INCENTIVES FOR BIODIVERSITY CONSERVATION AT THE LOCAL COMMUNITY LEVEL

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1. BACKGROUND

Several countries are considering a range of incentive measures to achieve the conservation of biodiversity and the sustainable use of biological resources, as mandated by Article 11 of the Convention on Biological Diversity (CBD). To some extent or the other, a number of such measures were already in place in many countries even before the CBD, but the latter has given an additional impetus, and in some cases, a new direction, to the thinking and practice of incentives. Some of these aspects have been dealt with in the CBD Secretariat's relevant papers (UNEP 1996; 1998) and in the decisions regarding this agenda item at the third and fourth Conference of Parties to the CBD (Decisions III/18 and IV/10A).

This paper takes a broad view of the kind of incentive measures that a country like India should put into place.

India, like many other 'developing' countries, has the following features that are relevant as a context to the planning of incentive measures:

1. A high degree of economic and social disparities, which affect the management of its natural resources in adverse ways, allowing the privileged to get away with over-exploitation and forcing the under-privileged to degrade their meagre resource base;
2. A centralised and top-heavy structure of governance, which concentrates power in the hands of a few, and alienates the majority from the natural resource base; this includes many communities who live in the most biodiversity-rich areas; it also includes programmes of biodiversity conservation, which are dominated by urban conservationists and often work against the interests of resource-dependent local communities;
3. A rapidly and haphazardly expanding economy, which places unsustainable pressures on the natural resource base, both through 'legitimate' activities which are encouraged by the State, and 'illegitimate' ones by powerful vested interests which the State is incapable of tackling;

4. A range of macro-economic, social, and other policies which undermine ecological security, including several perverse incentives (in particular in the agricultural sector);
5. An expanding human and livestock population;
6. A serious erosion of biodiversity, as a result of the above and other factors[1]; and
7. A growing concern about the above issues, and a range of governmental, NGO, and community responses which are attempting to tackle the causes of biodiversity loss, including through the provision of incentives.

Any attempt to change the prevailing trends in India would have to be cognizant of the above, and would have to deal with factors 1 to 6, while encouraging factor 7.

2. THE RANGE OF INCENTIVE MEASURES

Given below are a range of incentive measures, or measures to tackle disincentives, which could help to move towards a more conservation and sustainable use oriented society. As far as possible, examples of measures already being taken or proposed, are given with each of these. The focus is on incentive measures which will work in the case of local communities[2] who live amidst areas important for biodiversity conservation, or who themselves have developed bio-diverse ways of living (e.g. traditional farming communities).

2.1 ***Security of tenure, rights to resources***: Through the colonial and post-colonial history of India (and other South Asian countries), communities who have been dependent of natural resources around them, have been systematically alienated from ownership or control over these resources. Substantial State takeover of forests and waterbodies took place during the British colonial era (e.g. through enactments like the Forest Act of 1927); the post-independence period, instead of reversing this trend, further compounded it by a series of steps (nationalisation of many forest resources, enactment of Wild Life Protection Act 1972, etc.). There were, of course, different motivations for different steps (the Forest Act and related policies, for instance, legitimised an essentially commercial outlook towards forests, while the Wild Life Act was oriented towards conservation), but in terms of local communities, the results were the same.

Both policy changes and on-ground experiences over the last few years, have emphasised the need to reverse these centralising and alienating trends. The Forest Policy of 1988 put the interests of local

[1] For details, see Kothari 1997.
[2] The term 'communities' here is used to denote both distinct groupings and individuals within them. It is recognised that communities in this sense are by no means homogenous entities, and that caste, class, gender, and other internal differences can have substantial impact on conservation of biodiversity. However, given the lack of space, this aspect is not highlighted everywhere it is relevant in the paper.

communities as being central to the management of forests. An ambitious programme of Joint Forest Management (JFM) attempted to give back communities some stake in forest conservation and use, though power and control still rested essentially with the Forest Department. Most important, a range of community-based initiatives, has shown that even where *de facto* control is revived amongst the community, long-term prospects of conservation improve (Kothari et.al. 1998). However, even in such circumstances, the absence of legal or administrative authority, often hampers the initiatives of the community, e.g. in tackling outside forces against which they have no power or authority. Moreover, without such authority, communities are unsure of the security of their tenure, and therefore often unwilling to take risks or make investments.

In the case of agricultural lands, the increasingly unfavourable tenurial conditions for small farmers, or for farmers in so-called 'marginal' lands (mountains, marshlands, coasts, arid areas, etc.), has also led to erosion of agro-biodiversity. Amongst the causes is the move by governments to easily allow conversion of agricultural lands to non-agricultural uses, under pressure from industries; and to lift land ceiling laws to allow much larger land holdings by corporate farmers or companies.

Possibly the most critical incentive measure, therefore, in the case of common property resources such as forests and wetlands and private agricultural lands, is a revival of tenurial security. This can be in the form of ownership, or full rights, over the resources on which the community depends. In this way, guaranteed *access* to livelihood resources is itself the biggest form of *benefit-sharing*. However, very important also is the assignment of responsibility for the conservation of these resources, and strict policies, which do not allow conversion of critical agricultural/grazing lands for industrial/urban uses. In their absence, the situation that is prevalent in parts of north-east India, where communities have retained ownership but are misusing that to sell off forests to market forces, could well be repeated elsewhere.

One major step towards providing tenurial rights has been taken recently by the enactment of the Panchayat (Extension to Scheduled Areas) Act 1996, which has given to communities in scheduled (tribal) areas ownership over 'minor forest produce' (produce other than timber). How this will impact on the long-term conservation and sustainable use of forest resources will become clearer as communities start using the Act to claim control. In JFM areas, rights to forest resources and to revenue earned from timber sales have been given to communities. In the southern state of Kerala, another interesting step has been a law, which has given exclusive rights to fish resources to local fisherfolk. One of the main areas of conflict, however, remains that between local communities and protected areas (national parks, sanctuaries); here too, usufructory rights at least for biomass and survival resources will have to be given to communities if their support for conservation is to be obtained. Some state governments in India have recently provided for benefit-sharing from within

protected areas (e.g. grass-cutting), as a part of ecodevelopment programmes, but these are not yet considered *rights* (*JPAM Update*).

2.2 ***Material benefit-sharing measures***: Classical conservation programmes have typically benefited (apart from the wildlife itself!) urban and 'global' sections of society (tourists, conservationists, etc.), at the cost of local resource-dependent communities (Pathak and Kothari 1998).[3] The costs that communities pay include physical displacement, disruption of livelihoods, human/livestock/crop damage by increasing wildlife populations, disempowerment, loss of traditional knowledge and practices, and loss of self-respect and dignity. This perverse structure of benefits and costs needs to be inverted. A range of benefit-sharing measures which would help to do this include:

(i) *Rights to essential biomass and survival resources, with responsibilities to conserve them* (as in 2.1 above).

(ii) *A share of the revenues earned from gate fees, tourism, and other such activities* which are carried out in conservation areas. A start has been made on this by Madhya Pradesh government, by channeling gate fees back into a fund dedicated to local community and staff welfare measures;

(iii) *Direct economic returns from conservation related activities.* Employment in conservation areas or for conservation/ecotourism activities could be given on a priority to local people; sale of handicrafts and other villages produce could be encouraged; direct payment could be made for special species or habitat conservation work done by local people. In Corbett National Park, Uttar Pradesh, an innovative birdwatching guide training programme has given several local youth employment as tourist guides (Bhartari 1998).

(iv) *Financial rewards for reporting illegal activities.* Local communities are in the best position to detect illegal activities by outsiders, and should have the incentive to report them to the authorities, including by appropriate rewards. Some states in India have such a scheme, but in a very limited way. Another possibility is to share a part of the fines, which are levied on offenders, with local communities who are helping in detecting offences.

(v) *Consumer-producer links:* An exciting means of providing incentives is to build direct relationships between producers of biologically diverse foods and other products, and consumers who prefer such products to the standardised goods that usually flood the market. The links can even be in terms of barter, to some extent reviving traditions of exchange. Small-scale but significant networks experimenting with this are already in operation in a number of Indian cities and towns (Alvares 1996).

[3] At the world-famous wetland, the Keoladeo Ghana National Park, Bharatpur, Rajasthan, for instance, almost all of the income derived from tourism (about Rs, 24.5 lakhs or US$55,000) goes to private or public sector tourism agencies, while the local communities suffer a loss of about Rs. 20 million (US$60,000) per year due to agricultural losses by waterlogging related to the water manangement in the Park, restrictions on fuel and fodder, etc. (Murty 1996).

2.3 ***Appropriate livelihood and developmental inputs****:* Many communities in conservation areas, or which harbour important wild and/or agricultural biodiversity, are in need for development inputs. Most important of these are small-scale, decentralised measures for water harvesting, land regeneration, marketing links for local products, and so on. Since about 1990, India has embarked on ambitious 'ecodevelopment' projects, which aim to reduce the 'pressure' of local communities on protected areas by providing alternative livelihood means; however, though well-intentioned, these schemes have had at best mixed results, perhaps because they still assume that the best way to save protected areas is to exclude the local people from using resources, and because they continue to ignore issues of tenure and local knowledge/practice systems (Kothari 1998). The ecological and social appropriateness of many of the ecodevelopment inputs has also been questioned.

The importance of livelihood and development inputs, as incentives for conservation, has been well-demonstrated in dramatic cases of NGO or community-initiated work. In the Alwar district of Rajasthan, for instance, the NGO Tarun Bharat Sangh has not only catalysed community action towards water harvesting (such that previously water-deficient regions have been come water-surplus), but also sparked off a series of forest protection measures. Communities protect forests because they are catchments for their water storage structures, apart from providing fuel, fodder, and other resources. Taking a cue from this, some state Forest Departments has concentrated most of their inputs into land-water regeneration work.

The importance of appropriate marketing linkages (coupled with other inputs for biodiversity-based enterprise) is also demonstrated by a number of examples from India and other South Asian countries (Bhatt 1998). In the Biligiri Ranganaswamy Temple Sanctuary, Karnataka, for instance, NGOs have helped local Soliga tribals to enhance the value of NTFP before selling it in the market, while persuading them to adopt more conservation-oriented practices of extraction (Lele et.al. 1997).

2.4 ***Capacity enhancement, training, education****.* Communities have considerable knowledge about surrounding resources, as reflected in a range of practices which are (or at least traditionally were) sustainable. In some cases all that is needed is encouragement of these, or provision of marketing linkages (as above). In the current context, however, some of these knowledge and practices may not be sufficient to meet livelihood requirements. Technical inputs to upgrade resource use skills, training in research, resource mapping and monitoring techniques, training in institutional activities such as record-keeping and accounting, etc. are some examples of interventions which could enhance the ability of local people to handle conservation and benefit-sharing measures. Training to become birdwatching guides in Corbett National Park (Uttar Pradesh) and Keoladeo Ghana National Park

(Rajasthan) are examples. Such activities, however, must be mindful of local cultural conditions, and attempt to build on available capacities rather than completely displacing them.

2.5 ***Social recognition, awards, empowerment, and other non-material incentives***: Very often, non-material incentives can work as powerfully as material ones, sometimes even more effectively. Widespread social recognition for exemplary conservation work, for instance, is a major encouragement. Even the knowledge that their work is benefiting a large number of people is a powerful motivation to carry it on, unlike the modern utilitarian concept that only personal gains are an incentive for innovation and hard work. In India, the central government has instituted an annual awards scheme (the Indira Priyadarshini Award) for excellence in forest conservation, which is given to individuals and communities.

Perhaps most important is the sense of empowerment that communities get when they are able to organise around conservation and development activities. This empowerment enables them not only to achieve what they started off with, but also indirectly benefits them in their interaction with outsiders (including, especially, government agencies) and in their confidence and ability to handle even unrelated problems. For this reason alone, providing communities a voice in decision-making and facilitating their self-organisation is a crucial incentive.

2.6 ***Involvement in decision-making, implementation, monitoring.*** As stated above, decisions regarding conservation and development have so far been extremely centralised and top-down. The sense of alienation that results is very debilitating, and no conservation programme can succeed in such circumstances. Participatory processes, much touted by governments but often largely restricted to the occasional consultation, must go all the way in terms of placing communities at the centre of conceptualising, planning, implementing, and monitoring conservation programmes and policies. Such processes can be powerful incentives for conservation, partly because of the sense of empowerment pointed out above. In the case of forest conservation outside protected areas, this has moved considerably ahead in some Indian states; however, in the case of protected areas, there is still considerable resistance from the forest bureaucracy. This will need to be broken to move towards joint or community-based management of even protected areas, where substantial human populations continue to exist (Kothari et.al. 1996; 1997).

Involvement of communities in monitoring conservation programmes has been a rare occurrence, but is increasing (Bhatt 1998).

2.7 ***Intellectual property rights:*** Current debates have increasingly focused on the need to provide local communities (including individuals within them) protection of their knowledge and practices.

Article 8j of the CBD has even more sharply focused the discussion on this. Existing western models of intellectual property rights (IPRs) are not suitable for this purpose, as they are individualistic, monopolistic, and often violate the ethical tenets by which communities organise their knowledge systems. Alternative models which recognise community-based knowledge (even if individually generated), which provide for continuation of the socio-cultural milieu which makes biodiversity-based innovation thrive, and which are equitable in their impacts, have been suggested by many people (GRAIN 1995; Nijar 1996; Shiva et.al.1997; Gene Campaign 1998; Posey 1996). As a relatively recent entrant into the arena of incentives, however, this development is yet too new to be judged; IPRs in any context can be tricky, and there are complicated issues of knowledge ownership and spread, distribution of benefits, etc. that have to be worked out. India has, nevertheless, proposed that community knowledge protection systems should be given a legal basis, and worked out in detail; such a framework provision exists in its proposed Biological Diversity Act (BDA 1998). NGOs are also gearing up for this by preparing, in partnership with local communities, a series of Community or People's Biodiversity Registers. This exercise aims to help villagers to organise and systematise their knowledge, to aid in its exchange amongst communities, to identify communities and individuals with exceptional knowledge and innovations, and to provide proof of prior knowledge in cases of IPR claims based on local community knowledge (Gadgil 1996; Bhatia and Kothari 1996). Issues of whether such documentation would actually speed up the appropriation of such knowledge in the absence of legal protection, and of whether this would be one further nail in the coffin of oral traditions, need to be seriously addressed during this exercise.

2.8 ***Removal of perverse incentives:*** A range of perverse incentives, or disincentives, hamper attempts to conserve biodiversity at the community level. Changing or eliminating these will be important. These include:

(i) *Damage by wild animals*: Wild animals cause considerable loss of life, livestock, and crops, amongst local communities. This has become a serious problem in and around protected areas, where communities are not allowed to retaliatory action, and where animal populations have increased substantially without a corresponding increase in habitat and food base. This is one of most serious disincentives for conservation. Yet preventive actions, and payment of compensation where prevention is not possible, have been seriously deficient. Where non-existent (as in the case of crop damage in most parts of India), they compensation or schemes such as crop insurance need to be introduced; where already existent, compensation rates need to be drastically increased. In addition, there is a need to simplify the procedures for payment, as otherwise villagers have to run from pillar to post to claim it, and even then receive less than promised because some 'cuts' have to be offered to intermediaries. WWF-India, Corbett Foundation, and some other NGOs have recently started a scheme to quickly

pay compensation in cases of livestock lifting, which is reportedly quite successful in reducing local animosities towards wildlife.

(ii) *Economic subsidies for biodiversity destruction*: Most current subsidies and economic incentives are oriented towards the destruction of biodiversity. This is especially true in the sector of agriculture, where intensive monocultural plantations with heavy inputs are favoured, while biodiverse traditional farming loses out. Forest logging in the Andaman and Nicobar Islands, an Indian biodiversity 'hotspot', is economically feasible only due to a considerable government subsidy. Such economic policies and programmes will need to be drastically re-oriented; if at all subsidies are to be given, they should go into off-setting the lost opportunities that many farmers and other local community members may be facing when attempting to conserve biodiversity.

3. **MAJOR ISSUES IN INCENTIVE MEASURES**

Experience from India and other countries while extending the above kinds of incentives, has brought up many issues which need further analysis, understanding, and action.

3.1: ***Primary beneficiaries/stakeholders need to be identified:*** Who should incentive measures be 'targeted' at, and who should be involved in decision-making regarding these measures? Local communities are internally heterogeneous, and not all the sections will have an equal stake in conserving local resources. Add to this interested parties from outside (migratory resource users, industrial/commercial users, tourists, etc.), and the list of potential beneficiaries or decision-makers can be quite long. It is therefore useful to distinguish between 'primary' and 'secondary' stakeholders; criteria that have been used to do this include proximity to the resource being conserved, extent of survival dependence on this resource, history of interaction with it, and willingness/ability to help in conservation. An interesting effort to apply this to actual conditions has recently been made by researchers at the Kerala Forest Research Institute (Chandrashekhara 1998).

3.2: ***Legal status of incentives/benefits should be determined***: As mentioned above, long-term security of tenure relating to natural resources may be a powerful incentive for conservation and sustainable use. Determination of the legal status of the benefit is therefore important: whether it is ownership, user right, privilege or concession given by the State, or some other legal form.

The case of pathbreaking benefit-sharing arrangement between the Kani tribals in Kerala, and the Tropical Botanic Garden Research Institute, which developed a herbal drug based on knowledge provided by the Kanis, is illustrative. All seemed to be well with the arrangement, till the Forest Department objected saying that the plant on which the drug was based was being extracted by the

tribals from their land! For over a year, the agreement was at a standstill due to this. With no tenurial right over the forest or the plant, the Kanis could not benefit from the agreement.[4]

Another critical issue for resolution is how to ensure that rights (especially ownership) are not misused by the right-holder. Legal rights over natural resources should go therefore hand in hand with legally enforceable obligations towards conservation and sustainable use. Some kind of checks and balances, which can be mutual between local communities and government agencies, would be needed.

3.3: ***Incentive measures must be participatory:*** Too often have incentive measures failed because they have been planned and implemented in a centralised, top-down manner. Some aspects of the current ecodevelopment project in India are like this (though many are far more participatory than previous government projects). It seems that if people are involved from the stage of conceptualisation to the stage of monitoring and review, there is greater feeling of belonging and thereby greater possibility of success. Water harvesting structures made by government agencies in Rajasthan, for instance, have been much less successful than those initiated by local NGOs and community institutions, not necessarily because they are technically deficient (though this may also happen), but because they never involved the local people in planning and implementation, and thereby did not build a base for continuous maintenance. This also requires the creation, or strengthening, of local level institutional structures, such as the *gram sabha* (village council), and more specialised bodies like *van suraksha samitis* (forest protection committees).

3.4: ***A diversity of incentive measures is needed:*** No one kind of incentive would be appropriate or adequate to the meet the diverse realities even within a single country; and even in a single situation, a mix of incentives would perhaps be more effective. Dependence on single incentive measures, e.g. ecotourism revenues, could be risky; in any case, communities have diverse needs, and a diversity of incentives would more likely meet these needs than any single measure. Moreover, the mix should ideally include not just economic and other material incentives, but also non-material ones such as political/social empowerment, social recognition, and others.

3.5: ***Lateral thinking helps:*** Experience has shown that approaching conservation through 'lateral' means is often more effective than trying it directly, especially in the case of external interventions. People have their own priorities, they may be more interested in obtaining water than in protecting

[4] Dr. Pushpangadan, Director of TBGRI, told me recently that the matter had been sorted out with the Forest Department; however, it does not seem that the Kanis still have a right to the plant, only a concession by the Department.

forests. But through providing water, one can approach forest conservation too…the example of water harvesting in Rajasthan given above, is illustrative.

3.6: ***The quantum and kind of positive incentives should be of higher value than that of perverse incentives:*** Very often incentive measures fail because they do not manage to offset the opportunity cost of people taking up conservation measures; the gains made by continuing a particular destructive activity are greater (in monetary or other terms) than those made by stopping it or taking up an alternate course of action. This is not a matter of simple economics; people may, for instance, find it more valuable to continue an existing destructive proactive (e.g. ritualised hunting) even if substantial monetary benefits are offered to stop it. Understanding the value of each particular activity to the local community, and basing incentive measures on this understanding, is therefore critical.

3.7: ***Incentives should be sensitive to the local socio-cultural milieu, and built on available resources/practices, where possible***: Measures which go against the grain of the local cultural milieu, or which are based on completely alien knowledge/practices/technologies, are less likely to succeed than those that are sensitive to such aspects. Taking the case of water harvesting structures mentioned above again, those which have not been built on local knowledge of water availability appear to do less well than those which have.

3.8 ***The equity aspects of incentive measures must be addressed***: Local and national structures of inequity (social, political, and economic) can undermine the most well-intended incentive measures, especially if substantial populations are disprivileged in the process. A number of researchers have shown how, in Joint Forest Management and other initiatives, landless people, women, or other already disprivileged sections are rendered worse off by forest conservation initiatives, and how this could threaten the initiatives themselves (Sarin 1998; Raju 1998). Addressing these aspects is not easy, and in the short term could even lead to a failure of the conservation initiative if considerable social upheaval occurs in trying to challenge local inequities. However, there appears to be no getting away from the need to tackle this issue head-on. Decision-making processes regarding what incentive measures to employ, how to employ them, and the distribution of benefits, should be as representative as possible, taking care to include the specially disprivileged sections.

3.9: ***The ecological sustainability of incentive measures needs to be ensured***: Amongst the weakest aspects of many incentive measures is the lack of ecological sustainability, or at least the lack of monitoring steps which would establish whether such sustainability is being achieved. Increasing the market price of a non-timber forest product, for instance, could go either way: it could be used to persuade extractors to take less out of the forest, or it could encourage even greater exploitation. Two

aspects are necessary here: a good understanding of the ecology of the resource; and institutional measures to ensure that regulations are in place.

3.10: ***Institutional coordination is necessary***: Incentive measures introduced by one agency could easily be undermined by another agency, if there is a lack of coordination or, worse, institutional rivalry. On the other hand, the scope and extent of incentives could be substantially enhanced if relevant agencies coordinate with each other. Ecodevelopment measures in India have sometimes suffered from the former situation; the Forest Department, entrusted with these measures, has had little cooperation from rural development agencies that have the monetary and humanpower resources to ensure the success of such measures. But there are examples to the contrary; such as when a young administrative officer was able to coordinate all the government agencies in and around the Melghat Tiger Reserve in Maharashtra to pool their money into appropriate developmental inputs which helped to achieve greater support for conservation (Pardeshi 1996). A grassroots example of the same is available from the Gadchiroli district of Maharashtra, where village-level mobilisation has forced government agencies to coordinate their activities related to the village of Mendha-Lekha (Pathak 1998).

3.11: ***Appropriate policy and legal measures are needed***: Incentive measures cannot work in a policy and legislative vacuum. All relevant policies and laws will need to be changed to suit the range of incentive measures, which have been mentioned above. In the case of India, this includes the Forest Act 1927, the Wild Life (Protection) Act 1972, and several national and state-level legislations relating to fisheries, agriculture, and other biological resources (Pathak and Kothari 1998). There are also proposed new laws, including the Biological Diversity Act (BDA 1998) and the Plant Varieties and Farmers' Rights Bill (PVFRB 1998). The former contains significant clauses on benefit-sharing and incentives. Unfortunately, the latter, though nominally also dealing with farmers' rights, is oriented more towards safeguarding the commercial interests of formal sector breeders, and hence may only further agro-biodiversity loss; it needs to be significantly re-oriented to make it facilitative of the measures suggested in this paper (Kothari 1999).

Fiscal policy measures are also critical, ranging from positive subsidies, tax exemptions, etc., to the setting up of National and State Biodiversity Funds. These Funds could be put together from taxes on biodiversity-based industry or on elite consumption goods, external and internal grants, fees and royalties from agencies taking genetic resources out of India, etc. The BDA proposes such funds at local, state, and national levels.

4. CONCLUSION

This paper has gone through a range of incentive measures that a country like India can employ in attempting to conserve its biodiversity and sustainably use its biological resources. Many of these are already being tried out, though not always successfully; many others need to be introduced. The paper has also pointed out critical issues that need to be tackled while planning and implementing such measures, issues that have come out of ongoing experiences and which would significantly affect future steps.

As it moves ahead to implement its obligations towards conservation and sustainable use, including those under CBD, India would do well to stress on some essential pre-requisites: decentralised and participatory planning and implementation, social and ecological monitoring, and equity in decision-making and benefit-sharing. These are difficult to achieve, but without them, long-term conservation and sustainable use are likely to remain a mirage.

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