

INDIA

Population, Forest Areas, and Distribution of Forests

With an area of 328.7 million hectares and a population of 844 million, India is one of the largest countries in the world. Its share in the world population is nearly 16 per cent, which means that every sixth person in the world is an Indian. The average annual population growth rate during the last decade was 2.11 per cent (Census 1991). The total forest area of the country is about 64.01 million hectares, which accounts for 19.47 per cent of the total geographical area of the country. The actual forest cover is only 83.12 per cent of the recorded forest area of 77 million hectares. Of this, 64 million hectares and 25 million hectares have a crown density between only 10 and 40 per cent respectively. The population density is $256/\text{km}^2$ and the per capita forest area is 0.07ha. India has a significant percentage of its forest area in the hills. The broad types are given in Table 1.

Excluding the Alpine, Sub-alpine, and small areas of temperate forest, most forest areas are accessible and have workplans covering their management and use (Forest Research Institute 1961).

Table 1: Forest Types in India

S.No.	Forest Type	Area in Sq.Km.	Percent-age
1.	Tropical Wet Evergreen Forest	51,249	8.0
2.	Tropical Semi Evergreen Forest	26,434	4.1
3.	Tropical Moist Deciduous Forest	236,794	37.0
4.	Littoral Swamp Forest	4,046	0.6
5.	Tropical Dry Deciduous Forest	186,620	28.6
6.	Tropical Thorn Forest	16,491	2.6
7.	Tropical Dry Evergreen Forest	1,404	0.2
8.	Sub-Tropical Broad-leaved Hill Forest	2,781	0.4
9.	Sub-Tropical Pine Forest	42,377	6.6
10.	Sub-Tropical Dry Evergreen Forest	12,538	2.5
11.	Montane Wet Temperate Forest	23,365	3.6
12.	Himalayan Moist Temperate Forest	22,012	3.4
13.	Himalayan Dry Temperate Forest	312	-
14.	Sub-Alpine and Alpine Forest	18,628	2.9

(Source: GOI 1989)

History of Forest Management in India

The history of forest management in India can be divided into three distinct periods.

1. The Pre-colonial period
2. The Colonial period
3. The Post-independence period

The Pre-colonial Period

Resource use during the pre-colonial period (before 1800) fell under two broad social systems – tribal and agrarian. The tribal system covered the northeastern hill areas, the Aravali and the northern reaches of the western ghats, over the Satpuras, the Vindhya, and the central Indian Plateau, extending up to the eastern reaches of the eastern ghats. The agrarian system covered a larger area of the country, especially the fertile river valleys. Forests, the important natural resources, were mainly controlled by one of the two systems.

The tribal communities, which depended on the forests for their subsistence, formed homogeneous social groups and remained confined to a particular territory. Consequently, in the absence of communication, the flow of material was restricted within the territory.

Therefore, the tribal population had an important stake in the security of the resource base. They imposed certain restrictions on harvesting common property resources and formulated a number of cultural practices for sustainable use of resources.

In the agrarian system, each village was partly autonomous within its own territory and had its own internal administration. The non-cultivated land was controlled by the community. This social group also followed certain religious practices for nature conservation that had been in use since the days of hunter-gatherers. The villages following this system had a community-controlled supply forest and a forest area protected by religious sanction (sacred groves). The forests were committed to a role supportive of agriculture and were kept under community control (Gadgil and Guha 1992).

The Colonial Period

The British colonial rule in India was well-established by the early nineteenth century. India was soon turned into a raw material supplier for European industries that had made considerable progress and had a market for finished goods.

Thus, the management objectives underwent a radical change. The Indian Forest Department was established in 1864, primarily to fulfill the timber needs of the Railways. Dietrich Brandis, formerly a lecturer at the University of Bonn, was appointed the first Inspector General of Forests. The first Forest Act was enacted in 1865 to establish state control over forests. This was followed by a series of legal enactments, with the 1878 Act replacing the 1865 Act which was later replaced by the 1927 Act. Through these successive policy changes, state control over forests was firmly established. The reservation and demarcation of the forests following these enactments brought to an end the tradition of community rights and control. Extraction of raw materials for railways, ship building, defence, and industry became priorities for the forests. The exploitation of these forests was introduced in the name of scientific forestry which was deemed to be sustainable. But, through this process, the communities were totally alienated and the security of the resource base was eroded. The forests, in effect, were rendered an open access, common property resource.

This situation led to overexploitation, sequential degradation, and exhaustion of forest resources. The silvicultural methods that were adopted were suitable for simple tree crops that occur at higher latitudes. The regeneration methods were premised on the effective control of biotic interference, which, due to the conflict-ridden relationship between the people and the forest officials, was no longer possible. Moreover, due to an almost exclusive emphasis on timber species, non-timber forest products (NTFPs) were relegated to the background.

The Post-Independence Phase

The policies and procedures of the colonial period were further strengthened during the post-Independence era. An additional burden was imposed on dwindling forest resources when forest-based industries were encouraged by providing raw materials at heavily subsidised rates. These unsustainable extractions resulted in accelerated degradation of the forests. Although concerns were voiced in the 1952 National Forest Policy about degradation and diversion of forest lands, little effort was made to arrest this at the implementation stage. Until 1975, the

policy emphasis was on the higher productivity of forest lands. This was to be achieved by raising man-made plantations of quick-growing varieties and of species that did not fall into the browse category.

In 1976, the Forests and Protection of Wild Animals and Birds' sections were transferred from the state list to the concurrent list of the Constitution of India, empowering the central government to pass laws concerning forests and wildlife. This could be called a 'plantation phase'. Due to increased biotic pressure, however, only limited success could be achieved. A policy change was introduced by the National Commission on Agriculture in 1976; production forestry on forest land and social forestry on non-forest lands became the newly-adopted policy.

In discussing the needs of the rural people for forest produce, the NCA report states — *one of the principal objectives of social forestry is to make it possible to meet these needs in full from readily accessible areas and thereby lighten the burden on production forestry. Such needs should be met by farm forestry, extension forestry and by rehabilitating scrub forests and degraded forests* (Saxena 1994).

To prevent the diversion of forest lands into other uses, the Forest Conservation Act 1980 was passed, making it obligatory for state governments to obtain central government authorisation prior to the conversion of any forest land (Palit 1993a).

The social forestry programmes launched in the early 1980s throughout the country were seen as a positive step towards alleviating the pressure on state forests. Although, in terms of the sheer production of trees, there had been some success, the outcome differed widely from the stated objectives for various reasons. The more successful social forestry plantations consisted of Eucalyptus, produced as a cash crop for the commercial 'pole' market. The basic assumption in social forestry that, given government help, the people would willingly invest their labour and capital to raise fuel and fodder species, proved grossly incorrect. Instead, they preferred cash crops, while fuel and fodder demands continued to be met from government forests. Consequently, social forestry did little to alleviate the burden on natural forests. While attention and funds in the 1980s were channelled primarily to social forestry programmes on private and community lands, millions of hectares of state forests continued to deteriorate.

Meanwhile, the British administrative structure proved to be grossly inadequate in the post-Independence period, especially as the rapidly changing political tenor began to seriously undermine bureaucratic authority and forest laws became unenforceable. It became increasingly clear that only a collaborative effort between the people and the state could ensure forest protection. This view was further strengthened by the socioeconomic experiment undertaken as a Pilot Project in 'Arabari' in the 1970s in the Midnapore district of southern West Bengal. The basis of this project was the involvement of fringe communities in the protection and development of degraded sal forests in return for access to a range of NTFPs and a share of the coppice sal 'pole' harvest, giving them 25 per cent of the net returns. The first government order about this was issued in 1987. Since the community response was very favourable and the sal coppice forests regen-

erated quickly, the senior foresters in the state introduced community participation in the protection and development of forests informally throughout southern West Bengal in the mid-1980s. By the time the government order was issued in 1989, approximately 152,000 hectares of forest land were already under community-based Forest Protection Committees (FPCs).

There are many other instances in India in which forest-dependent communities have, on their own initiative, begun to protect the forests. The most prominent among these are the *Chipko* movement of the Uttarkhand Himalayas and the *Sukhomajri* in Haryana. The successful community action of the *Sukhomajri* was followed by the formation of the Hill Resource Management Societies (HRMS). These groups focussed on earthen dams made to store rainwater for irrigation and for the protection of forests in the watersheds. The community groups were given the first option for leasing the grass, which is used primarily for rope-making and as pulp for paper making in these areas. Other such community and departmental movements for forest protection simultaneously developed in the states of Orissa, Gujarat, and Bihar over large tracts of land.

The success of this pioneering venture by West Bengal of establishing Community Forestry through JFM was well received not only within the country but in other developing nations. In recognition, the West Bengal FPCs were awarded the J. Paul Getty Wildlife Conservation Prize for 1992. In fact, the success of the West Bengal efforts moulded the National Forest Policy of India.

As stated earlier, national social forestry programmes, which preceded the JFM phase, achieved limited success on the ground because they failed to meet the subsistence needs for fuel, fodder, small timber, and grass. In response to decreasing supplies, declining incomes, and escalating degradation, the National Forest Policy was amended in 1988, reversing the earlier recommendations of the National Commission on Agriculture. According to the new policy, domestic requirements, such as fuelwood, fodder, minor forest produce, and construction timber, were the primary needs to be fulfilled.

The new policy upheld that the production of timber from natural forests should be discouraged and the source should be shifted to trees grown outside forest areas. Thus, the national forests should be managed both for environmental services and to meet the needs of local communities. Towards this end, the Government of India issued a notification in June 1990 giving guidelines for the involvement of local communities and NGOs in the regeneration of forests. Fifteen out of 25 states have already issued JFM notifications, and these states account for 75 per cent of the country's total forest areas.

Forest Management Objectives

India has developed from a community-controlled forest system to state-controlled reserved and protected forests; from goods and services' oriented forestry to timber and revenue oriented forestry.

Over the years, the forests have been catering to the needs of industry, defence, the railways, and mines. Despite wood substitution in various activities, demand for forest produce is still significant. Similarly, the economic contribution of commercial logging to the national income, which runs into billions of rupees, cannot be easily written off. Therefore, the management objective should be to reach a fair compromise between national needs and local needs. Having recognised environmental and social stability needs as paramount, forest management must, therefore, deal with residual industrial demands and local demands for fodder, fuelwood energy, building material, and cash flow. In all the notifications issued for JFM in India, a conscious effort has been made to strike a balance between these two needs.

Institutional Issues

A management system must have strong institutional support in order to succeed. The Indian Forest Department recognised this, and it was manifested in the establishment of an impressive Forest Research Institute in Dehra Dun with appropriate staff training programmes at different levels throughout the country.

In India, most of the forest areas (over 90 per cent) have been government-owned for many years. Among the developing nations, perhaps it is the only country which, following decolonisation, possessed adequate facilities for forestry education and training at both the professional and technical levels.

The existing forestry education, training, and research set-ups have been designed according to the objectives of traditional forest management practices. In addition, there are other institutional aspects that are either being revised or need urgent reviewing.

Legal Issues

The legal status of the village forest protection committees (FPC) has been questioned from time to time. Such committees have been formed on the strength of government notifications, mostly through the executive orders of the concerned Divisional Forest Officer. Communities are concerned about whether the benefits to which they are entitled could be taken away in future merely by a revision of the government order. There is, thus, a feeling of tenurial insecurity.

Furthermore, there are instances in which villages situated away from forest areas have user rights as defined by forest settlements, even though they do not contribute in any way to the protection and development of that particular patch of forest. In such a situation, the rights of the actual user groups could conflict with those of such right holders and, in the process, the forest areas may become open access, common property resources. Whereas, in the first instance, the government's initiative in forming protection committees through executive orders can be justified, since JFM is still in the formative stages and is too young to be covered by a legalistic framework, in the long run users' rights must be reviewed to make them compatible with JFM.

Training

JFM is a technically sound forest management system that calls for technical, managerial, and extension competence. Three groups are primarily involved in the implementation of JFM. They are the forestry personnel, the participatory communities, and the NGOs. Therefore, to implement the new management strategy, all three groups need proper orientation and training.

The first obstacle to achieving this is the training syllabus of the forest staff. Most of the present officers have been trained according to the old syllabus. Furthermore, the training institutes are turning out large numbers of officers every year with the same training. While efforts are being undertaken to modify the syllabi of the training institutes and make them more suited to JFM, it is also necessary that senior officials in the forest bureaucracy receive the training and orientation first. This is not the case at present, as it is the middle-level officers who receive orientation and training in JFM.

In order to reduce dependence on forests, communities have to be trained in support activities such as sericulture, beekeeping, mushroom cultivation, lac cultivation, pisciculture, basket weaving, rope making, sal plate making, *bidi* making, and so on, apart from collection and processing of a host of other NTFPs. They should be trained in seed collection and nursery and plantation techniques. The efforts being undertaken in these activities are sporadic, and forest departments do not have the necessary infrastructure. NGO involvement, which mostly has beneficial effects, is minimal. More efforts are needed.

Gender Issues

Women, as key users and managers of natural resources, have definite roles, responsibilities, and constraints both within and without the household. In third world countries, the degradation of common property resources, including forests, has led to feminisation of poverty. Attention to gender has, therefore, become particularly relevant to the concept of sustainable natural resource management. The constraints faced by women in participating in the forest management programme are given below.

- Non-representation of women in local decision-making bodies
- Lack of poor rural women's organisations
- Lack of awareness of legal rights on the part of poor women

The only way women users can overcome caste, class, and gender hierarchies is by identifying themselves as members of a large group that can provide them with strength and articulation and be an instrument for participation.

The JFM notifications issued in the different states of India give provision for women to become members of protection committees individually, or for any one of the two (either husband or wife) to represent the household or on a dual membership basis. There are also reserved seats on the Management/Executive Committees for women in many of the state notifications. However, this is not enough. As already indicated, women's effective participation is possible only

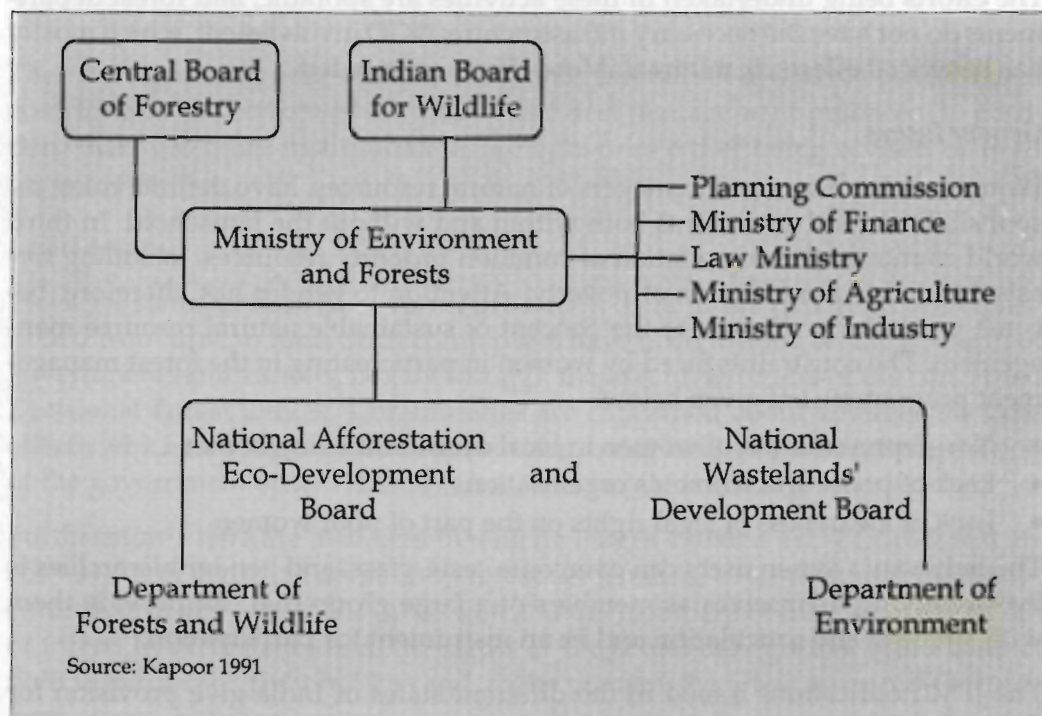
through a women's forum or group. Induction of women into different levels of the forest service is another way of promoting women's participation. In India, a fair number of women foresters has been recruited into the Indian Forest Service as well as into the State Forest Services. However, recruitment of women to the cadres of Forest Rangers, Foresters, and Forest Guards has not been considered. Recruitment rules in West Bengal have been amended to provide for recruitment of women at these levels, but actual recruitment to these cadres is yet to be introduced.

Forestry Organisation

The Government of India (GOI) Level

Forestry administration is the responsibility of the Ministry of Environment and Forests. The Ministry is concerned primarily with Forest Policy, Legislation, and Planning; Forest Conservation; Forest Resources and Training; Forest Resource Survey; and International Cooperation. The Inspector General of Forests is the technical head of forestry administration in the country. Social Forestry, including Wastelands' Development, is the responsibility of the National Afforestation and Eco-Development Board and the National Wastelands' Development Board.

The administrative structure at the Central level is as follows.



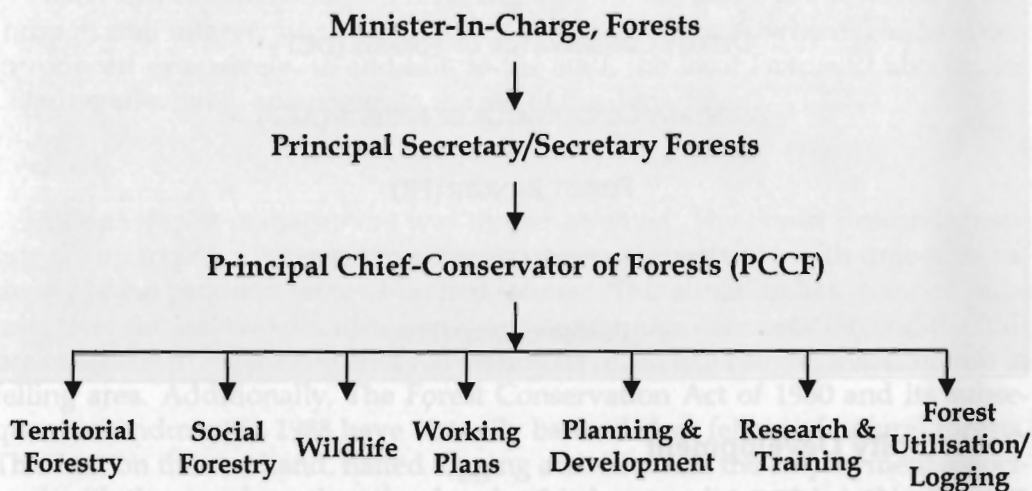
The State Level

Forestry was under state jurisdiction until 1976, when the Forests and Protection of Wild Animals and Birds' Sections were transferred from the state list to the

concurrent list of the Constitution of India, giving the central government the power to pass laws concerning forests and wildlife.

The administrative structures in the states are by and large similar, with minor variations depending on the size and special requirements of the states (see below).

Structure of a State Forest Department (Prototype)

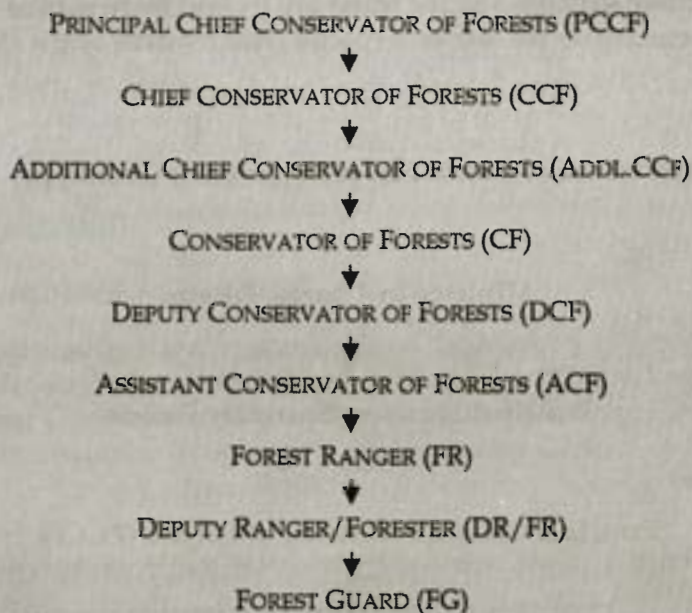


The state forestry organisation is structured in three parts, viz., the Forest Directorate, the Forest Development Corporation, and the Social Forestry Directorate/Wing for forest protection and management, forest harvesting, marketing, and social forestry. Each of the functional units under the Principal Chief Conservator of Forests (PCCF) is headed by a CCF/Addl.CCF (see chart over).

For administrative purposes, the territorial forests of a state are divided into circles, which are regional units, and these circles are further divided into divisions. A division could cover the same area as a district, or more than one district, or, depending on the expanse of the forest, form only part of a district. The lowest administrative unit is a Forest Beat. Traditional forest management, which is based on classical forestry concepts and is essentially dependent on custodial policing, has been replaced by JFM over the last few years. JFM envisages a collaborative arrangement with FUGs, treating them as equal partners. These user communities are involved in the protection, conservation, and development of forests. As an incentive and a means of sustenance, the government provides for a sharing of usufruct rights and employment to the extent permissible by the forestry budget.

As of today, 15 states in the country have passed resolutions introducing JFM. These 15 states account for 75 per cent of India's forests. Changes at the policy level necessitated the reorganisation of the state administrative structure.

Hierarchical structure of a territorial forestry organisation



Community Development

The village-level FPC formed under JFM is an organisation representing the rural poor which is unique in nature. Such organisations not only benefit the rural poor but also ensure better use of limited budgetary resources by promoting self help and acting as intermediary channels of communication (Saxena 1991). Foresters can motivate communities by bringing in tangible benefits for them from other agencies. Although, in recent years, the environment and the forests in India have been receiving considerable media attention, the budget allocation for the forestry sector has not increased significantly. Forestry received less than one per cent of the total public sector plan outlay from 1951 to 1990 (World Bank 1993). Thus, the forest departments in India will have to work with limited resources in the foreseeable future. The funds made available to forest departments in India are insufficient to even partly compensate the opportunity costs of the communities for forest protection. In order to meet this requirement, it is essential to use community groups as vehicles for extending the benefits provided by different government departments, e.g., Health, Animal Resource Development, Agriculture, Minor Irrigation, and Sericulture, to the people. The forest department can also bring in benefits to forest communities by coordinating the activities of various departments in the fringe areas. In some of the state resolutions for JFM, provisions for this have already been made, whereas in others (e.g., in West Bengal) this item has been incorporated into the micro-plans. This arrangement should be followed by all the other states.

Conflict Resolution

Community efforts to use trees and forests sustainably inevitably face challenges that involve the conflicting interests or needs of the people (Pendzich 1993). In JFM, forest staff are involved with community groups represented by FPCs, and they are invariably called upon to resolve conflicts between various ethnic/interest groups. The foresters must, through training, gain a better understanding of the existing institutions, mechanisms, and strategies to deal with conflict resolution.

Since JFM is still in a formative stage, conflict resolution mechanisms have not yet been institutionalised. Conflicts in many of the states are resolved either through staff intervention or by the NGOs. In West Bengal, where JFM has been introduced extensively, in addition to the staff, the local *Panchayat* also settles disputes effectively and comes to the aid of the department.

Research

Traditional forest management was timber-oriented. The Forest Research Institute set up to provide research support concerned itself only with timber. Non-timber forest products were of limited interest. This situation has changed radically over the last two decades. Rapid and continuous deforestation and the failure of forests to regenerate after harvesting have led to a progressive decrease in felling area. Additionally, The Forest Conservation Act of 1980 and its subsequent amendment in 1988 have virtually banned clear felling of natural forests. This has, on the one hand, halted logging activities and the employment associated with them and, on the other hand, added a new dimension to Non-timber forest products (NTFPs). Sustainable extraction of NTFPs, together with processing and marketing, can generate significant incomes. NTFPs, in many instances, have been found to give better returns than commercial logging. With JFM replacing traditional management, the focus of research has changed. In a bid to respond to regional needs, research activities have been decentralised and regional research institutes have been established. Most NTFPs are too area specific for regional institutes to address the problems fully. Therefore, NTFPs should be an integral part of state research, and linkages should be established with regional institutions.

The Centre for Minor Forest Produce, Dehra Dun, publishes a quarterly newsletter on NTFPs (CMFP 1988). Further, a network for coordinating NTFP work is being formed in Asia, Africa, Indonesia, and the Pacific countries.

Marketing and Processing

Timber and fuelwood have an unlimited market. But JFM covers vast tracts of sal coppice forests in Madhya Pradesh, Bihar, Orissa, and West Bengal. These forests are being regenerated to produce sal poles and will have to be worked on a short rotation. Large Eucalyptus plantations raised under Social Forestry during the last decade have already matured and are being felled. The net result is that millions of poles originating from both forest sources will be arriving in a market

that has already adjusted itself to the scarcity situation. The likely consequence is that there will be a glut and prices will be brought to an unprecedented low. This will prove to be an absolute disincentive for the communities participating in JFM and may eventually pose a threat to the system itself.

Apart from this, markets have to be developed for the NTFPs that are likely to increase both in volume and diversity with the improved protection of forests under JFM. Barring a few selected NTFP items, hardly any market exists. Even if some markets exist, the channels are either illicit, shrouded in secrecy, or unknown to the foresters.

Currently, virtually none of the State Forest Departments are equipped with a market cell that can take care of market research, market information, and sales' promotion. The Forest Development Corporations that have been set up in many states are concerned only with instant marketing of economically viable forest products. In order to sustain community efforts, it is absolutely essential that economic returns accrue from all such products.

Working Plan and Micro-Plan

Traditional forestry management practices followed the directions laid down by the working plans. The working plans were usually drawn up for a period of from 10 to 20 years for each division.

In JFM, however, the emphasis is on micro-plans, especially when dealing with communities in a particular forest area. The linkage of the resources of a small area with a specific, identified group can be effectively established only through micro-plans. Micro-plans depend on available resources, people's needs and aspirations, area of investment, and an agreed formula for usufruct. They are drawn up by the protection committee members who prioritise the available options. All the activities, however, must conform to the working plan prescriptions, the Indian Forest Act, and the Forest Conservation Act. The working plans under JFM become, in effect, aggregates of the micro-plans. Whereas the working plans highlight the basis of scientific management, regeneration method, and regulation of yield, the micro-plans focus on local needs and community development. In fact, the micro-plan is the most important document as far as JFM is concerned and actual decision-sharing takes place in micro-plans only.

Non-Government Organisation

In India, thousands of NGOs are working at the national, state, and local levels. There are also international NGOs, providing funds, directly or indirectly, to organisations engaged in promoting sustainable management of natural resources. The NGOs associated with JFM in different states are undertaking process documentation, case studies, research, training, and, in some instances, implementation as well (Campbell et al. 1994).

The potential role of NGOs depicted in the policy guidelines given in the circular issued by the Secretary (Environment and Forests), Government of India, to all the states on 1 June 1990, is enumerated below.

"Committed voluntary agencies/NGOs with proven track record, may prove particularly well suited for motivating and organising village communities for protection, afforestation and development of degraded forest land, especially in the vicinity of habitations. The State Forest Departments/Social Forestry organisations ought to take full advantage of their expertise and experience in this respect for building up meaningful people's participation in protection and development of degraded forest lands."

The NGOs are a recent introduction in the forestry scenario. Despite the beneficial role they have been playing, their potential has not been fully exploited so far. This is primarily due to the differing perceptions the Forest Departments and the NGOs have of each other's role. Unless the roles and responsibilities of the different partners in JFM are clearly defined (i.e., Forest Department, Communities, and NGOs), the resources will continue to be under utilised or even wasted.

Infrastructural Development

With the successful introduction of JFM, while the policing duties of the forest personnel could be substantially reduced, there would be a concomitant rise in supervisory duties. In southern West Bengal, where JFM has been implemented, the number of FPCs in a Forest Beat is noted to vary from one to 30 or more. It has also been observed that, for a linkage to be effective, a Beat officer should interact with the FPC at least once a week. The maximum number of FPCs a Beat officer can handle is six, preferably five. Handling six FPCs means the implementation of six, possibly diverse, micro-plans. The job entails orientation, training, supervision of work, resolution of conflicts, equity issues, harvesting of forest produce and their disposal, distribution of usufructs, support activities, and so on. The overall implication of this is that the Beats, Ranges, and territorial Divisions may have to be divided into smaller units. Since it is unlikely that the government will double or treble the JFM staff, the objective can be achieved in two ways: either by rationalisation of work loads through structural reorganisation of forest departments, or by obtaining active NGO help to cover certain areas of JFM. Such structural reorganisation, by reducing overlaps to ensure an equitable distribution of work loads, has been undertaken in several states in India that have adopted JFM.

NGOs can also play a significant role in making up for infrastructural deficiency. To this end, suitable NGOs have been identified both at the district as well as state levels in West Bengal. At the state level, the NGOs have been organising orientation and training courses for senior-level staff and carrying out supportive investigative research. At the district level, they organise technical training programmes for staff and FPC members, hold micro-planning exercises, disseminate market information, and help resolve disputes.

Financial Support and Continuity

To sustain community efforts in JFM, some financial inputs are necessary, at least for the first few years. The implementation of micro-plans drawn up with the communities is the key factor in JFM. Micro-plans are normally drawn up for a

period of five years to make them coterminous with the Five-year Plans. The adoption of a micro-plan involves a commitment on the part of the government which should be honoured. Failure to do so could be seen as a breach of trust by the communities and lead to breakdown of the system. Therefore, a regular flow of funds for JFM and budget flexibility to facilitate a quick response to pressing community needs are essential. To ensure continuity of programmes, a number of large states in India have opted for projects with external assistance.

Implementation Issues in JFM

The National Forest Policy of 1988 envisages considerable involvement in the development and protection of forests. The policy guidelines also encourage the involvement of NGOs as intermediaries and facilitators (Hobley et al. 1994).

As already stated, 15 states have issued notifications for adopting JFM as a strategy for forest management. This notification serves as an enabling provision. With the help of this notification, both the forest staff and the NGOs can begin a dialogue with community groups. Sometimes, the NGO role in this dialogue is limited to conducting awareness campaigns and the actual work of committee formation is carried out by the forest staff. However, examples of NGOs forming protection committees are not uncommon (e.g., as in Gujarat).

However, the FPCs that have been formed through departmental efforts have had better results. Direct staff interaction helps avoid confusion regarding policies and procedures and re-establishes their credibility; a credibility that had been virtually lost during the days of custodial policing.

In West Bengal, the introduction of FPCs was almost purely on a departmental level, although in the northern Bengal hills the awareness campaign carried out by local NGOs did increase motivation.

Selecting Areas for FPCs

Although policy changes have been introduced in India as a result of large-scale degradation of forests, the selection areas in which to establish FPCs causes a dilemma. Almost all the JFM notifications specify that the new management system is for degraded forest areas, without defining what a degraded forest area is.

The State of Forest Report (1993), indicates that, out of a recorded forest area of 77 million hectares, approximately 64 million hectares (83.12%) are under actual forest cover. Of this, about 60 per cent is dense forest (having a crown density of 40% and over) and 39 per cent is open forest (crown density of 10% to less than 40%). Nevertheless, 50 per cent of the recorded forest area either has no forest cover or has inadequate cover. The rest of the forests have crown densities of from 40 to 100 per cent. There are indications that these forests are also in various stages of degradation and warrant intervention. The government policy regarding this is not very clear. The intention of the policy was surely not that people should deliberately degrade the forest before JFM is extended to a certain area. It is also not prudent to wait until forests are significantly degraded before launching a JFM programme.

Constitution of the FPCs

The salient features of JFM resolutions make it clear that, in all the states, efforts have been made to involve each household in the fringe villages (user group) in forestry-related activities. The West Bengal experience demonstrates that a single village committee, with representation from each household, is most suitable. Cohesiveness and understanding are undermined if the number exceeds three. Ethnicity is another important factor. A single ethnic group works better together than a mixed group. Tribal groups, by and large, function effectively as FPCs. Yet another key factor is the characteristic and composition of the forests. It is easy to motivate user groups to form committees to manage sal coppice forests, as the flow of benefits in such cases is not only substantial but also fairly even. For other types of forest, especially in the hills and plains of West Bengal, inter-cropping, or multi-tiered cropping, is adopted to provide an intermediate flow of benefits to the communities (Palit 1992).

FPCs and the Panchayats

FPCs are basically apolitical. But the forestry sector in India has been neglected in the past due to lack of political support. At present, political support is sought through Panchayat bodies in an institutionalised manner. In West Bengal, under the provisions of the West Bengal *Panchayat* Act 1973, a three-tiered *Panchayat* system was through election. The three levels of *Panchayati Raj* correspond to the three levels of forestry administration, i.e., Beat, Range, and Division. These three levels of forestry administration have, through JFM notification, been interlinked with three levels of *Panchayat*. Thus, in each FPC, there is a representative from the *Gram Panchayat* as well as from the *Panchayat Samiti*. In the Darjeeling Hill Council area, the local councillor was made a member of the FPCs due to the absence of a *Panchayat*. The *Panchayat* bodies are elected bodies and, hence, have the necessary political base, and, through this arrangement, necessary political support has now been enlisted. The *Panchayat(s)* have been providing patronage and support to the FPCs and helping them with conflict resolution.

Registration of FPCs

The village committee must be registered with effect from a particular date, so that the members are entitled to the benefits of usufruct. They can also be formally treated as partners in managing the forests under their protection.

Benefit Packages

All JFM notifications highlight the usufructuary benefits that would be available to FPC members in return for tasks set for them. In many instances, especially in plantation production systems, the flow of benefits to FPC members may not be enough to sustain their efforts. Although motivation should not only depend upon an attractive benefit package, the objective of the Forest Department should be to provide them with as many benefits as possible on a sustained basis to compensate for the opportunity costs and their subsistence.

In West Bengal, efforts are being made to provide employment to FPC members by the means listed below.

- Direct investment by the Forest Department in forest programmes
- Collection, processing, and marketing of NTFPs
- Support activities such as sericulture, orchid propagation, lac cultivation, basket weaving, mushroom cultivation, pisciculture, apiary, and others
- Obtaining inputs from other departments and agencies where possible

These and the usufructuary arrangements envisaged in the notification constitute the total benefit package.

Non-Timber Forest Products and Sustainability

The term NTFPs generally covers fuel, fodder, biomass, bamboo, cane, grass, fibre, oil, tannin, dyes, gums, resins, medicinal plants, bark, leaves, flowers, fruit, timber, mushrooms, seeds, fish, and so on.

Case studies carried out in West Bengal, which are indicative in nature, are discussed below.

A study carried out by the Ramkrishna Mission Lokshiksha Parishad in Raigarh FPC in Bankura District in 1992 shows that the FPC members began large-scale collection and disposal of NTFPs only six to seven years ago when an FPC was formed to conserve the forests. The FPC members depend on forestry and allied production systems to a great extent, as agricultural productivity is extremely low here. Tables 2 and 3 show the changes in the annual labour use pattern on a gender basis. Figure 1 shows the availability and collection of NTFPs around the year as calculated by the Ram Krishna Mission. The figure also indicates that employment generated through NTFPs covers the agricultural lean periods (RKM 1993).

Similarly, another case study carried out by Malhotra et al. in the Jamboni Range, Midnapore district, West Bengal, primarily in the sal coppice forests (Malhotra et

Table 2: Annual Labour use Pattern (Male) of Raigarh FPC

	Wood Collection		Farm Activity		Migratory Labor		NTFP Collection		Off-farm Activity	
	%	Days	%	Days	%	Day	%	Day	%	Day
Before FPC Formation	47	170	12	45	12	45	12	45	18	60
After FPC Formation	14	50	8	30	25	90	41	150	12	45
Change	-33	-120	-4	-15	13	45	29	105	-6	-15

Analysis

1. Wood collection down by 33% which is very significant.
2. NTFP collection up by 29%, almost matching (1) above.
3. Farm activity has gone down because of the adverse land/man ratio.
4. Percentage of migratory labour has gone up as a natural consequence.
5. Off-farm activity has gone down due to (1) above.

Note: Average engagement of a male FPC member during a year.

A Case Study by R.K. Mission

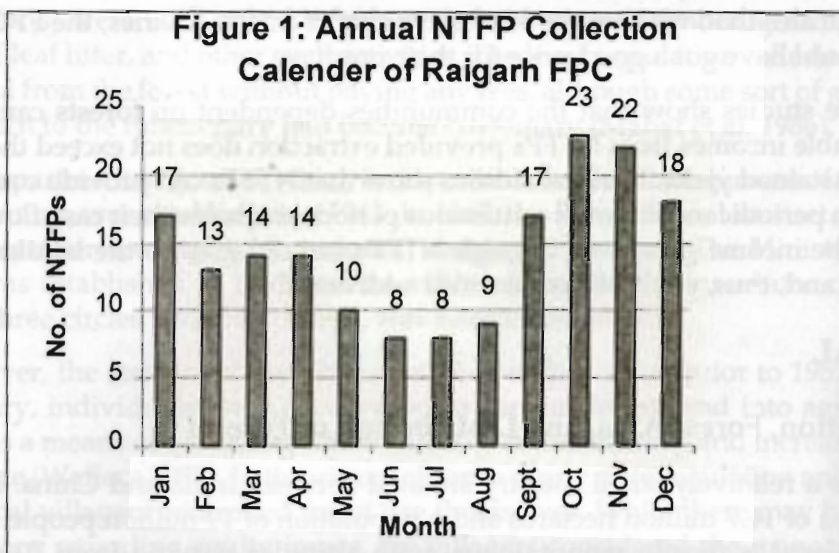


Table 3: Annual Labour Use Pattern (Female) of Raigarh FPC

	Wood Collection		Farm Activity		Migratory Labour		NTFP Collection		Off-farm Activity	
	%	Days	%	Days	%	Day	%	Day	%	Day
Before FPC Formation	40	145	8	30	12	45	27	100	12	45
After FPC Formation	34	125	8	30	25	90	25	90	8	30
Change	-6	-20	0	0	13	45	-2	-10	-4	-15

Analysis

1. Wood collection has gone down marginally as collection for domestic use continues.
2. NTFP collection has also marginally gone down because of male domination in collection, especially of medicinal plants.
3. Percentage of migratory labour has gone up.
4. Farm activity remains as it is.
5. Off-farm activity has also gone down.

Note: Average engagement of a male FPC member during a year.

A Case Study by R.K. Mission

al. 1991), covering 216 households (tribal 109, caste 107) belonging to 12 FPCs produced the following findings.

- Of all the natural biodiversity available in the sal forests, significant resources are very frequently used by local communities for subsistence needs (e.g., food, fuel, fodder, medicine, and household articles) and for religious and ornamental purposes.
- A significant portion of the annual household income is derived from NTFPs, on an average 16.44 per cent.
- The income derived from harvested poles is only one-third of the income from NTFPs over the same period.

The study conducted by the RKM Lokshiksha Parishad shows a considerable difference in the price of products sold by primary collectors and wholesalers. It

also indicates that, without the successive cuts of intermediaries, the FPC members would have got a good price for their produce.

The case studies show that the communities dependent on forests can derive sustainable incomes from NTFPs provided extraction does not exceed the maximum sustained yield. The case studies show that NTFPs can provide communities with periodic income over continuous periods and solve their cash flow problems. The income generated through NTFPs usually goes to the landless or to women and, thus, equity issues are also addressed.