

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN - INDIA

INTEGRATING BIODIVERSITY INTO SECTORAL PLANNING A Note for Executing Agencies¹

Background

The critical role of India's rich biological diversity (including diverse ecosystems, species and genetic varieties) in the lives of its people is increasingly being realised. In particular, its four over-arching benefits are:

1. Maintenance of the ecological functions that all humans depend on, including stability of the water cycle, maintenance and replenishment of soil fertility, protection of soil from erosion, pollination and cross-fertilisation of crops and other vegetation on which people depend, stability of food producing and other ecosystems that owes to a diversity of life forms being present and therefore able to withstand stress, and other functions which may not yet be known to society;
2. Providing the base for the livelihoods, cultures and economies of several hundred million people, including its farmers, fisherfolk, forest-dwellers, artisans, and others;
3. Providing the raw material for a diverse medicinal and health care system, both for the 'informal' people's sector and the traditional/modern pharmaceutical sector; and
4. Providing the genetic base for the continuous upgradation of agricultural (including livestock and poultry) and fisheries production systems.

In particular, the most "disprivileged" sections of our society, the landless, the marginal farmers, the forest-dwelling adivasis, the small-scale fisherfolk, especially the women of these communities, are highly dependent upon and closely related to biodiversity.

However, sectoral and developmental plans (in forestry, fisheries, agriculture, industry, infrastructure, welfare, health, education, and others) for the Indian economy and society, have so far not paid adequate attention to these close links. Though increasingly sensitive to environmental concerns, India's planning process has still not completely integrated the concerns relating to biodiversity and ecological security. The critical functions of biodiversity mentioned above remain somewhat neglected, or under-valued, in national and state developmental plans and programmes.

Impact of non-integration of biodiversity concerns into sectoral planning

Though no consolidated figures exist, conservative estimates put the global loss of forest, fisheries, and agricultural productivity caused by biodiversity destruction to tens of billions of dollars. This does not even take into account the loss of critical ecosystem values (especially hydrological), and the social, cultural, and non-quantifiable economic losses, which could be even greater than the financially quantified ones. For India, only piecemeal estimates are available: for instance, that forest degradation causes the loss of about Rs. 57 billion worth of loss in wood produce alone (Tata Energy Research Institute, 1998).

Forestry, fisheries, and agriculture account for over 30% of India's GDP, and biological diversity and resources are the base upon which they stand. Yet this enormous value is neglected. Though not systematically studied, there are several examples of the impacts of neglecting or under-valuing biodiversity in national planning processes:

1. **Agriculture:** In agriculture, the stress on single-species production processes, or on promoting a handful of genetic varieties across very large areas, have meant the rapid erosion of crop and livestock (including poultry) diversity. While some of this may have been picked up and deposited in gene banks or other ex situ facilities,

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what is crucial is that their loss from the farmers' field and the pastoralists pastures has seriously undermined the stability of cropping and livestock systems, led to loss in soil fertility, made farmers more dependent on markets and outside agencies, destroyed 'wild' foods on farms (e.g. fish and prawns in traditional rice fields), increased the need for expensive and poisonous chemical fertilisers and pesticides, and perhaps most important for the long-term security of India's agriculture, eroded the genetic diversity on which continuous crop and livestock development is based. **Overall, such an approach to agricultural progress is unsustainable and inequitable, in particular adversely affecting the security of small farmers and pastoralists.**

It also needs to be understood that no meaningful research in agriculture can be done if biodiversity in seeds, livestock varieties, and wild relatives is lost. Further, studies published in prestigious scientific journals have shown that yields from traditional methods of farming which entailed the cultivation of numerous strains of a given crop in a single plot are upto 18% higher than monocultures. This type of farming also does away with the need for application of chemical fertilisers and pesticides, and is therefore in the long run economically more efficient.

The recent draft Agricultural Policy begins to recognise the need for sustainability, which has to be spelt out in greater detail and reflected in the actual programmes of the agricultural sector. However, plan and policy documents still carry contradictory statements. E.g. the major objectives of the 9th plan are stated to be: *Conservation, planned enhancement and utilisation of agro-biodiversity*. However, this is aimed to be achieved primarily through evolution of high-yielding hybrids and varieties, which have actually eroded the existing genetic base. It is also stated that: *Large scale agro-processing would have to be selectively encouraged since such activities on small scale are often not viable*. This ignores the fact that not only can small scale processing be viable, but that large scale processing requires large quantities of uniform raw material, a clear contra-indication to biodiversity. The need for alternatives to chemical fertilisers, which impose such a heavy economic and ecological burden on the country, is also not stressed. Such contradictory pulls will not take the country towards sustainability in agricultural systems.

Overall, agricultural planning has to go further in giving biodiversity and diverse cropping/pastoral systems a central place.² A critical gap is that the impact of development projects on agricultural biodiversity is not studied under existing environmental impact assessment (EIA) procedures, which therefore need to be modified. Further, financial measures for farmers and pastoralists that provide perverse incentives which promote homogenisation rather than diversification of growing/cropping/pastoral situations, will have to be reviewed.

2. **Water resources development:** Development of water resources for irrigation, drinking water, and other purposes, has conventionally not been very sensitive to environmental concerns. Starting from the 9th Plan, this has begun to substantially change, with much greater focus on efficiency, decentralised projects, watershed management, EIAs, and so on. The proposed National Water Policy too pays some attention to these aspects. Once again, however, aspects of biodiversity are not necessarily centrally integrated. The relationship between watersheds and biologically diverse catchments, for instance, remains under-studied and under-stressed, including within watershed programmes. The critical role of forests and other natural ecosystems in maintaining hydrological cycles and patterns, remains undervalued, so that often land use plans for forested or grassland areas do not take into account these functions. Disruption of riverine flows by dams and diversion of river waters for irrigation and hydro-electric power generation has seriously undermined the biological diversity of aquatic and marine life. Even EIA procedures and guidelines, though considerably more advanced today than a decade ago, do not fully require or incorporate studies on the impact of water development projects on biodiversity.

Water resources development needs to emphasise decentralised, sustainable water harvesting and use systems much more than has so far been the case. EIA procedures need strengthening, as does the role of local communities and traditional knowledge. Incentives towards maintaining biologically diverse catchments need to be built into the planning process. These and many other steps are necessary to integrate water development and biodiversity/environmental values.

3. **Health:** Development of the health sector in India has conventionally under-valued the enormous resource base of medicinal species that the country harbours, the fragile ecological nature of much of this diversity, and the astounding richness of folk knowledge on this subject. Indian systems of medicine (ISM) are now an important thrust in the government (with a dedicated department). However, the 9th Plan programmes related to this contain important areas of weakness or gaps, such as (a) in situ conservation of medicinal species; (b) regulation

² A recent volume by the Maharashtra Council of Agricultural Education and Research is an important pointer to such a future direction: Pillai, G.M. (ed.). 1999. *Challenges of Agriculture in the 21st Century*. MCAER, Pune.

of the commercial use/trade of such species and their related community knowledge; (c) conservation of threatened species, (d) protection and encouragement to folk traditions and innovations relating to biodiversity and health, (e) support to the livelihoods of collectors and users of medicinal species, and (f) encouragement to the critical role of biologically diverse diets in maintaining good health amongst rural communities (as is shown by studies with adivasis in Biligiri Hills of Karnataka and Melghat forests of Maharashtra). Filling these gaps or weak points could and should form the basis of encouraging greater economic enterprise relating to medicinal plants and ISM, both to give it a solid footing and to ensure that domestic and cultural values are not displaced by the commercialisation of this sector. Also to be explored is a much greater role for traditional systems of medicine, based on local medicinal plants found in the wild or cultivated, in the widespread system of PHCs.

4. **Tourism:** Even though the tourism industry itself is increasingly recognising both the ecological limits of tourism, and the potential of promoting wildlife/adventure tourism, the planning process has not yet taken this fully into account. The 9th Plan does not deal with ecotourism in a major way. Critical gaps remain in understanding and appreciating the impacts of tourism on biodiversity (largely negative at present), in devising truly ecologically friendly modes of tourism, and in promoting the livelihoods of local communities based on more sensitive tourism. Given that tourism is going to be a rapidly growing sector, the integration of biodiversity and livelihood concerns into its planning is imperative and urgent.
5. **Energy and Infrastructure:** These are perhaps the sectors in which integration of biodiversity concerns is still the weakest. Though EIA procedures are mandated for certain types and scales of energy and infrastructure projects, the procedures themselves and their implementation, remain weak in respect to biodiversity. The critical link between biodiversity and biomass-based energy, especially in rural areas, remains under-studied and under-valued. In the last decade or so, the greatly accelerated thrust towards increasing road, rail, and other infrastructure, to meet the demands of the liberalised economy, has also resulted in a renewed attack on biodiversity-rich areas, with detrimental impacts not just on biodiversity itself but on the livelihoods of rural people. An assessment of these sectors from the biodiversity and livelihoods point of view is therefore critically needed, as are steps to minimise and avoid negative impacts and strengthen positive ones.

In all the above sectors, and others, the role of macro-economic policies and measures in destroying or conserving biodiversity is the least understood. What seems to be clear is that many current measures, such as subsidies to chemicals in agriculture, tax incentives to industries in "marginal" areas (which are also usually biodiversity rich), and rapid (including "single-window") clearances for certain industries, are insensitive to biodiversity concerns. They also have an acutely negative impact on the livelihood security of small farmers, fisherfolk, and forest-dwellers, inequitably transferring enormous, but unaccounted costs of 'development' on these sections. Even present wild life and biodiversity conservation policies are generating acute conflicts between disprivileged communities traditionally dependent on protected areas, as there is no accounting of the costs of conservation thrust on them for the benefit of distant interest groups. On the other hand, there may be measures such as incentives for non-conventional or renewable energy sources that are probably helping to conserve biodiversity. An assessment of all such major economic measures is urgently needed.

The above are some indicative examples of the kind of gaps and impacts in the field of developmental planning and biodiversity. A similar commentary can be given for other sectoral policies, including for social welfare, women and child development, education and tribal affairs.

What is most critically needed is a more systematic assessment of these gaps and impacts, and steps towards reconciling the conflicts and making development planning in all these sectors more sensitive towards biodiversity (and related livelihood) concerns.

Promoting positive linkages and initiatives

While considerable integration of biodiversity concerns into sectoral planning is still needed at national and state levels, there are a growing number of individual initiatives where such integration has been successfully promoted. Planning processes can learn from such initiatives:

- In **agriculture**, for instance, many farmers, farmers' movements, NGOs and individual government agencies, are successfully enhancing biodiversity while also increasing productivity and employment potential, through organic farming systems that enhance not just crop/livestock production but also the availability of 'wild' foods on the farm. In the Zaheerabad area of Andhra Pradesh, dalit women have demonstrated that biologically

diverse farming, linked to a people-centred Public Distribution System, can considerably enhance livelihoods, employment, and nutritional status of the poorest people.³

- In **health**, a large number of projects are combining the in situ conservation of medicinal species with greater livelihood security of families using such species. The widespread programme of the Foundation for Revitalisation of Local Health Traditions, for instance, established Medicinal Plant Conservation Areas in various parts of India, and links these up to the knowledge, traditions, and livelihoods of village-based health practitioners. Several official agencies are also focusing on medicinal plant based livelihoods and on value-addition in the herbal drug sector.
- In **water** development, experiments over a couple of decades in diverse agro-climatic conditions, including the most arid ones, are showing that water harvesting with catchment protection can enhance the welfare of rural communities while actually regenerating and maintaining biological diversity. In Alwar district of Rajasthan, for instance, several hundred villages have revived their water sources through decentralised structures (*johads*), regenerated catchment forests, and formed joint bodies for planning and implementation of programmes related to land, water, forests, and agriculture.⁴
- In **forestry**, community initiatives, some initiatives within the Joint Forest Management framework (now covering several million hectares in India), and other efforts are combining sustainable livelihood development with forest conservation. Studies in the JFM network show that where the objectives shift from single species timber production from a plantation to non-timber forest produce (NTFP) from a diverse and mixed forest, the livelihood, economic, and survival benefits to local communities are greater. This is the reason for the recent (February 2000) circular of the central government to states, urging for a shift away from timber to NTFP and biodiversity based JFM strategies.⁵
- In **tourism**, some projects are showing that one can promote healthy tourism which enhances the conservation of biodiversity, the livelihood security of local people, and the awareness and enjoyment of tourists. For instance in Sikkim, tourism managed by the residents of the Rathong Chu and Khangchendzonga regions has moved towards ecological sensitivity and towards providing sustained benefits to local people.
- In **industry**, several experiments with small-scale units using natural dyes, medicinal plants, non-timber forest produce, and other biological resources, are demonstrating that sustainable use is possible and desirable. In the Biligiri Hills of Karnataka, for instance, the Vivekananda Girijan Kalyana Kendra has worked with Soliga tribal cooperatives to manage sustainable harvests of forest produce, and process some of these on site to make into saleable products. Ecological monitoring has ensured some degree of sustainability, and is leading to sensitivity to biodiversity conservation objectives. The use of bamboo, easily cultivable, can become another such source of biodiversity-based industrial enterprise.
- In **energy and infrastructure**, greater stress on environmental impact assessment, siting procedures, and public hearing processes, can lead the development of roads, railways, power stations, and so on, towards greater sustainability and ecological sensitivity. However, these are clearly the sectors that have the longest way to go, and where radical alternatives are urgently called for to achieve sustainability.

In several countries, even budgeting is now beginning to incorporate biodiversity and environmental concerns, e.g. by more comprehensive valuation of the benefits of biodiversity and the costs of destroying it, and through sophisticated systems of natural resource accounting/budgeting. These are by no means perfect, and tend to underplay the tremendous non-economic benefits of biodiversity, but nevertheless they are a critical element of changing the planning and development process.

These and many other such initiatives and processes need to be learnt from, strengthened and built upon, to give a general thrust towards integrating biodiversity (and related livelihoods) within the national and state level planning processes.

³ A large range of organic and natural farming initiatives are documented in Alvares, C. (ed.). 1999. *The Organic Farming Sourcebook*. The Other India Bookstore, Goa.

⁴ Hundreds of such initiatives are already known, and many of them documented, e.g. in the book: Agarwal, A. and Narain, S. (eds.). 1997. *Dying Wisdom*. Centre for Science and Environment, New Delhi.

⁵ The literature on JFM is large and rapidly growing, both within and outside the government. Other, community-initiated forest/land regeneration and conservation efforts, are not so well documented. A recent effort at a larger assessment of such initiatives is Kothari, A., Pathak, N., and Vania, F. 2000. *Where Communities Care: Community Based Wildlife and Ecosystem Management in South Asia*. Kalpavriksh, Delhi/Pune and IIED, London.

Inter-sectoral integration within the NBSAP process

One of the most important tasks in front of each executing agency of the NBSAP process is to list the measures needed for inter-sectoral integration. Such a listing of actions should be relevant for the geographical area that each agency is covering. For this, the following steps are necessary:

1. Assessment of the current gaps in integrating biodiversity concerns into each economic and social sector of planning (including budgeting), i.e. where the planning process has neglected or under-valued biodiversity (and related livelihoods of people);
2. Identification of the major impacts of such gaps and weaknesses, i.e. how biodiversity (and related livelihoods) are being negatively affected by the policies/programmes in each sector;
3. Identification and assessment of existing measures being taken to plug these gaps and weaknesses, e.g. is the state or district attempting to strengthen environmental impact procedures so that biodiversity conservation can take place, or trying to build in conservation elements into regional planning processes, or encouraging panchayats and district planning bodies to consider these aspects?
4. Identification of the specific actions needed to plug the gaps, to strengthen measures already being taken, to achieve integration of biodiversity concerns into the various sectors of planning (including budgets).

Many of the above themes and concerns are being taken up under the ongoing Government of India's National Biodiversity Strategy and Action Plan (NBSAP) process. The National Project Director (NPD) of the NBSAP, who is Joint Secretary in the Ministry of Environment and Forests, has stressed to state level agencies executing the process that sectoral integration of biodiversity is important. Members of the Technical and Policy Core Group of the NBSAP have done some brief sectoral reviews. The Thematic Working Group of NBSAP focusing on Laws, Policies, Institutions, and Planning relating to biodiversity, is also mandated to examine this aspect.

However, it is important that such an exercise through the NBSAP is able to plug into the official process of reviewing the 9th 5-Year Plan and preparing the 10th 5-Year Plan at both central and state levels. At the centre, the Planning Commission is considering setting up a Working Group on Integrating Biodiversity into the 10th 5-Year Plan. ***Executing agencies at the state and substate levels can also consider taking such a step, of setting up a working group or some other systematic process of integrating biodiversity into sectoral planning.***

The composition of such Working Groups should include state Planning Department members in charge of the various sectors, relevant officials from ministries/departments, district and other panchayat bodies, some independent experts in various fields, and community representatives. Representatives of the ongoing NBSAP process should also be on these Working Groups, to provide essential linkages between the national NBSAP process and each Group.

Attached is a format that is being currently used within the NBSAP process, to carry out preliminary assessments of the linkages between various developmental sectors and biodiversity. Such a format, with appropriate modifications, could be used by executing agencies.

Appendix

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN - INDIA

FORMAT FOR REVIEWING SECTORAL POLICIES AND PROGRAMMES FROM THE BIODIVERSITY POINT OF VIEW

Content Analysis

1. What is the current relation of the sector to biodiversity (e.g. how is the agricultural sector as currently planned, impacting both wild and domesticated biodiversity)? How does the current budgeting within this sector relate to biodiversity?
2. Ideally, what provisions and actions should this sector's policy and programmes (including budgets) contain in order to integrate biodiversity concerns?
3. How many of these provisions and actions are actually in the sector's policy and programmes? Are there major perverse or negative incentives that destroy biodiversity (e.g. subsidies to chemicals and hybrids in agriculture), or positive ones that encourage conservation (e.g. for decentralised watershed and water harvesting initiatives)? Is there some attempt at integrating comprehensive biodiversity values into the budgeting exercise?
4. Flowing from points 2 and 3 above, are the sector's policies and programmes (including budgets) *overall* **violative** of, or **conductive** to, biodiversity conservation and ecological sustainability (and to related livelihood security of the poor)?
5. Are there contradictions and complementarities between this sector and other sectors, that have a bearing on biodiversity? E.g., are there contradictions between the agricultural sector, and that of forestry, in the way they deal with biodiversity?
6. What specific changes would be needed to integrate biodiversity concerns into the sector's policy and programmes? Can these changes be recommended in your area's biodiversity strategy and action plan?

Process Analysis

1. If you are aware of the process by which the sectoral policy and programmes were formulated, have the following points been covered: was it consultative, did it take on board all the relevant sectors of society? Are there some obvious major gaps, which the NBSAP process can plug? Or is there no indication of the process at all?
2. If you are aware of how the policy and programmes have changed over the years, have they become more or less conducive to biodiversity issues? What are the major relevant changes?

Conclusion

What major changes in the *content* and the *process* of the sectoral policy and programmes would you recommend in order to make them more conducive to biodiversity issues and concerns?

What is needed to make the policy facilitate the two bottom lines of the NBSAP: ensuring ecological security of the country, and ensuring livelihood security of those most dependent on biological resources?

What major institutional structures and policy/legal changes would be needed to make this happen?