raika dominated Panchayats, there has been a good maintenance of grazing lands. In fact in these areas, Raikas buying land that was originally grazing lands, were ostracized. This also indicates the need for strong herders' organisations to assert themselves.*

*Source: Raju M S. 2002*

3.2.2 Shrinking Pastures: Forests and Protected Areas

Decreasing access to wild pastures demarcated as forests, deliberate change in the vegetation and depredation of these resources, have been putting a squeeze on pastoral livelihood.

- Herding practices of pastoralists have been severely affected by the degradation of forest resources as seen in the box below:

*Box: 2*

*Forest Degradation and Herding*

*A study on the Gavli Dhangars a pastoral caste in Peninsular India shows that, with degradation of the habitat, the composition of the livestock herd shifts from an emphasis on buffalo to cattle to goats. In comparison with cattle, buffaloes require better grazing, more water and shade and can defend themselves better against predators. With the decrease in availability of browse and tree shade for animals, Gavlis lop trees and stall-feed their buffaloes, thus, limiting the number of buffaloes that can graze. With depletion of forests, predators like panthers and tigers also disappear. Consequently cattle (which used to be more vulnerable to predation earlier) now becomes the preferred animal. When the habitat degrades further, over grazing and soil erosion lead to a great depression in the availability of grass, the vegetation gives way to thorny scrub, and it becomes difficult to maintain even cattle; goats become the preferred animals.*

Over the years, buffalo and cattle keeping, even when increasingly supplemented/substituted by goats, is inadequate to sustain the Gavlis over much of their ancestral range, obliging them to engage in shifting cultivation on an increasingly marginal basis. As this becomes more and more inadequate, Gavlis have even become urban migrants. Hence the progression from buffalo keepers to cattle keepers to goat keepers to unemployed migrants…

***4.2.4.1.1.1.1.1.1 Source: Gadgil and Malhotra 1982***

Pastoralists pointed out that their grazing rights in the forests are not being acknowledged.

- Closing off forests with the declaration of Protected Areas has created severe grazing problems for pastoralists. (eg. the Kumbalgarh Sanctuary in Rajasthan). This is especially so during the rains when the plains are cultivated and the livestock have only the roadsides to graze.
- One argument for not allowing livestock into PAs is that infectious anthrax and foot and mouth diseases will spread to wild animals in PAs. Livestock need to be certified by veterinarians, as free of these diseases, to be allowed to graze.
- In some PAs, like in Ladakh, the proliferation of wild animals has resulted in
  - more preying of livestock
  - excessive grazing pressure on grasslands.

***4.2.4.1.1.1.1.1.2 Box: 3***

***A Space for Pastoralists in PAs***

*In the Keoladeo, Ghana National park, in Rajasthan grazing was banned. A large number of buffalo herds belonging to neighboring villages had earlier grazed within the parks graze lands, woodlands and water bodies……. In the absence of grazing, Paspalum distichum, preferentially grazed by buffalo, and Cyperus alopecuroides have increased in weedy proportions, resulting in a clogging of the surface of water bodies. In turn, this clogging has adversely affected the habitat of diving birds, resulting in an overall decrease in bird diversity. The decrease in grazing pressure has also reportedly caused a general increase in the density of trees in what were previously more open woodlands. Whether or not this is ecologically desirable would depend on the objective of park management. A long term study of the park eco system has recommended that buffaloes be allowed back into the park.*
*There also suggestions to review and control the population of wild life keeping in mind the carrying capacity of resources and security of livelihoods.*
One option is to initiate culling programmes – an idea that is likely to be resisted, although this may become necessary with regard to certain animal species……. A few animals may need to die, if important populations are to survive.

***4.2.4.1.1.1.1.1.3 Source: Saberwal et al 2001***

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- With the implementation of JFM, pastoralists have been excluded from village level Forest Protection Committees. These FPCs/VSS have also banned grazing in the forests they protect. Thus, worsening the grazing crisis. Besides, plantation is taken up under JFM without consulting pastoralists and considering the species useful to them. In Rajasthan the pastoralists protested and put pressure on their Forest Minister. The VSSs now allow pastoralists from their own villages, but not those from other villages.

***4.2.4.1.1.1.1.1.4 Box: 4***

***Migratory Graziers Under Pressure***

*The Gaddis and other migratory shepherds of the Himalayas move annually towards high pastures, using passes over high mountain ranges. Their routes are determined by a long standing system of rights and permits. These groups gains access to forest areas by grazing permits issued by the FD on payment of fees. The migratory shepherds also grazed on agricultural fallows, through a mutually beneficial arrangement with local landowners. This arrangement has suffered over the years due to:*
- *competition with local livestock for grazing*
- *decrease in seasonal fallows with double cropping, and*
- *increased orchard crops, susceptible to grazing damage.*

The grazing routes and stops of these migratory shepherds through Kullu and Mandi districts of Himachal Pradesh are defined, established and maintained by the State Forest Department and local authorities. Graziers however, reported that restrictions on migration routes are causing stress to animals through insufficient feeding time and watering facilities.

*Buffalo herders of the Gujjar tribe migrating to uplands of Mandi and Kullu Districts have also been losing favour with local settled populations*

***4.2.4.1.1.1.1.1.5 Source: Hendy et.al.1997***

- In certain places (eg. Jhojhavar village of Rajasthan) grazing rights with fixed grazing rates exist only on paper. Whereas, livestock are allowed into the forest only when pastoralists pay four times the official rates. Ironically, in some of these areas, illicit charcoal bhattis flourish with the knowledge/encouragement of forest officials.
- Faulty plantation programmes promoting exotics like Eucalyptus, have spoilt the soil and grasses in the forests.
- In the Nilgiris there has been a demand for uprooting Eucalyptus. However, this has been met with protests from arount 40,000 oil extractors who derive a livelihood from them. The felling of native shola trees and establishment of tea plantations has also adversely affected the rainfall in the Nilgiris.

3.2.3 Breeding Practices Disrupted

In traditional pastoral societies like the Raikas, breeding stock is rarely if ever sold, and changes in ownership occur only within circumscribed social networks at specific social occasions. Hence the exchange of genetic material is limited to the social network within a particular tribe/ community or endogamous group.

- With the shrinkage of pasturelands, some of the pastoralists like the Raika camel breeders of Rajasthan have been pushed into economic destitution and forced to sell off their camels to rich land owning castes. Traditionally Raikas do not sell their female camels outside their community. This custom has been breaking down. Recently hundreds of camels were sold at the Pushkar fair even for slaughter. As a result breeding practices within a particular community/endogamous unit is disrupted and formerly distinct breeds merge into one generic type.

Animal Scientists need to acknowledge the fact that indigenous breeds represent the outcome of social processes and that they will not survive outside their social contexts and production systems that formed them. Hence the documentation of breeds should be an interdisciplinary effort involving social scientists and indigenous knowledge of pastoralists. (Ilse, 1993).

3.2.4 Government Neglect and Cross Breeding

Government Animal Husbandry Departments are oriented to promote “modern” methods of animal production such as feeding of concentrates and urea treated fodder, genetic improvement by artificial insemination and cross breeding with exotic breeds.

However as pastoralists inhabit remote areas and ecological niches where only indigenous breeds survive, these interventions have had limited impact. In any case these Government schemes have been inappropriate for pastoralists. (Ilse 2001a)

In any case cross breeding poses a threat to the survival of indigenous breeds. Crossbred animals, which supposedly combine improved performance with adaptation to local conditions, have often proved inferior to indigenous stock. For instance in Rajasthan where local Sirohi goats were crossed with Swiss milk goats, the project was terminated because of inadequate results. Efforts were then focussed on selection within the local breed.

3.2.5 IPRs and the Danger of Bio-piracy

There is an emerging demand to usurp traditional knowledge of breeding practices, disease resistant genes in live stock belonging to pastoralists, into high performance breeds.

Indigenous animal breeds are very much the result of active manipulation by breeders. Hence this intellectual contribution of livestock keepers needs to be accorded a corresponding status.

The Sadri declaration of November 2000 focussed on the need to develop intellectual property rights regimes for domestic animals. Recording of the traditional knowledge systems and according rights to the traditional breeders needs to be done in urgently. Any delay in this would have far-reaching implications for

the economic survival of traditional livestock keepers and pastoral societies whose identity is rooted in their association with livestock.(Ilse 2001b).

*4.2.4.1.1.1.1.2*

3.3. Enhancing Livelihoods

In order to avoid massive loss of income opportunities in marginal areas as well as for the sake of rescuing an ethically acceptable mode of animal husbandry with its traditions and indigenous knowledge, better linkages between pastoralists and the outside world must be created and institutionalized. Pastoralists need recognition and acknowledgement for the unique social, ecological and spiritual context in which they raise their animals. Besides they need comprehensive programmes that support their traditional systems of land utilization.

3.3.1 Coordination Between Government Departments

There needs to be better linkages between Government Departments like Animal Husbandry, Forest and Revenue Departments, which are responsible for aspects that form important components of pastoral livelihoods.

These departments along with the Sheep and Wool Department need to be in constant touch with the pastoralists to provide them necessary support services to enhance their livelihoods.

At the All India Meeting of Pastoralists, the need for processing facilities at the local level, to increase earnings and get a fair price for products, was expressed. For example the Raikas would like to have a processing unit to clean wool. Pastoralists from Ladakh were also keen on upgrading marketing facilities for wool and milk products.

3.3.2 Animal Health

Both the Todas of the Nilgiris and the Raikas of Rajasthan mentioned that much of the medicinal plants (used in indigenous treatment of livestock) has gone with the degradation of the forests. In fact Toda buffaloes find medicinal plants for themselves. The plants need to be preserved. In any case veterinary services hardly reach the pastoralists. Goat breeders of AP felt that the Government Veterinary facility even neglects goats.

Pastoralists expressed the need for recognition of their traditional healers. Animal health and livestock extension services need to be suited to their particular situation, integrating the traditional/indigenous knowledge of pastoralists.

3.3.3. Need for Forums/Association of Herders

With continued neglect, discrimination and exploitation by both the government and other village communities, pastoralists have felt the need for organizing themselves into forums or associations.

Breeders associations in AP and Tamil Nadu have been attempting to address local level problems faced by the pastolists. For example they have;

- Had an impact on village dynamics, convincing other village communities to also let them live.
- Intervened and ensured compensation for goat herders when their goats were confiscated and sold off by FPCs and police.
- Taken up grazing and water problems
- Made efforts in awareness generation at the village level to influence local plans and policy.

These Breeders associations are also striving to influence policy for conservation of herders and their herds. (SEVA 2001)

*3.4 Changing lifestyles*

Over the years, pastoralists feel that livestock rearing is becoming more and more economically unviable. Despair has been forcing the educated/younger generation to explore other occupations. In Jojhavar village, youth (educated up to the 3$^{rd}$ - 5$^{th}$ standard) leave home for jobs in cities. They earn around Rs.1000/- per month and send money home to take care of the camels! Some pastoralists are even reluctant to educate their young for fear that they will leave the traditional occupation.

However, there is also a realization/discussion among pastoralists, that the educated youth have a role in enhancing livelihoods and linking up with the outside world. Hence education facilities for pastoralists should address their specific needs, integrating their traditional wisdom. (Warsi 2002; SEWA 2002)

# 4 COASTAL LIVELIHOODS

Biomass dependent communities in India, whether their dependence is on forest or in the oceans and sea, is under pressure from harvesting or extraction which is beyond the renewability capacity of such resources. Harvesting of resources from nature by the community in earlier times was based on their needs for survival, also was in a balanced manner, which gave enough time for resource renewability. Fishing as a life- support activity by the fisher-folk was a classical example for this with their simple, labour intensive fishing gears and simple un-obstructive settlements on the beach. However, the current market demand induced exploitation and technology to meet such demand has disrupted the interdependency of resource availability and sustenance of dependent communities.

While, the exploitation continues with intensive fishing gears as the resource scarcity is felt, the community that had historically and traditionally depended on fishery resource is being marginalised. Their traditional right over the resource by virtue of their dependency as well as presence in the proximity of the resource – the coast – is also challenged. The coastal settlements of the community are increasingly under threat from new development and industrial projects. Ironically, now it is the non-fishery resource availability that has become an added threat to their livelihood. As the community is loosing out in the battle for fishing, because there is not enough fish in the sea, they would have to consider making their claim on non-fishery resources too.

## 4.1 Marine, Coastal Wealth and Coastal Communities

India is blessed with three mighty oceans – The Bay of Bengal, The Arabian Sea and the Indian Ocean- elevating the country to the 'top ten' in sea claims, according to United Nations Sea-claim statistics. 7515 kms long coastline is what we have in India. In the ocean side the EEZ is 2,015,468 sq. kms, which is equivalent to 66 per cent of the country's land mass.

With one fifth of worlds marine area, India is bestowed with rich living and non-living resources. Fishery resources in our EEZ have been estimated (1990) at 3.9 million tonnes of which 2.21 million tonnes are within a region of depth upto 50 mtrs. Overall 65 % of marine resources are within 200 m depth from the shoreline, 20% within 320 kms and 15% in high seas. Oil and gas are the major non-living resources of the oceans, besides nickel, copper, cobalt and manganese. 1981 estimate of India's offshore oil reserves were around 1100 ml tones and gas reserves being 12,000x109 cubic feet**.** (RC Sharma, PC Sinha1994). Almost 62 per cent of our total crude oil are from offshore sources.

Indian coast and marine regions are one of the richest in biodiversity. The unique island ecosystems of the Andaman and Nicobar Islands, and the Gulf of Mannar are declared as biosphere reserves. The Gulf of Kutch is a marine wild life sanctuary. Sunderbans and Pitchavaram have the countries' largets mangrove ecosystems. The backwaters of Keralam with webs of mangroves and inter-twined canals, blends the mineral and biomass rich Western Ghats and the Arabian Sea. Gahrimata in Orissa is one of the largest turtle nursery grounds of in the world. Our net work of water bodies, which are intertwined with, canals, rivers, lakes all lead to different seas. All these contribute to a rich biodiversity.

About 10 million fisher people depend on fishing in the marine sector and 12 million fisher people live in the inland sector. Besides there are 5 million depend on post harvest activities. 90% of them live a subsistent economy. Besides about 300 million are fish consumers. However the country needs to update data on fishery sector, since the last ever full-fledged census was carried out in the eighties. There would be substantial change in the fishing sector; fish catch, fishing gears as well as the socio-economics of the community.

Fishing community both along the coastal as well as inland are mainly depended on the rich fishery resources. The non-living resources like oil and minerals are exploited by the state and recently the private sector has also been permitted. The coastal and backwaters are potential sites for traditional aquaculture practices, being used by the aquaculture industry.

At the same time, potentials thus far not exploited are gaining momentum, like harnessing of ocean thermal energy and wave energy from the oceans. Marine biodiversity is a treasure for drug industry, desalination of seawaters to meet the drinking water shortage, and also the seaweed industry, which is in a very initial stage in the country.

A variety of activities link the coastal community to the fishery resources. Communities those are directly and indirectly linked to fishing activities, traders and middlemen, women engaged in fish trading, curing and other related activities, are dependent on this single resource.

By and large the community had no part in extraction of non-living resources of oceans, which was solely owned by the state until recently, the private sector has also been given access to these resources.

The coastal stretches are some of the most populated regions in the country. Availability of land and water, easy means of transportation etc attracts large-scale industries on the coast. Beach tourism is one of the fast growing industries in the coast. Economic liberalisation had initiated large-scale infrastructure development in the coastal regions.

*Box:1*

**Oceans: What it Possesses**
**Some Bare Facts**

*The area of the world ocean is estimated at 361 ml sq.km., the average depth of thus total watermass is about 3730 metres, the average temperature is 3.9 degree C, and the average salinity is about 3.47 per cent. With a total volume of 1,347,000 cubic miles, the world ocean may weigh about 6330.9 x $10^{15}$ tons. (RC Sharma, PC Sinha 1994) And further;*

- *The biodiversity of ocean posses both living and non-living wealth*
- *Seas around the world harbour 90 per cent of the biodiversity of the planet*
- *Between 1970 and 1990, the number of species discovered from the oceans has increased sixty fold with thousands of species still to be discovered*
- *Oceans hosts 31 of the world's 32 extant (still existing) animal phyla, 14 of them exclusively marine*
- *Fish provide 17 % of animal protein in human diet*
- *In 39 out of 40 developing countries fish remain principal source of protein*
- *It is also a huge mine of metals, minerals and petrochemicals.*

***Human interference***

- *70 % of marine fish stocks are over fished (UN - FAO)*
- *60% of the world population live within 60 kms of the coast*
- *By turn of the century 3025 million and 70% cities shall be on the coast, 70 per cent of cities with 3 ml or more population around the world also will be located in this region*
- *(India's 20% of population ie 190 million live along the coastal region)*
- *90% of pollution in to the sea is land based & human generated*
- *80% of pollution is untreated sewage, 20% untreated affluent.*
- *There have been 60 per cent rise in coastal pollution since the 1980s all over the world according to a UN document*
- *Plastics had been found in the stomachs of 63 of the world's approximately 250 species of sea birds according to Centre for Marine Conservation*

***While tackling management***

- *That ocean and coast are inseparable components need considered while planning and management*
- *Wet lands, mangroves, salt marshes, mud flats, estuaries, sand dunes; all are inseparable and interrelated to the coastal ecology and ecosystems*
- *Modern science is just 100 years old while our planet has existed since 4.5 billion years*
- *Communities are poor but has not destroyed the region*
- *Natural resources are common property*
- *Only 90 of the world's 327 biosphere reserves currently include coastal or marine habitats*
- *Exclusive Economic Zone (EEZ) demarcates national rights; regional, community rights are yet to be implemented*
- *Integrated coastal management is inclusive of the marine regions; and Communities are part of this integrated system*
- *The current Coastal Regulation Zone (CRZ) notification 1991, deals only with the coast and landward side of the coast*

*Source: Haribabu 2000*

While discussing biodiversity, its intrincities, linkages and human dependency for livelihood all these factors need to be considered. The fast changing consumption pattern and life style and the induced impact on the biodiversity is an area of challenge to all. What is being generally argued is that a balance be maintained

between human needs and natures ability to provide and also between modern human need as against those of traditional ways of living and consumption.

**4.2 Threats**

It is ironical that with such vast and diverse resources, majority of fishing community that have lived historically on these resources still live below poverty line. The community still does not have rights over fishery resources. 65 per cent of the fishery resources are just within 200 meters of the coastline and which the community could harvest with their traditional gears and skill. This makes a mockery of the policies that depend upon mechanized fishing systems, which help only large industrial houses, and foreign companies to reap these resources.

But the above trend in fisheries policy is not the only area of concern. Recent economic policies and development priorities are threatening the coastal and marine ecosystems, which in turn affect both the bio diversity of the region and the dependant communities. Change in land use and ownership, over exploitation of resources like water, destruction of eco sensitive and fragile regions like estuaries, mangroves, and wetlands have long term impacts on coastal and marine biodiversity affecting traditional fishing communities' livelihood and habitat.

*(Refer Annexure I for Issues and major threat regions of Indian coast)*

4.2.1 Destruction of Mangroves

Mangroves are the richest spawning and breeding ground for fish. They are an ecosystem by itself that link the fragile coastal lands with that of the mainland. Usually found in the estuarine regions, mangroves extend inland and in backwater bodies that have tidal influence and salinity. In the context of cyclone prone, densely populated extensive Indian coastline, mangroves are very crucial for their special adaptive features, almost tailor made by nature considering the coastal dynamics. The entire Indian coast is now under threat and mangroves are no exception to this rule.

The loss of mangroves can cripple a coastal community entirely, by affecting their safety, as well as their livelihood. In fact, the recent cyclones in Orissa have been shown on the basis of scientific analysis, to be the result of mangrove depletion. They also form an important source of resource materials for local people ranging from fuel-wood to medicinal uses. (EQUATIONS 2000 a) The loss of mangroves affects largely the spawning and breeding of fish. While there is a loss of marine life, and marine bio-diversity, the effect of this is also felt on the local communities, dependent on the sea for their means of livelihood. The depletion in fishery resources, due to disturbance to the spawning and breeding of fish, results in poor catch for the fisherfolk. This has its effects on the entire community, since the economy of the community is related mostly to fishing and its ancillary activities, such as sale of fish, net making etc. It is very difficult to artificially regenerate the mangrove ecosystem once it is destroyed. Mangroves can play a very crucial role in the living as well as the livelihood of the coastal people. Besides sustaining the estuarine and off shore fish resources they provide varieties of raw materials for local crafts people, and nutrition rich leaf fodder for livestock rearing, house building and thatching material. They can generate honey, tannin, etc. for industrial use. Many of the mangrove species possess high medicinal value. (Khatua 2000)

- There is severe pressure for the conversion of mangroves for agriculture, industries, aquaculture, etc.
- Upstream river water diversions for irrigation or other purposes adversely influence the fresh water inflow to delta areas resulting in higher salinity and other unfavourable conditions for the mangrove ecosystem.
- Industrialization often brings in its wake urbanisation, and with these the pressures of pollution wreak havoc on the environment. Mangroves face the problem of pollution, not only from sources that directly dump wastes into the mangrove region, but also from the effluents that are let out into the sea. The effluents destroy not only the mangroves as a forest, but affect the entire attendant ecology
- The industrial aquaculture is one major contributor to the destruction of mangrove forests. Direct deforestation as well as the chemical pollution caused by this industry has a devastating effect on the mangrove systems.
- To add to these pressures, the tourism industry has now made its entry into these sensitive regions. Tourism developments, such as the construction of cottages within the mangrove forest area, and activities such as boating, oil spillage from boats, visits by tourists to the core area could adversely affect the mangrove systems.
- Unsustainable exploitation of mangroves for fuel, furniture etc by the community and local people

4.2.2 Industries and Pollution

Vast stretches of land for development, availability of water, transportation facilities and easy dumping grounds for waste are factors that attract majority of industries to the coast. Many of them are chemical and petroleum related, which, in the absence of strict environmental laws pose grave threat to the marine life. There is direct dumping of waste in to the sea by the Thiruvananthapuram and Chavara Titanium factories, Kalpakam atomic plant, Chemical industries all along the coast in Gujarat and Cudalore in Tamil Nadu, Alang Ship breaking yard in Gujarat, Coastal industrial Aquaculture etc. Another issue is relating to oil and chemical spillage in the sea and dumping of nuclear waste. 35 mega-industries are coming up along a twenty-km coastal stretch of Mangalore, in the Dakshina Kannada district of the coastal state of Karnataka. This includes 1000 mw thermal power projects, petrochemical, fertiliser and pesticide industries

- Many of these are infrastructure intensive industries, which would lead to erosion and thereby sedimentation in the ocean.
- Most of the identified investments are for oil and mineral exploration, oil refineries and chemical industries. There would be devastating impact of these in the ocean and marine life by way of reduced lights leading to reduction in photosynthesis affecting the food chain of live resources and there by loss of overall fishery resources.
- Ship breaking units are known carriers of hazardous waste
- Marine life and coastal regions are being affected by indirect pollution, mostly land –based, originating away from the immediate coast and sea but finally ending up in the oceans through numerous rivers, storm water discharge and other water bodies directly or otherwise. Chemical factories upstream and along rivers, fertilisers and pesticides used in agriculture, domestic and urban sewage etc. reach finally the oceans.
- Many of these are Persistent Organic Pollutants (POP) which has long term effect on wildlife, ecosystems and human life,

*Box: 2*

***POPs Threat***

*Current studies are increasingly pointing out that many of these are Persistent Organic Pollutants (POPs). 'The health of the world's people is tied to the health of its water – the oceans, seas, lakes and rivers. Many of the persistent toxic pollutants that are now found in the world's oceans and waterways are also found in the bodies of virtually all peoples and animals of the world. POPs are a class of mainly human-made toxic chemical substances that cause severe and long- term effects on wildlife, ecosystems and human health. They are persistent in the environment, i.e. they do not break down or degrade easily'.*

Source: *Nithyanand Jayaraman 1998*

4.2.3 Infrastructure Development

***4.2.4.1.1.2 Harbours and Port Construction***

Harbours and ports are important infrastructure for economic development of the nation. At the same time there is lack of sensitivity while constructing and operating them, affecting both the community and environment. We have 11 big major ports and 35 small harbours in India. These are for both commercial and fishing purposes. All these were once natural harbours.

- They were converted into ports and harbours destroying the natural estuaries and fishing grounds.
- Further they pollute the inshore waters with oil spillage, waste dumping and so on.
- In all the ports and harbours fisher people were displaced.
- The proposed Vardwan, Maroli port in Maharashtra and Umbergaon, Gujarat will destroy the entire fishing grounds and the rich mangrove forest in the area together with displacing the fisher people.
- The construction of the Ennore Satellite Port, Tamil Nadu has already destroyed marine wealth, and now threatens the existence of many fishing habitats, as it has caused dangerous and alarming levels of erosion.
- The number of ports in India would multiply many folds since most of the new industries that are being located along the coast have 'captive ports' inbuilt into their projects.
- Though smaller in capacity the number of such ports would be more.

- Another looming danger is that unlike earlier times all these would be in private sector which would operate according to their needs with least consideration to the local environment and people and are non-transparent.

#### *4.2.4.1.1.3 Roads*

In the new economic regime, investments are in plenty for infrastructure development like roads. Coastal regions are identified for massive infrastructure development since many of the new generation – service sector industries – are being located along this region. One single superhighway stretches along the entire East Coast of India, starting from Kaniyakumari to Calcutta. The highway shall cut across coastal states of Tamil Nadu, Andhra Pradesh, Orissa and West Bengal and through ecologically sensitive areas, mangrove systems and numerous rivers and backwater systems. Along the West Coast also super highways are planned in Kerala and Karnataka. The problems of infrastructure development in the environmental context are manifold.

- Change in land use pattern affecting coastal agriculture
- Ribbon development along the road
- Induced urban development that would spring up because of large projects
- Additional load and stress placed on the groundwater availability, resulting in salinity in the ground water table
- Impacting on the aesthetic value of a region

The main impact of infrastructure development along the coast is displacement of communities in way of change in land use and privatization of land and community spaces.
Even if compensations are paid (in extremely rare cases) there is no means by which the community would be able to withstand the induced development an infrastructure like the highway creates or the change in standard of living by urbanization, which is the product of all infrastructure development.

#### *4.2.4.1.1.4 Deep-sea Sand Mining in Kerala*

A hitherto unknown plan in Kerala will have irreparable impact not only on the sea claim area of the state, but that of entire West Coast marine region, its sensitive ecology and fishery and other resources. This will also lead to privatisation of marine areas.

Kerala government along with a private sector company is planning deep-sea sand mining so as to meet the sand requirements of construction industry. The plan for this project has already been prepared to mine fifty lakh tons of sand annually from the deep-sea. With an estimated project cost of Rs. 180 crore, the private company seeks 25 year lease of marine areas identified for mining. Five mining centres are spread over a stretch of 590 kms along the Kerala coast between Vizhinjam and Kannur. The mining will take place a 20 kms inside the sea at a depth of 20-30 meters.

Western coast in general and Kerala coast in particular is known for its rich fishery resources. This project would adversely affect the coastal communities who depend on fishery resources for their livelihood. The mining and dredging activities of the project would disturb the seabed and the breeding and spawning grounds of fish and also disturb their migratory routes. The dredging activity would greatly affect the entry of light into the sea, which is crucial for micro-organisms and food production processes in the sea.

Another aspect pointed out is also the water requirement to treat the salinated sand, which had been lying in the salt seawater for millions of years. It is approximated that 2.5 crore cubic metres of fresh water would be required to desalinate the proposed fifty lakh tons of mined sand! Meeting this fresh water requirement is difficult, besides such diversion of water would be possible by abetting deprivation to local communities.

In the interest of biodiversity, dependent community and larger population and above all for the sake of the sea itself this project must be opposed by all. (Babu 2002)

#### *4.2.4.1.1.5 Naval Bases*

Naval bases need to be located inevitably on coastal stretches. Since this is in the national interest, environmental concerns and livelihood of the people would receive little sympathy. The construction of Naval Bases in Kochi, Vishakapatanam, Karwar and Mumbai had destroyed the fishing grounds and displaced fisher people on a large scale. (Kocherry 2001)

There is major threat in the new generation of Naval bases, which are equipped to handle submarines and sophisticated weaponry, including nuclear heads. Naval bases and coastal stretches are also missile testing ranges in the country. They are noted for their strategic locations usually with bays and with support water bodies like rivers and backwaters. In the case of Ezhimala Naval Academy, in Payyannur, North Kerala the entire village was displaced.[1] Each time tests are carried out, the community is forced not to venture into the sea and also temporarily vacate their houses. [2] The story of the Karwar Navel base is also not very different. The government backed away from the promises made by the then Prime Minister Rajiv Gandhi to the local community while inaugurating the project and the people had to resort to struggle. Even today there are many without compensations paid.

- Naval bases are usually located in regions where community habitats are founded since the availability of natural resources is abundant. These regions would be the most productive fishery as well as fishing grounds.
- Vast stretches of sea area is sealed off for missiles testing, prohibiting fishing in the area which affect the livelihood of local people
- The neighboring community become potential targets in times of war
- The looming danger of nuclear weapons contaminating the ocean biodiversity

#### *4.2.4.1.1.6 Tourism*

Beach tourism, which is seen as an economic development option, is another potential challenge to the coastal ecology. Usually projected as 'smokeless industry' and hence receives proponents for tourism operation even in ecological sensitive regions. The history of beach tourism in the country has been that of exploitation of both the coastal environment and local community. The new generation of tourism projects also supercedes the local political systems like Panchayats. A sixty-km coastal stretch of a whole district, Sindhudurg, in Maharashtra has been identified as a beach tourism enclave. Four fishing villages have again been identified for a beach tourism project at Bakel, Keralam. Both these tourism projects are under a category termed, Special Tourism Area (STA), which will supercede the local elected bodies by creation of a Special Tourism Authority and the state government would have to provide land, water and power at subsidised rates.

Unlike many other developments, tourism is an extremely intrusive and devastating experience to the local community in way of displacement, cultural degradation, denial of customary rights, siphoning of natural resources, artificial inflation and the entire community and their lifestyle objectified for tourists.
The destruction of coastal ecology is rampant in tourism development with heavy constructions on the beach, destruction of sand dunes and coastal vegetation, ground water depletion, pollution and waste generation. (Tourist destinations like Goa and Kovalam in Keralam are living examples for all these negative impacts of tourism. Kovalam was a peaceful coastal village with majority of the people engaged in fishing, coir spinning and agriculture. After four decades of beach tourism the community is virtually absent on the beach. Fishing, coir spinning and toddy tapping of the local community had been replaced by tourism, forcing the community to be dependent on the tourists for their survival, while their properties and beaches are taken over by resorts and hotels. Goan tourism had proven that the much touted, local people benefiting is a farce [3]
Constructions made by the tourism industry obstruct seacoast interaction causing erosion/accretion away from the site of construction. In the case of Mamallapuram this change in flow of the sea is evident nearly a kilometer away precisely where the Temple Bay Ashok is located. It has washed away cottages and the Bharathanatyam stage of the hotel. But neither the government of Tamil Nadu nor the Hotel Groups accepts this as a reality.
Adventure sports is part of beach tourism, which affects fishing, disturb fish breeding and spawning grounds, chase marine animals, disturb coral reefs and marine plants and also result in oil spills and littering.

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[1] This was one of the most self-sustained coastal villages in the state, with the community engaged in multiple economic activities. The same person would be a fisherman, cropping coconut and also work in the stone quarry depending on the seasonality. The entire village was evacuated two decade ago, while the Navel academy is yet to take off even today.
[2] Balasore in Orissa is a typical example of this. While the adjacent Baliyapal villagers resisted the evacuation process heroically, even under severe pressure from the government in way of denying the villagers ration and kerosene.
[3] The local community had to approach the courts for justice when the hotel industry and the government pitched against them for putting up temporary shacks on the beach during the tourist season.

*Box: 3*

***Impact of Tourism***

*Tourism in the coastal areas has had an adverse impact on the local communities. A study undertaken by EQUATIONS states that:*

- *Local communities suffered neglect and indifference*
- *Their life space has been usurped for the leisure and pleasure of tourists*
- *Constructions such as hotels that have come up are blocking off the paths they use, sometimes denying their access to the resource itself.*
- *Scarcity of resources like water and fuel, together with increase in prices of land and essential commodities has made their survival difficult*
- *Whereas, increase in fish prices has benefited the traders and not the community.*
- *The local community who was earlier engaged in fishing, agriculture and also in sculpturing (in the case of Mamallapuram) is slowly moving away from these. Especially the younger generation is looking forward to easy money while the older ones are still trying to resist.*
- *Apart from the fishing community who are not involved directly in tourism activities, there are a sizable number of people especially women trying to live out of tourism. Mostly these are trinket, sellers, vegetable and fish vendors. But most of them are in debts. And if the tourist turnout is low they are unable to pay the loans they have taken for their trade. Established shops are mostly by outsiders.*
- *Prostitution of both adult and children are found in Mamallapuram. Women involved are from nearby areas and mainly cater to the domestic tourists but also to foreign tourists, to certain extent. The authorities claim that they have been able to control child prostitution, which was rampant two years ago. Local groups also were part of the campaign against this. It was the foreign tourists who were involved in child prostitution.*
- *Like all beach tourism destinations, Mamallapuram is also a center for drug peddling. In fact, there are a sizable number of people who visit Mamallapuram for drugs. It is difficult to trace drugs and child prostitution since these are done in utmost secrecy., unlike adult prostitution, which is visible and evident.*

*Source: EQUATIONS 2000 b*

- Tourism industry is capable of flouting all kinds of laws including environmental laws. In the case of beach tourism, the tourism industry was the first to oppose the Coastal Regulation Zone (CRZ) Notification. The political might of the industry compelled the central government to constitute a committee against the CRZ norms and was the first to get an amendment of the notification in their favuor[9].

The industry does not recognize that it contributes to marginalisation of the community nor the dehumanizing situations like prostitution and child sex abuse. The current form of tourism development does not have any space for the local community for direct employment.

In the eve of the current economic policy the government has liberalized tourism industry and is open for 100 per cent Foreign Direct Investment (FDI). But no mechanism for conservation and community protection has been created simultaneously. Absence of this would severely impact on the traditional systems and the GATS commitment would challenge national laws.

*(Refer Annexure II – Beach tourism: Some integrated conservation measures)*

4.2.4 Impacts of New Forms of Economic Development and Investments

The new forms of economic development are essentially natural resource based, increasing thereby the demand on these resources, and multiplying the various uses thereof. The coast of India is witness to this increased demand, and as perhaps in other parts of the world, one of the regions undergoing the fastest changes.

From regions of primary production of fisheries, agriculture and related industries, the region is now the prime focus for secondary and tertiary sectors that are non-fishing and non-agricultural. These vary from all kinds of major industries, oil refineries, to power and tourism projects and other service sector industries. The related infrastructural needs like super highways, railways and industrial ports are also located in this region. Unlike earlier uses of this region for isolated defence or port facilities the changes seen today as part of new economic reforms are wide spread. In may instances such changes seek to encompass entire villages

[9] The CRZ notification prohibits all constructions within 500 mts towards landward side of the High Tide Line (HTL) Save the community who could built their houses between 200 and 500 mts zone. By amending the notification the tourism industry also gained access to this zone, at par with the community!

and whole districts for their operation. Existing law of the land is also being made accommodative for these developments.
The concentration of investment to the coastal districts of India is an indicator to the pressure that the coastal regions and there by the community would face in the immediate future.

*Box: 4*

***Investment in Coastal Districts***

*The distribution of the new projects coming up in the country is fairly uneven with a high degree of concentration witnessed in and around the coastal belt. One third of the total proposed investments of Rs. 1.3 trillion is spread across just 52 districts of which 22 are in the coastal belt.*

***Chengalpattu***
*Chengalpattu MGR district of Tamil Nadu ranks second in terms of outstanding project investment. The coastal district has 56 projects with an aggregate investment of Rs.43,886 crore. In the midst of severe competition among the states, the district attracted three large passenger car projects of Hyundai Motors, Ford Indian and Hindustan Motors. Bulk of the projects are concentrated in Gummidipoondi, Ennore, Manali, Maraimalainagar and Sriperumbudur.*

*Tamil Nadu Industrial Development Corporation proposes to set up a7,000 crore naptha cracker, a 1875 MW power project and a Rs.2,000 crore LNG terminal at Ennore in the district. Other large power projects planned are:*
*A 1500 MW Rs.4,000 crore Cheyyur Power Projects of NTPC.*
*A 1050 MW Rs.4,542 crore North Madras Project of Videocon Power*
*A 1000 MW Rs.4,000 crore Kattupaili power project of Chennai Power Generation.*
***Dakshin Kannada***
*The lush green coastal district of Karnataka was the top district in terms of total investment a couple of years ago. However, the non-materialization of a few large steel projects pushed down the district to fifth position. As of June 1999, there were 31 projects worth Rs.30,169 crore. The investment is spread over petroleum refinery, steel and power projects. However, strong opposition from the local environmentalists has hampered the progress of the mega projects planned in the district. The MW thermal power project of Cogentrix, the steel project of Nagarjuna Steels are some of the projects which are currently the facing stiff opposition from the land oustees.*
***Nagapattinam***
*The district has seven projects entailing total investment of round Rs.23,395 crore. Two naphtha crackers and a giant petroleum refinery account for the bulk of the investment. The petrochemical complex is being planned by BPCL and MRL. MRL also plans to set up a nine million tonne refinery with IOC at a total cost of Rs.8,000 crore. The 1,000 MW Pillaiperumanallur power projects of PPN is also coming up in the coastal district.*

*Source: Hegde 1999*

The way changes would come to the coastal ecology, the change in land use pattern, and the extent of pollution these developments could create is imaginable in the context of our blunt environmental laws and the indifference in implementation. The immediate impacts of these developments are:

- The increasing threat of destruction to the coastal environment and bio-diversity, which extends to the marine resources.
- Industrialization, inappropriate infrastructure creation, urbanization and rampant development all along the coast threaten to upset the ecological balance of the coast.
- This affects not only the resource availability, but also has repercussion on the economic activities along the coast, mainly affecting the large fishing community and other peoples dependent on marine resources.
- The large volume of land requirement destroys the natural sub-supportive systems, like the estuaries, backwater systems and mangroves, resulting in direct depletion of marine resources. This also hinders the natural coastal ecology, leaving the coasts unprotected from natural disasters.

## 4.3 Fisheries

### 4.3.1 Inappropriate Fisheries Development

Fishing in the country has undergone a sea change. From subsistence fishing, which was based on climate, season, currents and migration of fish, using traditional fishing gears, species specific nets and human labour, the fishing activity has gone a long way. In the process, all that was learned historically has been

discarded. First and foremost, fishing became an industry and profit became the single point agenda. The roles became interchanged; traditional wisdom gave way to technology, machines replaced human labour and export and foreign exchange became the mantra. Like any other development that has not considered the ground realities, fisheries also are in crisis today. In the fisheries sector, it was largely the state – sponsored modernization programs with foreign assistance that dominated. But while the capital intensive, market oriented fishing industry could find new ways to overcome this, the fishing community by and large is in despair. The biodiversity dependent livelihood of the community is under immense threat. But without repairing and remedying these injuries, the state has already committed to global treaties and commitments, which would further jeopardize the resource availability and lives of people. The sequence in which the fishery sector had traveled to reach the current impasse is:

- Introduction of mechanized fishing during the early 50s, which was a borrowed technology from Norway.
- The impact of this technology was two fold, one on community and the other on resource; it was 'market led' development aimed at, catering to the developed countries and consumers
- This lead to 'selective species demand' of fish, in line with consumer demand that lead to what is termed as 'selective catch' /'target catch'.
- This also lead to two extremely significant changes in the arena of fishing as an economic entity; the entry of finance capital into the fishing sector, and
- dependence on developed countries for technology, machinery and equipments and all supporting gears

Together these began to change and influence the fishing scenario in the country. The changes were total and encompassed all aspects in fishery; the market and pricing, investments, players, technology and equipment, resources and catch. The major impact of this was;

- the market became alien and inaccessible to community and local traders
- 'selective catch' lead to over fishing and depletion of individual species
- The capital that moved to invest in fishery sector was from non-fishing sources and also by non-fishing community.

The long-term effect of the whole process was that;
Mechanization in fishing gradually de-skilled the community from their traditional skills and knowledge, this also paved way for external labour force into fishing
Increased dependency on technology and equipment lead to resource depletion which further intensified and sophisticated fishing

On another front this lead to the collapse of a whole range of systems that was dependent on fishing; like timber based traditional boats, its businessmen, craftsmen, cotton and jute thread based nets etc which were part of the earlier system. Net making/weaving – from curing of threads to spinning and weaving of nets of different sizes and for different fish - that was essentially a traditional home based industry exclusively by women. (Haribabu 2001)
Community institutions, which were based on traditional wisdom, were lost to systems those were created by bureaucracy for the new mode of fishing to function

A biodiversity focussed appraisal of this changes could be summed up, as this entire process paved the way for blind imitation of craft and gear technology developed in the context of temperate water ecosystems of the developed countries. In this process, a rich heritage of both cultural knowledge and endogenous technology, evolved over centuries to suit the community and the tropical ecosystem were thrown overboard. A worldview bound in moral and religious beliefs, in which humans and nature were closely integrated through knowledge and practice, was replaced with another worldview that placed humans, apart from and above, the natural world. The initial decades of this modern development witnessed rising fish harvests. This was further spurred by an expanding international market. But four decades of this incessant, single-pronged pursuit of resource extraction led to severe resource depletion, loss of ecosystem resilience, and social conflict in most Asian fish economies.

'Modern fishery science and development strategies have focused too much on individual species within the resource system. We specialize our research and develop our models for a "target" species. We then set quotas for the "by – catch" and apply limits on the "discards." In this piecemeal approach, we pay very little attention to situating our urge to enhance output in the live and dynamic proposition of "care for the water"-

the whole aquatic ecosystem. This care was most eloquently expressed in the innate nature and manner of use of the traditional techniques.' (Kurien 1998)

4.3.2 Major Threats in the Fishery Sector

#### *4.2.4.1.1.7 Mechanisation and Destructive Gears*

Mechanisation and destructive gears has led to economic and ecological destruction, fish depletion and decrease in fish production, decline in the share of traditional fisheries sector, adverse effect on the consumers and finally the way it affected the standard of living of the traditional fishworkers were all consequences of mechanisation.

#### *4.2.4.1.1.8 Trawling Technology Causes Environmental Degradation*

As the trawling nets scrape the bottom of the sea they destroy the sea bed with its plants foliage, and coral formations thus upsetting the marine ecology. By-catches are a common phenomenon destroying wide range of species. Also since they search for shrimp, turtle species and other species are also destroyed.

#### *4.2.4.1.1.9 Purse-seine Nets Lead to Over-exploitation of Fish*

Purse-seine boats operate in the inshore waters where the traditional fishermen also fish. (Fishworkers' Movement in Kerala (1977-1994)) The pursesieners have depleted sardines and mackerels in Kerala, Karnataka, Goa and Maharashtra seas. There are about 2000 pursesieners in these areas.

#### *4.2.4.1.1.10 Over Capacity*

We have more vessels than we require, to catch 3.7 million tons of fish. This is creating extra pressure. We have 3 million traditional crafts and 50000 medium mechanised vessels in India. The catch per vessel in all sectors is going down in an alarming manner. It is surviving only because of the increased price for fish in India. But that will also get affected because of the increase in the price of Kerosene and Diesel and the import of fish.

#### *4.2.4.1.1.11 Industrial Aquaculture*

Which is predominantly for exports to the up market consumers cause destruction of mangroves and estuaries, depletion of freshwater, salinity ingress in the ground water, pollution through high use of pesticides and feed that percolate to the ground water etc are visible impacts affecting coastal ecosystems. There is also the impact of depletion of prawn and shrimp in the oceans since mother prawns are caught from the sea for the seed requirement of the aquaculture industry. For the community it is loss of their land and rights, drinking and potable water, coastal agriculture and thereby marginalisation and pauperization. (Kocherry 2001)

#### *4.2.4.1.1.12 The Exim Policy*

The Exim Policy 1997 – 2002 allows import of 21 items without any license, which include salmons, sharks, eels, crabs, mussels, cuttle fish, clams and produces of it. Another 62 items are against Special Import License (SIL). (Detailed in section 4.6.7)

#### *4.2.4.1.1.13 Deep Sea Fishing Policy*

Give more stress to joint ventures in deep sea fishing, encourage long lease of fishing vessels and permit test fishing as prelude to joint venture. (Detailed in section 4.6.6.)

4.3.3 Coastal Livelihoods

Coastal communities depended on marine resource for livelihood and coastal land as their living space is being challenged of both these as is evident in the earlier sections. The threat is similar to that faced by the tribal communities as the living and occupational space are the same for both communities, together – being pushed away from their regions of livelihood and alienated from their places of habitat

In the larger biodiversity specific context – resource - human - interdependence, disturbing the natural habitats and life cycles would have long lasting impact. In water related economies be it fishing, shell gathering, oyster diving, salt making, river sand excavation- these are all related to natural phenomena and human intervention is at the stage of harvest. In other words, all this production takes place naturally because of the typical ecological phenomenon that create their habitats and environment for growth. Destroying the environment means destroying these forces of life too (Nayak 1993).

The worst suffered are the community institution evolved through biomass dependent practices, physical labour and also that of historically shared knowledge. The fine fabric of community-hood is broken and the society disintegrates to individuals making them vulnerable for further exploitation. This entire process of alienation and marginalisation manifests and perpetuates itself in many forms, from issues of livelihood, to that of cultural integrity and identity. Along with their means and ways of life, the community finds that their habitats, and support space for fishing and other non-occupational activities are lost, together with their cultural and social practices. The double jeopardy of alienation and exclusion brings about a vitiated consent to the process of industrialisation, on which the communities become dependent to maintain a way of life, much below their erstwhile traditional situation. This dependence forces many communities to compromise on the integrity of their life and lifestyles. There is necessarily a change in their resource use patterns occupational and otherwise which weakens their economic, social and political standing. This also means that the utilisation patterns prevalent on the coast, are no longer the sustainable methods born of tradition and dependence, but exploitative profit-oriented processes that affect the environment and in turn the community again. This leads to an increased vulnerability of these peoples and their further maginalisation. The new priorities of profit also do not recognise the historically enjoyed rights of the community that were beneficial to their living and occupation. Though many such rights were customary in nature, they were accepted and acknowledged, as having the sanctity of law by the Constitution of India itself, and subsequently by other legislations. This sanctity is paid no heed with the nature of the polity itself having changed. (Haribabu 2001)

#### *4.2.4.1.1.14 Access to Marine Resource*

Depletion of fishery resource through over exploitation challenges the life and livelihood of fishing community. As the resources get more and more concentrated in the hands of large private players, the challenge of access and right over resources would become crucial. 'Article 7 of UN on fisheries management states: "Within areas under national jurisdiction states should seek relevant domestic parties having a legitimate interest in the use and management of fisheries resources and establish arrangements for consulting them to gain their collaboration in achieving responsible fisheries." This has not been attempted in the country.

Exclusive Economic Zone (EEZ) demarcates national rights; however, this is yet to be translated at regional level and community rights to be included.

#### *4.2.4.1.1.15 Access to Technology and Fishery Resources*

Natural resources, like the sea and, forests, enjoy an unbounded relationship with indigent populations over the centuries. The enormous productive capacity of these natural resources made it possible for the small dependent populations, of tribals and fisherfolk, to co-exist without individual or collective property rights over these resources. In the case of fisheries, new harvesting technologies promoted in a big way by the government turned the coastal waters- once the exclusive preserve of traditional fishing communities who viewed the sea as their community asset –into a virtual open access resource. During the seventies artisanal fishermen, whose survival depended on marine resources, observed erosion in production. This decrease was perceived to be the result of large scale trawling in their normal fishing areas. The shift in perspective on property rights over marine resource, which took place in the seventies, can be attributed to the changing nature of resource utilisation. Historically, the utilisation of marine resources was within the limits of a regenerating equilibrium. Unlike many other common pool issues, which came up due to population pressure or large scale migration, this perceived over exploitation of marine resources can be traced directly to changes in technology. Hence property use restrictions in this sector are, by and large, sought to be made with regard to use of particular types of technology rather than restriction on access to individuals. (Balakrishnan & Das 1991)

#### *4.2.4.1.1.16*

#### *4.2.4.1.1.17 Ill Defined Property Rights and Lack of State Regulation*

With the advent of the nation state and the development of new technologies for fishing, such traditional cultural rights were hardly recognized. The sea became an open access terrain. No property rights. Only possession rights.

Having converted a community property right into an open access realm, the state made little attempt to play the role of regulator of the activity therein. It was a "free – for-all" situation. The "first-come-best-served" logic operated to create a "race for the fish". There are only participants with no referees. The state also rarely intervenes when the coastal ecosystem is despoiled by the actions of shortsighted investors who spew out their pollution into the sea.

#### *4.2.4.1.1.18 The Lure of Export Market*

This sustainability of the marine biomass community will depend not only on the social and economic institutions created with in the community and the nature of the technology of harvesting. It is importantly linked to the nature of the market which the fisheries sector will serve. Past experience clearly indicate that undue emphasis on the seemingly lucrative export trade in a volatile international market produces quick short-term gains. But in the long term primarily because it leads to adoption of throughput-efficient' but 'ecologically destructive' harvesting technologies, results in jeopardizing the livelihood and welfare of the community and the integrity of the marine biomass. However, the home-spun needs of the domestic market offer a far greater scope for gradual expansion of a more stable demand. The shorter trade linkages, and the need to keep prices within reach of the vast mass of local consumers, creates an inbuilt bias to ensure that harvesting technology and the forward linkages in processing and marketing are largely kept employment – intensive and cost effective. (Kurien 1996)

#### *4.2.4.1.1.19 Access and Right over Coast*

Similar is the issue of the community living space on the coast. The land-based developments are privatising coastal stretches, which has by and large remained as common property. The only state recognition the community attained was with the introduction of the CRZ notification for housing rights along the coast. But even this has been diluted later by reinterpreting "traditional rights and customary uses" to "local inhabitants". This would even have an impact in the new management systems like Integrated Coastal Management, where coast, marine and community are integral part.

#### *4.2.4.1.1.20 Community Institutions*

Lack of democratic and secular institutions, which would unite the community to meet the challenges as well as for progressive evolution within. Competition for resource and space is disturbingly turning violent in states like Kerala. Secular spaces are also loosing out to religious/communal organisations preaching hatred. (Haribabu 2001) On the economic front the new institutions that the state has initiated like the co-operatives has killed the traditional dynamic with its sophistication and bureaucratic systems. Fish traders and merchants who speak on behalf of the fishing communities but were normally from outside their social and cultural milieu usurped these modern institutions. (Kurien 1996)

4.3.4 Impact on Women

The impacts of changes in the fishery sector had affected women individually and differentially. Any crunch in resources affect the women more than their male counterparts since the burden of 'maintaining the family' is usually on their shoulders.

The mechanization process had virtually taken away women from production process like net weaving and thereby limited her access to post harvest activities only. The modern fishery value addition process like the prawn and shrimp processing units has further degraded women to wage laborers and in some cases bonded labourers, and object of sexual abuse.

The patriarchal nature of family in fishing communities still continues. Education in general and particular to girl child is neglected. While upholding the 'traditions' of the community these aspects need to be seriously considered. A women's' perspective to fishing is completely missing in all our debate. Instead it is always limited to her job availability and economic loss.

In the words of a fisher woman, both women and men have been losers: "My man goes to sea, catches fish, and sells them to the wholesaler. I cannot sell his fish, because it will not sell in our market. I buy my fish from the market and sell in surrounding villages. Both of us are losers, as such…" (Shramshakti 1988)

#### *4.2.4.1.1.21*

#### *4.2.4.1.1.22 Affected by Mechaniastion*

Shramshakti reported that women who were involved in traditional fishing practices were steadily losing ground against the mechanised fishing sector. Mechanised production techniques have many ramifications on traditional fisher peoples' lives. Because they trawl in deep water, netting larger catches, and have fishing facilities, transportation networks, and a greater range of markets, they are capturing the lion's share of the market.

Women engaged in net making, especially in the coastal regions of Kerala and Tamil Nadu generally buy the twine themselves, maintaining control over the entire production and marketing process. They mostly work on a putting-out system, and are paid by the kilo, earning Rs. 3-4 per eight hours of work. The major problems faced by them are low rates for piece-rate work.

#### *4.2.4.1.1.23 Exploited in Processing Units*

The helpless captive women migrant labourers in fish processing units along the coast of Gujarat were found to be an exploited lot with low wages, harsh living and working conditions.

#### *4.2.4.1.1.24 Lack of Access to Support Facilities*

One major factor in women fish vendor's difficulties is their exclusion from the fishing cooperatives to which the men of the village belong. Because they are not members, they cannot get credit to help expand their vending operations, or organize the hire of reliable transport, or learn sound business practices, or become informed about issues affecting them. Another complaint they lodged was about the government scheme to compensate men's fishing accidents with Rs.50,000 while women are not covered by the scheme.

#### *4.2.4.1.1.25 Competition from Male – Wholesale Merchants*

All through the 70s and 80s, the impact on women was also felt. Women vendors were already hit by the competition for the fish by male whole sale merchants who bought in bulk using vehicles for transport. Many women complained about losing their space in the markets to these larger vendors, and how much more vulnerable their produce is to spoilage, because they lack chilling and transportation facilities. Women, who for years had dried fish or made fish oil, no longer had supplies of fish as such surpluses fell considerably or fish meal plants were bidding higher.

#### *4.2.4.1.1.26 Losing Traditional Rights to Men*

In some Arayar Hindu communities, where women had inherited the fishing equipment and had a right to its catch share, the scenario was also changing. The Government subsidies for new fishing equipment was given in the name of the man and this radically changed the place of the woman in the family. Men suddenly became the owners of the equipment, hitherto the woman's right. This was subsequently followed by the introduction of dowry at marriage where it did not exist earlier.

#### *4.2.4.1.1.27 Erosion in Status*

Largely, women have been forced to work harder to keep the home fires burning be it to collect water, firewood, nurturing the children etc. Over the last decade violence in the community has also been on the increase. With the increase in dowries for marriage, girl children are increasingly treated as an unwanted "commodity" leading to frustration despair among young women. If, lucky enough to be married, post marriage dowry squabbles are on the increase and an increasing number of so called "suicides" are reported. Wife beating by frustrated men who take recourse in alcohol is also rampant.
(Nayak 1993; Shramshakti 1988)

### 4.4 Changing Consumption Patterns and Lifestyles

4.2.4.1.1.28 There have been far reaching changes in the fishing sector with the advent of mechanisation. While discussing the overall impact of this development at also need to be recognised that this process has brought technology in the lives of fishing communities, a booming market and increased price and cash flow in the fisheries sector. This exposure to the modern means is unparalleled when compared to the forest communities. Therefore it need to be accepted that the life and lifestyles of fishing communities have undergone changes that is unavoidable. However, the influence of these exposures had not been through a process by which the community could assimilate the changes. Modernity, which ought to have ushered in radical social and economic changes, has not been successful in eradicating economic backwardness and also social inequalities. The educational status of the community still remain one of the poorest with high dropouts and even lesser representation of from girl child. Therefore in contrast to the general notion of modernity, which ought to have provided better educational facilities, better status for women in the society and also within the household, overall democratisation of the society etc still continues to remain a distant dream.

4.2.4.1.1.29 A case to make in this respect would be to consider revamping the educational system and the curriculum in schools (usually termed as the

fisheries schools) which are in proximity to the community living locations. No efforts so far had been attempted to update/modernise the educational system to the changes that has taken place in fishery sector keeping view of the community children in the focus. More technical schools to interface the students with technology, modern fisheries management, marketing and value addition need to be introduced. This would equip the new generation for continued occupation in the fishery sector (rather than joining to the already over saturated unemployment in the country) They would be the managers and planers of the fishery resources. This and similar attempts would to a great extent, equip them to radically change the outlook and equip them with better prospects for competition, better democratic and social systems.

#### *4.2.4.1.1.30 Inequity and Marginalisation*

Development in the fishery sector had been uneven where the traditional and poor fisher community lost to capital intensive, technological and export market oriented growth. The government, which should have brought in measures for a balanced growth by equitable opportunities failed to check the one sided growth. Kerala provides the most striking example for it has the twin distinction of having an advanced fishery industry and also the highest quality of life measured by the human development indicators.

- Yet we are confronted with the paradox that the human development indicators of the fishing communities in Kerala look more like those of the BIMARU states! And interestingly, it is in Kerala's fishery sector that the triumvirate of free market, modern technology and export orientation has most visibly been in the operation. There is no doubt that this approach has created phenomenal wealth and well being for a few.
- But it has been a development process which ruined the ecological integrity of the biomass of the sea: resulted in the marginalisation of the fish workers- men, women and children who earn a livelihood by harvesting, processing and marketing fish and deprived the avid Kerala fish consumers of it.

#### *4.2.4.1.1.31 Changes in Occupation and Cultural Wealth*

Firstly, at the macro level, the government must pay heed to the socio-economic transitions that these coastal communities are facing. The communities are caught in a vicious cycle, as on the one hand, external forces, and 'developments', which compete for utilisation of the same natural resources, force them to abandon their traditional means of livelihood based on these resources. On the other hand, economic pressure are placed on the community, by both the changing economic situation ushered in by the 'developments', and also the reduced earning from traditional occupation. This is coupled with the push factors of development and industrialisation, in the context of the economic vulnerability of the communities.

- This results in a shift in occupation of the community, from a traditional resource based one, to a non-resource based occupation as wage labourers
- Alienation from natural resources has brought about a loss of bond with the environment, and consequently, the traditional patterns and knowledge systems of responsible use of these resources are lost. (It is the combined influence of all this factors, which has led to a strange vicious cycle, in which mangroves get destroyed further, and the community is increasingly marginalised from these resources, increasing their dependence on the same. This is of extreme relevance in a place like Pitchavaram, where 84.6% of the population are dependent on traditional skills for their income. In the long run, this also depletes the cultural wealth of the community and brings about discontentment and a complete imbalance in their social context).

#### *4.2.4.1.1.32 Cultural Impact of Tourism*

Often promoted as an option for coastal development is beach tourism, considering its conservation and labour intensive claims, which of course is debatable. But it is a fact that illiterate and marginal fishing community often becomes a victim of tourism development, affecting their life styles and traditional culture. This has happened in all beach tourism destinations like, Goa, Kovalam in Keralam, Mahabalipuram in Tamil Nadu etc.

- The use of drugs, male and female prostitution in tourist destinations affect the local community and their lifestyle
- Incidents of foreigners marrying local people (both male and female) for economic, property rights and access to beach properties are common

- foreigners taking young children from the local communities with them on their tours
- The stigma of living in a tourist area notorious for prostitution as in the case of Kovalam
- Attitudinal shift of members of the community engaged in tourist activities, towards their own community members
- Lack of interest of children for education and physical labour

### 4.5 Conservation Initiatives and Programmes

While considering initiatives to overcome the current impasse in the fishery sector, the traditional fishing practices, perceived and practiced, access and rights and also institutions on which they were founded need to be considered.

#### 4.5.1 Traditional Fisheries and Conservation Values

The ecological diversity of the marine biomass in the form of thousands of species of fish, each available during a specific season along a particular coastal tract, had in turn shaped diverse technological, demographic and social conditions of the fishing communities. It was this material basis which prevented the formation of a single maritime fishing tradition in the country despite centuries of existence of vibrant fishing communities. Consequently, detailed location specific knowledge of both the nuances of the marine eco-system and the living resources within it evolved as a consequence of their process of interaction of labouring with nature. Their tools of production perfected over time in the course of this process of labour was suited for a specific use. They were small in size delicate in use and designed to be operated during specific seasons resulting in small harvests of fish. What these tools lacked in output efficiency was compensated for by their ecological sophistication. (Kurien 1996)

Fishing communities see themselves as children of sea. They have a keen awareness and knowledge of the totality of the aquatic ecosystem and viewed Kadalamma (Mother Ocean) as their community asset and a life-giving system rather than a hunting ground. Artisan fishermen have a conservational ethic towards fishery resource. Human communities with a historical continuity of resource use practices come to acquire a deep knowledge base about the complex ecological systems with which they interact. This encyclopedic knowledge is largely qualitative. This traditional ecological knowledge, while being an integral part of a cultural continuum of understanding of these communities, also represents a "world view" of their resource system and its functioning. They can be considered as "practice-knowledge-belief" expressions. (Kurien 1998)

*Box:5*

***Coastal Proverbs***

- *There is rice in the field and fish in the waters.*
- *Where there is water there are fish. If we care for the water the fish will take care of us.*
- *The sea begins in the mountains*
- *The wealth of the sea belongs to the dead, the living, and those yet to be born.*
- *Our struggle is for the future: ours and that of the fish.*

Source: *Kurien 1998*

#### 4.5.2 Participation and Equity

Fishing communities are well known for their traditional systems of income sharing and collective social security. The aged the maimed, the mentally and physically handicapped, widows and orphans are assured 'first charge' claims to the bounty of the sea which is brought in by those healthy and active in the community. The disadvantaged in the community are integrated into its social fabric by these collective mechanisms of caring and sharing.

The overwhelming changes in the fisheries sector have broken down community institutions that existed. Even new institutions that have emerged are unable to cope with fast pace of developments.

Creating a new marine biomass community therefore calls for a change in the social structure, the technology, the institutions and the participatory regime within the community. In India today we see that the social movements among fishing communities are on the rise. Sometimes these movements are interpreted to be mere protests. However, on closer scrutiny, they reveal themselves as incorporating the quest for a symbiosis between people and environment having a thrust on maintaining biological, economical and socio-cultural diversity: and a focus on ensuring that the fruits of labour are primarily directed to meeting the basic needs of the people. Sustaining such a community requires that we go beyond

the narrow ideological prescriptions of a representative democracy to the broader canvass of consensus of a participatory democracy where people's resources, knowledge, concerns, ethics and spirituality have a place. (Kurien 1996)

4.5.3 Fish Workers Movement

History and struggles: The year 1979 witnessed the beginning of a socio-ecological movement spearheaded by the artisanal fishermen of the region, with the assistance of several social activists, formed a trade union. The union presented three major demands to the state authorities: (a) a total ban of trawl fishing during the monsoon period of June, July and August which was the breeding season for many species of fish, (b) reinstating the in –shore coastal commons to the artisanal fishermen in which trawlers would be totally prohibited; and (c) a greater share of assistance to the artisanal fishermen in the fishery development budget of the state. By 1983, this movement had attained the dimensions of a major political force in the region. In 1984, the second and third demands of the fishermen were conceded by the government. Legislation to demarcate and regulate the coastal waters was enacted and a police force to enforce these measures was set up. A big push was given to upgrading their harvesting technology through the supply of outboard engines, beach landing crafts and new fishing gear. Welfare measures for artisanal fishermen and their families were also increased significantly. Protect Water, Protect Life, in 1989 was a slogan of a large coastal march not led by "environmentalists" but led by trade union, the National Fishworkers' Forum of India (Nayak 1993). The demand for a total monsoon trawl ban was conceded only in 1989 after three scientific commissions had studied the matter following the fishermen's refusal to compromise on this issue. In the words of an artisanal fishermen's union leader, on his sixth day of an indefinite fast before the government secretariat demanding greater regulation of the coastal water, "Our struggle is to ensure a future – for us and the fish." The collective action of the National Fishworkers' Forum, a confederation of unions of small-scale fishermen, has forced the government to cancel the licenses issued to joint ventures that were fishing indiscriminately in the Indian Exclusive Economic Zone (EEZ).

Empowerment: Acceptance by the larger society as working class, getting rid of the inferiority complex, gaining of social status, dignity and self respect could be the sum total of this movement. Women had their organisation and agitation to deal with problems peculiar to them while they were active participants in the fishworkers' agitation. Even the orthodox Muslim women, who normally did not participate in any public functions, took part in large numbers in the agitational tactics like blocking of trains and roads.

Rights and Privileges: The laws on monsoon trawling and purse-seining curbed the unrestricted privileges enjoyed by mechanized vessels and restored traditional fishworkers right over inshore waters. Thus the rights over the coastal waters and its resources got distributed among fishworkers and boat owners. Through the fishermen co-operatives established by the voluntary organisations, the fishworkers were able to control the marketing of fish and their prices. This was a change from olden times when they had no control over marketing of their own products. Welfare measures like lump sum grant and old age pension were material benefits which fishworkers received as a result of their constant struggle. So they were social changes manifested in the distribution of rights and economic privileges in the fishing community. (Aerthayil 2000)

4.5.4 Community Initiatives in Rejuvenation

Fishermen consider reefs as an important basis for ecosystem rejuvenation. This association is premised on their understanding that underwater structures in the sea cater to the *adisthana avasyangal* (basic needs) of fish: their need to feed; their strong desire for protection, rest and shade; and their urge of breed.

Consequently, for an artificial reef to be a source of food to fish, the kind of materials used to build it gained importance. The materials used should be those on which benthic vegetation would aggregate quickly thereby ensuring adequate food supplies. The artificial reef needs to be erected in areas where the sea bottom is naturally productive.

The fishermen from the southern villages (Zone I) suggested that while access to the PARs should be open to all, certain community agreements need to be evolved to restrict fishing effort by individuals. For example, a limit should be placed on the number and size of hooks. The use of lights to fish over the reef at night should be prohibited. Only one member of a household should fish at the PAR. These would ensure a more equitable distribution of the catch. Community sanctions for those who violated these norms were appropriate.

From the above description of the changing institutional forms we can discern a concerted movement towards greater community involvement in the erection of and access of PARs. Sharing of experiences through a committed exchange of information facilitated largely by an NGO led to a steady process of accretion of institutional social capital. Implicit in this has been both a collective learning and self-

transformation process for large sections of the community of fishermen. The result has been the growing support for an institutional –choice which spreads both the costs and the benefits more evenly within the community.

These changing institutional forms challenge the influential predictions that only state or market solutions can allocate and protect common resources. They also call to question the assumption that those who are caught in a "common dilemma" would rarely invest time and money in the design and supply of institutions to conserve it.

The initiatives of the fishermen of the region also illustrate that people who have a very intimate association with natural resources as a source of livelihood, given the appropriate circumstances, can empower themselves to go beyond macro-level collective action aimed at conserving resources to micro-level initiatives for improving and rejuvenating them.

We have observed how the resurgence of reef building in the wake of the marine resource crisis, has also brought with it the reaffirmation of the community's responsibility to nurture the resource-system which is the basis of their survival. It has also provided a new, collective motivation for them to articulate, sharpen and expand their knowledge base by greater interaction between themselves and with scientists and social activists. The resolve to build PARs has also provided fresh foundations for the spontaneous growth of new village leadership and widespread community participation. All of these are essential ingredients for sustainable collective action.

SIFFS and the local leadership had till then seen the restricted access to reef fishing in Valiathura in a positive right. It was felt that it is this restriction of access that gives the incentive for reef construction and renewal. But the tensions brought about by the increased productivity of the reefs in 1990 changed our perceptions. The proliferation of small reefs could create a great deal of problems. Small groups could block large portions of the sea close to Valiathura and make free use of fishing equipment a big problem. If an individual fisherman puts his hook in a particular location it could lead to a dispute over whether it was a reef area or not! How far from a reef is a reef area? Where the boundaries out to be drawn between pairs of reefs that are close to each other? If a bigger reef is constructed closer to a small reef, will it not attract fish away from the smaller reef? These and many more questions were debated locally. If the situation were allowed to drift in this manner there would have been total chaos in the village. SIFFS and the 'brotherhood' came together and organised a meeting of representatives from all reef groups in the village. After a detailed discussion it was decided that the concept of restricted access to reefs has become counter-productive and therefore, needs to be jettisoned. The leaders agreed that the village would be divided in to four regions, each region would have its own reef committee and there would be a coordinating committee on top. Each region would mobilize its own funds and put up reefs at locations of their choice. But all reefs would be accessible to all fishermen of Valiathura. The reef committees would take up the responsibilities of raising resources each year for reef renewal. They would also be regulating the reef fishing. It was decided by consensus to avoid certain types of baits as well as to ban fishing during night to avoid overfishing in the reefs.

This new approach in Valiathura is thus intended to replace the old regime based on group ownership of reefs by village level ownership. If the renewal of reefs depended earlier on the returns to the group, now it depends on the ability of the whole village to periodically reinvest. (Kurien 1995; Vivekanandan 1991)

4.5.5 Protection of Coastal Forest at Majali

Karnataka industrial development board together with Taj Group of hotels, planned to set up a Mega tourism project, spread across 218 acres of coastal land at Majali revenue village, Karwar, Karnataka. This project site also included a diverse coastal forest in a tiny uninhabited village, Tilmati. There are around 2000 fishermen in the panchayat. Fishermen from Uttar Kannada also come to Majali for fishing during monsoon since the sea is calm in this area. Being an active fishing area the people had demanded for a modern fish landing centre here, instead the authorities decided in favour of tourism.

The local people depend on the uninhabited Tilmati for fishing, fuel wood and medicinal plant collection and occasionally for recreational purposes like spending evenings with their family and children. There are around 56 species of medicinal plants of high value, around 40 per cent of trees are fruit bearing and there are also plants that are of ritualistic value used by the community.

The people of Majali panchayat, realizing the impact of tourism on their livelihood and on the biodiversity, appealed to concerned authorities to drop the project. However this fell on deaf ears. Later, as the land acquisition began and notices were served for eviction they decided to oppose the project. Open demonstrations were held and the Majali Revenue Panchayat passed a resolution against the tourism project. The project has been stalled ever since. The community today keeps strict vigilance of the area and all outsiders are prohibited entry to Tilmati unless accompanied by a villager.

### 4.5.6 Community Conservation of Turtles at Kolavippalam

In Payyoli, a coastal village around 30 kms from Kozhikode, Kerala, a small coastal stretch named Kolavippalam is now noted for its community initiated and managed turtle hatchery. Youth of the area grew curious about turtles, which come to nest in the beach, and developed a passion for observing and conserving them. Earlier it was a common practice in these areas to dig out and consume turtle eggs. Other predators like, fox, mongoose and dogs consumed whatever escaped human eyes. The youth began to keep vigil against the predators, took turns for night patrol in the area and also began to propagate the importance of conserving these endangered species. They later formed a collective – Theeram Prakriti Samrakshana Samiti.

Turtles nest in the beach during October to January and the following two months the youth are busy protecting the eggs till they are hatched. The eggs are transferred to a more protected enclosed hatchery near the beach itself where they are kept under the strict watchful eyes of the Samiti members. Records are maintained about all particulars like the number, color, size of eggs, the number of successful hatches, mortality and so on. There is a festive atmosphere when the young turtles hatch. School children and wildlife enthusiasts are taken to the hatchery to watch the newly hatched turtles emerge from the sand and finally swim into the sea. The Samiti records show a steady increase in the number of turtles that come each year; 37 during 1997-98, 52 during 98-99 and 72 in 99-2000.

An activity that is recognised even internationally is under threat from vested interests and the Samiti members even face physical assault. An estuary adjacent to the nestling ground and hatchery is extensively mined for sand, which in turn had resulted in severe coastal erosion, badly affecting the hatchery. The beach in the area is generally prone to coastal erosion. Kolavippalam incidentally is the only refuge for the turtles along this coastal stretch since all other adjacent beaches are covered by sea wall. (MCITRA 2002)

### 4.5.7 Marine Protected Areas

There is an ongoing debate regarding the need for marine PAs under the wild life protection act.

While there is a need for protecting marine and coastal ecosystems, there is a concern regarding the existing legal framework (WLPA), which is not pro-people. National Fishworkers Forum (NFF) in their Charter of Demands (No.32), has opposed the sanctuary at Malwan, Maharashtra. The Malwan Taluka Sharamik Machimar Sangh has been opposing the sanctuary since 1985. The project if implemented, would cover 29 square kms. By enforcing the WLPA in the area, the fishing activity will come to a halt and nearly 12000 active fishermen would be thrown out of their means of livelihood. (NFF 2001)

However, it is justified that, Protected Areas and National Parks are mainly for the maintenance of essential ecological processes and life support systems, conservation of biological diversity and sustainable utilisation of species with support of the local people. In the marine front government through a national committee had identified critical habitats like mangroves and coral reefs.

It is estimated that the biodiversity in oceans are much greater than on the land. In fact seas around the world harbour 90 per cent of the biodiversity of the planet. The oceans still remain unexplored to a large extent. Oceans hosts 31 of the world's 32 *(still existing)* animal phyla, 14 of them exclusively marine. As the technology is progressing there is increased knowledge about the biodiversity and marine animals. Between 1970 and 1990, the number of species discovered from the oceans has increased sixty fold with thousands of species still to be discovered. But conservation efforts in oceans lag far behind when compared to its counter part land. The need to protect marine and coastal biodiversity emerges in this context. It is for protection as well as for future generation use. Biodiversity in the oceans have the potential to be used in the drug industry in a major way according to the ongoing marine researches. It is also important from the angle of species extinction that we create more conservation/protected areas. Our marine waters preserve the whale sharks, the largest living fish. India also has one of the largest turtle nesting ground in the world.

From a livelihood angle marine protected areas could be contributive to the fishing community, provided management systems are worked out in advance for their participation. Eco-tourism with proper management and protection could support the community whose traditional knowledge in turn, could be a great asset for tourism.

It needs to be stated that we need much more information regarding the impact of existing marine PAs on livelihoods. This would enable creating provisions for addressing livelihood security along with conservation of resources.

### 4.5.8 Rejuvenate Coastal Biodiversity

The discussions on coastal biodiversity had to be placed in the overall biodiversity depletion and conservation debates taking place globally. International conventions like the Convention on Biological

Diversity (CBD) and the UN initiated Commission for sustainable Development (CBD) etc are pointers towards the need for conservation, development and also that of communities depended.

- The emphasis should be to compel India to honour the CBD and implement the same on the ground with corresponding national laws. The national political leadership needs to be appraised of this.
- At the local level the rights over resources would require a concerted effort from all concerned. This would be a greater challenge since the opposition to any rights debate would be immense, especially in the context of globalization and international trade commitments. While concentrating on regional and local level issues, the macro aspect of rights to the community over resources would require national perspective and interventions.
- The immediate priority area is the rejuvenation of the biodiversity especially in terms of regeneration of mangroves and shelter-belts through community involvement. Community participation ensures that the community needs and priorities are addressed. A joint participation at all levels, viz. District administration, forest department, local groups and individuals, is a must for making the challenge of rejuvenation of coastal biodiversity a success.

- A two to three kilometre wide shelter belt with the community involvement needs to be created all along the coast without any interference from other human developmental activities. In all the coastal hinterland, a three to four strata of tree cover needs to be regenerated with specific species which reduce the velocity of cyclones and protect the villages. For this purpose village common lands need to be utilised.
- In addition to massive afforestation, all the revenue and common land within three to four kilometres of the coast should be protected from any leasing out by the government.

**4.6 Policy and Legal Issues**

4.6.1 Need for Community Property Rights

Community property rights for conservation of resources and depended communities has varied aspects to take into consideration such as the technology, capital and the role of collective as well as that of individual in a society. It would take into account the human skills and check excessive private accumulation possibilities. These would include, among other things, decisions on the nature and the quantum of capital to be invested in the harvesting activity; the norms regarding the extent of effort to be expended in this activity; and the manner in which the produce of one's labour will disposed. Consequently, this community property rights regime does not usurp the crucial role played by individuals. Explicit property rights must be accompanied by an agenda of other enabling measures, which will enhance the capability of the individuals who will be given the rights of access to the resource.

The most important of these is an Aquarian reform package. A primary measure of this must be that those who own fishing crafts should necessarily be at sea on them.

A second enabling measure must be that the legal right to make the decisions regarding the first sale transaction of the fish they harvest be vested with the community of co-owners and workers.

A third measure is the desirability of greater social control over the export of fish and fishery products. This will be an important step to ensure that excessive commercialisation, prompted by international market forces, do not place undue external pressure on the community property rights regime of the micro-level.

In this regime the resources are collectively owned and the management is by the community as a whole. As the community depends on the resource for their livelihood, they will be able to manage and conserve the resources and also can decide upon its rational utilisation. (Kurien 1996)

*(Refer Annexure III for details)*

4.6.2 Towards Resource Based Governance

This is a macro approach to address the governance systems along the coastal regions, which would encompass the biodiversity, resources and resource dependant communities. The premise of the argument is that:

- The voice of the community is not heard, or rather the community is not represented adequately in the current governance systems, like the Panchayat, state assembly and parliament.
- This is since the structure and area of coastal constituencies currently encompass more of non-coastal regions and thereby non-coastal communities,
- To determine the coastal area to mitigate these lacunae, primary and secondary users of the coastal resources could be drawn as well as the area of land in which such users are present.
- A regimen of rights and responsibilities could be worked out considering the resource dependency of different constituents on the coast. This is because there are coastal areas without fishing community, that have migratory settlements, developed urban centres etc

The ultimate plea is to the Government of India for re-demarcating the coastal electoral constituencies horizontally along the coast (so that majority coastal areas and communities are represented) in place of the present vertical formation (representing more of non-coastal land and communities) (Haribabu 2001)

*Refer Annexure IV - Towards Resource Based Governance for more details*

4.6.3 Striking a Balance between Global and Local

There is a strong apprehension that localised community efforts for a sustainable coastal fishery will succumb to the insatiable demand for exotic tropical coastal seafood in the developed world. The solution to this dilemma is not to give up the efforts for localised community management but rather to integrate this with global initiatives to reduce the degree of discord in the nexus between transnational trade and consumption patterns on the one hand and sustainable local community management of coastal waters on the other. To achieve this we need NOT ban all fish exports from developing Asian countries or stop the imports of fishery technology from the developed world. The need of the hour is to arrive as a proper balance – be it in harvesting of the resource or the use of technology for fishing and related activities.

This can be achieved only in the process of the struggle to rebuild community in the coastal villages. The community focus and the multi-sectoral and transnational action are not necessarily in conflict. In fact we should strive towards the ability to blend the two without losing the cutting-edge of any of their respective concerns. Let this not be mistaken as a search for harmony and co-existence. Far from it, it is only a creative effort to balance countervailing forces. In that sense, we may never reach an integrated community management of coastal fisheries- we will always be moving towards it. But first we need to make a firm commitment in that direction. (Kurien Undated)

4.6.4 Coastal Regulation Zone Notification: Lack of Commitment

Though MoEF issued the CRZ Notification in the year 1991, coastal states did not take up the implementation seriously. Pressure was built up on the state Governments only when a public interest litigation was filed before the Supreme Court of India (Indian Council of Enviro-Legal Action Vs.Union of India1996). Later under direction from the Supreme Court, the State Governments hurriedly prepared Coastal Zone Management Plans and got conditional approval from the MoEF in September 1996. In the process adequate consultations with other development departments, industries, general public, NGOs was not held.

**The CRZ Notification was considered a boon for protection of coastal ecosystems and communities living in the area. Because of the lack of commitment of State Governments to enforce it there have been continuous violations. Public Interest Litigations mostly by NGOs and conservationist groups have played a major role in enforcing it. Pressures from vested interests have forced many amendments, which have diluted the original Notification.**

The recent amendment of January 2002 has taken away the traditional community settlement rights provided in the original notification. 'Traditional rights and customary uses' recognized in the original notification 1991, for settlement rights of the community, have been diluted and substituted by 'local inhabitants'. This amendment also opens up the coastal stretches for Special Economic Zones (SEZ) for setting up of industries, infrastructure and tourism including golf courses.

4.6.5 Aquaculture: The Judgement and the Proposed Bill

The controversy over Aquaculture was based on its devastating impact on nature, destruction of mangroves, polluting the ground water table, over consumption of ground water and thus affecting the lives and livelihood of coastal communities. It was a concerted effort from, local people, NGOs and environmental groups that ultimately led the Supreme Court to give a favourable judgment (December 11, 1996) that was both environment and people friendly.

Ignoring both the Supreme Court order and the CRZ 1991 Notification, the Aquaculture Authority Bill 1997 attempts to permit aquaculture industry to establish farms. This bill enables the constitution of a centralised, single authority made up like any other bureaucratic arm of the government. There is no space for representation of independent experts, social activists and representatives of communities and NGOs, who have been challenging the damage caused. It is an Act by the parliament and Union Cabinet to circumvent and subvert the historical Supreme Court judgement. This is an action that is biased in favour of the needs and demands of the Aquafarm owners.

The process of centralised licensing designed by the Authority in order to guarantee protection of coastal environment naturally lends itself to the elimination of all small farms or individual persons attempting to do smaller farms, and hence is supportive of only large business and Transnational corporations.

Since it is a proven fact that aquaculture has devastating impacts on both the coastal ecology and livelihoods, the aquaculture authority bill introduced by the Ministry of Agriculture, should be withdrawn.

4.6.6 Deep sea fishing policy

In 1986 Government of India revised its Deep-Sea Fishing Policy giving more stress to joint ventures in deep sea fishing. In 1991 Government of India further modified the deep fishing policy encouraging long lease of fishing vessels and permitting test fishing as prelude to joint venture. Subsequent to the recent economic liberalisation conditions for foreign equity premitted in the case of a deep sea fishing policy are as**:**

- New or second hand vessels can be acquired on lease.
- The vessels should be for non-shrimp resource.
- Deep sea fishing project can be registered under 100% EOU scheme.
- Test fishing may be done to establish techno-economic viability.
- Foreign collaboration involving foreign equity upto 51% is generally permitted.
- Foreign equity once invested is considered on par with Indian share holding.
- Foreign equity can be by way of fishing vessels also.
- Services of foreign crew can be availed.
- Mid sea bunkering is permitted

In the absence of national regulatory mechanism, the Deep Sea Fishing policy is arbitrary and gives no rooms for corrective intervention. NFF has demanded that "In order to conserve fishery resources in our waters, to protect fishermen and to reduce conflicts in the sea, deep sea fishing regulations should be enacted by the parliament after consulting the fishing community". (NFF 2001)

4.6.7 Exim Policy - Liberalisation on Imports

The Exim Policy 1997 – 2002 allows 21 items without any license, which include salmons, sharks, eels, crabs, mussels, cuttle fish, clams and produces of it. Another 62 items are against Special Import License (SIL).

Many of the imported fish are already available in our waters. Unregulated import would result in flooding of local markets with cheap fish, forcing local community to sell their produce at lower prices. Such imports actually benefits seafood exporters who purchase imported fish in large quantities and proper by repackaging/reprocessing it.

In order to protect the national fishery sector and the livelihoods of the fishing community these imports needs to be curbed and a national law needs to be drafted to regulate this. In view of the WTO negotiations, this regulation needs to be in place, emphasizing livelihood security of coastal communities.

***Other Related Laws and Legilsations***

For the benefit and protection of the coastal ecology and resources, the following rules could be employed.

1. The Hazardous Wastes (Management and Handling) Rules, 1989
2. Bio-medical Waste (Management and Handling) Rules, 1998
3. Sumping and Disposal of Flyash Notification, 1999
4. Re-cycled plastics Manufacture and Usage Rules, 1999
5. Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000
6. Hazarous Waste (Management and Handling) Amendment Rules, 2000
7. Muncipal Solid Wastes (Management and Handling) Rules, 2000
8. Batteries (Management and Handling) Rules, 2001

## Annexure I

*Issues and Major Threat Regions of Indian Coast*

| | ***State*** | ***Issues*** | ***Sites*** |
|---|---|---|---|
| ***1*** | ***Gujarat*** | ***industrialisation, port development, ship breaking, denotification, pollution, threat to coral reefs, marine wild life sanctuaries*** | ***Gulf of Kutch, Porbander Port, Veraval Port, Okha (Mitapur), Tapi Estuary, Hazira, Nagothane, Jamnagar, Bharuch (Narmada Estuary, Gulf of Khambat*** |
| ***2*** | ***Maharashtra*** | ***Pollution, harbour development, industrialization, urbanaisation and related land reclamation, tourism, fragile eco systems*** | ***Manduva, Alibagh, Murad, Janjira, Trompay, Bassain, Versova, Mahim creek, Thane creek, Ulhas, Chembur, Sindhudurg*** |
| ***3*** | ***Goa*** | ***Tourism, mining, port, sensitive ecosystems, degradation, mangrove destruction*** | ***Whole Area*** |
| ***4*** | ***Karnataka*** | Industrialisation, power projects, tourism, fragile ecosystems, ports, naval base, erosion | ***Mangalore, Karwar*** |
| ***5*** | ***Kerala*** | Exclusion of backwaters from CRZ, tourism, rare earth mining, industrialization, Naval academy, mangroves depletion, coastal erosion, sea wall constructions, land reclamation, density of human population | ***Kochi, Kottayam, Kollam, Alapuzha, Thiruvananthapuram, Malappuram, Kanhangad, Kasaragod*** |
| ***6*** | ***Tamil Nadu*** | Hazardous industries, rare earth mining, East Coast Road and related urbanization, aquaculture, river basin oil and gas exploration, mangroves, bio-sphere reserve, coral reefs, poaching and marine biodiversity depletion, groundwater extraction, tourism | ***Chennai, Adayar and Vellar estuary, Ennore, Pulicut lake, Nagipattanam, Gulf of Mannar, Tuticorin, Cuddalore, Pitchvaram, Point Calimare, Mammallapuram, Kanyakumari*** |
| ***7*** | ***Pondicherry*** | East Coast Road and related urbanization, industrial pollution | ***Whole area*** |
| ***8*** | ***Andra Pradesh*** | Aquaculture, Harbours and ports, petro chemical industry, oil exploration in river basin, tourism | ***Vishakapattinam, Kakkinada*** |
| ***9*** | ***Orissa*** | Wild life destruction, turtle nursery ground, aquaculture, port development, tourism, missile testing range | ***Baliyapal, Gopalpur, Paradweep, Puri, Bhitarkanika, Gahirmata, Kendrapara, Chilika*** |
| ***10*** | ***West Bengal*** | Silting, mangroves, depletion of deltaic biodiversity (wild fish seeds) | ***Sunderbans, Hugli*** |
| ***11*** | ***Lakshwadeep Islands*** | Coral mining, dredging, poaching, tourism and migrant population | ***Kavarati Lagoon and the whole of marine area, Bengaram*** |
| ***12*** | ***Andaman and Nicobar Islands*** | Fragile eco systems, biodiversity, mangroves, coral mining and poaching, biosphere reserve, pollution, touism, threat to indigenous population, change in land use | ***Whole Area*** |

**Annexure II**

***Beach tourism: Some integrated conservation measures:***

***Community acceptance*** *to be made an integral part of beach tourism plan. Complete cooperation and trust in the local community is a must for the smooth running of tourism. Make the local community equal partners in all aspects of tourism including profit sharing.*

***Infrastructure development*** *should be strictly in accordance with the CRZ regulations. A comprehensive understanding and planning of proposed site should be made with Geographical Information System (GIS). Construction of resorts, hotels, parking lots etc. to be located beyond 500 m towards the land ward side from the high tide line. Use existing structures as far as possible. Avoid large constructions and design according to the natural surroundings. Avoid changes in near shore sediment transport patterns, geomorphology of the coastline, natural run-offs and storm water channels, destruction of natural coastal vegetation. Use only indigenous species for landscaping and those that require minimum irrigation and only bio manure.*

***Roads and highways*** *should not be constructed near shore especially parallel to the coast. Only approach road may be built to the coast. Do not disturb coastal vegetation and natural sand dunes. Sensitive habitats and breeding grounds should be avoided at all cost. Encourage walking and cycling and wherever possible public transport system and 'clean' fuel.*

***Golf courses*** *strictly not along beaches and beach tourism site.*

***Water sports*** *to be strictly planned and monitored.*

- *Avoid estuaries, shallow waters, sanctuaries and fishing zones.*
- *Speed limit of motorized boats to be kept to the minimum the European standard is not more than 5 knots.*
- *High powered boats for surfing etc be allowed beyond the fishing zones only.*
- *Create special corridors for water sports.*
- *Do not allow spilling of petroleum products, discarding plastic and other wastes in the open sea.*
- *Do not chase or collide with marine animals.*
- *Scuba and underwater diving be permitted arbitrarily and under strict monitoring, especially to areas of coral reefs and other sensitive areas of plants and animals.*
- *No damaging or collection of these is allowed under any circumstances as part of recreation.*
- *Discourage souvenir collection and selling of coral, shells etc. near tourism sites.*

***Sewage, waste, litter*** *management must be part of the comprehensive tourism management plans. Waste water treatment and solid waste treatment plants be made compulsory and should be open to local bodies and environmental groups for inspection. Waste management to be strictly undertaken. Avoid non-degradable wastes like plastic carrier bags and drinks cans. Initiate systems like 'deposit on return' to shops, restaurants and hotels in tourist locations.*

***Tourist industry*** *has a very prominent role to play in maintaining a healthy environment. The industry is well organized today with powerful bodies like PATA. These bodies must create self-regulatory and disciplinary measures in strictly implementing the regulations. A 'code of conduct' will not be a bad idea. It is also imperative that any such Code of Conduct be monitored and implemented by an independent agency. Conservation aspects should be equally prominent as that of tourism promotion. Fast profits are short lived. The present attitude of the industry to move away when a coast is degraded (like in the case of Kovalam) is because of the absence of a self-disciplinary philosophy.*

***Media*** *always propagates the tourism potential of a region in a glamorous style. It is equally important that travel writers also point out the ecological and social characteristic of the region. Also the media should be vigilant once tourism activities are on in the region and assess the impacts. (Development and Sustenance of Beach Tourism in India, EQUATIONS, 1998)*

## Annexure III

### *Community Property Rights*

*Our suggestion for a community property rights regime by definition requires co-owners to engage in community consultation and participation to seek common approval of certain actions that they may thereafter mutually agree to undertake individually. These would include, among other things, decisions on the nature and the quantum of capital to be invested in the harvesting activity; the norms regarding the extent of effort to be expended in this activity; and the manner in which the produce of one's labour will disposed. Consequently, this community property rights regime does not usurp the crucial role played by individuals. It only circumscribes it within the confines of collective norms. Since the basic motivation is pursuit of a decent livelihood, the participants tend to have a longer time horizon as regards their relationship to the resource. They tend to also have a keener ecosystem perspective.*

*Given the nature of the fishery resources this combination of individual enterprise under a rubric of community norms helps to take advantage of the skill variations (human capital) among fishworkers, which acts as a great motivator of benign competition on coastal fishing. Yet it keeps in check the ills of unbridled freedom, which lead to excessive capital investments, the bane of even the ITQ system which assign private property rights to the fishermen. This certainly puts a cap on excessive private accumulation possibilities. But the benefits in terms of equity of opportunity and freedom to modulate effort in keeping with the highly diverse fishery resource in the tropical seas result in optimizing the social accumulation of wealth from the coastal fishery.*
*There have been systematic efforts by fisherworkers organisations, as well as support networks and individuals that espouse their cause, to argue for such community property right regimes in the coastal waters.*
*Granting property rights to a community of co-owners is a necessary condition for fisheries management. It is however not a sufficient one. Explicit property rights must be accompanied by an agenda of other enabling measures, which will enhance the capability of the individuals who will be given the rights of access to the resource. Will enhance the capability of the individuals who will be given the rights of access to the resource. The most important of these is an Aquarian reform package. A primary measure of this must be that those who own fishing crafts should necessarily be at sea on them. However, it would not be necessary that all who work at sea should own assets. It is only such a collective community of owner-workers and workers who will exercise both precaution and responsibility with regard to managing the fishery resource. A second enabling measure must be that the legal right to make the decisions regarding the first sale transaction of the fish they harvest be vested with the community of co-owners and workers. This is a crucial element in ensuring that the returns from fishing are commensurate with the labour and capital invested. It is vital if increased physical productivity should translate to high economic returns. It is also a good insurance against the tendency for "collective overfishing". A third measure is the desirability of greater social control over the export of fish and fishery products. This will be an important step to ensure that excessive commercialisation, prompted by international market forces, do not place undue external pressure on the community property rights regime of the micro-level.*

*Such a package can bolster the foundation of a community property rights based fisheries management and governance. Irrespective of whether it is applied in a developed or developing country contest, there will be important wealth redistributional implications. These need not be restricted to the fisherworkers alone. Boat and net makers and fish buyers may also be affected by the implications of such a change from an open access to a community property rights based regime.(Kurien, 1996)*

*Taking a deviation from the standard fare of property right regimes, we have articulated the need for a "community property rights regime" as being most appropriate for the micro-local level of management and governance. Within the context of a "community-state-market" reality, it provides the greatest degree of intra-community flexibility for desegregation of rights to the individuals. Similarly, at the macro-global level, the need to evolve a "common heritage of humanity property rights regime" puts the onus of*

*responsibility for the future of the ocean ecosystem on the civil society of today. Sandwiched in between are the mosaic of state property right regimes in the form of Exclusive Economic Zones which have the sanction of international law. The spatial overlap of the three regimes is thus a pre-requisite for addressing the management and governance questions posed at the different scales of the marine ecosystem. In a fluid milieu, it reminds us of the need for less rigidity and greater flexibility with regard to evolving institutional frameworks for natural resource management and governance. There are no inherently suitable institutions – we have to craft them as we evolve in our understanding of human-nature interactions.*
*To utilise the resources of the oceans for the greatest social good of its harvesters and consumers our concerns must move beyond the realms of narrow economic efficiency associated with private property rights. It is possible to evolve several "efficient" solutions based on different property right regimes. These will be very resource and situation specific. The need to factor in priorities such as social equity for the present and ecosystem sustainability for the future, emphasise the relevance of looking to a horizon of greater options. Whatever the regime of property rights, some externalities always tend to remain. We cannot be categorical even about our best possible solutions. Keeping this in mind and crafting the appropriate mix of property right regimes point to possible solutions for just, participatory, self-reliant and sustainable resource management and governance for fisheries and other natural resources as well. (Kurien, 1998)*

*In this regime the resources are collectively owned and the management is by the community as a whole. As the community depends on the resource for their livelihood, they will be able to manage and conserve the resources and also can decide upon its rational utilisation. The community that depends on natural resources for a livelihood should own the water bodies and the natural resources. This common right only will ultimately protect both biodiversity and community.*

**Annexure IV**

***The coast – "Towards Democracy: A New Paradigm of Governance of Resources***
(Abstracts)

New forms of developments are essentially resource based, increasing thereby the demand on resources and multiply the various users. This is evident along the coasts of India, which is being shifted from primary fish production, agriculture and related industries to secondary and tertiary sectors. Immediate impacts of these developments are te increasing threat to coastal environment and bio diversity, which extends to the marine resources. Along with the toll on the environment the traditional communities along the coast are victims of these development; resources they have traditionally depended are assigned to new use and the community is excluded also from participating in the new economic order. The State has also shifted its position, tilting more towards the new order, leaving behind its welfare commitments.

The Need for a Macro Approach: The ability of groups and community for effective intervention in to multiple development projects in the coastal region is affected by the sheer volume of such projects: land and natural resource requirements are enormous, the project are highly complex and damaging and the people affected therefore are large. The focus therefore must now be on the resource as a whole along with its social, environmental and economic components. A region like the coast has to be understood in totality together with its bio-diversity, natural resources, and the community that is dependent on such resources. Any development or economic activity has to be understood in the context of its "survival use" that would support the survival of the resource as well as the community which is directly dependent on it, especially in the context of the erosion of sustainable resource use patterns.

The current trends, and the mode of operation today, requires as remedy a system by which the community shall be in a position to determine what kind of development is acceptable o the coastal region, their livelihood activities and survival. This is imperative from the twin focus of ensuring protection to the environment, and the community's interest. Also, coastal and marine resources being open access resource and difficult to delineate, require a reference point. Both these needs are satisfied by a perspective, which allows the community to be identified as the economic and political unit of resource control and use. Thi initiative must be begun from the coast and later be extended to the sea. In the times of discussions on integrating coastal and ocean biodiversity such an approach is logical.

*In order to provide an integrated reference point, which encompasses various concerns also, the coast must be understood in totality of its features, like the beach, the immediate oceanic regions, estuaries, backwater systems, mangroves and other coastal vegetation, the fishery resources and the community who are directly dependent on it. The concept of an eco-system, which traces only natural dynamics, must be replaced with a mechanism that includes social and economic relations of resource constituents and people. This holistic view is provided by considering the coast as a bio-region. Governance of these regions should consider all these factors and development in this region should be in accordance with the mutual interdependency of all these factors.*

*The most important stakeholders, the fisherfolk and other coastal livelihood-based communities are left to face the adverse effects of decisions that they do not have a say in. The fundamental reason why the community is unable to participate in an effective manner, is the lack of their representation in the country's political and government systems. On the one hand, the need is to ensure the identification of communities as a decision – making unit. The other need is to ensure that the voice of this unit is heard.*

*Limitations Identified: The unfortunate fact is that local peoples are powerless to oppose the kind of developments through the political systems as the 'system of representation' has failed. This is since,*

- *Representations to the decision-making bodies is not from the community and therefore*
- *Those who represent do not prioritise the needs of the coastal people.*

*Adding to this is the fact that the current demarcation of electoral constituencies is based solely on population and political criteria (that is, the vote bank), rather than location of natural resources, and the patterns of use of these resources. These constituencies,*

- *Do not encompass coastal areas along with the associated coastal features and phenomena and the community*
- *But are fragmented and segregated.*

*This makes,*

- *Overall integrated management of the coastal environment impossible, and*
- *Does not allow resource dependent/ users to come together for its protection.*

*Therefore, in addition to the external pressures from various industries, the*

- *Community is also marginalised in the electoral process itself, as it is*
- *The non-users and those who do not depend on the coast for survival, who decide how coastal resources are to be used.*

*Within a given electoral constituency the fisherfolk and other communities dependent on the coast are a minority compared to those who are placed in land, and are not directly connected to the coast. It is the latter that are majority in a constituency and represent the governing systems. They have the strong say towards decisions, which might have adverse impacts on the environment and community on the coast. This effective inequality of representation and marginalisation of traditional communities needs to be strongly countered.*

*Overcoming the limitations: This could be overcome by realigning constituencies to allow for a certain homogenisation of resources users within an electoral constituency as regards the natural resources which the constituency encompasses geographically. The coastal constituencies would then be realigned to:*

- *Integrate the neighboring parts of the coast, coastal features, and those communities who depend on these resources and share them, and would*
- *Exclude those regions inland not substantially affected by the coast and those who do not depend on the coast.*

*Such dependence is to be identified through a system of delineating diminishing dependence that a group has on the coast and allocating a corresponding priority over the resources. This method also allows for establishing the community as a unit of decision making and action.*

*Group would be identified as*

- *Primary users, based on direct dependence on the coast such as fishing and other traditional users*
- *Secondary users based on direct dependence on the primary users and*
- *All others would fall under those have indirect dependence on the primary users of the coast.*

*Based on this identification within the structure of realigned constituencies, a system of 'diminishing rights and responsibilities' would be evolved. This system contemplates that the community directly dependent and in close proximity to the coast hold the maximum rights over the use of such resources and this power of decision making reduces as one identifies groups further inland or removed in their lives from dependence on coastal resources. This gives the:*

- *Primary users of the coast a priority right over use of coastal resources*
- *A responsibility to ensure protection from internal and external exploitation and degradation of resources and*
- *The required decision making powers to enforce such rights and uphold such responsibilities.*

*The secondary users would then have their:*

- *Rights to be extent that such rights do not supersede those of the primary users and also*
- *A corresponding system of responsibilities and*
- *Commensurate decision-making powers.*

*It would mean that coastal constituencies would be stretched longer along the coast, and shorter inland rather than encompassing short spans of the coast with greater portions inland.*

*The solution towards the problem of representation and lack of decision making powers for the community is therefore*

- *A change in the electoral process through a realignment of constituencies, to allow for*
- *More effective participation of those who are dependent on certain resources and*
- *A system of diminishing rights and responsibilities to provide equity in the use and administration of such resources.*

*The implementation: The implementation of the scheme proposed above in the coastal areas is not only feasible in the Indian context, but also very much necessary. What is primarily required is:*

- *The validity of the bases upon which the earlier constituencies were drawn must be questioned.*

- *Identify the relationships that various coastal-livelihood-based people (with a particular emphasis on fisherfolk) have with their coastal resource base and with other neighbouring communities.*

- *In the instances, where the fisherfolk have themselves turned to exploit the resources that they should be sustaining, determine the externalities that led to the corruption of traditional practices and the degradation of the fisherfolk's ties to the coast.*

- *Identify the infrastructure (political, social and economic) required to enforce responsible behaviour among fisherfolk who would have maximum rights to decide the course of coastal development. A 'First use right' and must protect responsibility must be evolved.*

- *Identify the infrastructure required to enforce responsible behaviour among non-fisherfolk communities who would have fewer rights to use the coast and larger responsibilities to go with that. (Haribabu – 2001)*

# 5 INLAND FISHWORKERS

Marine fishery had in general captured the center stage in fishery discussions in the country, while its inland counter part remaining as a poor cousin. At the same time the countries resources for freshwater fisheries is quite high both in relations to different bio diversity systems and also species availability. The inland fishing community had also similarly been left behind, isolated and given less focus.

*5.1 Inland Water Resources and Communities*

Fishery resource in India consists of 2.02 ml sq. kms of EEZ, 29,000 kms of rivers, 3.0 ml ha of reservoirs, 2.0 ml ha of tanks and ponds, 1.0 ml ha of flood plain lakes and 1.5 ml ha of water logged land in the command area of reservoirs and coastal saline regions. (Dwivedi and Nawe 1991)

There are 14 major rivers and a number of small and minor rivers opening either into Bay of Bengal or Arabian Sea. Except for four all other major rivers flow into the Bay of Bengal. There is a total estuarine area of 19.25 lakh ha of which 13.25 lakh ha is in the East Coast. The Gangetic delta is worlds largest about 20,000 sq. kms, Sunderbans have 5316 sq. kms of flat land, 4264 sq. kms of forest, including 2109 sq. kms of mangroves.

The catchment areas of the country's rivers are considered to be 3.12 ml sq km which is a repository of biological and diverse fish fauna. The Ganga river system harbour 265 species of fish, Brahmaputra, 126; and other perennial rivers 76 species. (Kamal 1991)

Both coastal as well as land-locked states have potential inland fishing with their unique systems. Manipur in the North-East has a total water area of about 0.1 ml ha. 123 fishing villages, 25,806 fishermen of which only 13277 are active. Almost every household rural – urban has backyard ponds. There are 156 fish species and the total production is 12000 tons per annum. Jammu and Kashmir has 12000 active fishermen in the state. Kerala which has a significant place in the marine fish production also have 0.224 ml families in the inland fishing villages, 0.005 ml are fisher women. Marathwada, the central province of Maharashtra with a land area of 64,717 sq. km have with 98015 ha inland water resources. Around 40000 are involved in fishing of which a quarter are women.

Inland fishing like its counter part marine fishery had also under gone a sea of changes in the recent past, the thrust had been market and subsequently changes has taken place in all sectors of fishing. There had been concerted government interventions contributory to this type of growth.

Women play a very important role in inland fishery. In many of the states she also have customary rights of ponds. But the new systems had affected women negatively. The inland fishing community especially the traditional community had by and large remained socially and economically backward, with no adequate infrastructure for market and separate markets.

*5.2 Fishery production*

The growth in inland fisheries had been remarkable when compared to the marine sector especially in the context of special status it enjoys as an export industry. In inland fisheries, the total production has increased ten fold over four decades, while that was only four times in captive fisheries (Gopakumar, 1988)

Fish Production: Marine & Inland

*Table: 1*

| Year | Fish production marine | Fish production Inland | Total – Lakh Tons |
|---|---|---|---|
| 1993-94 | 26.49 | 19.95 | 46.44 |
| 1994-95 | 26.92 | 20.97 | 47.89 |
| 1995-96 | 27.07 | 22.42 | 49.49 |
| 1996-97 | 29.67 | 23.81 | 53.48 |
| 1997-98 | 29.50 | 24.38 | 53.88 |

*Source: India 2002 – Reference Annual, Ministry of Information & Broadcasting*

This has been mainly due to the changes brought in by the government and other funding agencies, mainly for market led growth. For promotion of development of fresh water culture, FFDAs have been constituted. 442 FFDAs are functioning in all potential districts in the country. By 1997-98 there was 4.56 lakh ha Waters brought under intensive fish culture through FFDAs. The agency had trained 5.77 lakh fish farmers. (Ministry of Information & Broadcasting 2002)

*5.3 Major Threats*

Inland fisheries though there is growth in production, are facing major threats, thus affecting the livelihood of communities involved in this sector. There is also grave concern over the threat to biodiversity of regions that support inland fishery. Change and shifts in development priorities, lack of understanding of intricate and sensitive eco systems, prioritizing one development while neglecting the other and absence of harmonization between development and conservation are pointed out to be major threats.

### 5.3.1 Reclamation

Reclamation of inland water bodies like rivers, lakes, wet and marshy lands etc are common all over primarily for construction of houses, resorts, roads and railways. Reclamation of water bodies is often associated with destruction of mangroves and fishing grounds.

### 5.3.2 Pollution

Industrial pollution is a major factor for depletion of inland fisheries and ultimate destruction of water bodies.

- Polluting inland water bodies by dumping solid waste, sewage and other hazardous industrial waste is common all over in India. After destroying aquatic life in the inland waters, this pollution ultimately end up in the seas causing severe damage to the marine biodiversity.
- Inadequate pollution control laws, lack of effective mechanisms to implement environmental laws and also lack of mechanisms that insist on waste and effluent management systems as a pre-requisite while setting up of industries. Non-implementation of pollution laws and complex procedures contribute to conversion of inland water bodies to dumping sites. It took more than four decades of consistent struggle of the local people to bring about the closure of the Grasim industry in Mavoor, Kerala. In spite of awareness in the government and concerned pollution control boards regarding the health hazards the industry perpetuated, including cancer. By that time, the Chaliyar River into which the industry discharged its untreated effluents had died, killing along with it the occupation of an entire inland water fishing community.
- Lack of laboratories, research facilities and funds to warn the threats of new chemicals and POPs would be a major challenge. The resultant health hazards to human as well as the aquatic flora and fauna would be severe in the wake of state withdrawing from welfare schemes including health.

### 5.3.3 Reduced Water Discharge

Unscientific construction of dams for irrigation and power projects reduce discharge, displace and restrict forage grounds of estuarine-dependent organisms, reflecting as poor catch.

- Construction of Dams is emptying all the rivers in India, disrupting the cycle of fish species to and from the sea and back.
- This also prevents the sediments from reaching the coast and sea thus denying fertile elements and their natural movement cycles
- Dams have destroyed the livelihood of thousands of fisher people who fish downstream. Their cause even does not figure in the cost estimates or rehabilitation schemes.

### 5.3.4 Catchment Area Modifications

- Catchment area modifications and faulty land use practices have altered the hydrographic patterns of the reverine and associated flood plains, much to the detriment of biotic communities, degradation of habitats and decline/disappearance of many valuable species. (Kamal 1991)

*5.4 Inland Fisher Women Marginalised*

Women of traditional fisherfolk castes were active participants in the inland fisheries sector and had extensive traditional and customary rights. These rights included access to and control of homestead ponds, access to fishing from edges of large ponds, tanks; collection of jeera from the rivers, access and supervision of production of gobar (dung) of animals to feed fish, rights to retail selling of all fish in village markets as well as local vendors. She also dried and smoked the fish in conjunction with paddy and rice processing such as muri-making (puffed rice). During this process, the fish dried naturally, placed above the hearth. She had local credit mechanisms. Of course all these were at subsistence level, not having a heavy surplus.

On this situation impinged three processes. The first was that the Government of India and the concerned State Government with World Bank assistance set up Fishermen's Cooperatives Societies (FCS). Fish Farmers Development Agencies (FFDA) at block and district level. The FFDAs were basically productivity – oriented. The New Economic policy has impinged upon them and made them more growth – oriented in the past year.

***Changes and current situation***

- The Departments of Fisheries, the FFDAs and the FCSs primarily aimed to convert subsistence fish production and marketing to 'high-tech' fish culture and marketing using induced breeding hatcheries, centralised fingerling and fry production, feed substitutes, cold storage, refrigerated transport, allotment of large reservoirs and Government and parastatal owned ponds/tanks to the FCSs, loans and subsidies from the banks and FFDAs, etc.
- Thus inland fish culture and marketing became high capital needing industries requiring sophisticated entrepreneurial and managerial skills.
- The Government and FFDAs began to shift towards pond allotment and other facilites to "fishermen by profession" from "fishermen by caste". This was ostensibly because the fishermen had not improved the ponds, but probably was the result of lobbying by other castes.
- In Andhra Pradesh and Tamil Nadu, "Green Revolutionaries" have invested large amounts of money in the sector. It is clear that the FFDAs' structure does not allow them to reach poor women.
- The frightening uniformity among all the States' FFDAs is that traditional fisherwomen are being marginalised and alienated from their customary fish production and marketing livelihoods and from traditional access to ponds.
- The second process was that of Sanskritization. Men of traditional fisherfolk castes imitated the "upper castes" introducing customs such as 'purdah' seclusion, 'avoidance' of male relatives of husband; consequently women were withdrawn into the home, away from the work force. The third process was mechanisation of rice processing.

**Impacts on Inland Fisher Women**

*Table:2*

| From | Through | To |
|---|---|---|
| Traditionally active participants In the inland fisheries sector | Government/FFDAs | Trash fish Sellers,head- loaders, leaf – plate-makers |
| Traditional rights of fisherwomen (caste of fisherfolk) (insubsistence level) | Government/FFDAs | Fishermen's Cooperative Societies, Fishermen by profession |
| Access to and control of home Stead ponds | Sankritisation | Limited access to home stead ponds |
| Access to fishing from edges of Large ponds, tanks etc. | Government/FFDAs | fishing on edges prohibited, illegal |
| Access to gobar of animals to Feed fish | Sankritasation | feeding too done by men |
| Rights to retail – selling of all fish Sold in villages around her village Drying and smoking fish | Goverments/FFDAs | Fish exports to cities, Srilanka cold storage, she is given only trash fish |
| Muri and other rice products Making along with smoking fish | mechanisation | no longer viable |
| Local credit mechanisms | Banks,FFDAs | 'high' capital needed; invested By "Green Revolutionaries" In Andra Pradesh Tamil Nadu |

*Source: Adithi 1993*

***Threats***

Because of these processes:

- Women as traditionally active participants in the inland fisheries sector became totally marginalised into trash-fish sellers, head-loaders of fuelwood and leaf-plate makers. Her traditional rights of access to and control of homestead ponds and access to fishing from edges of large ponds, tanks, reservoirs; retail – selling of all fish, drying and smoking fish, have all been severely eroded.
- Traditional fisherfolk men have been marginalised too and continue to live in poverty. But the impact is harder on women.
- FCS's performance also has not been dynamic in the best case and have failed to function as cooperatives and become pocket societies in the worst case. (Adithi 1993)

*5.5 Problems in Inland Fishery*

Inland fishing in the country lack approaches and initiatives for sustainable fishing. The thrust and funds provided for fish culturing by various agencies had impacted negatively, the traditional inland fisher communities and especially women. Also at the planning level, there is lack of reliable information resulting in faulty planning.

Development activities in and around water bodies are rampant leading to both resource depletion as well as displacement of communities. Lack of regulative and prohibitory laws drafted exclusively for inland water bodies (similar to that of the CRZ for coastal regions) leads to continued destruction without hindrance. This is also perpetuated by lack of resource rights and ownership for management of the water bodies. Such a right would also have checked the detrimental practices in inland fishing sector like overfishing, intensive fishing gears and also destructive fishing practices like 'dynamite fishing'. Linked to this is also the competition for fishing by non-fishermen displacing the traditional community, as reported from Kerala. (Aerthayil 2000)

# 6 STRATEGIES AND ACTION PLANS

## *6.1 Statement of Principles and Key Concerns*

- The livelihoods of the vast majority of the country's rural population are directly dependent on natural resources and elements of biodiversity in them. These people are referred to as the "primary stakeholders" in this document
- Biodiversity has multiple uses and users with potentially conflicting interests in them.
- The present official and dominant notions of biological resource utilisation and biodiversity conservation are governed by the interests of the more privileged sections of society with little direct dependence on biodiversity which do not reflect the biodiversity related livelihood needs and priorities of the largest group of primary stakeholders. This is because present utilisation and conservation polices have been framed through social processes which reflect the unequal power between diverse social groups.
- There is an urgent need to put in place more democratic and equitable mechanisms for redefining biodiversity conservation and use strategies which provide a legitimate voice to the vast majority of local communities dependent on bio-diverse resources for their livelihoods in articulating their differentiated concerns and priorities.
- This requires initiating a holistic review of existing policies, laws and development interventions to enable primary stakeholder groups of disprivileged women and men with biodiversity based livelihoods to become key partners in achieving the goals of conserving biodiversity while being able to sustainably use local natural resources for their livelihoods.
- In the context of the prevailing structure of unequal economic and political power, developing institutional mechanisms that foster a strong democratic process giving legitimate weightage to the voices of disprivileged groups of biodiversity dependent women and men in decision making is required.
- Historical state appropriation of control over common pool resources has progressively disempowered local communities to manage them in accordance with their livelihood needs and priorities. However, changing the legal status of these resources has not changed people's dependence on them. It has only denied them legal access and control over them and fundamentally restructured people-resource relationship, resulting in a breakdown of collective accountability, responsibility, and inter-dependence.
- This kind of trend has been exacerbated by internal factors within communities, including inequities of class, caste, gender, and age; changing lifestyles and norms; demographic patterns including localised increases in population, and other such factors.
- Securing local resource rights and management authority along with conservation responsibility, in the context of market driven globalisation is critical both for protecting livelihoods and the biodiversity on which they are dependent.

## *6.2 Forest Based Livelihoods*

Strategy I: *Promote a shift towards devolving management authority (based on evolving collective norms and responsibilities for conserving diversity) over communally used forest land resources to democratic and gender balanced community institutions or Gram Sabhas/ Panchayats with secure rights over all timber and non-timber forest products as well as eco-system services.*

Action I*: **Ensure tenurial security and flexibility in exercising management authority to self-governing local institutions: Management of forest lands used by local communities should be devolved to village institutions either under section 28 of IFA or under PESA or under State Gram Panchayat Acts. This should be accompanied by clear demarcation of boundaries entered in the land records for ensuring tenurial security.***

Where other pre-existing forms of community management prevail, such as in the states of the North East, or in areas where communities have evolved their own forest management institutions and practices, the existing community management systems should be built upon and strengthened in consultation with different sub groups of women and men of the communities.

***Category***: High priority to develop framework guidelines

***Details:***

- The guiding principles for exercising rights and management authority should be based on collectively evolved norms on principles of equity, gender equality and conserving diversity.

- The rights regime should recognize and accommodate varying degrees of rights and responsibilities for multiple stakeholders, with safeguards for resource dependant poor.
- Women's independent rights should be ensured by making allocation of rights on the basis of adulthood instead of the household, ensuring that the common property rights of widows/divorced/destitute women who return to their natal villages are protected.
- Recognition of user groups within communities based on existing livelihood uses, such as recognition of the rights of women's and other collector groups over management of NTFPs.
- Encourage formation of homogenous user groups as sub-groups within CI, acknowledging their specific interests and giving weightage to their concerns in decision making.

***Suggested Responsibility:*** MOEF in collaboration with Ministries of Rural Development and Tribal Affairs to take the lead in facilitating State governments, PRIs, federations/associations of community institutions, grassroots movements/NGOs to help evolve guidelines through a transparent and consultative process.
***Time frame:*** Initiate within one year
***Steps:***
***(i)*** Constitute a multiple stakeholder committee at the State level, with representatives of CIs and their Federations, FD, RD, Tribal Development and NGOs, to evolve guidelines/rules and regulations for the devolved form of community institutions. This should include CIs in Forest and Taungya villages, Van Panchayat, JFM, CFM and ecodevelopment areas and should be based on the principle of Gram Sabha empowerment in line with the provisions of PESA and/or decentralization to PRIs.
***(ii)*** The guidelines should include clear recognition, valuing and revitalization of indigenous knowledge of local biodiversity through creating legitimate space for its use in local forest management. Besides, combining this with sensitization of all stakeholders including FDs to such knowledge by organizing training programmes for them conducted by knowledgeable local women and men as the resource persons.
***(iii)*** Develop appropriate mechanisms for ensuring that the CIs protect the interests of the weaker forest dependent user groups, especially in heterogeneous village communities with changing resource-related needs. Enhance capacity of women and other disprivileged and voiceless groups to exercise their legitimate rights to participate in local forest management decision making and exercising their entitlement to the produce and services.
***(iv)*** Ensure sufficient autonomy for Community Institutions (CI) and their Federations with ultimate power in their General Body

- In electing their own representatives as office bearers
- To prepare and implement Microplans
- To exercise financial controls
- Resolve equity related conflicts with the involvement of peoples forums, associations (inter village/ regional) of user groups and FD or other relevant government staff.

Strategy II: *Initiate holistic forest sector reforms with multi-stakeholder participation which take into account the multiple livelihood functions, often based on customary rights, of the uncultivated common lands legally designated as state owned forests over time.*

***Action II A:*** Develop an accurate data base of the state forestry estate which also records its livelihood functions**.**
***Steps***
**(i)** Initiate comprehensive surveys of those lands declared to be forests, where no such surveys have been undertaken upto the present. These should record their existing livelihood uses and users and should be undertaken through transparent and participatory processes involving Gram Sabhas, representatives of Revenue, Tribal Affairs and Forest Departments and Mass Tribal Organisations and other community organisations.
***(ii)*** In the case of already demarcated forests, undertake detailed studies of the diversity of livelihood uses through participatory sample surveys representing diverse eco-systems and livelihood systems. This should also be integrated in NSS on a regular basis.
***Responsibility:*** Govt. of India to initiate, state governments to implement
***Time frame:*** One year
***Resources required:*** Adequate budgetary allocation

*Action II B:* **Review forest related laws and weed out contradictions between them and other laws and constitutional provisions for safeguarding tribal interests (such as Schedule V & VI of the constitution and PESA) and the constitutional mandate for decentralization of governance to PRIs.**
*Category:* **high priority**
*Details:*

- Set up an independent review committee consisting representatives from environmental law, forest management, NGO, Mass Tribal organisations, Federations of people's Institutions

*Responsibility:* **GOI, MoEF, and Ministry of Law, State governments**
***Timeframe:*** Two years

***Action II C:*** Focussed development interventions in forest and taungya villages whose residents have been victims of exploitation, discrimination and neglect.
***Category:*** High
***Steps:***
Convert forest and taungya villages into Revenue villages with land rights for inhabitants as required by MoEF circular of September 1990.

- Ensure access to them to all development interventions/ programmes from development administration
- Preferential implementation of employment generation and resource regeneration programmes including agro-forestry
- Legitimate access to forest produce with responsibility to local CIs for conservation and sustainable use.

***Responsibility:*** GOI to initiate, State governments to implement, involving forums of forest workers.

***Strategy III:*** **Create space for Community Institutions (CIs) of forest dependant user groups and right holders to develop collective norms for regenerating, conserving and exercising prudent extraction of NTFPs giving priority to local consumption needs. Move towards abolishing contract systems for procurement, storage, value addition and sale, and eventual de-nationalization of NTFPs, in order to enhance livelihoods depending on diversity in forest resources.**

*Action IIIA:* **Develop an operational framework to implement PESA's provision on NTFPs.**
***Steps:***
*(i)* **Disseminate information on PESA provision to all Gram Sabhas where applicable.**
***(ii)*** Facilitate participatory demarcation of catchment areas of NTFPs that come under the jurisdiction of Gram Sabhas and GPs.
***(iii)*** Authorize Gram Sabhas to issue collection and transport permits, and certification of origin for NTFPs collected.
***Category:*** High priority
***Responsibility:*** GoI and State Forest Departments and Panchayat Departments
***Time frame:*** One year

***Action IIIB:*** Encourage collectors' organisations to collect, store, process/ add value, transport and market NTFP to enhance incomes. Provide training and capacity building to emerging collectors groups, for access to appropriate and innovative technology for NTFP value addition, quality and standardization etc.
***Category:*** Medium
***Details:***

- Collectors / producers' organisations (local and federations) to take up the activity with Government as catalyst
- Listing and categorizing locally available NTFPs
- Access to information on prices and fluctuations
- Capacity building to understanding the market and taking appropriate decisions
- Local level processing (individual/ group) with quality and cost standards

***Responsibility:*** Government and NGOs
***Timeframe:*** Two to three years

***Action IIIC:*** The State to organize and finance market intelligence system and make it available to the collectors and their forums.
***Justification:*** Exploitation in the NTFPs sector is due to lack of market information about prices, potential user value to the suppliers who are traditional gatherers. The middlemen exploit this to their advantage. Denationalization makes sense with the emergence of alternative market linkages, through collectors' groups or even the private sector. Here again, the key to stop exploitation, is the market information advantage. In

an efficient market with information available to all parties middlemen are no more exploiting but playing a useful role.
***Category:*** High
***Detail:***

- Inventorize major NTFPs
- Provide price information to collectors/suppliers in all major NTFPs collection areas
- Disseminate market information on prices, volumes, demands, end use and critical markets
- Use of Internet can also be explored.
- Make this information available to all Gram Sabhas

***Responsibility:*** State government (especially Madhya Pradesh, Chattisgarh Jharkhand and North East States) and, NGOs and collector groups
***Time frame:*** To start immediately
***Resources required***: Funds and interested people.

***Strategy IV:*** **Move towards greater community participation in the management of PAs with a focus on livelihood security of forest dependant people living in and around them.**

***Action IVA:*** Explore adoption of IUCN's other categories of PAs, such as community reserves, Peoples' protected areas, to enable greater community participation in PA management.
***Category:*** High priority
***Justifications:***

- Biodiversity value of a PA varies from situation to situation.
- The present categories of NPs and Sanctuaries are too restrictive to enable adequate participation of community and adversely affect livelihoods.

***Responsibility:*** GoI, MoEF, PA authorities and State wildlife authorities in consultation with grassroots forums, social activists, and representative organisations of local communities.
***Timeframe:*** One year

***Action IVB:*** Implement Joint Protected Area Management (JPAM) in existing PAs, with residential traditional communities, to ensure conservation and livelihood security.
***Category:*** High
***Details:***

- Set up a forum for dialogue with forest officials, local communities, with the involvement of local NGOs, researchers and conservationists.
- Initiate participatory research to understand the ground situation regarding livelihoods, complementary/conflicting needs of villagers and wild life.
- Develop organizational/institutional structures for PA management CIs, with a standing committee on people and PAs, within each Wild life Advisory Board.
- Develop formal agreement between communities and FD for joint management of selected PAs to begin with.
- Appropriate legal and policy changes in WLPA.

***Responsibility:*** MoEF
***Timeframe:*** Two years

***Action IVC:*** Recognise traditional community rights in conservation, (with appropriate modification/reform arrived through consultation), using Section 24-2C of the WLPA. Provide legal recognition for community conservation traditions and initiatives.
***Category:*** Medium
***Details:***

- Document community conservation practices and review norms for sustaining livelihood activities in the context of conservation

***Responsibility:*** same as above
***Timeframe:*** Two years

***Action IVD:*** Set up forums at the PA, Divisional and State levels for discussing and resolving issues in PAs as there are conflicting issues related to relocation, crop damage and threats to human life by wildlife, all this impinging on livelihoods.
***Category:*** High
***Details:***

- PA level PA Forums to be constituted with representatives from FD, Local Community Institutions, Local NGOs to address:
  - Reorientation of local FD staff
  - Investigate man-animal conflicts
  - Adequate compensation for restriction on livelihood activities
  - Proliferation of wild animals
  - Changes in cropping pattern to prevent damage by wild life.
- PA forums to meet every three months at Divisional and State level

***Responsibility:*** MoEF to issue guidelines and PA management to set up
***Timeframe:*** One year

***Action IVE:*** Promote community based eco-tourism in PAs.
***Category:*** Priority
***Details:***

- Management of eco tourism in protected areas mandatory with community participation
- Involve people in as guides, managing lodging and board facilities in PAs, there by partaking a share of tourism revenues.
- Explore the possibility of eco-tourism cooperatives.
- Evolve joint management systems for eco-tourism in PAs with necessary amendments to WLPA 1972 *(Ref sub thematic paper – tourism and biodiversity)*

***Responsibility:*** PA management and Department of tourism
***Timeframe:*** One year

***Action IVF:*** Explore other options 1) where livelihoods are affected and 2) where existing livelihoods have become destructive, unacceptable or unviable within PAs
***Category:*** High priority
***Details:***

- Provide alternative employment opportunities on a priority/reservation basis in PA-related work and in other work outside of PAs.
- Create a conservation compensation fund (with joint management mechanism) to compensate in cash and kind for lost livelihood opportunities including generations to come.
- Employment in conservation enhancement program in PAs.
- Identify livelihood activities that are not detrimental to the PA management and allow community to continue with it.

***Responsibility:*** PA management authorities, PA Forum **(**Ref Action ***4 D*****)**
***Time frame:*** One year

***Strategy V:*** **Bring about changes in forest administration and style of management by Forest Department in consonance with Strategy *I & II***

***Action VA:*** Create forums for participation of multiple-stake holders, with adequate representation of the forest dependent communities, their federations and NGOs, for discussing and resolving issues related to conservation and livelihood needs in forest resources.
***Category:*** High
***Details:***

- There is need for forums state (or regional) and national level
- These forums should have compulsory meetings periodically, with access to all necessary information before meetings.
- Through these forums, all major programs that impact both livelihoods and forests must be discussed, to seek the concurrence and participation of stakeholders.
- These forums to provide a legitimate mechanism to evolve consensus on policies and programs related to conservation.

***Responsibility:*** MoEF guidelines state FD to implement

***Timeframe:*** One year

***Action VB:*** Initiate comprehensive institutional review of FDs and reorientation of forest services training to cope with the emerging challenges and redefined mandate. Make livelihood issues on important component in the curricula for forestry training.
***Category:*** High priority
***Details:***

- Focus on integrating local knowledge in forest management
- Participatory planning processes for making Forest Working Plans/ PA Management Plans from the micro-plans at village level
- Participatory management with concern for equity and empowerment of disadvantaged forest dependant groups with focussed attention to women's groups from different socio-economic categories.
- Evolving a consensus / resolving conservation –livelihoods conflicts
- Ensure transparency in appraising operational aspects with regard to the necessary focus on livelihoods along with conservation

***Responsibility:*** MoEF, Ministry of Tribal Affairs, Ministry of Rural Development in collaboration with forums of forest based communities, NGOs, social movements and activists.
***Time frame:*** Two years

### *6.3 Pastoralists*

***Overall Strategy:*** Pastoralists play an important role in the conservation of indigenous livestock breeds (such as one humped camel, Toda buffalo, Nari and Malaimadu cattle, Deccani sheep). These breeds harbour a wide variety of adaptive traits, being able to cope with harsh climates and landscapes and resisting diseases that affect crossbreeds. It is imperative to conserve these breeds. Hence it is necessary to acknowledge and support pastoralists for their essential role in conserving India's farm animal genetic resources and valuable genetic traits.

***Strategy I:*** **Develop lands use policies that conserve and protect grazing lands and pastures to ensure legitimate space for the livelihoods of pastoralists.**

***Action IA:*** Review/ formulate State and National level grazing policies in consultation with pastoralists and herders organisations in order to conserve natural grassland and related ecosystems and ensure livelihood security for diverse pastoralists groups.
***Category:*** High
***Details:***

- The recent initiative for getting a land use policy framework developed, should specifically include documentation of customary pasture lands and migration routes of nomadic pastoralists and other herder communities. The existing land use category of 'wastelands' under Revenue Departments should be reviewed and a specific category of customary pastures be included to prevent such lands being allocated for other uses on the assumption that they are lying 'waste'.
- A draft grazing land policy prepared by GoI should be reviewed from the perspective of pastoral communities
- Grazing lands not to be allotted for other purposes by the government without the informed consent of pastoral groups
- Compile state wise data on changes in the amount of land available for grazing and correlate them to livestock population and production data. Establish significance of pastoral production for economies of the states and the nation.
- Present results of above at state level workshops to which representatives of stakeholder communities, the concerned ministries, as well as the Planning Commission are invited.
- Organise workshop on National Grazing Strategy

***Responsibility:*** GOI and ICAR to initiate process in collaboration with the Planning Commission and state Planning, Rural, Animal Husbandry, Forestry and Revenue Departments and herders organisations and NGOs/social activists working with them.
***Time Frame:*** Within one year.
***Resources Required:*** Funds for undertaking state level studies on pastoral communities, the lands customarily used by them, their current rights of access, the laws depriving them of access etc. and organising consultations with pastoral communities facilitated by organisations knowledgeable about them.

***Action IB:*** Legitimize and protect grazing rights of pastoralists on village commons including gauchar and other revenue lands and facilitate development of their associations/cooperatives for furthering their livelihood interests.

***Category:*** High

***Details:***

- Review traditional and customary grazing rights in consultation with representative organisations of pastoral groups, identify policies and programmes that prevent them from exercising their rights, and hence need change.
- Identify and demarcate grazing areas and migration routes of pastoral communities.
- Where feasible remove encroachments on grazing lands

***Responsibility:*** Gram Sabhas, Panchayati Raj Institutions (PRIs), Animal Husbandry department, Forest Department and State Revenue Departments in collaboration with herders organisations.

***Time Frame:*** Two years

***Resources Required:*** Political commitment and funds for commissioning studies on existing rights and laws/regulations.

***Action IC:*** Facilitate organisations of pastoral groups to establish linkages with local community institutions to negotiate use and assume/share responsibility in revitalizing and managing grazing lands sustainably for mutually supportive sustainable management practices.

***Category:*** High

***Details:***

- Organize pastoral groups to form sub-groups within village level and other local institutions to assert their needs/rights collectively and take responsibility for evolving rules and norms for sustainable and equitable management of the resource.
- Revive traditional norms/evolve new norms to ensure conservation and equitable use of the resource.
- Promote replacement of harmful and exotic plant species with indigenous fodder species and medicinal plants useful for livestock in tune with local ecosystems.
- Increase productivity of pastures through soil and water conservation, lift irrigation, conservation of indigenous species, rotational grazing.
- Protection and maintenance of water resources/ water holes on grazing lands.
- Grazing lands not to be allotted for other purposes by the government without the informed consent of pastoral groups.
- Empower pastoral groups and local community institutions to prevent encroachments and get existing ones vacated where possible.

***Responsibility:*** PRIs, State Revenue and Forest and Animal Husbandry departments; MoEF to issue facilitating guidelines.

***Time Frame:*** Two years.

***Resources Required:*** No separate resources required. This action should be integrated into ongoing programmes of Watershed Development, JFM, CFM, PIM, etc. within the framework of decentralization to PRIs and PESA.

***Strategy II:*** **Protect livelihood security of pastoralists by revalidating their customary use of those lands which have been declared government owned forests within an agreed framework evolved through negotiations for combining conservation of natural biodiversity with sustainable use.**

***Action IIA:*** Legitimise grazing rights on forestlands within a framework of conservation with sustainable use evolved through transparent negotiations.

***Category:*** High

***Details:***

- Ensure clear documentation and publicity of legal and customary grazing rights within each forest range/division to initiate a dialogue on the subject.
- Facilitate participatory development of guidelines with grazing codes/ norms for cutting fodder, seasonal grazing, rotational grazing, considering the carrying capacity of forests and number of animals allowed for grazing.

***Responsibility:*** MoEF, Pastoralists' forum, State Forest Departments, AH departments, VFCs and PRIs.

***Time Frame:*** Minimum 3 years

***Action IIB:*** In areas where natural grasslands/pastures have been declared as 'forests', the forest Working Plans should not treat them as 'blanks' for afforestation. Where such local eco-systems have already been damaged due to plantation of exotic tree species in natural grasslands, (as in Kutch, H.P., Uttaranchal, the Toda areas in the Nilgiris), the Working Plans should provide for removal of the exotics for promoting eco-restoration.
***Category:*** High
***Details:***

- Review/revise Working Plans (in coordination with local level Microplans), for conservation and management of grasslands/pastures declared as grazing lands.

***Responsibility:*** MoEF and State Forest Departments, local community institutions, pastoral groups
***Timeframe:*** Two years

***Action IIC:*** Ensure representation for nomadic and settled pastoralists in village institutions, to participate in for Joint/Community Forest Management and Watershed Development as well as in PRIs/Gram Sabhas.
***Category:*** high, immediate.
***Details:***

- MoEF and MoRD in consultation with community/pastoralists forums should develop and issue guidelines to all Forest and RD Departments requiring representation/ membership of pastoralists on village institutions concerned with managing common/pasture lands. JFM/watershed microplans should be prepared/ modified after considering needs of pastoralists.
- JFM/CFM, Watershed and Panchayat Microplans to be prepared/ modified after considering needs of pastoralists.
- Grazing rights of pastoralists not to be restricted to forests/ common lands adjacent to their villages, in recognition of the larger landscape used by them.
- Facilitate development of sustainable use and management norms by pastoralists and local institutions through negotiations

***Responsibility:*** MoEF/MoRD with State Forest/RD Departments, JFM, CFM, Watershed, Eco-Development committees and pastoralists federations/larger forums, NGOs
***Time Frame:*** one year
***Resources Required:*** Limited, for supporting meetings/consultations with pastoral communities; rest from existing departmental budgets MoEF with State Forest Departments, FPCs.

***Action IID:*** Allow grazing in selected PAs especially during monsoons when availability of other grazing areas is limited. Initiate Joint Protected Area Management with pastoral groups after evolving location and ecosystem specific norms for conservation with sustainable use, through transparent processes of negotiation and consultation
***Category:*** very high
***Details:***

- Grazing permits to be provided in consultation with pastoral groups, their support organisations and the concerned village level organisations.
- Seek the support of pastoral groups in identifying and dealing with illicit felling and other activities in the PAs.

***Responsibility:*** State Forest Departments, FPCs, Gram Sabhas of Eco-development Committees, and PRIs.
***Time Frame:*** One year

***Action IIE:*** Review and control the population of wild animals taking into account the carrying capacity of PAs, where their proliferation has resulted in over grazing of grasslands and adversely affected livelihoods of pastoralists.
***Category:*** High/ medium

*4.2.4.1.1.33 Details*

- Participatory evaluation of PAs, site specific studies involving local community and pastoral groups
- Documentation of causalities suffered by people and compensation given to them.
- Adopting measures to control the population of wild animals considering the carrying capacity of the PAs.

***Responsibility:*** MoEF, State Forest Departments, academic research institutions studying these issues in consultation with pastoralists groups and PRIs and NGOs.

***Time Frame:*** two years

***Strategy III:*** **Review the existing mandates of AH departments, and ensure that conservation of livestock diversity is included in them, through appropriate policy changes at national and state levels. Promote animal health and livestock extension services addressing the special needs of the pastoral groups, integrating their indigenous ethno-veterinary knowledge and supporting them for conservation of livestock diversity.**

***Action III:*** Ensure that Government Veterinary facilities are equipped to address the needs of both small and big indigenous animals of pastoralists.
***Category:*** High
***Details:***
Revise veterinary curriculum, so that the students are informed about the significance of pastoral livelihoods for livestock production and conservation of indigenous livestock diversity and accept pastoralists as partners rather than backward people to be talked down to. ***Responsibility:*** State AH Departments, Veterinary Council of India with the help of NGOs specialized in pastoralists and animal health issues.
***Time Frame:*** Minimum 3 years.

***Strategy IV:*** **Promote linkages between concerned government departments (AH, FD, Revenue and Tribal Development where appropriate) in order to enhance the livelihoods of pastoralists.**

***Action IVA:*** Organise workshops/forums at the state level in which pastoralists and all concerned departments can engage in a dialogue. (A more durable inter-sectoral coordination mechanism will also be desirable)
***Category:*** High
***Details*:**

- Focus on the multiple uses, functions and nutritional/medicinal qualities of diverse types of livestock, particularly for subsistence, that have been ignored.
- Raise awareness of the departments of AH, FD and RD about the fact that much of the livestock production depends on grazing.
- Strengthen pasture development programmes with the involvement of pastoralists.
- Acknowledge and support the needs of pastoralists in conserving indigenous breeds and ensuring their livelihood security.

***Responsibility:*** State level Committee consisting of NGOs, AH and FD to be organised for the purpose.
***Time Frame:*** two years

***Action IVB:*** Explore and support initiatives for value addition and processing at the local level, and upgrading marketing efforts in order to enhance livelihoods of pastoralists ***Category:*** Medium
***Details:***

- Setting up processing units
- Exploring new markets for products
- Upgrading the products with innovative designs

***Responsibility:*** Pastoral groups with necessary support form government departments
***Time Frame:*** Three years.

***Action IVC:*** Review educational facilities (especially in areas with pastoralists), provide optional specialization in pastoral practices in order to address emerging needs of pastoralists. This should integrate/reinforce important elements of pastoralists' culture and traditions.
***Category:*** medium
***Details:***

- Integrating indigenous knowledge.
- Build a platform consisting of educational specialists of pastoral representatives to explore the topic and available options

***Responsibility:*** Education Departments/ Universities.
***Time Frame:*** 3 years.

***Strategy V:*** **Protect the intellectual property rights (IPRs) of pastoralists and other traditional domestic animal raisers in the light of the growing interest in making use of the genetic traits of indigenous livestock breeds.**

***Action VA:*** Initiate a discussion / debate involving all stake holders, especially pastoralists and livestock keepers in order to recognise those maintaining superior local breeds and ensure compensation for information regarding indigenous breeds.
***Category:*** High
***Details:***

- A comprehensive and participatory documentation of local breeds and indigenous knowledge associated with animal breeding in specialized CBRs with the involvement of pastoralists' own forums, support NGOs and staff of AH department.

***Responsibility:*** National Bureau of Animal Genetic Resources, Karnal / ICAR, associations of pastoralists, NGOs, academic/research institutions.
***Time Frame:*** 1 year

***Action VB:*** Recognise, reward and strengthen traditional veterinary healers. Ensure through relevant Departments conservation and growth of medicinal plants on grazing lands.
***Category:*** Medium
***Details:***

- Documentation of ethno-botanical veterinary knowledge of women and men
- Identifying medicinal plants that need to be regenerated in coordination with CIs and relevant department

***Responsibility:*** Animal Husbandry Departments, National Innovation Foundation (for awards).
***Time Frame:*** Three years

*6.4 Coastal Livelihoods*

***Strategy I***: **Check industrial Aquaculture that degrades the coastal resources and promote sustainable practices that enhance livelihoods of fisher people.**

***Action IA:*** Review the Aquaculture Authority Bill in the light of the Supreme Court Judgement banning Aquaculture in the CRZ. This is necessary for the protection of coastal biodiversity and the fragile ecosystem harbouring it and also for securing the livelihoods of communities dependant on the renewability of these resources.
***Category:*** High priority, immediate
***Details:***

- GoI to initiate the process for the above by setting up a committee involving representatives of MoEF, MoA, and representatives of coastal communities for a fresh environment impact study.

***Responsibility:*** GoI, MoEF and MoA
***Time Frame:*** Within 6 months

***Action 1B***: Promote traditional and improved traditional Aquaculture practices to secure and enhance livelihoods of communities dependent on the resource.
**Category:** High
**Details:**

- Provide financial and technical support to organisations of resource dependent communities for using traditional and improved traditional aquaculture practices.
- Evolve norms through a transparent and consultative process involving fisher women and men, PRI representatives and state fisheries departments, to ensure sustainable practices.
- Provide marketing support to the community through existing institutions like the MPEDA
- Develop participatory monitoring systems to ensure that these practices do not create pollution, salt water intrusion and affecting changes in land use patterns like conversion of agricultural fields.

***Responsibility*:** State Governments, Fisheries Department, MPEDA, PRIs and CMFRI and mass based forums/federations of fisher folk

***Strategy II:*** Legislative mechanisms to ensure sustainable fishing and promote ecologically sensitive and appropriate technology

***Action II A:*** Enact a Marine Fishing Regulation Act (MFRA), by Parliament, for the entire EEZ. This is necessary to stop the indiscriminate exploitation of marine resources by the mechanized sector, which has been destroying coastal biodiversity, coastal livelihoods and traditional fishing practices

***Category***: High Priority

***Details:***

- Enactment of the MFRA by GoI has already been recommended by the Majumdar Committee (1978) and Murari committee (1997).
- The enactment of MFRA in the coastal states alone has been inadequate in dealing with the problem. MFRA by Parliament will enable coordinated and (where necessary) uniform restrictions and regulations for effective implementation.
- Since marketing (Export and Import) is a crucial factor linked to fishery resources import export policy of the country need to be harmonized with the MFRA
- MoA to draft the MFRA for the entire EEZ in consultation with the mass based organisations of fisher folk , and introduce it in Parliament
- The MFRA should address the issues of conserving fishery resources in our waters, protecting the livelihoods of fisher communities and reducing conflicts at sea. It should provide for:

- Uniform monsoon trawling ban
- Mesh size regulation
- Zonal regulations
- Regulation/restrictions on destructive gears and over fishing gears like purse seining
- Ban of seedling collection with mosquito nets.
- Ban on collection of mother prawns etc.
- Promote marketing of fish in national and international market

- Fisher peoples' cooperatives/institutions to be actively involved in implementing the MFRI

***Responsibility*:**

- GOI for initiating the process and ensuring co-ordination with MoA and MoC and representative organisations of fisher folk
- MoA to hold consultations and draft the MFRA and introduce it in Parliament.
- Fish workers organisations/cooperatives to contribute to the drafting process

***Time Frame***: 2 years

*4.2.4.1.1.34*

***Action II B:*** Upgrade traditional fishing gears with appropriate technology so as to retain their ecological sophistication

***Category:*** High Priority

***Details:***

- Scientific studies to be undertaken to upgrade and integrate traditional fishing gears with appropriate modern technology.
- Community norms for adoption and use of such improved gears to ensure sustainable use of resource.

***Responsibility:***

- Department of Science and Technology and CMFRI to enable upgradation
- Community Institutions, Panchayats for norms

***Time Frame***: 5 years

***Strategy III:*** Safeguard the livelihoods of fishing community from cheap imports/dumping of fish.

***Action III***: In order to protect the National Fisheries Sector and the livelihoods of the fishing Community, (from cheap imports under GATT and GATS) imports need to be curbed and regulated with the enactment of a National law.

***Category***: High, immediate

***Details***:

- Under Exim Policy 1977-2002, 21 items could be imported under OGL (Open General Licensee). Another 62 items under Special Import License. Most of these items are abundantly available in our seas and market.
- Cheaply available imported fish is causing unhealthy competition in the local market, forcing the local fishing community to sell fish at lower rates.
- Seafood exporters, however, continue to prosper by repackaging/reprocessing this imported fish.

- Ministry of Commerce to constitute:
  A drafting group with representatives of fishers organisations, MoA, MoL, CMFRI and Coastal MPs for addressing the following concerns:
- Regulating import of fish which is already available in the Indian market,
- Fixing prices such that the local market is not undermined,
- Drafting laws for enforcing labour and environmental standards, which safeguard the livelihood interest of Indian fishing communities and biodiversity conservation combining local and national interest
- In view of the impending WTO negotiations in March 2003, this needs urgent attention,
- Incorporate the above draft into the proposed MFRA. Till such time use all available regulatory mechanisms to minimise fish imports.
- The National Fishery Policy should also reflect this concern.

***Responsibility***: GoI to initiate the process with MoA, MoC and MoL (Law), Mo Labour and representatives of fisher's organisations.
***Time Frame***: Urgent – immediate – prior to the next round of WTO negotiations

***Strategy IV:*** **Enable community ownership, control and management of coastal resources. Acknowledge coastal communities as strong allies and involve them in the protection / conservation of coastal and marine resources.**

***Action IV A:*** Grant community property rights to coastal communities dependent on the resource for their livelihood. This will enable them to conserve the resources protect its biodiversity and decide on its rational utilization besides, tackling privatization, globalization and displacement of coastal communities.
***Category:*** High and basic
***Details:***

- Rights to govern the resources to be recognised and included in PRIs (in line with Schedule V areas).
- This needs to be coupled with enabling measures like aquarian reforms:
  - Craft owners to be out at sea with them
  - Community to have legal right to make decision regarding first sale transaction of fish they harvest. (as an insurance against collective over-fishing )
  - Greater social control over export of fish and fishery products to ensure that harvests are kept within sustainable limits.
- Majority representation of fisher folks to be ensured in coastal Panchayats with reservation for women. Strengthen the voices of weaker and more dependant sections of fisher folk by organizing them into subgroups to participate in decision making.
- All developments along coasts and marine regions to be taken up in consultation with coastal Panchayats
- Change of ownership or sale of coastal lands permitted only within the community
- Space for individual pursuit to be recognised within community norms. (Community consultation and common approval for individual actions)

***Responsibility:*** MoA, MoEF, and Ministry of Local Self-Government and coastal State Governments, Community Institutions
***Time Frame:*** 5 years

***Action IVB:*** Extend community rights and benefit sharing mechanisms to fishery and non-fishery resources, while specifying coastal and marine resources under Integrated Coastal Management.
***Category:*** High
***Details:***

- Exploitation of non-fishery resources (extraction of minerals, petrochemicals, seaweed, seawater desalination, organisms for drug industry etc) in coastal and marine regions has caused loss of livelihood, living space and displacement of coastal communities. This is hardly ever compensated. Hence community rights over these resources and share in benefits is needed.
- While community is evacuated for purposes of exploration for minerals, petroleum etc and if the explorations are unsuccessful, the acquired land to be restored to the community.

***Responsibility:*** GoI to pursue with MoEF, MoA, and Ministries for mining, petroleum, Department of Fisheries, and Coastal Management Authorities in consultation with forums/ associations of resource dependant coastal communities and NGOs/ academic institutions working on these issues.
***Time frame:*** 10 years

***Action IV C:*** Reconstitute electoral constituencies along the coastal region for increased representation of coast dependent communities in PRIs, State Assemblies and Parliament. Constitute an agency to realign and demarcate current constituencies under the Election Commission and State Governments.
***Category:*** Medium
***Details:***

- Empirical observations have shown that the current electoral constituencies are vertically placed in the coastal regions, whereas the community lives horizontally along the coast. As a result, coastal/fishing communities become a minority in these governance systems. Realigning and demarcating constituencies will increase their space in governance and decision making.
- A system of diminishing rights and responsibilities (to primary/ secondary/ tertiary users of the coastal and marine resources) will enable equity in use and administration of these resources.

***Responsibility:*** Election Commission, GoI and State Governments
***Time frame:*** 5 years

***Action IVD:*** Strengthen implementation/ enforcement of the CRZ notification, by including PRIs /CIs on the Coastal Management Authorities.
***Category:*** High
***Details:***

- Representatives of the community should be elected to these bodies by community Institutions /Cooperatives /Unions of fisherfolk.

***Responsibility:*** Fisheries Department, MoEF.
***Time frame:*** 5 years
***Resources required:***

***Action IVE:*** Involve coastal communities in the management of coastal and marine PAs. Assess the current situation of livelihoods of local communities in existing PAs.
***Category:*** Medium
***Details:***

- We have lesser number of PAs in the marine region when compared to the land, where as there are more biodiversity in the ocean than on the land.
- There is a need to create more PAs in proportion to the total sea claim of India
- Scientific studies about the fragility of the regions prior to declaration of PAs along with community dependence and resource availability.
- Consultations with coastal communities for their informed consent.
- Joint management of PAs to ensure livelihood security while protecting the resource.
- Adequate compensation for prohibition / regulation in livelihood activities
- Monitored and regulated harvesting of identified resources without being detrimental to the conservation objectives.
- Evolve innovative methods to compensate the affected community (like community controlled eco-tourism projects)

***Responsibility:*** MOEF, Department of Ocean Development, State Governments, Fisheries Department, PRIs in consultation with local community institutions and their associations.
***Time frame:*** Two years

***Strategy V:*** Protect and regenerate mangroves, a vital resource for coastal lives and livelihoods, with the active participation of coastal communities.
***Action V:*** Enhance the scope of CRZ (and later of Integrated Coastal Management) to all mangrove patches and stretches, irrespective of their size and proximity to the coast. Involve local user groups in protection and regeneration.
***Category:*** High priority
***Details:***

- Record and document the mangrove system in the country irrespective of their size and spread with a special focus on the dependence of communities.
- Initiate mangrove protection and regeneration programmes with local community participation
- Provide resource rights to local user groups and constitute monitoring cells for sustainable harvesting of fishery resources

- State governments to bring out a GO entrusting the Panchayats and local community for conservation and sustainable use of resources with technical support from expert agencies (like Dept of Science and Technology in Kerala, Central Salt and Marine Institute in Gujarat, NIO in Goa etc)
- Provide alternatives where community is dependent on mangroves for their fuel and other requirements.
- Avoid land filling in coastal marshy land and mud flats
- Ensure that there is no obstruction of slat waters flow to mangrove regions with the construction of roads, pathways and bridges.
- Encourage mangrove plantation as protection against sea and coastal erosion in place of the current practice of sea walls along the coast

***Responsibility:***

- MoEF to enhance scope of CRZ to all mangroves and develop a framework for community participation in consultation with user communities.
- Department of Rural Development and Department for Non Conventional Energy for alternatives to fuel needs derived from mangroves.
- Local Community Institutions, Gram Panchayats for evolving norms to regulate use.

***Time Frame***: Two years

***Resources required:*** All money earmarked for seawall construction. Earmark budgetary support to Coastal Panchayats for Mangrove regeneration programmes

***Strategy VI:*** **Empower fishing communities to organize and manage their own community institutions (CIs) for pursuing their livelihood needs (to meet the challenges of globalization and the market economy) and using the coastal resources sustainably.**

***Action VI A:*** Encourage fishing communities to organize themselves into self-governing cooperatives (or appropriate forms of CIs) in every fishing village with 100% membership of fisher people (to ensure that, there is no space for vested interests to usurp control over them). Facilitate strengthening of traditional CIs where they still exist/function within a framework ensuring democratic and gender equal functioning.

***Category:*** Medium

***Details:***

- Discourage/liquidate existing co-operatives controlled by merchants, moneylenders and other vested interests.
- Ensure membership of all adult men and women in the CI from each fishing household.
- Proportionate representation of all sections within community to manage CI
- Formation of Subgroups of women and deprived sections in the CIs to enable them to voice their concerns and participate in decision making.
- Document, preserve and interpret traditional values through these institutions
- Provide modern scientific re-skilling and training.
- Equip them to access and handle credit facilities
- Forums for conflict resolution to address economic and communal issues

***Responsibility:*** Cooperative and Social Welfare Departments, Panchayats, NGOs.

***Time Frame***: 5 years

***Responsibility:*** Cooperative and Social Welfare Departments, Panchayats, NGOs.

***Action VI B:*** Special Schools, colleges and Technical Institutions need to be set up in coastal regions for the coastal community, to equip them to meet emerging challenges.

***Category:*** High

***Details:***

- These institutions should focus on
    - Use and conservation of coastal and fishery resources
    - Technology, techniques and management issues relevant to fishing, coastal livelihoods.
- Ensure distribution of these institutions (at the Panchayats, district and State levels) with proximity to the community for easy access especially for women.
- Curriculum and syllabi to be drawn, keeping the community as central, integrating traditional and scientific knowledge at the local level for example;
    - Resource mapping like GIS with traditional wisdom
    - Protecting, upgrading, promoting traditional skills like salting, smoking, drying, etc.

***Responsibility***: Ministry of Education, Department of Fisheries, Department of Social Welfare, CMFRI, PRIs, and Women's Commissions and NGOs, PRIs, Women's Commissions, NGOs and forums of coastal/fisher communities
***Time Frame***: 5 years

***Strategy VII*: Enhance livelihoods of fisher people by encouraging value addition.**

***Action VII:*** Promote value addition, diversification of products and produce and marketing, taken up by women's group/cooperatives within the fishing community. Link up with other livelihood groups/artisans for environmentally friendly packaging and accessories in value addition process.
***Category:*** Medium
***Details***:

- Value added products could include cleaned and packed dry fish, fish pickle, fish powder, fish chutney, shell ornaments
- Both home-based and collective ventures
- Transfer of technology and quality standards is important for cooperatives to compete with export houses and in the local/international market.
- Using traditional materials like baskets etc had been now replaced with plastic. There is good opportunity to link with other artisans dependent on renewable natural resources.

***Responsibility***: State Departments of Fisheries, Ministry of Industry, Ministry of Commerce, and Community co-operatives
***Time Frame***: 5 years
***Resources required***: Funding from State Fisheries Departments, NCDC and MPEDA.

***Strategy VIII:*** **Move towards ecologically and socially sound coastal tourism.**
***Action VIII:*** Enforce norms for Coastal Tourism to protect coastal ecology and livelihoods for communities. Current tourism development has been detrimental to coastal ecology and has encroached on the livelihood and living spaces of coastal communities, due to lack of sensitive planning and implementation.
***Category:*** High priority
***Details:***

- Keep all infrastructure requirement of tourism away from ecologically sensitive coastal regions
- Tourism development should not to be located in community living and resource use spaces.
- Make local community equal partners in all aspects of tourism – planning, implementation, monitoring and profit sharing.
- No privatization and change in the ownership of coastal land.
- A vigilant and well-informed local Panchayat with support from community organisations and unions for the above. Need for concerted capacity building of Panchayats for this purpose.
- Strict regulatory mechanisms from the MoEF and Department of Tourism.
- Considering the economic changes that allows 100 per cent FDI for tourism, ensure that the above norms are adhered by the foreign investors

***Responsibility:*** MoEF, DoT, PRIs and Coastal Management Authorities
***Time Frame***: Two years

***Strategy IX***: **Enforce norms for Industrial and infrastructure development along the coast.**
***Action IX:*** Strict adherence to the CRZ notification is necessary to check the (prevailing) indiscriminate use of coastal lands for setting up industries, captive ports and highways. Industrialization and infrastructure development along the coast has been destroying mangroves and the attendant ecology, natural estuaries and fishing grounds, effecting resource availability and the livelihoods of coastal communities, alienating and displacing them.
***Category:*** Medium priority
***Details:***

- Industries and infrastructure not to be located in ecologically sensitive regions (beaches, estuaries, back water systems) and community settlement and fishing regions.
- Carrying capacity of these regions and the cumulative impact of pollution from these industries need to be studied and monitored periodically.
- Need for measures to prevent/check inflow of industrial pollution, municipal swage and solid wastes from inland through water bodies to the coast and ocean

- Industrial policy should have specific guidelines/directives for industries to be set up along the coast.
- Water and Effluent treatment plants mandatory for industries that require water front facilities
- Extraction of ground water to be strictly regulated and monitored
- Highways to avoid coastal stretches, with only approach roads towards the coast.
- No privatization and change in ownership of coastal lands.
- Community Institutions and Panchayats to monitor the above.

***Responsibility:*** MoEF, Coastal Zone Management Authority, MoI, Ministry of surface Transport, State Pollution Control Boards, Community Institutions and Panchayats.
***Time Frame***: 5 years

***Strategy X***: **Enhance the scope of CRZ for conserving coastal resources and securing coastal livelihoods in the context of emerging intensive developments along the coastal region**

***Action X:*** Review the amendments to the CRZ that have diluted the sprit of conservation of coastal resources and community rights
***Category:*** Urgent priority
***Details:***

- Ban golf courses which are now permitted in the Special Economic Zones (SEZ) in CRZ III zones.. Golf courses are water intensive and use chemical fertilizer and pesticide. This would have negative impacts on the ground water table and also seepage of chemicals to the ground and other waterbodies, effecting coastal agriculture, fish and micro-organisms.
- No SEZ in regions of community living spaces, ecologically sensitive areas.
- Restore the rights given to traditional coastal communities in the original CRZ notification. ('Traditional rights and customary uses' recognized in the original notification 1991, for settlement of rights of the community, have been diluted and substituted by 'local inhabitants' in the latest amendment dated January 2002)

***Responsibility:*** MoEF, Coastal Zone Management Authority, Community Institutions and Panchayats.
***Time Frame***: urgent

*6.5 Inland Fisheries*

***Strategy I:*** **Restrict reclamation of ecologically sensitive fishery potential regions like, backwaters, wetlands and estuaries that adversely affects biodiversity, reduce fish catch, negatively impacting livelihoods.**

***Action I:*** Enact legislation banning reclamation of sensitive fishery potential regions
***Category:*** High priority
***Details:***

- Record and document the fishery potential of ecosystems and bring in protective measures
- Avoid land filling
- Ensure that there is no obstruction to waters flow when construction of roads, pathways and bridges are constructed in the worst case scenario.
- Organise sub committees of fisherfolk within gram Panchayats to monitor against land filling, reclamation, sand mining and refuse issues of licenses to reclamation and constructions in such areas

***Responsibility:*** MOEF, State government, fisheries departments, PRIs, local fisherfolk organisations
***Time Frame***: immediate

***Strategy II:*** **Ban discharge of industrial pollutants, municipal waste and sewage, which cause irreparable damage to the biodiversity of water bodies and livelihoods dependent on them.**

***Action II A:*** Ban setting up of hazardous industrial units along rivers and other water bodies. Ensure effective waste management and sewage treatment systems from municipal areas by ensuring effective implementation of EPA
***Category:*** High priority
***Details:***

- Documenting of industries, their capacities and the nature of effluents and treatment facilities

- Strengthen PRIs to ensure that the pollution control board monitors and take corrective/punitive measures
- Encourage elected representatives to ensure that mechanisms are created and funds earmarked for management of waste and sewage by municipal and Panchayats authorities

***Responsibility:*** Department of Industries, Pollution control boards, Municipal authorities, PRIs, NGOs, local fisherfolk organisations fisheries departments
***Time Frame***: immediate
***Resources required:***

***Action II B:*** To review existing legislations regarding pollution control and incorporate provisions to tackle the more hazardous toxic wastes like the POPs being released
***Category:*** High priority
***Details:***

- MoEF to set up a committee consisting of representatives from Department Health, law, commerce, Fisheries, Fish Workers Forums

***Responsibility:*** MoEF
***Time Frame***: one year

***Strategy III:*** **Move towards a balanced river discharge policy to address the needs of both agricultural and inland fishing livelihoods**

***Action III:*** Evolve guidelines to guard against neglect of inland fishery sector while designing and constructing dams for irrigation, power generation and ensure equitable distribution of water for agriculture and fisheries
***Category:*** *High*
***Details:***

- Site specific studies prior to construction of dams to ensure equitable distribution
- EIA to have special focus on impacts of the dam on fisheries sector and measures to mitigate this
- Put in place effective management systems with community participation to ensure equitable use of water for agriculture and fisheries

***Responsibility:*** MoEF, state governments, federations of Inland fisher community organisations, Institutions/NGOs with a pro people scientific capacity
***Time Frame***: immediate

***Strategy IV:*** **Ensure equitable access, ownership and control of water bodies and fishery resources for women and men of fishing communities.**

***Action IV:*** Review customary rights and existing use practices to evolve norms for equitable and sustainable use of inland fishery resources.
***Category:*** High
***Details:***

- Recording and consolidating site/community specific customary rights and current use
- Based on the above evolve norms
- Negotiations with other stakeholders

***Responsibility:*** State Department of Fisheries in collaboration with fishing community forums and PRIs
***Time Frame***: immediate

***Strategy V:*** **Legislative mechanisms to ensure sustainable fishing and conservation of water bodies.**

***Action V:*** Enact an Inland Fishing Regulation Act (IFRA) by Parliament to cover all inland water bodies to check their indiscriminate exploitation.
***Category:*** High
***Details:***

- MoA to draft a Regulation in consultation with Fishworkers' forums the address the following concerns:
  - Overexploitation of resources, industrial and other developments along water bodies, detrimental land use practices (On the lines of CRZ) etc

- Livelihood issues such as sustainable extraction, value addition and marketing mechanisms and supplementary activities during non-fishing seasons.
- Establish/activate Inland Fisheries Section within the fisheries department with adequate funds and personnel

- Reorient existing FFDAs and other fishing co-operatives towards sustainable fishing practices.

***Responsibility:*** MoA, state department of fisheries, Fish Workers Forums
***Time Frame***: Two years

***Strategy VI:*** **Ensure gender equity in fishery cooperatives and other institutions formed by the government**

***Action VI:*** Review the FFDAs and the cooperatives that they have promoted and address marginalisation of women in these institutions
***Category:*** High
***Details:***

- Set up a committee to assess the status of social and economic deprivation
- Explore strategies for corrective/remedial measures to ensure equal opportunities and social status

***Time Frame***: immediate

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