THE RESURGENCE OF COMMUNITY FOREST MANAGEMENT IN EASTERN INDIA

by
Mark Poffenberger, Ph.D.

Since the middle of the nineteenth century, large areas of forestland throughout the Indian subcontinent have been declared designated public land. These lands were placed under management of state forest departments for production and protection purposes. Millions of rural inhabitants throughout India who had utilized these lands to meet basic needs for food, fuel, building materials, fibers and medicines effectively lost their access rights. By 1980, nearly 23 percent of India's land area had been placed under state management, displacing an estimated 300 million rural resource users.

As the rights of rural communities eroded, conflicts between state agencies and Indian villagers became increasingly evident. Disagreements over management priorities led to unsustainable patterns of forest exploitation and gradual degradation of India's vast forests. By 1990, less than 10 percent of the country possessed good forest cover.

During the last few years, planners and forest administrators have begun developing new policies to reduce the conflict between the state agencies and rural groups responsible for this resource crisis. These policies are designed to facilitate the emergence of collaborative forest-management systems that respond to national needs and local resource requirements. In eastern India, between six thousand and eight thousands villagers have begun patrolling and protecting hundreds of thousands of hectares of degraded forest as a part of the new comanagement (usually refereed to as joint management in India) policies, often with dramatic results in terms of forest regeneration.

The community or cooperative forest management systems emerging in west Bengal, Bihar, and Orissa promise an alternative to the custodial policing systems of the past. They require a shift from commercial timber exploitation to the sustainable use of many nontimber products. They necessitate a move from centralized planning and bureaucratic management to decentralized community-based management. Currently, little is known regarding the structure and function of these community-based management groups, or about the processes through which they form forest protection committees.

The dearth of informational promoted the commissioning of the two rapid diagnostic case studies presented here. The case studies were conducted by members of Indian National Support Group for joint Forest management (NSG) during field visits from 1990 to 1993. (The NGO's objective is to disseminate learning from grass-roots movements and management.) The NGO field researchers held discussions with community members and leaders, nongovernmental organization staff, and field foresters about forest comanagement activities in West Bengal and Orissa. A summary of their findings follows.

Community Forest management in Southwest Bengal

Chandana and Harinakuri villages are located approximately 20 km south of Kharagpur, in the state of West Bengal. A 2-km dirt track off the main road crosses rain-fed rice fields and passes through regenerating forest lands on the way to Chandana village.

Another kilometer down the road bordering the southern extension of the forest is Harinakuri village. The forest lands in the Chandana area total 160 ha; Chandana and Harinakuri villages border the forest on the south, and Nidata and Babunmara villages in the north (see map 3.2).

Most of the villages in the area are inhabited by members of low-income scheduled castes (social groups that are outside the dominant majority of the caste system), tribals, and farming-caste families. Chandana village has thirty-eight households. Of these, half are Bhumi tribals and the rest members of scheduled castes, including oil makers. In Harinakuri, the thirty-one families are primarily of the Naik scheduled caste (untouchables also known harijans). The Naik claim to have worked as mercenaries for a local raja until approximately one hundred years ago, when they moved into forest area. At that time a large landowner, or zamindar, was opening the area for agriculture. Most of the villagers worked as agricultural laborers and tenant farmers until the state land reform program of the early to mid-1970s granted them title in local rain-fed rice lands. Historically, these communities have depended on the neighboring forest lands in significant ways for fuel, fodder, supplemental food, medicines and fibers.

Chandana Forest Management History

According to Lokhun Sahu, a sixty-five-year-old Chandana Villager, the surrounding forest was once comprised primarily of first-growth sal (Shorea robusta) trees. During the years of British colonial rule, a zamindar named Bhuwan Chandra pal, who lived 20 km away in Hundla, near Narayanger, controlled the forest tracts of Chandana. In part to pay his taxes to the British raj, the zamindar periodically leased tracts of jungle to contractors for logging. During the felling, local villagers were allowed to purchase lops and tops for fuelwood at the rate of Rs1 or 2(US.$.03 to $.06)per cartload. The Zamindar didn't allow villagers to cut poles or logs and posted guards to protect the forest against local users. Periodically, the zamindar sent his men into the village to see if they had hidden poles or timber. The guards beat anyone found to have stolen wood, sometimes fatally. After a contractor finished logging his concession, the sal tree sent up coppice growth, and the forest reestablished itself. Older tress, including sal, *mahua*, and cashew were left to act as seed and fruit sources.

Little changed in forest-management practice during the early years following Independence in 1947. The zamindar continued to control the forest of Chandana until the early 1950's, when the Zamindar Abolition Law was passed. The new law gave West Bengal Forest Department an opportunity to establish direct control over the forest lands of the southwestern part of the state. But first, seeing that he was about to lose control of the forest, the zamindar sold off the entire Chandana forest tract to contractors who felled the area, leaving only a few fruit trees. For the next six months, local communities faced a serve shortage of fuelwood. As coppice growth emerged, the forest resource supply also began to recover.

From the mid-1950's through the 1960's, the West Bengal forest Department exerted control over the forests of Chandana. Throughout this period, the department continued the practices of the zamindars by leasing cutting rights to contractors. Consequently, sal trees were cut every ten to fifteen years and regenerated after a few years through coppice growth. The local field officer complained that the contractors often also cut the older sal and fruit trees. This practice is officially banned, as these

mature trees, or standards, are important yielders of seeds for natural regeneration. When the forest guards or villagers attempted to stop the contractors, they were threatened by armed guards. The contractors reportedly enjoyed political support, so field staff and villagers could do little to stop them.

According to Lokhun Sahu, political organizers began visiting the community in the early 1970's. They told the villagers that the forest was community property. In retrospect, Lokhun feels that "the political leaders misled the people to gain their political support". The villagers began cutting and selling trees in indiscriminately. According to Lokhun, no control system existed, and everyone cut where they pleased. Lacking support from the community and threatened with physical violence by contractors, the forestry field staff was helpless. By the early 1980's the sal forest were badly degraded. In some areas, even the trees' root systems had been extracted for fuelwood. Lokhun reports that, with this degradation, the temperature seemed to become hotter, while rainfall diminished, and the earth became drier. The cooling breezes ceased to blow. The villagers had difficulty finding wood for their spade handles, plows and other agricultural implements. The village ponds and well dried up faster, and the villagers had to relay on water from the river 2km away. The forest had been so thoroughly cut that there were no standing trees outside the village environs. It was possible to see the way to the river beyond.

In1983, Jyoti Naik, a man from the neighboring village of Harinakuri, began visiting Chandana village to discuss forest-management problems. Jyoti is a factory five-year-old small farmer with only two years of formal education. He was convinced that some action had to be taken to reverse the process of forest destruction. Jyoti had been a landless laborer until the CPIM (Communist Party of India Marxist), which controlled the West Bengal state government, implemented a land-reform program in the 1970's. At the same time, Jyoti and other families in his village gained small tracts of farmland. He felt that since the community now controlled its agricultural land, it should also manage its forest resources as well.

In the beginning, Jyoti visited each house separately in the evenings to talk about the problem. He told the villagers of Chandana that if they didn't begin protecting the forest, it would degrade to a point where even fuelwood and leaves no longer would be available. He told them they would be forest people with no forest, and their children would have no forest resources to utilize in their adulthood. Gradually, he began organizing village-level meetings. By 1984, a sufficient number of Chandana villagers were ready to call a meeting with the three neighboring villages to discuss a collaborative management Program. At the meeting each community decided to take responsibility for the forest area nearest its village. The subdivision of 160-ha forest tract tended to follow footpaths and bullock cart tracks.

Chandana and Harinakuri villages began actively protecting the forest tracts near their communities. The villages to the north of the forest, Nidata and Babunmara, were less effective in controlling access, and commercial fuelwood cutting continued. Jyoti Naik and other village leaders since have met with local political representatives from the area and urged them to put pressure on the northside communities to begin protection activities. Jyoti says that politicians are afraid they will lose votes if they do so. At present, however, a four-village forest protection committee coordinating board does exist. Jyoti Naik currently acts as chairman.

Experiences with Protection Activities

Outside pressures on the forest protected by Chandana community continue. Women from other villages come in groups of five or six every two to three days to cut fuelwood. These women frequently come from Bhetia village across the river to the north, or from Pora and Simildanga villages in the South. When Chandana villagers catch the woodcutters, they ask them to go elsewhere; when necessary they chase the women away with sticks. A more serious threat is from gangs of ten to twelve men who come in the night during the months from August through October and February through May, slack times in the agricultural season. These groups come to cut *sal* Poles for commercial sale.

When outside cutting groups are active, the Chandana Forest Protection Committee tends to keep one man patrolling the area on two-to-three hour shifts. Other villages are also watchful and notify the committee if cutting groups are seen approaching the area. Occasionally, the forest protection committee catches groups in the process of cutting. They then confiscate the men's axes and fine them.

Protection experiences in the neighboring village of Harinakuri are similar. Since the Harinakuri Forest Protection Committee was formed in 1979, Harinakuri has worked with neighboring Chandana and Telebanga villages to protect against cutting groups from villages to the north and east. According to Jyoti, pressure from outside villages is particularly high because many members of these communities depend on fuelwood sales as their primary source of cash income. Often tribal and scheduled caste members of these villages are contracted by high caste families in towns and villages and at the Soluwa Army Base to cut fuelwood and timber for them. The cutting groups often band together to overcome local resistance.

In response, the Harinakuri Forest Protection committee has to patrol in groups of eight to ten men armed with bows and arrows and spears. Boys with grazing animals also watch and listen for the sound of an ax upon tree when cutting groups are active, so that they can warn the forest protection committee. When this occurs, the men attempt to encircle the cutting groups so that they can catch them. In these cases, they turn offenders over to the forest department guard, which later fines the woodcutters.

Economic Costs of Protection

Jyoti believes the decision to protect the degraded forest land has had significant impact on the economy of Harinakuri. Previously, Jyoti and the other villagers also had been engaged in cutting fuelwood for sale. If a number of family members were engaged in cutting, a household might collect two or three 40-to-50-kg bundles of wood each day. In 1979, these quantities generated Rs35 to 50(US$1.16 to $1.66) per day; at 1991 prices (Rs1, or US$.03, per kilogram), they yielded three times as much. Fuelwood cutting and carrying could be done in three or four hours in the morning, leaving time for other work. In contrast to agricultural wage labor, which is available only during certain times of the year, fuelwood cutting was likely to generate two or three times more wage per unit of time spent.

For the Chandana and Harinakuri committees to discontinue this lucrative economic activity was a considerable sacrifice. Based on discussions with villagers in Harinakuri, their decision appears to have made partly on the basis of their concern over the deteriorating environment. They also recognized that their former level of forest

exploitation was not sustainable, and that they would have had to shift occupations, in any case, once the forest resources were exhausted.

The shift away from fuelwood cutting, and the loss of income it entailed, was softened by the land-reform program of the West Bengal Communist Party government. The program transferred title in rain-fed rice from the landlords to Jyoti and his neighbors, who had acted as tenant farmers in the past. Because they no longer had to share their harvests with the landlord, the villagers' income rose.

At the same time, Jyoti and hi neighbors decided to begin producing puffed rice (*chira*) for the local market. The work involves buying small stocks of unhusked grain (*dhan*), usually 20 kg at a time. The rice is husked, winnowed, and roasted under brush wood and leaf fire. The operation requires three men, who work from 4A.M. until 5 P.M. During one shift, usually they process 20 kg of raw rice, worth Rs60 (US$2), into 10 kg of chira worth Rs240 (Rs$8). This means hourly income per man from *chira* making is approximately Rs4.60 (US$.15) per hour, or Rs60 (US$2) per thirteen-hour day. This is approximately three times the official minimum daily wage (Rs24.85, or US$.83) for agricultural laborers. It also closely approximates the income that might be generated by fuelwood headloaders if they had sufficient forest resources to exploit.

While Jyoti and his neighbors have been successful in finding an alternative source of income at least as lucrative as fuelwood cutting, many of their neighbors have not been so fortunate. They must suffer the lost income or continue to exploit the forest in defiance of their neighbors.

The amount of time the Chandana and Harinakuri forest protection committee spend patrolling the forest and the value of that time in terms of opportunity costs are difficult to calculate. Many of these activities take place during periods of high threat. These fall during the months of August through October, after rice transplanting has been completed, and from February to May, after the rice harvest, when little agricultural work or paid labor opportunities are available.

No regimented, full-time patrolling system has been utilized. Instead, villagers, especially women and children engaged in grazing, fuelwood collection, and other forest-related activities, act as an early-warning system. When given news of illegal activities, men then move into the forest for protection activities. While the time involved may not be great, many community members appeared to be available and alert to possible threats, which they perceived as significant.

Sal poles probably represent the single most valuable product in the regenerating forest. The villagers also use the small leaves of date palms to weave mats for sale. Many women in the community were involved in sal leaf plate making; their product is sold for packaging foods.

Other forest products include tubers, considered to be one of the most important products collected by community members. Although their value in local markets is low, they are an important source of starch and nutrients during food shortages.(Tuber preparation, however, is time-and fuel-consuming.) Mushrooms also provide a seasonal source of food and cash income. Of particular importance are *kurkuri*, *mudal*, and *parab* mushrooms. They bring Rs8 to 16(Us$.26 to $.53) per kg. When the mushrooms appear, during the rainy season from July to mid October, households may collect up to 30 kg per day. Finally, grass and leaf fodder from the forest are important, especially from July to October, with forest leaf fodder (*sal* and others) of importance during the April-May dry

season. By determining the number of kilograms of forest fodder consumed per household and placing an equivalent fodder value on it, it would be possible to estimate the cash saved through the use of forest fodder.

Ecological Impact of Community Forest Protection

The degraded *sal* forests of Southwest Bengal are known for their impressive regenerative vigor. In Chandana, for instance, after seven to eight years of protection, the tress had reached 6 to 8 m in height, and the forest canopy was nearly closed, creating a shaded, moist microenvironment. Accumulating leaf litter on the forest floor and expanding root systems appear to slow runoff during monsoon rains. Sun-loving species such as *kendu* (Diospyos melanxylon) are being replaced by shade-tolerant herbs and fungi. With regeneration, villagers have reported the reappearance of a number of bird and plant species.

In villages near Chandana, after five years of protection, more than 214 species of flora and fauna were present in the forest. Of these, 189 were utilized by local people. Edible food plant species numbered 39, including 6 types of tubers and 11 species of mushrooms. Some 47 plants are used as medicines. In addition, 79 species of mushrooms. Some 47 plants are used as medicinals. In addition, 79 species of birds, animals, and insects are consumed. Generally, the larger regenerating forest patches exhibit greater diversity. Tribal communities tend to posses greater ethnobotanical knowledge and practice more extensive species utilization than caste groups. Basal areas, reflecting the volume of standing timber, also increased from zero in unprotected sal forests to 71 m^3 after five years of protection and reached 164 m^3 after ten years.

Forest Protection Committee Expectations

Co-management systems of the type emerging in Southwest Bengal are essentially partnership agreements between state forest departments and participating communities. To the extent that partnerships succeed, each party needs to share similar expectations regarding their roles and rights. The experience of Harinakuri village is typical of the kind of give and take necessary for successful comanagement.

In Harinakuri, the forest protection committee leaders indicated a desire to fell sal for pole harvest as soon as possible. The villagers indicated that they had protected their sal for ten to twelve years, and that it should have reached the end of the rotation. On walking through the area, the forest department staff saw that the sal was only of seven to eight years' growth and had not reached the 3-inch diameter at breast height (DBH) required to yield a good price as construction poles. The villagers' eagerness to harvest the poles appeared to be driven by concern over the continuing pressures exerted by the outside cutting groups. The villagers were worried that as the poles gained value, the threat of mass looting by a group of outside villagers would grow.

The Harinakuri Forest Protection committee leaders felt that gradual harvest of the sal forest would be preferable, allowing for a 10 percent cut of the standing stock on an annual basis. The forest department had been considering such a system to provide a steady flow of yearly income to participating forest protection committees. Although the villagers thought that this would be a better system than a single felling every ten years, they feared that commercial felling would stimulate outside villager to exploit their forests. They thought that this one time, as a demonstration to others communities of the financial benefits of protection, it might be better to cut the entire stand. Through this

approach, other villagers finally might be induced to begin protection. All the surrounding communities would then start at the same point, with new coppice growth. At present, however, no decision has been made to go ahead with the pole harvest. Due to rapidly declining market prices for poles, the villagers may decide to preserve the forest and only selectively fell trees for local use in housing and as tools.

The committee leaders had little information about forest department policies on sal pole harvesting and revenue-sharing procedures. Members of both the Chandana and Harinakuri forest protection committees noted that they hoped to obtain 40 percent of the gross proceeds rather than the 25 percent authorized under forest department policies. They were also unaware that their share would be calculated from the net proceeds rather than gross.

In Arabari, one of the only forest protection committee areas where harvesting and revenue distribution had taken place, the forest department overhead costs ran to 53 percent of the gross. This meant that, under the 25 percent policy, the Arabari Forest Protection Committee was entitled to only a little less than 12 percent of the gross. At the same rate, the 75 ha of forest land protected by the Harinakuri Forest Protection committee would yield only Rs 4,550 (US$151) per household during the ten-year rotation, or Rs 455 (US$15) per year per family- far less than the Rs 5,000 to 10,000 (US$167 to $333) a family might earn from a year of fuelwood headloading. Senior officers of the forest department later noted that the costs from Arabari were quite high, and they planned to reduce the overhead charges substantially when calculating the share going to the forest protection committees like those of Harinakuri and Chandana.

The Harinakuri Forest Protection Committee did not have access to information regarding the income it might receive from management activities. At the same time, they were committed to working with the forest department on the basis of good faith. They were anxious to participate in the felling themselves. The forest department staff indicated that local forest protection committee members would be hired at the official state minimum wage of Rs 24.85(US$.83) per day. The villagers thought the wage rate was fair and agreed to undertake the work on that basis. Consequently, forest protection committee members derived additional benefits from labor opportunities generated through the felling operation. The forest department staff told the villagers that officers from the forest protection committees would be involved in supervising the counting of poles taken from the forest. The forest protection committee members felt such an arrangement also would be useful, since they lacked experiences in commercial felling.

The forest protection committee wanted to maintain the revenues as a community fund rather than distribute them equally among the participating families. They had clearly spent some time considering how to utilize the funds and requested that the forest department assist them in establishing a community account with the local branch of the Punjab National Bank. The account was to be over seen by the eight-member Harinakuri Forest Protection Committee's managing committee and its secretary.

The committee planned to use the funds to construct a community rice-storage barn, which could also be used by families involved in chira making to allow them to buy grain at harvest time at lower costs. They also wanted to establish a cooperative store to sell groceries, stationary, and school supplies, since they currently had to travel some distance to the local markets to buy these goods. Finally, the forest protection committee wanted to form a savings and loan program to allow community members access to low-

interest loans for medical needs, marriages, and agricultural inputs. Establishing a bank account and gaining tax exemptions on revenues generated from timber sales may require the formal registration of the forest protection committee under the Indian societies Act. This also may require assistance from the forest department.

For future rotations, the forest protection committee would like to shift to an annual felling system. They note that the regeneration of the forest has had substantial environmental and economic benefits that will be lost temporarily if the entire area is clear-felled. The most important advantages emerging from forest regeneration have been improved groundwater infiltration and slowed runoff and the increased availability of such nontimber forest products as tubers, mushrooms, and fiber materials. The reestablishment of standing forest near Harinakuri village also has enabled a large population of birds to nest in the area. The birds are important in controlling insect pests that attack the rice crop. The forest protection committee also feels the forest has had a beneficial effect in cleansing the air of disease. When the forest was degraded, its members note, the incidence of disease had increased. They associate a healthy environment with a good standing forest.

Community Forest Management in Orissa

In the state of Orissa a grass-roots community forest protection movement has been growing for several decades. Two case studies from Orissa indicate the types of community-based management systems that are emerging.

The case of Mahapada village reflects the process though which a forest dependent, low-status tribal group demonstrated the ways communities can organize to protect degraded forests. The management systems the villagers developed later were adopted by the higher-caste groups in the village. The second case, Budikhamari, tracks a single village's forest-protection group's expansion into a coalition of seventy-nine neighboring communities. This larger group formed an apex organization to coordinate forest-protection activities, conduct environmental education programs, and provide mutual assistance in dealing with the forest department.

In recent years, the Orissa Forest Department has taken a greater interest in village forest-protection groups. Resolutions passed in 1988(goo 1988) and 1990 recognized the villagers' right to a share of forest products and clarified their management responsibilities. (A resolution is a unique Indian legal form, a technical term that describes a process through which the intent or emphasis of broad legislative authority can be refined or clarified. Resolutions are often in the form of government order promulgated by a technical agency such as the forest department.) Some foresters have been very effective in encouraging communities to organize. They have enhanced the groups' authority by formally registering them and providing local patrol groups with identity cards. Yet recent meetings with village forest protection group leaders indicate that few see any advantage in interacting with forest department staff or local government officials.

The Case of Mahapada Village

Sarangi Range is located in Dhenkanal Division, approximately 40 km to the northeast of Dhenkanal town. The range has extensive tracts of degraded forest land as well as large forest areas, including the 12,960-ha Kapilas Reserve Forest, which provides a habitat for

up to sixty wild elephants. In 1987, a shortage of trees of harvestable girth led to a moratorium on further felling. Still, the range officer and his staff have serious problems with organized, illegal felling, especially in the eastern side of the territory. Fortunately, the emergence of community forest protection groups throughout the range has established effective access controls over an estimated 30 percent of the forest lands in the range.

In an attempt to strengthen these informal groups, I.Z. Khan, the range officer, has registered sixty-one local village forest protection committees. He notes that thirty of these community groups were active before the forest department began its program to encourage group formation in 1988, and more villages are forming groups as they observe the successful forest regeneration efforts of their neighbors. PIPAR, a local training and research NGO involved in assisting forest management groups, indicates that a number of groups may be operating without having been contracted by the forest department. PIPAR estimates that one corner of the range has sixty-five active forest protection committees and that an additional eighty-five villages are interested in forming management organizations. In summary, Sarangi range may comprise up to one hundred active community-management groups, with the potential for up to two hundred or more forest protection committees to operate.

Forest Protection committee Experiences

Mahapada village is located at the northern side of Rupabalia Forest, a tract of more than 900 ha. The community was settled by Saura tribals approximately three generations ago. The Saura cleared the forest and developed rain-fed rice fields at the base of hill. Brahman families who moved into the area gradually acquired all the farmland in the village and brought scheduled- and cultivator-caste families with them. The forest was well managed by the community to meet subsistence needs until about sixteen years ago, when the Brahmans sold clear-felling rights to outsiders, probably from Dhenkanal. With the once-rich forest quickly reduced to scrub, the Saura tribals went to the Brahmans and demanded to manage their share.

The Suara protecting as 25-ha tract fourteen years ago, and rapid mixed-forest regeneration resulted, encouraging three other groups to form committees two years later. These forests are now more then 10 m in height and support a diverse range of tree, shrub, climber and herb species, generating significant flows of valuable nontimber forest products. Wildlife, too, has begun to reappear, witnessed by the recent sighting of a bear emerging from the forest. Two years ago, the Brahmans also began protecting their 40-ha section of the forest. The five forest protection committees now operating in Mahapada are shown in figure 3.1.

The Suara tribal community bases its survival for at least six months of the year on forest tubers (*tumbuala, kanta, alu,* and *panial*), mushrooms, edible leaves and other forest foods. For an additional two months of the year, their subsistence is dependent on the collection of *kendu* (Diospyros melanoxylon) leaves, used for making *bidi* (cheroots), in the forest. They receive Rs10(US $.33) for two thousand leaves of high quality. The Mahapada forest protection committees meet monthly to make forest-management decisions.

The committees determine when community members can collect fuelwood (generally five to six times per month), how often each household head is responsible for

forest patrolling duties (usually twice a month), and fines for community members who break management rules. Special meetings are held to discuss major timber or pole requirements for roof or house construction. Women generally do not get invited to *sahi* meetings, which are held in a men-only community center. The forest protection committees are basically a component of the clan or tribal council (*sahi samiti*), which also handles village disputes, festival organizing, road repairs, and school activities.

Some time ago, the forest protection committees of Mahapada village asked the Orissa Forest Department beat officer to supervise the digging of trenches to demarcate the boundaries between each committee's managed forest patch. Their request indicates that, at least in this area, communities perceive a need for forest department recognition of their boundaries and rights and wanted the beat officer to be knowledgeable regarding their territorial responsibilities. Similar needs for demarcation and recognition likely will be found elsewhere. Special training for forest department field staff in these procedures might be useful, after operational guidelines have been developed.

Budikhamari Joint Protection Party

Budikhamari is at the center of a forest protection movement that has evolved in northern Orissa during the last ten years. Until the 1960's, villagers report, good standing forest existed. These produced a wide range of products used for home consumption and commercial activities. A prolonged drought in the late 1960's led to more rapid exploitation of forest resources, as destitute villagers turned to fuelwood headloading and worked for town-based timber smugglers. By the late 1970's, most of the surrounding forest had been reduced to scrub. The disappearance of the forest meant that local households had great difficulty obtaining the many forest products they needed to meet a wide range of recurring needs, including materials for housing, tools, medicines, food supplements, fodder, and fuelwood. By 1993, seventy-nine villagers had established network of forest protection groups guarding 3,247 ha of once degraded moist deciduous forest.

The actual process through which communities began to organize is not clear. As early as 1983, some community members, in response to forest product scarcities, began discussing strategies to control access and regenerate small patches of forest neighboring Budikhamari village. The community adopted the *thengapali* (bamboo-stick rotation) system, in which each household must allocate a young male member for patrol duties when its turn arises. Patrols are usually done in groups of four to five people. In Budikhamari, if someone fails to patrol, he is fined Rs 5 (US$.17). When patrols encounter outsiders carrying out illegal headloading or timber harvesting, they are fined.

Both local people involved in illicit timber and fuelwood extraction and some forest officers initially questioned the villagers' efforts. By 1986, however, S.C. Mohanty, the divisional forest officer, and K.C. Mishra, the local range officer, became aware of the concern and initiatives of the community. They began a series of support activities. The Orissa forest Department staff worked with Gorachand Mohanta, a local community leader, to initiate a series of meetings with other villages in the area. The local forest department staff began assisting villagers in demarcating forest tracts to be placed under the protection of each participating community.

By January 1987, sixty people from eight neighboring villages had reached an agreement to conserve plots of forest with the approval of the forest department. Within

two months, seven other local communities also began guarding degraded forests surrounding their villages; by 1988, twenty-five villages in the area had formed forest protection committees.

Representatives from participating villages formed an apex body known as the Budikhamari Joint Protection Party to facilitate communication among participating communities. The party is an important example of nongovernmental, intervillage forums for forest-management coordination. Since its formation, the party has conducted numerous public meetings, environmental marches, and nature camps for schoolchildren and local community members. The party also has provided a unified front through which the seventy-nine participating villages can deal with the forest department, as well as with more powerful timber smugglers and fuelwood middlemen.

Representatives from the Budikhamari Joint Protection Party are reluctant to establish any formal ties with the local panchayat (formal village government system), and they reject the idea the panchayat headmen (sarpanch) should become chairmen of forest protection committees, as required by Orissa state government. While the party remains skeptical of government officials, community leaders feel that the local forest department staff has been supportive of their attempts to stabilize forest use.

The Budhikhamari Joint Protection Party has gained greater legitimacy among its membership and with outsiders through its dealings with foresters. Since the Orissa Forest Department passed resolutions to formalize community protection groups in 1988(GOO 1988) and 1990, it has begun issuing identification cards to villagers involved in forest patrolling. The forest department staff from neighboring Simlipal National Park hopes that the party movement might extend its activities to that area in the future.

As the forest surrounding Simlipal have experienced greater protection form local communities, extractive pressures inside the park from fuelwood head-loaders as well as organized logging gangs have increased. Whether communities and the forest department can develop a comprehensive management plan for production forests and the national park remains to be seen.

Policy and Institutional Challenges in Co-Management

The emergence of tribal and scheduled-caste leader who are able to organize forest protection is a testimony to the broad sociopolitical changes that has occurred in Orissa and West Bengal during the last twenty years. Community members clearly are concerned about environmental degradation in their areas and are willing and able to take action to respond to the challenge. In some cases, they are increasingly encouraged by supportive forest department programs and helpful field staff.

Community Initiatives

The cases of Chandana, Mahapada, and Budikhamari indicate that communities often are mobilized by local leaders who draw attention to the villages' deteriorating forest resources and related environmental problems. These case studies provide useful glimpses into the context and process of emerging forest protection committees. They high light communities' ability to organize and take control of their natural resources. The villages' experiences also indicate the vast potential of sal forest ecosystems to renew themselves, provided human disturbance patterns are halted. At the same time, the case studies indicate that many institutional, economic, and ecological problems continue to threaten the sustainability of these new community-based resource management systems.

In Chandana, despite success in protecting at least 100 of the 160 ha of disturbed natural sal forest neighboring their village, the community continues to be confronted by threats from villages in the area whose residents depend on fuelwood cutting for a substantial portion of their income. The tribal and scheduled-caste people who illegally exploit these forests are driven by economic necessity and encouraged by local and urban higher-income and –caste groups. Until all communities neighboring the forest can be effectively brought into the comanagement program and their economic needs met, these emerging local-management systems will remain threatened and their sustainability questionable.

The Role of National Policy

In West Bengal, many management issues still need attention as communities and the forest department attempt to develop sustainable partnerships. As the sal pole harvest approaches, the forest protection committees and the forest department will face a new set of issues. The forest department needs to clarify procedures for harvesting and communicate them to participating forest protection committees well in advance. Profit-sharing terms also need further consideration.

Ideally, the forest protection committee share should be based on an economic assessment of the opportunity costs each community incurs through protection activities and the income lost when the community ceases other forest exploration activities. A floating rate based on the ratio of protected forest area to households also may be necessary. In Harinakuri, where the ratio is more than 2 ha per household, the returns from protection will be relatively attractive. By contrast, in forest protection committees with only 0.5 ha or less per household, forest conservation income may be insufficient to provide an adequate incentive to stimulate effective management actions. The forest department also needs to reassess the management costs that are deducted from gross profits. It may be possible to set a clear percentage figure as a maximum, therefore ensuring the forest protection committee share would not be subject to major reductions due to management costs.

More generally, forest departments need to relax felling requirements and revise working plans in areas where communities primarily are managing for conservation. Forest departments should respect situations in which villagers prefer not to carry out any commercial timber cutting but rather leave the forest for nontimber forest products and its hydrological and microclimatic functions.

Newly drafted national and state resolutions support the establishment of forest comanagement systems in India and provide as attractive opportunity for experimentation with community-forest department collaboration (GOI 1988; MEF 1990). These guidelines will need revision based on experience with forest comanagement activities. Changes are likely to be in the direction of providing communities with adequate managerial authority, tenurial security, and appropriate economic incentives.

Research on the process of community forest management group formation indicates the existence of a great deal of grassroots organizing for environmental management in various parts of India (see Dhar, Gupta, and Sarin 1990; Gadgil 1991; Malhotra 1991la; Pandey 1991; Poffenberger 1990, 1992; Poffenberger, McGean, and Bhatia 1990; Poffenberger and Singh 1992; Roy 1991; Shashi, Singh, and Singh 1991). In response to deteriorating forest conditions, thousands of communities from south Bihar, eastern Gujarat, Orissa, eastern Maharashtra, southeast Bengal, and other parts of the country have attempted to restrict exploitation and halt the process of environmental degradation. A number of state forest departments have supported these local activities for some years. Where state forest departments are supportive, village forest management groups often are able to sustain protection effectively, even under pressure from other communities and the private sector. With the support of state forest comanagement resolutions, these groups can receive formal legitimacy, further strengthening their authority. One policy question concerns the form this recognition should take and the legal nature of these management organizations.

Forest protection Committee Relationship with Local and National Governments

There is some concern that the emerging forest management organizations may not fit well within the system of local government (panchayati raj) or may be in conflict with the customary rights of larger local-user population. Experience concerning the possible relationships between community forest-management organizations and local government is limited. Most resolutions give local panchayat institutions an oversight role in monitoring the activities of village groups, as is the case in West Bengal. If a forest tract and managing communities are spread over a large area covering several panchayats (gram sabha), coordination may be more difficult.

One option for dealing with the extralegal nature of community forest-management groups and their relations with local government bodies, as the Orissa joint-management resolution has suggested, is to extend membership in forest-management groups to all members of the panchayat. In some areas, however, this would create other problems. Since many joint forest management groups are comprised of members from a single small hamlet, incorporating all communities within the panchayat would expand membership significantly. The community that originally formed a joint forest management group would have to join other villages in creating a new management system. In the process, the original community's authority over forest management decisions would be eroded. Finally, where existing community management groups are functioning, they would be obligated to share forest produce with other communities that have been incorporated into the management committee. The West Bengal Forest Department has attempted to form multivillage forest protection committees, in some cases joining together smaller community forest protection committees. Here, the component communities generally agree to keep their independent identities within the

larger group, maintain clear boundaries for their areas, and retain exclusive control over harvests in their territories. At the same time, the larger group does seem to play a helpful role in facilitating joint protection activities and resolving disputes. According to the West-Bengal resolution(GOWB 1989, 1990), these larger groups can be linked to the village panchayat.

Another concern is that if the forest comanagement groups absorbed by the village panchayat, vested interests influential in many communities might exert control over decision making. More dramatically elected village panchayats are developing in Karnataka and West Bengal, where the new panchayati raj system has been adopted. These also exist in many communities in other parts of India. In many states, though, traditional elites still effectively manipulate village panchayat decision-making. Since many small, community-based forest protection groups are comprised of less powerful groups and communities within the larger panchayat, they might lose authority to elites if the management groups became a direct adjunct of the panchayat.

In addition, twenty years' experience of Indian Social forestry programs suggest that panchayats may not even be able to effectively manage community woodlots. In some cases, this incapacity was due to the panchayats' inherent political nature and the oftendiverse constituencies that make reaching consensus about the management of community forest resources difficult. Recent experiences in both India and Nepal demonstrate that smaller community groups (often comprised of ten to fifty households) can more effectively mobilize to establish management systems, including protection activities, harvesting and sharing systems, and dispute arbitration. This results from the smaller groups' economic and social homogeneity and their physical proximity to the forest. While there is a need to clarify the relationships between local forest management groups and local government institutions, simply subsuming these groups in the local government body could threaten their effectiveness.

Exploration of the role local government could play in collaborating with forest departments to assist with planning and monitoring the forest management activities of local groups within their jurisdiction may be a more useful approach. A formal institution, such as the local government body, could play a role in dispute arbitration among communities and, when the need arose, between communities and the forest department. All state resolutions should deal more clearly with arbitration among communities and should discuss the handling of disputes between the communities and the forest department.

While the resolutions that have been promulgated are generally vague when addressing relationships between community management groups and the local government organization, the West Bengal resolution may have been overly specific in terms of the role of the forest department and local government in determining committee members. The original 1989 resolution stated, "The beneficiaries shall be identified from amongst the economically backward people living in the vicinity of forests concerned," and that the local panchayat land management committee " shall select beneficiaries for construction of the forest protection committee." This statement indicated that local government representatives from outside the community would determine who could and could not participate. In 1990, the West Bengal resolution was revised to allow every family in the village to be a member of the management group. However, the new

resolution maintained the clause that the panchayat land–management committee and the forest department should determine families eligible to benefit from the program.

If membership is selective and determined by outside agencies and local government bodies, there is a possibility that some families already participating in forest comanagement activities might be denied membership and would be excluded from the program. Having final authority over their own membership seems fundamental for community-based organizations. Studies in West Bengal (Malhotra 1991b; Roy 1991) indicate that many villages organize their own forest protection committees and determine their own membership. Forest protection committees comprised of all or most households in the community had more effective forest-management organizations than those with partial membership.

In areas where local groups function effectively, the forest department and local government may only need to formally empower them and provide technical assistance. This, generally, is what is occurring in West Bengal. Since the West Bengal resolution and those from a number of other states imply that forest department and local government direct the formation of community forest management organizations, the policy does not entirely fit the realities of the rural context in which the program is being implemented. Forest departments and policy makers need better information about how and why communities organize to manage forest resources, and about how they might best relate to local government bodies.

Recent resolutions also could stimulate the proliferation of numerous new community-level organizations that are completely dependant on the forest department, rather than local initiative, for their existence. This could undermine the possibility of greater self-governance at the lower level or the development of more dramatically elected or selected institutions or processes. Community forest management groups, as the little brothers in the partnership with the forest department, then would have little say over policy and management decisions. Most state solutions possess clauses that allow the forest department to dissolve forest management organizations if they fail to perform according to the expectations of the department. While forest departments will require some statement in the resolution to enable dissolution of the management agreement if their community partners fail to uphold their responsibilities under the joint forest management program, it is also important that the identity of village resource management organizations be respected. In Rajasthan and Haryana, where the resolutions (GOH 1990; GOJK 1922; GOM 1992; GOMP 1992; GOR 1991) require communities with active forest-management groups to become registered societies, protection committees have a separate legal identity and, consequently, greater independence.

Some committees in Haryana and West Bengal have requested assistance from members of the legislative assembly and other politically elected leaders to strengthen their bargaining power. In Pinjore area north of Chandigarh, fourteen community management groups met together to request that the Haryana Forest Department modify the terms of the grass-lease pricing and payment system. These experiences suggest that community forest management groups will want to maintain a separate identity and utilize local governance bodies, elected leaders, and group apex organizations as mechanisms to express their needs and negotiate more effectively with forest department partners. The need for autonomy and democratic process at the community level is currently lacking in state resolutions, but these should be part of any revisions.

Satisfactory agreements between forest departments and community management groups also might be facilitated by representatives from both groups developing a joint plan for the area. Although some resolutions mandate community input into microplans, current forest department working plans do not incorporate this community input. The result, especially if there are different viewpoints, is an unresolved tension between the community and the forest department plan. Mechanisms need to be developed to ensure that forest department and management-group plans for areas under comanagement are compatible with and satisfactory to both parties.

Policy and Women's Participation

Most resolutions do not adequately address the role of women in forest comanagement systems. While the Gujarat resolution (GOG 1991) specifically requires at least two women members on community management committees, and revised guidelines for the joint forest management program in Haryana require both male and female household heads to be members of the community forest management society, most resolutions do not refer to women's participation. Since women are frequently the primary users of forest resources, this is a serious omission.

For women to play a central role in management decision-making and be formally recognized as voting members of local management groups is both logical and important. In some rural contexts, men migrate from the village for extended periods or are to busy with agricultural work to allocate time to management activities. In these cases, the establishment of community management groups solely comprised of women may be appropriate. This has taken place already in a number of states. Resolutions need flexibility to successfully support emerging community initiatives. They should not assume a single model of community management.

Conflicting Ownership and Use Rights

Perhaps more problematic is the question of preexisting user rights. In many forest areas in India, communities and panchayats already posses a range of customary legal rights over forest resources (nistar, dafavati, ect.) granted under the earlier forest acts of 1878 and 1927. Emerging forest department comanagement programs are entering into new agreements with communities and extending a new set of rights targeted to local groups. This process can create problems if earlier rights-holders are excluded from the new agreements. Existing rights need to be reviewed before new management agreements and rights, previously granted as appropriate under the earlier act, are formalized.

Some forest protection committees operating in Southwest Bengal negotiated with neighboring communities to clarify rights and territorial responsibilities when they began to initiate protection activities. In many cases, communities have the strongest incentive to avoid conflicts with their neighbors over forest rights. These villages have demonstrated that they can conduct much of the negotiation on their own or with the assistance of the local government. The forest department, however, holds ultimate responsibility for seeing that its agreements with management groups do not create conflicts over real or perceived preexisting use rights. Once an intervillage consensus about forest management rights has been reached, agreements need some type of formal legal approval.

Some government agencies also are empowered with certain rights and interests. Panchayats and parastatal organizations, as well as local cooperatives, often have harvesting and marketing rights to timber and nontimber products. These rights must be recognized or settled when forest department is developing agreements with community management groups.

With the exception of clauses in the national (GOI 1988;MEF1990) and West Bengal (GOWB 1989, 1991) resolutions, must state program guidelines do not address the long-term rights of participating communities who protect and hope to benefit from forest lands under co-management. Clear tenure security enhances community-management groups' authority to carry out protection activities, especially when they are under pressure from neighboring villages and private interest groups. Participating communities that invest labor in protection activities and defer exploitation of forest resources to benefit from future production may need greater assurance of the government's commitment to their participation in the program.

Since state forest departments are creating management partnerships with village groups, the timeframe for such agreements, as well as the basis for extensions, necessarily must be clear. It may be appropriate for the time period of the agreement to correspond to the production cycle (rotation) of the primary products. In West Bengal, this is the ten- to twelve-year rotation of the sal poles. Without a clear temporal mandate, community management groups may fear that their labor investments will not yield benefits, since the forest department could revoke the agreement prior to the harvest.

Aside from providing tenure security through specific clauses in state forest comanagement resolutions, management groups should be aware of their tenurial rights and formalize them through countersigned agreements, certificates of usufruct rights, and symbols of authority. When outsiders question the authority of community-management groups, or when a group must challenge offenders, such documents are important in demonstrating the group's legitimacy.

Ecological Limitations of Policy

The level of biological productivity is another important consideration in setting policies regarding produce sharing. For example, in semiarid western India, tree growth and biomass production will be slower than in high-rainfall areas. Some disturbed forest land in southwest Bengal still possess healthy sal stumps and other root systems the regenerate secondary forest growth through coppicing very rapidly. Within a few years of harvesting, a community may possess a substantial secondary forest that generates multiple products. In other forest areas, where stumps have been removed for fuelwood and soil erosion has been extensive, flows of forest products will be considerably lessened and slower to materialize. If community management costs are to be met in such contexts, the forest department will need to invest in more capital-intensive enrichment planting and possibly provide additional employment opportunities. Currently, forest comanagement policy documents do not address the need for flexibility in ensuring an equitable flow of benefits to participating community-management groups operating in different ecological contexts.

Conclusion

Resolutions alone may have little or no effect on reality. They need to be effectively communicated to the forest department staff and village families and translated into local languages. Meetings will need to be organized with forestry staff and participating communities to explain the content and discuss the implications of resolutions. New ideas will emerge through diagnostic research, program monitoring, and open discussion with participating groups; these should result in improvements to the programs. To extent that policies and program activities can respond in a supportive manner to the problem-solving strategies being developed by communities and foresters, forest comanagement offers a promising opportunity to India's forest management problems in a socially and ecologically sound manner.

ACKNOWLEDGMENTS

The author would like to thank the communities and all NSG colleagues who contributed to the collection and analysis of these field reports. Particular thanks are due to the West Bengal and Orissa forest departments, S.B Roy, Mitalee Chatterjee, kailash Malhotra, Arvind Khare, Madhav Gadgil, N.H. Ravindranath, Jeff Campbell, S. Palit, Neera and Kundan Singh, Samar Singh, Syed Rizvi, Shekhar Singh, K.R. Raghutnathan, and Betsy McGean.

SOURCES

Dhar, S.K., J.R. Gupta, and M. Sarin. 1990. Participatory Forest Management in the Shivalik Hills: Experiences of the Haryana Forest Department. Working paper No. 4, Sustainable Forest Management Series. New Delhi: Ford Foundation. Gadgil, M.1991. Natural Regeneration through Community Participation in Degraded Forest Lands in the Western Ghats. Bangalore, India: Centre for ecological Science, India Institute of Science.

Government of Bihar (GOB). 1990. Resolution No. 5244. August 11.

Government of Gujarat (GOG). 1991. Resolution No. FCA-1090-125V (3). March 13.

Government of Haryana (GOH). 1990. Resolution No.1370 FL-1-90/15610. June 13

Government of India (GOI). 1988. National Policy. December.

Government of Jammu and Kashmir (GOJK). 1992. Resolution No. SRO-61. March 19

Government of Madha Pradesh (GOMP). 1991. Order No. 16/4/10/2/91. October 12

Government of Maharashtra (GOM). 1992. Resolution No. SLF-1091/P/K/119-191/F/11. March 16.

Government of Orissa(GOO). 1988. Resolution No. 10 F (Pron) 47/88/17240/FFAH. August 1.

Government of Rajasthan(GOR). 1991. Circular No. F-7 (39)/Forest/90. March 16.

Government of West Bengal (GOWB). 1989. Resolution No. 4461-For/D/15-16/88. July 12.

_____.1990. Modification resolution No. 5062-For D/15-16/88. July 27. Malhotra, K.C. 1991a. "People, Biodiversity and Regenerating Tropical Sal Forest in West Bengal, India." Paper presented to the international Symposium on food and Nutrition in the Tropical Forests, September, Paris, France.

_____.1991b. Joint Forest Management in West Bengal: A study in Non-timber forest produce and FPC structure in Jamboni Range, Midnapore District. Calcutta: Indian Institute of Biosocial Research and Development.

Ministry of Environment and Forest (MEF), Government of India. 1990. Resolution Regarding Involvement of Village Communities and Voluntary agencies for Regeneration of Degraded Forest Lands. No. 6-21/89 F.P. June 1.

Pandey, D. 1991. "Joint Forest Management in Rajasthan." Yojana (Oct. 15).

Poffenberger, M. 1990. Joint Management for Forest Lands: Experiences from south Asia. Working paper No. 2, Sustainable Forest Management Series. New Delhi: Ford Foundation.

_____. 1992. "The Resurgence of community Forest Management in the Jungel Mahals of West Bengal." Paper presented at the Conference on South Asia's Changing Environment, March 16-20, Bellagio, Italy.

_____, B.McGean, and K. Bhatia, eds. 1990. Forest Management Partnership: Regenerating India's Forests. Executive Summary of the Workshop on Sustainable Forestry, September 10-12, New Delhi. Working paper No. 3, Sustainable Forest Management series. New Delhi: Ford Foundation.

_____, and S. Singh. 1992. "Forest Management Partnership: Regenerating India's Forests." Unasylva (Food and Agriculture Organization, Rome) 43 (170). Roy, S.B. 1991. Forest Protection Committees in West Bengal, India: Emerging Policy Issues. Honolulu, Hawaii: East West center.

Sashi, K., N. Singh, and K. Singh. 1991. Community Forest Management in Orissa: case studies. Bhopal and New Delhi: Indian Institute of Forest Management/ Swedforest.