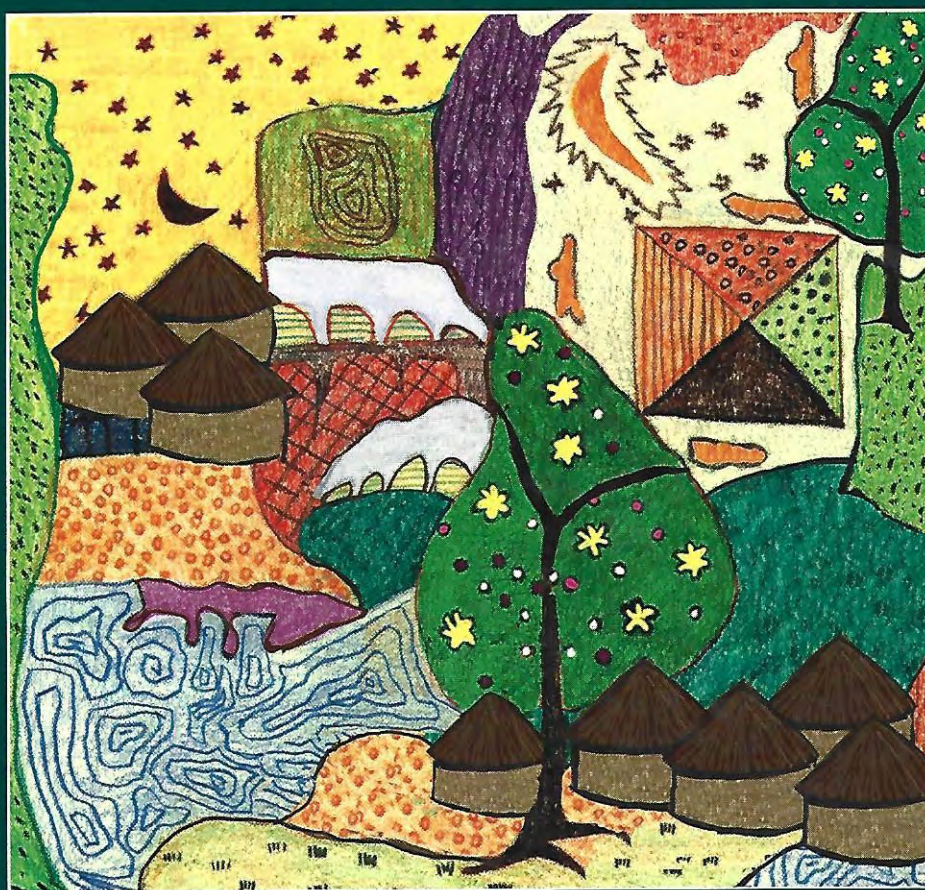




A  
World  
Bank  
Symposium

# DECENTRALIZATION AND BIODIVERSITY CONSERVATION

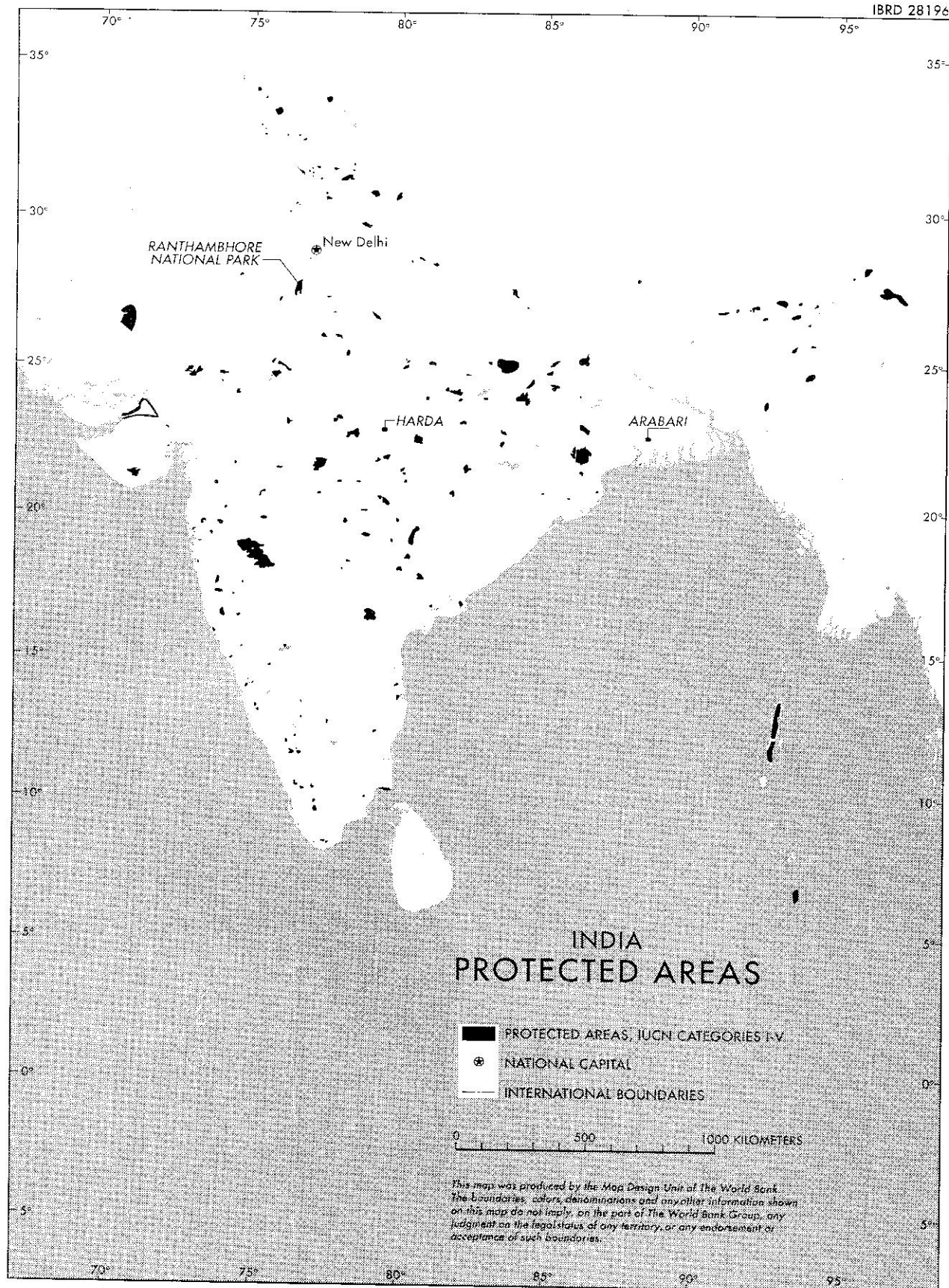


Edited by

Ernst Lutz

Julian Caldecott





# India

*Shekhar Singh*

Fiscal and administrative decentralization can be of at least two types. First, decentralization can involve moving financial and administrative control and decisionmaking power from one level of the government to another, such as from the national to the state government. Second, decentralization can involve shifting such control and power from government to community institutions. These processes have different effects and implications and thus are considered separately here.

## Decentralization within the Government

Before India achieved independence in 1947, governance was essentially centralized, with control being exercised by the British government from London. Some powers were vested with the British viceroy in India, who was assisted by various essentially advisory bodies. At independence, India adopted a federal structure with power being shared between the central government and individual state governments. Today there is a national Parliament of directly elected members of the Lok Sabha (House of the People) and indirectly elected representatives of states in the Rajya Sabha (Council of the States). Similarly, each state has a directly elected Legislative Assembly whose members also elect representatives to the Rajya Sabha.

The constitution of India and other related instruments divide various functions between the states and the central government. Certain matters, such as law and order, are almost exclusively state subjects, whereas defense and external affairs are exclusively central government subjects. Other matters, such as rural development, forests, and environment, involve both the central government and the state governments, for both have jurisdiction.

## Management of Forests

Nearly a quarter of India is legally designated as forest land. It contains a variety of habitats, including grasslands, wetlands, mangroves, and even rivers and deserts; some areas may have no surviving natural ecosystems. Nevertheless, by virtue of legal designation, such lands are forest land. They represent the largest holding of natural habitat in the country.

The first effort to nationalize and centrally control the Indian forest estate was made by the British in 1865, when the first Indian Forest Act extended government control over what was then either common resources or privately owned land. This act was replaced in 1927, again by the British, with a new Indian Forest Act. It is still in force, and it has further consolidated the hold of the government over forest land. With independence in 1947, and establishment of the Indian Republic in 1950, control over these forest lands passed to the state governments.

Expenditure on forests is largely controlled by state governments although, as is the system in India, the allocation of financial resources is done by the National Planning Commission of the central government. Nevertheless, effective control over these resources remains with the state governments. Unfortunately, despite the large forest holdings, budgetary allocations for forestry have rarely exceeded 1 percent of the national budget. This reflects the hesitation of both the central and state governments to give forest protection and management a high priority. Revenue from the forests accrues to state governments, but there is no correlation between the forest revenues earned in a state and the expenditure on forest management in that state.

In 1980, the government of India enacted the Forest (Conservation) Act, which specifies that no forest land can be converted to nonforest use without the consent of the government of India. This act was prompted by high and increasing rates of loss as forests were converted to nonforestry purposes, including agriculture and infrastructural projects such as dams and roads. The Forest (Conservation) Act was amended in 1986 to cover plantations by nongovernmental organizations (NGOs) and the clearing of natural vegetation on forest land.

By amending the act, the central government further consolidated its control over the forests because the law specified that without central government permission states could neither give forest land to any private or corporate entity nor clear forests of their natural vegetation. The first measure was to prevent the transfer of forest lands to corporate bodies under the guise of promoting plantations, while the second was to protect biodiversity and forest cover on lands that were legally classified as forests.

Earlier, at the central government level, forestry had been overseen by a department in the Ministry of Agriculture. But in 1985 the government of India created a National Wastelands Development Board (NWDB) and a consolidated central Ministry for Environment and Forests. The NWDB was given the responsibility and resources to undertake large-scale afforestation programs and to make forestry a mass movement. The creation of the NWDB also meant, however, that more of the funds available for forestry would now be handled by the central government than by the state governments.

Thus the overall trend in Indian government since independence has been to centralize rather than to decentralize administrative and fiscal control over forests. Although the day-to-day management of forests is still within the purview of state governments, the Forest (Conservation) Act has centralized the power to prevent the conversion of forest land to other land uses. Similarly, although much of the fiscal power relating to forests remains with the state governments, the NWDB and the Ministry of Environment and Forests give the central government control over a greater share of the funds to be spent on forestry.

There is, however, widespread support for the Forest (Conservation) Act among foresters and environmentalists. This is mainly because state governments have in the past been insensitive to the needs of forest conservation and have tended to favor forest revenue and large infrastructure projects. Statistics show that

the rate of forest conversion was almost a hundred times greater before the Forest (Conservation) Act than after it came into effect. Because much of this diversion was for large infrastructure projects, communities that were dependent on the forest for basic needs were displaced and otherwise deprived.

This problem is aggravated by the facts that state governments themselves do not further decentralize power and control and that all decisions are made at the state level rather than at the level of villages or districts. One view is that there may be local sensitivity to conservation and social justice issues but that, especially in the case of the environment, this does not permeate up to the state level, where most decisions are made. It is felt, therefore, that central government intervention is desirable because the central government is far enough removed from local concerns to be objective, while also tending to have greater concern for the environment.

Some problems remain, of course. For example, an outcry often arises when a village road or a water supply scheme is delayed, pending central government permission to convert forest land. Consequently, there is a strong demand that limited powers of forest diversion for certain specified purposes be delegated to the state governments. Desirable as that is, the current difficulty in getting clearance for forest land ensures that all other alternatives are first considered. Only when no other alternatives are available is the use of forest land proposed. Given the rapidly shrinking forest cover in India, this seems to be a helpful constraint on changes in land use.

### *Management of Wildlife Protected Areas and Other Habitats*

Strong legal protection is accorded to wildlife protected areas (WPAs), which include national parks and sanctuaries. Coastal regions also are strongly protected. None of the other habitat types has such specific and comprehensive legal protection; other ecologically vulnerable habitats such as mangroves, coral reefs, grasslands, wetlands, and mountains have little legal protection or regulation unless they fall within legally designated forest areas or WPAs. Recent acts, however, have given general protection to all habitats. Under the Environment (Protection) Act (EPA) of 1986 and its various rules, the central government and state governments can take whatever action they deem necessary to protect the environment.

A good example is the coastal regulation zone, which was created by the EPA in 1991. Under this act,



use or construction in the coastal zone is regulated up to a specified distance from the high-tide line, and any deviation needs special permission from the central government. Similarly, another notification under the EPA has made it legally necessary to obtain central government clearance prior to initiating certain infrastructure projects such as dams, roads, industries, and mines.

A series of acts since the mid-1970s have empowered the central government and its agencies to monitor and regulate pollution. These include the [Prevention and Control of] Water Pollution Act of 1974 and the [Prevention and Control of] Air Pollution Act of 1981. Creation of a Central Pollution Control Board is also significant. Each state government has set up its own department of environment and pollution control board, but a large proportion of the financial resources available for the environment continues to be controlled by the central government. Given the indifference to environmental matters at the state level, there are advantages to this continuing centralization.

### **Decentralizing Management to the Community**

Control over forests and other natural habitats has been exclusively with the government, with few exceptions. One exception is some village land, mainly pasture land, that belongs to communities. Another exception occurs in certain predominantly tribal states of northeastern India, where most of the forests are controlled by tribal district councils. A third exception is the rights retained by communities over many forests—grazing, collection of firewood, harvesting of timber for building or repairing homes, and harvesting of nontimber forest produce.

Only in the past few years has an effort been put forth toward sharing with communities control over natural habitats such as forest lands. One such initiative is joint forest management (JFM), in which forest departments have involved communities in protecting forests around their villages, acknowledging in return the community's right to harvest forest products sustainably and to receive a share of other revenue earned from the forest. (JFM is discussed in the case studies at the end of the chapter.) More recently, ecodevelopment projects have been established around some WPAs. (Ecodevelopment projects are discussed in the case studies.) Such projects not only develop alternatives to the resources of WPAs but also seek to involve communities in their management.

Another way to involve communities is to ensure

that they share in the financial and economic benefits from WPAs, especially tourism revenue. Finally, there are calls to introduce a system of joint protected-area management, similar to JFM, in which communities would be involved in managing and protecting WPAs. These measures and proposals are important moves toward decentralizing government control over forests and toward increasing the participation of communities in habitat management.

### **Management of Wildlife Protected Areas**

India has almost 500 WPAs (national parks and sanctuaries), covering more than 4 percent of the country, which have been created and are managed by state governments. Before 1972, they were created under various state acts, the details of which varied from state to state. For example, in 1936 India's first national park (Hailey National Park, now known as Corbett National Park) was set up in Uttar Pradesh, and a special act was required for this purpose. In 1972, however, the Indian government passed the Wild Life (Protection) Act, which brought all new and existing national parks and sanctuaries under one law. Although it is a central government act, it essentially gives power to state governments to create and manage national parks and sanctuaries. Until amended in 1991, the act also provided for the central government to create national parks, but this provision was not used.

The act has both a decentralizing and a centralizing effect. It is decentralizing in that it gives state government the authority to control protected areas. But it is also centralizing because almost no role is recognized for communities to participate in managing WPAs. Although there is a provision for appointing honorary wildlife wardens, and many have been appointed, most of these individuals are eminent urban-based conservationists rather than prominent members of the rural community.

WPA revenue is decoupled from expenditure. Any revenue earned by a WPA, from tourism or any other source, is credited to the government account and is not available specifically for expenditure in the WPA. Thus the government's annual budget to the WPA is unrelated to its revenue.

Each state has established a Wildlife Advisory Board, not all the members of which are government officials. These boards have sometimes been effective in addressing crisis issues and lobbying government, but day-to-day management of the WPAs continues to be wholly in the hands of government officials. At the national level, there is an Indian Board for Wildlife,

which is chaired by the prime minister and includes members who are not government officials. This board is mainly involved with policy formulation, however, and meets very rarely.

In short, arrangements for managing the WPAs have remained constant for many years, without any trend toward either centralization or decentralization. It is

only in the last few years that the government has begun to recognize the need to involve communities in the management of WPAs. In the Eighth Plan (1992–97), the Indian government started a new scheme of ecodevelopment that involves communities as part of WPA management. The present situation of WPA management is summarized in table 4-1.

**Table 4-1. Management of Wildlife Protected Areas (WPAs) in India**

<i>Function or powers</i>	<i>Central government</i>	<i>State government</i>	<i>WPA authorities</i>	<i>Local community</i>	<i>NGOs</i>	<i>Private sector</i>
Participates in policy formulation	Yes	Yes	Partial <sup>a</sup>	No	Partial <sup>b</sup>	No
Demarcates area for setting up WPA	No	Yes	Partial <sup>c</sup>	Partial <sup>d</sup>	No	No
Sets up a WPA	No	Yes	No	No	No	No
Decides on a WPA management plan or strategy	No	Yes	Partial <sup>e</sup>	Partial <sup>f</sup>	Partial <sup>f</sup>	No
Manages the WPA, including regulation and protection	No	No	Yes	Partial <sup>g</sup>	No	No
Issues license	Partial <sup>h</sup>	Partial <sup>i</sup>	Partial <sup>j</sup>	No	No	No
Collects user fees	No	Yes	No	No	No	No
Receives revenue share	No	Yes	No	No	No	No
Receives donations	No	Yes	No	No	Partial <sup>k</sup>	No
Borrows from financial institutions	Yes	Yes	No	No	No	No
Borrows from external sources	Yes	No	No	No	No	No
Allocates resources to sectors, schemes, and programs	Yes	Partial <sup>l</sup>	No	No	No	No
Approves expenditure	No	Yes	Partial <sup>m</sup>	No	No	No
Inspects, audits, and approves accounts	Partial <sup>n</sup>	Yes	Partial <sup>o</sup>	No	No	No
Supervises procurement	No	Partial <sup>p</sup>	Yes	No	No	No
Generates revenues from the WPA	No	Yes	No	No	Yes <sup>q</sup>	Yes <sup>r</sup>



- a. Although WPA managers are rarely members of policy-formulating bodies, their opinions often are solicited.
- b. NGOs and nongovernment individuals are members of the state wildlife advisory boards and the Indian Board of Wildlife, which are essentially advisory bodies for policy formulation.
- c. Can only recommend to the state government, which makes the final decision.
- d. Can record their rights over the area sought to be made into a WPA and thereby have that area deleted, or have their rights accepted, or receive compensation for their rights.
- e. Develops and recommends a management plan that receives final approval from the state government.
- f. Only in WPAS where ecodevelopment projects have been established.
- g. Only in WPAS with ecodevelopment.
- h. For certain matters, like the killing or moving of Schedule I species, the powers are with the central government.
- i. Most permissions and licenses can be given only by the state government.
- j. Some powers are usually delegated to WPA authorities, especially the power to grant entry permits and to allow overnight stays.
- k. Some NGOs operate around WPAS and collect donations to support their work. However, they cannot accept donations on behalf of the WPA.
- l. Actual sectoral allocations are based on proposals by the state governments and by the Central Planning Commission. However, the state governments can reappropriate some proportion of these funds.
- m. Some powers are delegated to WPA authorities whereby they can approve an expenditure that is already budgeted.
- n. For expenditure sanctioned directly by the central government under centrally sponsored schemes, the final scrutiny of accounts is performed by the central government.
- o. It is the responsibility of the WPA authorities to supervise expenditure within the WPA.
- p. For certain items, like vehicles, the procurement is sometimes centralized at the state government level. This is also the case where an item must be supplied in bulk to many or all of the WPAS.
- q. In some WPAS, NGOs produce literature and provide other services that generate revenue for their work. However, this revenue cannot be credited to the WPA account.
- r. Many private entrepreneurs and corporations set up hotels and run other tourist facilities in and around WPAS and thereby earn revenue from the WPA.

## Rural Development

Rural development programs were formally launched in India in 1952 through the Community Development Programme, which continues in modified form today. From the start it stressed decentralization, community participation, and sectoral integration. The program is implemented through village-level workers and focuses heavily on three village-level institutions: panchayats (village or local self-governments), cooperatives, and rural primary schools.

The program sought to integrate all rural development activity, especially agriculture (including fisheries, dairying, and horticulture), employment generation (including artisanal and self-employment schemes), and rural industrialization and small infrastructural development (including minor and medium irrigation projects, rural roads, and small systems for energy production and transmission). Despite this diversity, much of the focus was at first on agriculture, and this was later identified as a weakness in the program.

Agricultural land is privately owned in India. Laws

exist to regulate the size of individual holdings, and those that exceed a stipulated size must be redistributed to the landless. Also, ownership of agricultural land is legally transferred to the person who tills it for a sufficient time to prevent absentee landlordism. These laws, however, have been difficult to implement.

Rural development is both centralized and decentralized in that certain schemes are funded by the state government and others by the central government. Each state has a Department of Rural Development with representatives down to the village and panchayat level. The financial resources available to the department are spent through a variety of schemes that are implemented by government institutions, NGOs, and community institutions such as panchayats, mahila mandals (women's committees), and others. Another strategy for rural development is through so-called centrally sponsored schemes, which are supported from the central budget but implemented by state government institutions. There are also central government sector schemes, which are paid for by the central government and implemented either by central government institutions or by NGOs.

By law, all minerals belong to the state, except in Goa, where privately owned mines are permitted under a special agreement.

### **Conflict and Resolution**

The main activities that result in conflict between what broadly is called development and habitat conservation are essentially three:

- Commercial activities, in which private or government corporations or individual entrepreneurs seek to use natural resources or wilderness areas unsustainably to meet commercial demand. Common examples include forest-based industry, the mining sector, and the tourism trade.
- Infrastructural activities, in which the government or other concerned agencies jeopardize or injure natural habitats while undertaking infrastructural projects and related activities. In this category are construction of dams, roads, townships, transmission lines, schools, and hospitals.
- Subsistence activities, in which communities are forced to exploit a shrinking natural resource to feed an increasing population, usually because no better alternatives exist. The situation is aggravated by the absence of a sense of ownership of the resource. Examples include livestock grazing and the collection of fuelwood, building materials, medicinal and edible plants, and other nontimber forest products.

The method in India so far has been essentially regulatory. Only recently have some efforts been made to use economic instruments to minimize potential conflicts. Resolving conflict by means of proper and integrated planning is still to be tried and tested systematically in India.

### *The Regulatory Strategy*

Two regulatory strategies prevail in India—affording special legal status to certain areas and regulating certain activities. In the first, designated areas are given special legal status so that commercial, infrastructural, and subsistence activities are prohibited or regulated. Covered by one law or another are designated forest areas (approximately 25 percent of the country), WPAs (about 4 percent of the country, overlapping significantly with the forests), and coastal regions (200–500 meters from the high-tide line). The Doon Valley and the Aravalli Hills have also been accorded such special protection. In national parks,

for example, no human use is permitted, whereas in forest and coastal areas, various activities are allowed under government permit.

In the second strategy, certain activities are regulated in that they require prior environmental clearance from the appropriate government authority. For example, all industries require prior clearance from the state pollution control boards. In addition, certain industries that are considered particularly hazardous to the environment require a more comprehensive environmental clearance from the central government. All large dams and mining leases require environmental clearance from the central government, as do harbors and jetties, thermal power stations, nuclear facilities, and tourist facilities in the mountains.

Furthermore, the EPA of 1986 empowers both central and state government “to take all such measures that it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling, and abating environmental pollution”(section 3[1]). This act, and others intended specifically to prevent and control air and water pollution and to conserve wildlife, give legal standing to the common person and thereby empower any individual to demand legal compliance after giving sixty days notice to the government.

### *Providing Economic Incentives*

In recent years, the government has attempted to provide economic incentives, both positive and negative, for environmental conservation. Positive incentives to commercial groups include ecolabeling of products that are environmentally friendly throughout their life cycle, from before manufacture to after disposal. Tax rebates and soft loans also are provided with which to install pollution control equipment and other environmentally friendly devices and machinery. Variable pricing and environmental audit of companies encourage the conservation of water, energy, and other natural resources. Negative incentives include a requirement to finance and perform compensatory afforestation in lieu of diverted forest land; heavy fines for violation of environmental standards, especially under the EPA; and legal provision and precedent to support high compensation rates for environmental damage.

To counter environmental damage resulting from subsistence demands, the government has launched two programs that employ positive economic incentives: JFM and ecodevelopment. Under JFM, communities in and around forest areas are empowered to



receive most or all of the nontimber forest produce and earnings from timber sales. In return, they protect and help regenerate the forest. In ecodevelopment, communities around WPAs are provided the financial and legal means for developing income and biomass alternatives to their dependence on the protected areas, from which such needs cannot legally be met. Both schemes are described in the case studies at the end of the chapter.

### *Integrated Planning*

Use of integrated planning to prevent or minimize conflicts between development and habitat conservation requires at least three things:

- Integration of environmental concerns in all sectoral plans
- Development and implementation of a conservation-oriented land-use plan
- A strict budgeting of natural resources.

Planning in India continues to be mainly a centralized activity. The National Planning Commission prepares annual plans and five-year plans, which are essentially sectoral, for both central and state governments. The planning process is supposed to be integrated, with scrutiny prior to finalization by the National Planning Commission, the cabinet, and the National Development Council. In practice, however, little sectoral integration occurs, and environmental concerns are rarely reflected in the proposals of other sectors. As a result, government ministries and departments pursue their respective sectoral objectives, and conservation imperatives are mostly forgotten. Although for many years the government has had a National Land-Use Board, no comprehensive land-use plan exists. Therefore, pressure on land continues to grow, and land-use decisions continue to be made in an ad hoc manner.

The Indian government, in its National Conservation Strategy and Policy Statement on Environment and Development of 1992, states, "The Government will prepare, each year, a national resources budget which will reflect the state and availability of resources such as land, forests, water, etc. and which will rationally allocate these resources in keeping with the principles of conservation and sustainable development" (paragraph 8.2.3). Despite this, no natural resources budget exists.

Resolution of conflict that arises from subsistence needs clearly has worked better at the local, decentral-

ized level. Both JFM and ecodevelopment are decentralized strategies in both senses of the term: an increasing level of control is transferred from the government to the community, and government involvement itself is at a decentralized level. Similarly, it increasingly appears that decentralized planning, starting from the village level, is the most effective way to build a national plan, although this has not happened so far.

However, for regulation of commercial and infrastructural pressure, the Indian experience suggests that the power of centralized government might be preferable to decentralization at the state level or below. State governments have been far more inclined than the central government to ignore environmental imperatives. The ability of state forest and environment departments to withstand pressure from powerful development departments, such as those for energy or irrigation, is almost nonexistent. Even with centralized regulation, however, the regulatory process would benefit from greater involvement by concerned and affected members of the public.

### **Conclusions**

The question of decentralization has troubled Indian planners since independence was achieved half a century ago. The Community Development Programme was designed and implemented with a strong component of decentralized control and execution. The panchayati raj, or local self-government, was seen as an important instrument for decentralized community action. Despite this, however, significant problems were experienced in implementing the community development programs. Although many attempts were made to rectify these problems, time has proved them difficult to solve.

In a society as stratified as India's, it can be hard to ensure that decentralized institutions are not taken over by traditionally powerful local groups. These groups may then perpetuate the oppression and stratification that have been the main causes of rural inequality and underdevelopment. Laws intended to improve the representation of women and weaker segments of society, and thus increase their influence on local decisionmaking bodies, have not always solved the problem. Such representatives often remain ineffective or become co-opted into the power structure, accepting personal advantage and abandoning the interests of their constituents.

This is not always the case, however, and in some areas traditional power structures have been

marginalized. This usually happens where significant redistribution of land and other economic resources has occurred, or where mass education has taken root. But in many other areas, the traditional power structure still dominates, and these areas have the greatest need for genuine decentralized, people-based institutions.

Even where traditional power structures have been broken, the problem of historical bias and ignorance remains. The biases of gender and age, plus a reluctance to examine new ideas and ways of understanding, constitute another impediment to effective local decisionmaking. For example, decisions continue to be made by the village elders, but it is mostly the younger generation that has had access to education. Although the wisdom of the elders is critical for a society's well-being, it is equally important to integrate within this wisdom the knowledge and perceptions of the new generation. Traditional societies in India rarely provide for this, creating a difficult soil in which to sow the seeds of change.

Rural development programs were designed to be decentralized right from the start, but the management of forests, WPAs, and vulnerable ecosystems continues to be centralized. Only recently have efforts been made to transfer control over natural habitats from government to communities, and this has worked well in the joint management of forests.

In some cases, however, abject poverty among rural communities has made it impossible for them to restrict their use of natural resources to a sustainable level, and this has forced them to destroy the resource base on which they depend. Also, where investment choices must be made by communities, forest and environmental management have tended to receive very low priority. For example, during the Seventh Plan (1985–90), 5 to 10 percent of rural development funds were earmarked for forestry, but in the Eighth Plan, no money was earmarked for forestry, and spending decisions were left to the communities. The result was that almost no money was spent on forestry.

In many cases, rural communities have been alienated from their natural surroundings for generations and have lost all sense of ownership toward them. Community skills in the sustainable management of natural resources, if they were ever present, have also been lost after generations of government control over these resources. In the few communities where these skills remain, people are not always equal to the task of conserving a resource that faces new and greater pressures. Reports from the tribal states of northeastern India, where most forests are

legally owned by tribes, are discouraging. They have had the highest rates of forest loss in the country over the past few years.

Painstaking analysis of past experience leads to the conclusion that the ideal formula for conservation action is to establish joint control and management, with the government and the local people as partners. This way, *neither party can do anything significant without the other's concurrence*. A sense of ownership and stakeholding is established within the community by legally ensuring their access to the economic benefit of conservation (as in JFM) or by development of alternatives (as in ecodevelopment). By making such inputs conditional on the community protecting the resource, further incentive is given for sustained conservation.

### Case Studies in India

Joint forest management and ecodevelopment are two strategies that employ positive economic incentives to communities to improve their involvement in managing the environment. Following a brief look at these principles, we shall consider three case studies of successful attempts at decentralizing biodiversity conservation in India: participatory resource management and ecodevelopment (the Harda case), the Ranthambhore Ecodevelopment Project, and JFM in West Bengal.<sup>1</sup>

#### *Joint Forest Management and Ecodevelopment*

Joint forest management involves setting up means by which specific forest areas are jointly protected and managed by the community and the forest department. In essence, the government writes a memorandum of understanding with the community, through forest protection committees established in villages for the purpose. Such committees organize themselves to protect the forest areas from their own members and from outsiders. In return, they have a right to claim a portion of forest produce. In Arabari in West Bengal, JFM began almost spontaneously in 1972. Assessments show that jointly managed forests have regenerated better, have cost a fraction to protect, and have better benefited communities than forests managed solely by the forest department.

The ecodevelopment strategy recognizes the need to develop alternate livelihoods and biomass sources for communities that traditionally depend on WPAs. Ecodevelopment is based on the belief that a WPA cannot be conserved unless local people have realistic



lifestyle options, benefit from the financial and economic gains of the WPA, and are involved in its management. Ecodevelopment is therefore a strategy for protecting ecologically valuable areas from unsustainable or otherwise unacceptable pressures resulting from the needs and activities of people living in and around them. It seeks to do this by at least three means:

- Identifying and developing sustainable alternatives to the biomass and income that are being obtained from protected areas, where this occurs in a manner and to an extent considered unacceptable
- Involving the people living in and around such a protected area in planning and managing it, thereby not only channeling some of the financial benefit of conservation to them but also giving them a sense of ownership toward the WPA
- Raising awareness in the community of the value and conservation needs of the protected area and of patterns of economic growth and development that are locally appropriate and environmentally sustainable.

Ecodevelopment initiatives vary from area to area, and even from village to village, but three basic principles are common to all: site-specific and microlevel planning, sectoral integration, and people's participation. Ecodevelopment is more than just rural development, for it is not solely directed toward economic development of the rural population but simultaneously seeks to protect an ecologically valuable area by eliciting the support of communities and by helping to develop viable biomass and income alternatives.

Also, eco-development is not policing, in the sense that it does not seek to protect an area solely or primarily through the enforcement of laws intended to exclude local people. Rather, eco-development involves local people in the process of protecting the park from destructive activity. For any eco-development plan to succeed, it must be backed by an appropriate management plan for the protected area.

#### *Participatory Resource Management and Ecodevelopment: The Harda Case*

In the state of Madhya Pradesh, about 160 kilometers southwest of its capital city of Bhopal, is Harda, headquarters of a forest division in Hoshangabad District. The total reserve and protected forest area is 1,417 square kilometers, divided into six forest ranges. The

forests, mainly tropical dry deciduous teak forests of the Handian Range, have a long history of degradation from organized but illicit logging. The division's reserved forests, although seemingly well stocked, are not regenerating adequately, perhaps as a result of excessive livestock grazing and recurrent fires. Bamboo (*Dendrocalamus strictus*) also has suffered from grazing and fire, especially after gregarious flowering. Villages are dotted all over the reserve and protected forests in the region.

An experimental scheme for participatory resource management and eco-development started at Harda in October 1990. The program now covers nearly 80 percent of the total forest area, both interior and fringe areas. It involves 190 villages, each with a village committee organized especially for the program.

Village microplans for eco-development are prepared jointly by villagers and the forest staff. Such plans are intended to protect, regenerate, and stock adjoining forests and to meet the genuine needs of the community. At the same time, the plans seek to divert unsustainable pressures from the forests through on-farm and off-farm improvements. These include protecting, regenerating, and managing forest areas, improving watershed management, building water-harvesting structures, establishing additional income-generating activity, developing village infrastructure (on a limited scale), implementing energy conservation measures, and developing alternate energy sources.

Funds for the implementation of microplans are mobilized in two ways, through tapping forest department funds under plan or nonplan schemes and by channeling funds from different district-level development agencies through effective interdepartmental coordination. The forest department is the coordinator, networking among the various departments and agencies.

To achieve financial decentralization, the village committees have built up a village common fund—initially, from voluntary donations of wages, from money paid by the forest department for protection work done by the villagers, from social fines, from charges levied by the committee on the use of community assets (for example, water from step dams and lift-irrigation facilities), and from bank interest. Fund monies are used by the village committee to extend credit to members, to develop additional community assets, and to protect adjoining forest reserves.

One hundred participating village committees were able to collect Rs1.7 million in their common pool over three years. The idea is gradually to build the

village committees so they can handle the full budget for microplan implementation. A core activity has been to change the perceptions and working patterns of forest staff to help them work more closely with the villagers. Forest staff and villagers also were trained to develop their microplanning capacity and to help them establish various income-generating activities.

Encouraging results have been achieved over the past three years through the ecodevelopment and JFM programs in Harda division:

1. The 190 village forest committees, one in each village, were able successfully to combat recurrent forest fires. Only 2 percent of the area has been affected by fires since the program began, compared with 23 percent in 1990.
2. Through the program, grazing has been regulated over 85 percent of the forest area. This has voluntarily closed 47,500 hectares of forest area to grazing. In accordance with the village committee grazing management plan, grazing has been restricted to below carrying capacity in the remaining forest area. This has resulted in good growth of grass in areas where none grew formerly.
3. The growth of grass has been so profuse that in 1993 two of the village committees earned more than Rs100,000 from the sale of grass.
4. Bamboo has again begun to flower and regenerate on approximately 3,000 hectares. Bamboo was on the verge of extinction here, mainly because of fires and uncontrolled grazing.
5. A good number of village forest committees in the peripheral villages have successfully addressed the problem of illegal firewood extraction from the forests. Village forest committees in Khatmakheda, Padarmati, and Amsagar villages, for example, successfully combated illicit fuelwood sale by improving the production from agricultural fields, through assured irrigation, and by developing additional options for income generation by poor villagers.

In another part of the Handia Range, where illicit logging by organized gangs had been a serious problem for many years, forest protection committees have been able to relieve the threat. Recorded offenses for Handia were reduced from sixty-four in 1991 to sixteen in 1993. Not only did the quality of forests improve, but the income of local people increased as a result of the ecodevelopment program.

Local people's stake and interest in the recovery of Harda forests can be attributed to two main factors. First, their need for fuelwood, fodder, bamboo, and

small timber has been recognized by the forest department, and they have been assured access to these resources at sustainable levels from the forest area that they protect under the JFM agreement. Second, the ecodevelopment program has helped to increase the villagers' on-farm and off-farm income and has thereby reduced the unsustainable pressures on the adjoining forests. The long-term sustainability of such programs depends on gradual financial and administrative decentralization to village organizations, with the transition being helped by improving simultaneously the capabilities of villages and forest department personnel.

### *The Ranthambhore Ecodevelopment Project*

Located in Sawai Madhopur District in the state of Rajasthan, Ranthambhore Tiger Reserve offers an enchanting sense of history and an overwhelming starkness of rare and beautiful natural forests. Overlooking its dry tropical forests is the Ranthambhore Fort, said to have been built in A.D. 994. The area of the tiger reserve is 1,335 square kilometers, with the core of the reserve being Ranthambhore National Park (393 square kilometers, including a buffer zone of 118 square kilometers). The River Banas divides the reserve, forming an important natural corridor.

Ranthambhore was one of the first nine tiger reserves created under Project Tiger, and it was constituted in 1973. At that time, it was decided to relocate sixteen villages from the newly designated core area to outside the boundary of the park. Twelve of these villages were moved during 1976–79, and two new settlements were created to accommodate the inhabitants, one in Kailashpuri with a group of nine villages, and another in Gopalpura, with three villages—Nakdi, Lohpur, and Ranthambhore. Including these resettled villages, eighty-four villages with an estimated population of 85,000 exist within the periphery of the park. These villages are distributed in two tehsils (district sub-divisions), Sawai Madhopur and Khandhar. An additional 80,000 people live in the peripheral towns of Sawai Madhopur and Khandhar. An estimated 100,000 livestock units depend on park resources.

Although Ranthambhore is a valuable wildlife habitat with a significant tiger population, over the years much of the buffer and even parts of the core have become degraded because of human pressures, especially grazing. Recognizing the need to involve the community in protecting the Ranthambhore Tiger Reserve, and in an effort to encourage local participation and adapt conservation to local needs, in 1991 the



World Wide Fund for Nature-India (wwf) launched an ecodevelopment project here. This project, supported by the British government through wwf International, intends:

- To work with local people to evolve alternatives to their dependence on the resources of the park
- To revive the social and cultural links that the communities have with the Ranthambhore forests
- To regenerate the buffer with the involvement of the local people, to ensure that the process is participatory
- To forge a link between the local people and the forest department
- To conduct appropriate research.

In essence, the project seeks to develop and field-test a model of ecodevelopment that can be expanded and replicated. The project started with efforts to build trust in the community and to strengthen community institutions. It focused on Gopalpura, a cluster of three resettled villages. A small team of wwf workers set up headquarters near this village.

As a first step, the wwf staff helped the villagers obtain legal title to land allotments. This gave villagers the sense of security that is so essential for any long-term conservation action, and the action won the trust and cooperation of the villagers. At the same time, village development committees were organized and began meeting monthly to decide how the project should proceed and the order in which issues should be addressed.

The second phase of the project focused on grazing. Large quantities of sorghum Sudan grass seed were distributed. This grass soon became very popular, and many farmers began growing it on their own lands and on common lands and wastelands outside the park. The forest department was persuaded to allot 25 hectares of degraded forest land to the village for growing fuel and fodder. The villagers formed a forest protection committee to promote protection and regeneration of this forest. They also developed their own rules and regulations:

- No free grazing would be allowed.
- Every family in the village would contribute labor to work the land.
- Families that failed to perform their share of work would be liable for a penalty fixed by the village committee.
- Benefits from the land would be distributed equitably in the community, in accordance with norms laid down by the villagers.

The land became available in 1993, and a remarkable degree of regeneration was evident within two years. The lush vegetation in this plot contrasts sharply with the sparse and degraded vegetation in surrounding areas. The success of this fuel and fodder plantation has motivated other villages to establish similar plantations, and the forest department has agreed to make more degraded forest land available to support this project.

Shortage of water is another serious problem in the area. At the request of villagers, the project took up a watershed development program around the village clusters, a move that has proved both popular and useful. The project also has assisted in upgrading the local breed of cattle, in providing veterinary services, and in helping to develop a marketing network for milk products. All of this has increased local income and reduced pressure on the park. The project now has a working model of decentralized, participatory ecodevelopment, and with a large Global Environment Facility (GEF) project proposed for Ranthambhore, this model will be expanded and replicated.

#### *Joint Forest Management in West Bengal*

JFM is a new strategy under which state forest departments and communities jointly manage forest lands and share responsibilities and usufruct. In India, this method is being tried by about half of the states, with encouraging results. The pioneering state is West Bengal, situated in eastern India. The origin of JFM was through a small experiment started in the early 1970s by a forest officer, who involved forest fringe communities in the management of sal (*Shorea robusta*) forests that had been reduced to bushy condition by overexploitation.

Community involvement in protection and management brought a remarkable rejuvenation of the sal forests. Encouraged by the success of this experiment, the government expanded the program statewide, and at present nearly 4,000 square kilometers of degraded forest land are being managed by nearly 2,500 forest protection committees (FPCS) constituted by the fringe dwelling communities. The program has spread to fourteen other states.

A number of legal, institutional, and sociopolitical factors have played a role in the spread of the program, including progressive land reform measures, social forestry programs, and usufruct sharing with the people. These laid the foundation for the successful JFM program. As JFM got under way, it was realized that nontimber forest products (NTFPs) play a crucial role in sustaining the interest of the local people in

JFM. These are more important to people than timber benefits, with household income from NTFPs being nearly seven times that generated from the final harvest of sal forests. However, income from NTFPs can be further increased through certain interventions. The benefit in employment generation also has been substantial. During the experimental project phase, 220,000 person-days of employment were generated by the forest department.

A number of studies have disclosed an increase in the biodiversity of these regenerating forests. In a survey of twelve FPCS, 255 species were observed in the area (regenerating forests, plantations, and settlement areas), and 84 percent of these were found in regenerating sal forests. The new JFM strategy required an attitude shift, both of forest departments and the people, to build effective partnerships. At the institutional level, a number of FPCS have evolved their own mechanisms and rules for controlling access to their forests and managing them.

An important reason often cited for forest degradation is population increase. In West Bengal, despite continued population growth in the last two decades, involvement of people in the management of their forests has resulted in dramatic regeneration of sal forests. People not only are enjoying a greater flow of forest products, but also have gained greater access to and control over their forest resources.

The program was initiated as an experiment in 1972 on an area of 1,272 hectares and involved 618 households. By 1991, however, it had spread to about 2,360 square kilometers and involved 188,037 households in 1,804 FPCS. By 1994, the area under joint management further increased to 3,910 square kilometers, involving 2,423 FPCS. Since its inception, the JFM program has gradually developed into a movement. Its significant achievement has been in qualitative terms, especially in the positive shift in relationship between the forest departments and local people, in improved quality of life, and in rejuvenation of forest ecosystems.

Recent analysis of Landsat images has shown that in the past six years, closed forest cover in Midnapore District alone has increased from 11 percent to nearly 20 percent of total land area. These regenerating forests now provide many medicinal, fiber, fodder, fuel, and food products for participating rural communities. The effect of the JFM program can be seen in the vegetation dynamics of regenerating sal forests, in changing livelihood patterns among fringe communities, and in evolution of attitudes and working style of the forest department. The effect of the JFM strategy on

forests is clearly visible if one just visits these areas. One can easily see the regenerating forest patches from a distance and discern where people are protecting forest and where they are not.

The Forest Survey of India's annual report for 1993 draws attention to changes in southern West Bengal since its previous report in 1991 and states that 41 square kilometers of degraded scrub forest (0–9 percent canopy cover) have been upgraded into the open forest category (10–40 percent canopy cover).

Another interesting impact of forest regeneration in southern West Bengal is the return of elephants to these tracts. Until about 1987, hardly any resident elephant population existed here, although a few solitary animals remained in the Ajodhya Hills, the Bundwan Range of Purulia District, and the Banaspahari area of Midnapore District. The herd of wild elephants from the Dalma Wildlife Sanctuary in Bihar used to visit these areas between October and December, but their movement was restricted to the west of River Kangsabati. A large herd of about fifty entered East Midnapore division in 1987 and stayed primarily in the Arabari Range until March 1988. During 1988 to 1990 this tract was frequently visited by the elephants. Attempts to drive them away were not very successful. This pattern of visits has now become an annual feature.

Although the JFM program of West Bengal is now more than two decades old, its greatest expansion occurred in the middle and later 1980s. The program yielded results early, and these have become much more apparent now. Regeneration of degraded forests has had a large impact in West Bengal. Quantitative indicators are changes in forest species numbers and density, the quantity of forest products accruing from the forests, and the total area brought under JFM. Qualitative indicators are the attitude changes among people and forest department personnel and improvements to the lifestyle of the villagers.

## Note

1. The Harda case study is by B. M. S. Rathore, Wildlife Institute of India, Dehra Dun. The source for the Ranthambhore Ecodevelopment Project is WWF-India, "In the Shadow of Ranthambhore: WWF-India's Ecodevelopment Project," November 1994. The source for joint forest management in West Bengal is WWF-India and Society for Promotion of Wastelands Development, "Case Study on Participatory Forest Management in West Bengal," March 1995.