

**FOREST MANAGEMENT IN SEMI-ARID INDIA:
Systems, Constraints and Future Options**

CRIDA/CWS/AKRSP(I)/WRMLtd./MSU/NRI

Common Pool Resources Research Project Report No. 5

NRI Report No. 2656

November 2001

by

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Acknowledgements

Various people have contributed to this report in one way or another by sharing with me their knowledge of forest management in semi-arid regions of India. I would like to thank Shaik Anwar, Khasim Peera and members of APPS for briefing me on various aspects of forest management in Andhra Pradesh; and Ashok Gupta for the same in relation to Gujarat. I have learned from many people about forest management in Rajasthan, but I would like to thank in particular Shri Bhise and Mamta Vardhan of Seva Mandir and Dr N.C. Jain, Deputy Conservator of Forests. Finally, Dr Niraj Kumar of the Indian Institute of Forest Management kindly commented on a draft of this report. Any errors are, of course, of my own making.

CZECH CONROY
13 November 2001

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1. INTRODUCTION AND HISTORICAL CONTEXT

1.1 Introduction

This report has been produced as part of a project funded by the UK Department for International Development's Natural Resources Systems Programme¹. The project is entitled "Common pool resources in semi-arid India - dynamics, management and livelihood contributions". It is a collaborative one between NRI, the Centre for Research on Dryland Agriculture (CRIDA), the Aga Khan Rural Support Programme (AKRSP) and the Centre for World Solidarity (CWS). The project has two focus states, Gujarat and Andhra Pradesh, which were covered by AKRSP and CWS respectively.

In this report the term 'semi-arid' is broadly defined to include all regions in which mean annual rainfall is between 500 and 1000 mm. This includes most of mainland India, but excludes: (a) arid regions in western and northern Rajasthan and north-west Gujarat; and (b) higher rainfall regions in, for example, Kerala, south Gujarat, central eastern India (e.g. Jharkand, Orissa) and north-east India.

Major forest types found in semi-arid regions are dry deciduous and scrub/thorn forest (in drier areas): 29% of India's forests are tropical dry forests (Khare *et al.*, 2000). Some of the tree species commonly found in semi-arid regions of southern peninsular India are listed in Annex 1. Many of these are also found in central regions too. Two species whose products are particularly important to local people are *Madhuca latifolia* (or *indica*) and *Diospyros melanoxylon*. The former's seeds and flowers are collected for both home consumption and sale, while the latter's leaves are used in making *beedis* (country cigarettes). The leaves of *Butea monosperma* are used in plate-making, which can be an important income-generating activity, as well as providing fodder for buffalo.

1.2 Legal status of forests

Under British colonial rule forests were deemed to belong to the state, and forest departments (FDs) were established to manage them. This continues to be the case up to the present. Thus, since the late nineteenth century FDs have been "by far our biggest landlord" (Gadgil and Guha, 1992). There are three broad administrative categories of forest: Reserved Forests (RF), Protected Forests (PF) and Unclassed Forests (UF). RF belong to, and are (at least in theory) managed by, the FD; whereas PF belong to the Revenue Department (RD), although the FD is legally responsible for their management. In practice the FD has tended to ignore PF. In RF local rights do not exist, and everything is prohibited unless specifically admitted: RF are supposed to be managed on a sustainable yield basis (*ibid.*) In PF, which are located within village revenue boundaries, local people have greater rights, and everything is

¹ This document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

allowed unless specifically prohibited. There are no restrictions on UF, which also tend to be the most degraded forests (Khare *et al.*, 2000).

1.3 Policy objectives

Following independence the government made revenue generation based on timber production the principal objective of forest management. Large areas of forest were cut down by contractors who had been given licences by the FDs, and who were supposed to re-afforest the affected areas with fast-growing timber species. These contractors tended to indulge in excessive felling, and often also failed to replant the areas concerned. This policy and process ignored the needs of the local people, who obtain a wide variety of products from the forests, of which timber is only one. When communities manage forests their objectives are correspondingly broader.

In 1988 the government produced a new Forest Policy, which changed the management objectives, giving priority to ensuring environmental stability and the maintenance of ecological balance. The policy stated that, subject to this first objective, the domestic/subsistence requirements of poor local people for forest products should be given higher priority than revenue generation. However, it is widely believed that the Forest Service has reservations about the policy (Saxena, 1997), and its implementation has been “slow and lackadaisical” (Khare *et al.*, 2000)

1.4 Lack of effective management

The FDs have not been able to manage most of India’s forests effectively. By the early 1990s 9-13% of the country’s land area possessed good forest cover, i.e. with a crown density of at least 40%: whereas the national goal is to maintain one-third of the country under forests (Poffenberger and Singh, 1996). No firm data are available on the extent of the loss of forest cover, but there is general agreement that the losses were high during the 1970s, and that the situation has been stable since the early 1980s (Khare *et al.*, 2000).

The deterioration in forest cover was partly because of inadequate resources to enforce protection, in the face of increasing pressures from growing human and livestock populations; and partly because of corruption within the FDs, and connivance with timber contractors (primarily during the 1960s) and timber smugglers. The government’s policy post-independence, combined with the corruption of the FDs, resulted in a generally antagonistic and distrustful relationship between the FDs and local people.

2. TYPES OF MANAGEMENT SYSTEMS

As used in this report, the term ‘forest management system’ refers to a system comprising the following elements:

- a *decision-making body* and procedures;
- a *management plan* for the establishment, development, care and reproduction of the forest and its principal species and products;
- a *set of rules* regarding who may harvest what, when and in which quantities; and

- a *protection system* to enforce the rules (usually involving a paid watchman or rotational patrolling by the members), combined with penalties for offenders.

2.1 *Typologies and definitions*

Forests are one type of common pool resource (CPR). CPRs have two key characteristics, namely:

- it is difficult to physically exclude potential users from them; and
- their consumption is rivalrous or subtractable: i.e., increased consumption by one agent implies that less is available for others.

These two characteristics of forests make it difficult to manage them effectively, and mean that they can easily become degraded through excessive use. Thus, the development of effective management systems for forests is a very important issue. The main options available are: 1. no management (open access regime); 2. state management (e.g. by the Forest Departments); 3. collective management by a clearly distinguishable groups of users (common property regime); and 4. private management (private property regime). In recent years, increasing attention has been given to systems of ‘shared management’, involving both the state and local communities.

Different management systems can be compared in terms of the differing degrees of management control that are exercised by the State (FD) and the Community over the forest resource, as shown in Figure 1. Different management regimes can be depicted at different points on a continuum, from ‘total State control’ to ‘total Community control’.

Community-based forest management organisations have been categorised as belonging to one of three types (Sarin, 1996). The *first* is ones that have emerged out of local initiatives, primarily as a response to the hardships arising from scarcity of forest products. These are described in section 2.2 below. The *second* type is those promoted by the state FDs, for example under the auspices of JFM (see section 2.7). The *third* type is community bodies that were originally sponsored by local government or NGO programmes to carry out a more general rural development mandate, and which became involved in forest management as one of their activities.

2.2 *Direct state management*

This is the conventional form of forest management in India that was mentioned in section 1, and which is still practised on most of India’s forests. Most reserved forests and virtually all forest wildlife sanctuaries are still (at least nominally) managed in this way. However, inadequate resources or corruption on the part of FDs can mean that the management is inactive or ineffective.

2.3 *Community forest management*

Community forest management (CFM) can be described as a system where a community has “developed institutions, norms, rules, fines and fees to sustain forest resources. CFM systems characteristically involve one or more communities (social

group, village) protecting and using a specific forest area” (IUCN, 1996). While the forest may not be under the legal jurisdiction of the community, “...the community management groups strongly identify with the resource and perceive they have special rights and responsibilities for its management”. CFM in India is not legally recognized, i.e. it has no legal basis.

CFM became more widespread in India during the 1970s and 1980s, as communities experienced growing scarcity of forest products, primarily because of the activities of the contractors, but also because of the growing pressures on the resource. Nobody knows exactly how many cases of CFM there are, but Poffenberger estimates there to be 12-15,000 (Poffenberger, 1996). It is most prevalent in eastern India (particularly Orissa), where more than half of the cases are thought to be located (ibid). There are also cases of CFM in semi-arid areas, such as south Rajasthan (for a case study see Negi, 2000), parts of Gujarat and parts of Andhra Pradesh.

Under CFM the protection unit comprises of a hamlet, a village or a group of villages and hamlets. A group of villages or hamlets come together to protect a patch of forest when the patch of forest is too big to be protected effectively by any single village or when more than one village have well established traditional rights over that patch which cannot be ignored (Conroy *et al.*, 1999). Responsibility for management is usually assigned by the members to a management committee.

2.2.1 CFM in Anantapur District A few villages in Anantapur District of Andhra Pradesh have been protecting forest patches on revenue land near to the village for 15-40 years. When NGOs found out about these initiatives they decided to encourage other villages in Anantapur to do the same: APPS, Mass Education and Organisation Society (MEOS) and others are actively involved. There are now forest protection committees in 119 villages that are protecting revenue forest land covering 41,500 acres. The forest is generally on hilly and rocky land. This means that encroachment on the sites has been relatively limited, although in recent years many farmers have encroached so that they can grow groundnut there.

The precise institutional arrangements vary from village to village. Usually, NGOs form a village society (PPS) in each village, involving all households, and a management committee may be formed. Each household contributes a small amount of money (or in kind) each month. Specific user groups may also be formed (involving SCs, STs or other resource-poor households) to deal with training, product marketing etc. In a minority of cases a watchman is employed by the community to protect the forest, but usually protection is based on social fencing involving the whole community. Restrictions are placed on encroachment and cutting of trees; and fire protection arrangements are developed – fire is the main threat to the forests. Grazing is not usually restricted, except when and where seed dibbling is undertaken.

Grass and thatch are the main products harvested in the first few years. Other products may include medicinal plants, custard apple, honey, gums and beedi leaves. As a result of these initiatives, illicit tree felling has largely been stopped and forest fires are being prevented or controlled more effectively. Benefits for poor people include: less seasonal migration, additional income from forest produce, and more work due to increased area under irrigation (CWS, 2001). The NGOs involved argue that a forest rehabilitation programme based on natural regeneration is superior to one based on

tree planting, in both financial and ecological terms. This informal programme is discussed further in Box 2.1.

BOX 2.1 Community Forest Management in Andhra Pradesh

There are 119 villages involved in protecting 41,500 acres of forest on revenue land in Anantapur District as of January 2001, which compares with 6,000 acres in 1993. The low cost and participatory nature of this approach, together with the fact that it is based on an indigenous model, have been important factors in its increasing take-up. The approach taken relies primarily on:

- natural regeneration and seed dibbling, rather than tree planting;
- social fencing rather than physical fencing;
- thorough discussion with villagers prior to implementation;
- representation of different social groups in the village.

Creating a supportive enabling environment

Another important consideration is ensuring that the villagers have secure rights to the protected patches and their products. Many villages have hesitated to take up forest protection, because of doubts over whether they would have usufruct rights to the products (Khasim Peera, pers.comm.). One tree species commonly found in these forests is custard apple (*Seetaphal*), whose fruit is marketed. The Revenue Department often auctions the harvesting rights to custard apple to the highest bidder, who may be from outside the village.

The NGOs have played an important role in creating and sustaining a supportive enabling environment for community management. They have successfully lobbied the District Collector and other government officials to: (a) give usufruct rights to the villages (so far 78); and (b) to enter the protected areas in the prohibitory order book, to prevent further encroachment. They have also campaigned effectively against a recent order of the AP state government that would have made it possible for private companies to replace natural forest on revenue land with plantations.

Clusters of 5-8 villages have been formed, which meet every six months or so to discuss common issues; and a district-level parliament was recently formed. The prospects for further widespread adoption of this model of forest protection appear to be good. The existing villages have a demonstration effect, and the number of villages involved is growing each year. In Anantapur, the current District Collector is giving this informal programme his full support, and it has been estimated that about 700 villages in the district have suitable hills or hillocks nearby (Khasim Peera, pers.comm.). In addition, APPS, the umbrella NGO that is playing a lead role in Anantapur, has been promoting the replication of this kind of work in four other districts – Chittoor, Cuddapah, Kurnool and Nellore.

Although there are several thousand CFM groups, it is difficult for communities and villages to enforce some sort of protection and management system on forest or village land independently of the FD, RD or *Panchayat*, as they generally lack any legally recognised basis for doing so. There are, however, some ways in which community organisations involved in forest or natural resource management can be, and have been, given legal recognition. These will now be described.

2.4 Gramdaan villages

Gramdaan is a concept of village self-governance which was evolved by Vinoba Bhave in the context of the Gandhian vision of revitalization and empowerment of

India's villages. It was shaped in the millennial Bhoodan–Gramdaan sacred giving of land/village movement that covered most parts of rural India during the '50s and '60s. It started as Bhoodan - as a call given by Vinoba Bhave to big landowners for donation of their excess land for distribution to the landless and poor in their villages. It then evolved into Gramdan, the collective gifting/donation of all land in the village to the village assembly or Gramsabha for common management (Saint, 2000).

In Rajasthan, the Gramdaan Act was passed in 1971, enabling villages to constitute themselves as *gramdaani* villages under the Act (Saint, 1993). There are about 200 Gramdaan villages in Rajasthan in varying states of realisation of the objectives of village self-rule (Saint, 2000). However, overall they have not been very effective in managing natural resources. The Act gave control of revenue collection, local dispute settlement, and land resource management to the *Gramsabha*, the executive body whose membership comprises all adult members of the village. It enabled some communities to regain control of community forest and pastures from the FD (*ibid.*).

A Gramdan village is constituted through the declaration of voluntary transfer of lands by way of Gramdan by the landholders of a revenue village or of a part thereof with a population of not less than 100 persons. These declarations by at least 75% of the landholders owning not less than 51% of the land held by all the residents are confirmed by the Chairman, Bhoodan Yagna Board, and forwarded to the Collector of the district in which the village is situated. The Collector after his/her own inquiry declares the village as Gramdan Village from a specified date. With effect from this date all persons whose names are included in the electoral roll of the Rajasthan Legislative Assembly are deemed to constitute a Gram Sabha or Village Assembly for the Gramdan village. This Gram Sabha is “the body corporate having perpetual succession and a common seal with power to enter into contracts and to acquire, hold, administer or dispose of property over which it has authority”².

In addition to its power to manage the donated and pooled lands and revenues as prescribed, the Gram Sabha has been vested with responsibility to manage common lands (subject to the rights therein of the residents of neighbouring villages) and other unoccupied lands of the State Government, with power to improve such lands without obtaining any permission from any authority. It has also been empowered: to set apart lands for community purposes; to carry out improvement to land, including methods of cultivation, reclamation of wastelands and consolidation of lands; and to prepare and maintain village records, including a register of lands in the possession of persons under the Gram Sabha.

A village fund or Gram Nidhi is also provided with power to receive profits, rent, fees or other charges, loans, grants and donations etc. The Gram Sabha is also empowered to function as a Panchayat as a local self-government body for the village under its jurisdiction.

There appears to be very little literature on Gramdaan villages and their contribution to natural resource and forest management. However, there is one recent case study on the village of Seedh in south Rajasthan (Saint, 2000). Saint describes the Seedh experience as:

² Section 13(2) of Rajasthan Gramdaan Act, 1971

“a unique expression of community's traditional claims over common pastures and visionary inspiration for self-governance propelled by the zeal of the village priest. Striving over four decades it has succeeded in evolving elaborate protection, use and benefit distribution arrangements with accurate records. It has dealt with Panchayat Raj institutions, Forest Department and support NGOs on its own terms to improve productivity of the common lands and increase its cultivated/irrigated area to produce surpluses in fodder, grains and milk for sale” (ibid).

The Gramdaan experience is interesting, both in its own right and as a forerunner (and hence potential indicator of what may happen) of recent moves to devolve responsibility for natural resource management to Panchayati Raj institutions (PRIs). This is what we will discuss next.

2.5 Gram sabhas in Scheduled Areas

PRIs have not played an active role in forest management until now, although they could have done. However, this may change since PRIs have been given additional rights to manage natural resources under recent amendments to the constitution. The 73rd Amendment, passed in 1993, devolves administrative power to two local bodies. One is the *gram sabha*, i.e. the general assembly of all resident adults in a village who have voting rights: the other is the *panchayat*, comprising political representatives elected by the *gram sabha*. Subsequently, the Panchayats (Extension to Scheduled Areas) Act 1996 provided for greater scope for involvement of the panchayat in tribal areas, especially in natural resources management. In Scheduled (tribal) areas, *gram sabhas* have been given the right to manage all local natural resources, including forests and minor forest products. This legislation is now beginning to be implemented in some areas, but in some states (e.g. Andhra Pradesh) political parties are keeping quiet about it because they do not want to lose their power to local communities (CWS, 2001b).

While devolution of powers to panchayats is widely seen to be desirable in principle, some observers believe that there are serious practical concerns that need to be addressed, relating to: corruption in the election process, accountability of political representatives, and the potentially polarising effects of what is, in reality, party politics (Conroy *et al.*, 1999).

2.6 Cooperatives

Cooperatives are another form of legally recognised entity that communities can adopt for the purposes of managing forests or other natural resources. Tree Growers' Cooperatives have been formed around the planting of trees on degraded forest lands and panchayat pasture lands in villages of various states, including Andhra Pradesh, Gujarat and Rajasthan. The idea was born in 1986 in response to a request from the National Dairy Development Board to the National Wastelands Development Board to help in developing an institutional mechanism for regenerating degraded common land to meet fuelwood and fodder deficits in the villages. There is a national federation of such cooperatives, NTGCF.

In five states forest protection committees that have been established under JFM programmes (see below) are registered as cooperatives under the Cooperative Society

Act (Sundar and Jeffery, 1999). The states are Gujarat, Haryana, Rajasthan, Arunachal Pradesh and Karnataka. However, various reservations have been expressed about the registration of JFM committees as co-operative societies (see section 6.2).

2.7 Van Panchayats in Uttar Pradesh hills

Van Panchayats in UP hills were born out of the conflicts and compromises that followed the settlements and reservations of forests in the hills by the turn of the last century. The Van Panchayat Rules were enacted in 1931 and subsequently revised in 1972 and 1976. According to the rules, one-third of all inhabitants of a village can resolve to form a Van Panchayat. Till the end of 1985, a total of 4058 Van Panchayats had been formed occupying approximately 15% of the total forest land in the hills. The Panchayat is responsible for internal management and grazing, collection of fuelwood, fodder, timber and protection. Van Panchayat Committees are authorized to levy fine in case of misuse of forest resources and collect fees from users in case of forest resources. Most Van Panchayats hire watchmen and pay them either in kind or cash. This simple structure at the village level is subject to the administrative and technical control of the Revenue and Forest Departments respectively, though they take only peripheral interest in Van Panchayats and do not coordinate their activities.

Van Panchayats also do not have autonomy in utilization of surplus revenue generated by them. Gradually, Van Panchayats are also losing, due to changes in rules, their ability to impose and collect fine. The new rules stipulate that a Panchayat can levy fines for an offence only with the agreement of the offender. In spite of these problems, most Van Panchayats have been able to protect their forests. The key elements that have helped people's participation in communal management of forests include: people's strong need for forest-based resources; relatively small and homogenous groups amongst the hill people; and provision in the Van Panchayat rules and regulations for penal action against those who violate the rules (Ballabh and Singh, 1988).

2.8 Joint forest management

The widespread process of deforestation and degradation of forests in recent decades eventually led the government to recognise that forests could only be protected and managed effectively if local communities were involved in that process. Thus, in 1990 it produced guidelines for the establishment of joint forest management (JFM) programmes, a form of co-management between the state and communities. Fresh guidelines for strengthening JFM were issued through a GoI circular in February 2000. Twenty two states have passed resolutions concerning the implementation of JFM.

JFM can be defined as "sharing of products, responsibilities, control, and decision making authority over forest lands, between forest departments and local user groups, based on a formal agreement. The primary purpose of JFM is to give users a stake in the forest benefits and a role in planning and management for the sustainable improvement of forest conditions and productivity. A second goal is to support an equitable distribution of forest products" (Hill and Shields, 1998).

JFM's key characteristics are that:

- it encourages the development of partnerships between local people and Forest Departments to manage forest lands jointly;
- it provides state-approved access for the local communities to nearby forest lands;
- it encourages local people to protect forest areas, to prevent free grazing of livestock and to assist in preventing illegal activities by outsiders
- it assures local people of a certain proportion of the intermediate and final harvests from the forest lands protected by them.

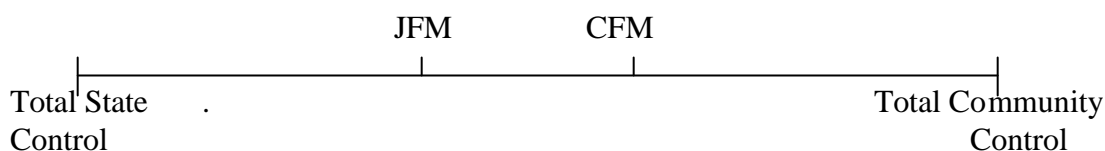
JFM has received a lot of attention during the last decade from both researchers and development practitioners, and has become the principal alternative to direct state management. Given its overall importance, it is discussed in greater detail in section 3.

2.9 Discussion and comparison

State/community control Under some of the management systems described above (e.g. CFM, Gramdaan villages) communities are making most, if not all, of the important decisions, and retaining all of the benefits³. Gramdaan villages are probably further to the right end of the spectrum (see Figure 1) than CFM villages, because the fact that they have legal recognition puts them in a stronger position when interfacing with the state and its agencies. Under JFM, the forest department tends to have significantly more power and influence than the community, and is therefore left of centre on the spectrum. This has prompted some observers to ask how 'joint' JFM actually is (see section 3.2.1).

Division of products/benefits Under direct state management most of the benefits go to the state, although local people may be given rights to collect certain products. In the case of JFM the FDs will receive a proportion of the intermediate and final harvests. Under the other management systems (apart from the Van Panchayats), the benefits all go to the local community.

Figure 1 The State/Community Spectrum of Control



Source: Conroy *et al.*, 1999.

³ The term **participatory forest management** is often used to describe all forms of forest management in which the community plays a major role beyond undertaking wage labour for the forest department. 'Participatory' has been defined as a process whereby those with legitimate interests in a project both influence decisions which affect them and receive some, or all, of any benefits that may accrue (ODA, 1996).

Resources managed Most of these systems involve only management of forests. However, the Gramdaan and PRI legislation empowers local communities to manage a whole range of natural resources. This has the advantage of enabling a more holistic approach to natural resource planning and management.

3. JOINT FOREST MANAGEMENT

There is a very extensive literature on JFM. This section is not based on an exhaustive review of that literature, but has drawn primarily on a few key references, including: Jeffery and Sundar (Eds), 1999; Khare *et al.*, 2000; Poffenberger and McGean (Eds), 1996; and Saxena, 1997.

JFM represents a new departure in the evolution of forest policy for India, because “it is the first time that the state has institutionalised collaborative arrangements for the management of *state forests* with village communities” (Vira, 1999). On the other hand, it has been observed that JFM involves little legal challenge to the structure or powers of the FDs, who expect to retain legal title to all the forests they currently own, including those managed under JFM (Poffenberger and Singh, 1996).

3.1 *Current status of JFM*

Twenty six state governments have issued JFM orders for their respective states. It has been estimated that over 10.24 million ha. of forest land is under the management of more than 40,000 JFM groups (N. Kumar, *pers.comm.*). However, JFM groups frequently become defunct soon after they have been established or recognised (see section 5.4 on sustainability), so these figures may not be very reliable.

Status of JFM in Focus States There are large numbers of forest protection committees in both states. In Gujarat; by 31 March 1999, 63,577 ha of forest were being managed under the JFM programme, 706 village level organisations had been formed and 92 VLOs were registered (AKRSP, 2001). In Andhra Pradesh there are: 6616 VSSs; 1,660,000 ha under JFM, and 546,000 ha treated. The VSSs have a total of 1,300,000 members, out of whom 600,000 are women and 550,000 are SC/ST (CWS, 2001a).

3.2 *Issues in JFM*

3.2.1 Participation There has been widespread dissatisfaction about the lack of participation of local people in JFM (Jeffery and Sundar (Eds), 1999; Poffenberger and McGean (Eds), 1996; Saxena, 1997 and Suess, 1995). Many FD staff have been unwilling to: (a) give up some of their power; and/or (b) to trust the people who, until recently, they were policing; or they have found it difficult to do so. Dr N.C. Saxena has characterised the style in which JFM has been implemented as ‘I manage, you participate’, ‘I’ being the FD or forester.

The FDs have the right to dissolve an Executive Committee, which makes it an unequal partner. Although it is obliged to reconstitute the committee, it can delay doing so for as long as it likes. The community has no rights or powers to take action if it thinks that the FD is not performing its responsibilities satisfactorily. Villagers’

participation tends to be elicited only within a pre-determined framework: the agenda itself is not open for discussion (Jeffery and Sundar, p. 44). For example, benefit-sharing arrangements are specified in advance, without asking villagers whether they want to harvest their timber, and how they would like the proceeds to be distributed.

3.2.2 Equity and gender The word ‘community’ is sometimes taken to imply a group of people living in harmony with each other and with a common set of interests. In India there have been many studies of the impact of JFM, and ‘[m]ost ... have tended to gather aggregated data on overall increases in production of selected species and products from forests brought under JFM ... and reached conclusions about the present and future benefits to the “community”, “the people” or “the villagers”’ (Sarin *et al.*, 1998).

In many villages, however, there are numerous sub-groups: the land-poor and the land-rich; men and women; people of different castes, etc (Guijt and Shah, 1998). The relations between these sub-groups have tended to be neglected in the literature on CPR use, at least until recently (Beck, 1994). Yet ‘control and conflict over such resources [can be] .. closely tied to power relations [within villages]’ (Beck, 1994).

The concept of a community can be a valid one, however, provided it is not romanticised. The following definition is a useful one:

a community is “a set of people

- (i) with some shared beliefs, including normative beliefs, and preferences, beyond those constituting their collective action problem,
- (ii) with a more-or-less stable set of members,
- (iii) who expect to continue interacting with each other for some time to come, and
- (iv) whose relations are direct (unmediated by third parties) and multiplex” (Ostrom, 1992).

Different sub-groups may have different priorities regarding the benefits to be derived from the forest; and hence different objectives and motivations for forest protection. Thus, CFM or JFM may have a differential impact on different sub-groups (Saigal *et al.*, 1996; Sarin *et al.*, 1998), and this may be a source of conflict. There is substantial evidence that poorer groups, and women in particular, tend to lose out, at least in the short-term (Sarin *et al.*, 1998)

3.2.3 Attitudes of FDs and their staff FDs are not monolithic organisations and huge variations in attitude can be found within them. These variations can be categorised in various ways. For example, it has been suggested that there are two broad schools of thought (Kumar, 2000). One is the ‘traditional’ school, which believes in the authority of the FD and in exclusion of people from forest management: this school has delayed either the promulgation or actual implementation of people’s participation in management. The second school is supportive of people’s participation, but is still against handing over complete responsibility of management to the community.

Alternatively, Vira argues that Midgley’s four categories of state approaches to community participation in general, are relevant to JFM: all of these approaches or attitudes can be found within FDs in India (cited in Vira, 1999). The four categories

(participatory, incremental, manipulative and anti-participatory) are described in Table 3.1.

Table 3.1 Approaches of State Agencies and Officials to Community Participation

Approach	Characteristics
Participatory	Where agencies are fully supportive of community involvement, and institutional reform provides facilitating conditions for such a process
Incremental	Where some level of official support is combined with policy and administrative ineffectiveness, leading to an ambivalent approach to implementation
Manipulative	Where the state supports community participation for its own ulterior motives, usually for extending social and political control over autonomous movements, or for lowering the costs of implementing development projects
Anti-participatory	Where state agencies are uninterested in community involvement

3.2.4 Expertise of FD staff It is important to recognise the nature and size of the challenge posed to forest departments by the shift to collaborative or co-management of forests. The following quotations describe that challenge.

“Can India’s forest departments shift to collaborative forms of management after over a century of unilateral custodial control? With over 100,000 staff, the reorientation required is certainly dramatic....[in] the professional books of 1950’s and 60’s ...[there is] virtually no mention of community roles in forest management ” (Asia Forest Network, 1997)

Participatory forestry requires “innovation, responsiveness, willingness to take risks, learning from experience and flexibility - all attributes that are unlikely to be nurtured in the highly structured bureaucracy of the usual forest department” (Hobley, 1996b).

Bearing this challenge in mind, there is obviously a need for major changes in the way forest departments operate and for re-training of FD staff. FDs are being asked to support a new kind of forestry - with different objectives and different silvicultural requirements. They are being asked to take a bottom-up approach instead of the traditional top-down one. They are being asked to expand their responsibilities, so that they are no longer an essentially technical agency, but one with a mandate that embraces social issues, including:

- promoting greater equity;
- promoting the interests of women;
- promoting more democratic processes; and
- resolving community conflicts.

3.3 General critique of JFM

Critics of JFM as currently practised say that it has a number of weaknesses. First, there is a lack of mutual accountability, as was mentioned above - the communities

are much more accountable to the Forest Department than the FD is accountable to them.

Second, the way in which the programme is implemented tends to be rather rigid and formulaic, rather than flexible and pluralistic - for example, regarding membership of the committee, or the area of forest allocated to a particular VSS. Hobley (1996) observed that "The proponents of JFM often appear blind to the social, ecological and political diversity of the nation, and apply the model irrespective of the location".

Third, the requirement that a forest officer attend all the meetings as the Secretary is undesirable from the point of view of the FD, as it means that the potential of community management to reduce FD costs is not being achieved. Furthermore, this requirement is also undesirable from the point of view of the communities, who complain about forest guards failing to attend VSS meetings, and the problems this creates. Physical presence of the external institution's representatives in day to day functioning of community institution is neither desirable nor feasible.

Fourth, under the JFM programme it is not communities who play the lead role in deciding management objectives and formulating a plan to achieve them. Microplans tend to reflect FD agendas, rather than community needs; and they are drafted in a traditional silvicultural format.

Fifth, the concepts of 'final harvest', and even 'major harvest', that are expressed in JFM resolutions are alien to most communities. They belong to conventional plantation forestry, and are not appropriate to the multi-purpose use of forests practised by local people.

Sixth, JFM programmes have been implemented largely on a target-driven basis, with the FD sometimes only making a limited number of visits to each village, and not holding thorough discussions with communities. As a result, if protection is initiated, it may not last very long (see section 5.5).

4. ECONOMIC VIABILITY OF FOREST MANAGEMENT SYSTEMS

4.1 Types of cost

Establishment costs For JFM and other externally-initiated schemes, these include the cost of constructing the boundary wall. JFM is virtually always undertaken only on degraded sites, and involves the construction of soil and water conservation structures, as well as the planting of trees. Under CFM, however, villagers rarely do this, so the establishment costs are less.

Repair and maintenance of boundary wall This is an activity that is usually undertaken by the villagers without payment. Nevertheless, there is an opportunity cost involved and this needs to be taken into account.

Patrolling/watchman In the case of the watchman (*chowkidar*) wages have to be paid. Where a rotational patrol is used there is an opportunity cost associated with the labour involved.

Biomass foregone during the initial years of protection During the first 2-3 years after enclosure removal of all biomass from the site is usually banned, as is grazing. As the sites are generally severely degraded this cost is usually quite small.

Transaction costs In PFM systems the various management activities may take up a considerable amount of time, particularly of those on the management committee. In direct state management FDs avoid the need to attend meetings with villagers, but have to do the patrolling and policing themselves, and to enforce protection in the face of a potentially hostile local population. Physical assault sometimes occurs, either by local people on forest guards, or *vice versa*.

4.2 More on transaction costs

4.2.1 Villagers Transaction costs incurred by villagers, in all management systems apart from direct state management, include: attending FPC meetings, participation in rotational patrols (unless a watchman is paid for by the FD or another development agency), and the repair of boundary walls. In some villages certain people or households are not allowed to be members of the user group, as they cannot afford to incur these transactions costs.

It has been suggested that transaction costs are lower for smaller user groups (Vira, 1999). This may be true for matters that are internal to the group, such as rule-making and financial management, but is less likely to be true for external matters. This is because a smaller group may find it more difficult (and hence more time-consuming) to exclude other users, notably people from nearby villages (Conroy *et al.*, in press).

4.2.2 Forest departments Some forest department staff believe that JFM is increasing their workload rather than reducing it, for two reasons. First, they have to attend and conduct meetings every month. Second, conflicts occur for various reasons in the FPC village or between villages, and FD staff are called upon to help manage the conflicts. Two illustrations of the first point will now be given.

First, in one study in Orissa three divisional forest officers (DFOs) expressed concern to the researchers about the amount of time that their staff were having to spend attending VSS meetings, and said that this leaves them less time to protect forest than the FD is managing directly itself (Conroy *et al.*, 1999). Second, in Andhra Pradesh's Vana Samrakshana Udyamam (VASU), part of the JFM programme, the number of JFM committees under each Range officer is about 25; and there are six under each Forester, the person who acts as member secretary for each (Chandra Paul *et al.*, 1999). This is proving to be beyond the capacity of the field staff, and is resulting in disinterest and demotivation among them.

4.3 Benefits to communities

When the benefits of community involvement in forest management are discussed, the focus is usually on forest products. However, two of the most important and common reasons why local people participate in JFM (and also protected pasture schemes) are: (a) to prevent (further) encroachment of common/forest lands; and (b) to obtain wage labour near to their homes (Vardhan and Negi, 1999). Another factor that sometimes comes into play (although it is not necessarily made explicit by the villagers), is that they want to gain exclusive rights to a particular area of land that is currently shared with people from other communities.

4.3.1 Forage Forests (leaves and pods of trees and shrubs, and grass undergrowth) are an important source of forage for grazing and browsing livestock, especially as they provide forage even during the dry season. In some areas animals depend more on forests than on village grazing lands. It has been estimated that: 90 million cattle and buffaloes graze on forest land (CRIDA report). In AP 66% of small and marginal farmers would not be able to cultivate in the absence of forests, because they would not be able to feed their bullocks (ibid).

Many landless and SMFs would have less goats in the absence of forests in which grazing is permitted. Forests are important to goats because they prefer to browse on leaves and pods rather than graze on grasses. In AP the FD has been charging goat-keepers before allowing them to graze their animals in the forest.

In south Rajasthan (and probably other semi-arid regions), fodder is the third major benefit that people expect to get from participating in JFM, with other forest products only becoming important in later years (Vardhan and Negi, 1999).

4.3.2 Other NTFPs In Andhra Pradesh, a variety of NTFPs available in the forests are used for both for domestic consumption as well as generation of additional incomes by marketing them (CWS, 2001). These include: several varieties of grasses (such as paraka and boda), gums from various tree species and fruits from other trees (e.g. custard apple). They are collected according to their seasonal availability so as to supplement the livelihoods of the local communities.

In central Gujarat, where the mean annual rainfall is 600-1200 mm and the forests are dry mixed deciduous, the main NTFPs are bamboo, fuelwood, *tendu* (locally known as *timru*), *mahua* flowers and seeds, and gums (Tewari, 1998). In north Gujarat, where the rainfall is below 600 mm, there are dry scrub forests, and major NTFPs include *tendu* and honey.

In south Rajasthan the situation is similar to that in Gujarat. Firewood is a very important product. In some places, *tendu* leaves are another major NTFP; gums, honey, *mahua* seeds and flowers and *sitaphal* (custard apple) are also important (SPWD, 2001).

4.3.3 Timber Under JFM and CFM community involvement in management of forests does not normally commence until the forests have become degraded, by which time there are no large timber trees left standing. It is likely to be 15-20 years or more before timber can be harvested. Thus, timber is not a benefit in the short to

medium term. Furthermore, there is currently a Supreme Court ban on tree-felling from forests.

4.3.4 A Case Study of Forest Benefits in Gujarat Bhudrasan is a semi-arid tribal village with 325 families and 241 hectares of net cultivated land, out of which 151 hectares are irrigated. The area of forest land in the village (728 ha.) was under protection from 1987. The dominant species are teak, *Diospyros melanoxylon*, *Cassia fistula* and neem. The nature and size of the benefits obtained in one year is given in Table 4.1.

Table 4.1 Value of Products Received from Forest in 1994, Bhudrasan

Product	Seasonality	Quantity	Value (Rupees)	Comments
Fuelwood	April	200 tonnes	100,000	Obtained from mixed species through cutback of 100 ha.
<i>Tendu</i> leaves	April-May	400-500 bags	100,000	c. 100 households are involved in its collection and then rolling into cigarettes
Flowers and seeds of <i>Madhuca indica</i>		10-20 tonnes of flowers, and 2-4 tonnes of seeds	50-160,000 from flowers; 30-50,000 from seeds	This tree species occurs in the village only on private lands.
Fodder grasses	July and December	n.a.	n.a.	There is little grass production in 500 out of 728 ha. of forest due to closed canopy cover.

Source: Viksat, 1995, cited in Saxena, 1997.

4.4 Cost/benefit analyses

There have been very few studies of the costs and benefits of forest management. One, which focuses on a forest plantation in Rajasthan, concluded that the internal rate of return (IRR) when only the tangible benefits (grass, firewood and bamboo) were taken into account was less than 2% over a 25 year period (Maitra and Solapurker, 1999). However, the same study concluded that when environmental services are included the IRR is far higher – 42% over a 15-year period. Unfortunately, the authors do not describe on what basis the monetary value of the environmental benefits was calculated, merely citing another reference (Lal) as a justification for their figures.

Detailed economic analysis of some Tree- Growers Cooperatives “shows great potential for economic viability of the TGCs” (Iyengar and Shukla, 1999, citing work by Reddy *et al.*, 1997)).

A thorough study of the economics of a range of social forestry projects on common lands in Karnataka produced some interesting results, some of which are summarised

in Table 4.2 (Nadkarni *et al.*, 1994). The study analysed 13 projects in four different parts of the state. The authors believe that the selected projects are quite typical. Nine of the 13 sites were highly degraded before the projects began (two of the exceptions are in the Western Ghats, and the other two in Mysore). The Western Ghats region has a relatively high rainfall, but has been included for comparison with the other three areas, which are semi-arid.

Table 4.2 Benefit-Cost Ratios for Social Forestry Projects in Karnataka (Rupees per hectare)

Discount rate	Western Ghats	Transitional Zone	Northern Maidan	Southern Maidan
<i>Full benefits over costs, excluding opportunity cost of grazing</i>				
At 3%	54	24	31	22
At 5%	48	21	27	20
At 3, 5 & 8%	45	17	22	15
<i>Full benefits over costs, including opportunity cost of grazing</i>				
At 3%	36	22	21	16
At 5%	20	19	18	14
At 3, 5 & 8%	28	14	14	10

The authors considered the flows of benefits and costs over a 50-year period, using real prices. They used discount rates of 3 and 5 percent. As part of a sensitivity analysis they also considered variable rates of interest: 3% for the first 10 years; 5 % for the next 10 years; and 8% for the remaining years. They have assumed that the forests are closed to grazing, and have therefore estimated the opportunity cost of grazing.

As can be seen from Table 4.2, the benefit-cost ratios are positive under all of the assumptions, the benefits being many times greater than the costs. The projects are also economically viable in terms of their net present values and internal rates of return (*ibid*). The fact that the benefit-cost ratios are better for the Western Ghats sites is likely to be due to a combination of factors: the higher rainfall and the fact that two of the sites were not degraded.

4.5 Medium-term prospects for costs and benefits

Communities will only manage forests if they consider it to be worthwhile to do so. Although forests may have a religious significance for some groups, the primary motivation is financial, and the size of the benefits derived must be large enough to justify the costs involved. The cost/benefit ratio could be affected by a number of factors, including:

- (a) the amount of labour required to achieve effective protection;
- (b) the opportunity cost of providing a given amount of labour for rotational patrolling, or the amount of money required to pay the watchman's wage;
- (c) the price/value of forest products.

Regarding (a), communities involved in CFM adjust the amount of labour invested in protection according to the perceived size of the threat to the protected patch, and where the threat is minimal they tend to rely solely on general vigilance (Conroy *et al.*, 1999). Thus, if the size of the threat increases, so will the labour requirements, and hence the cost of protection. It seems likely that this will happen, since the ratio of people to forests will almost certainly increase (as the population grows and the forest area declines), leading to increased pressure on the forests.

Regarding (b), the opportunity cost of labour will depend on whether community members have alternative productive activities in which they could be involved instead of patrolling; and how much income they would be foregoing by spending time on patrol. If well-paid alternative income-earning opportunities became widely available, household members might be reluctant to go on patrol, and this could threaten the protection system. Similarly, if seasonal or permanent migration became widespread, this would also have major implications for the protection system.

Regarding (c), it is difficult to anticipate price trends for NTFPs. However, in the case of timber it seems highly likely that prices will rise substantially due to a combination of growing scarcity and increasing demand. It may be, therefore, that likely increases in the costs of forest management are compensated by an increase in the benefits derived.

5. CONSTRAINTS TO THE ADOPTION OF PARTICIPATORY FOREST MANAGEMENT

5.1 Negative attitudes of the state forest bureaucracy

As was discussed in section 3, attitudes to JFM (and CFM) among forest department staff (and administrative staff in ministries) vary considerably. Thus, the negative attitudes listed below do not apply to all staff in the forest bureaucracy, but they can be dominant in certain geographical areas or in certain parts of the organisational structures. Reasons for rejection of PFM, or ambivalent attitudes towards it on the part of FD staff, include:

- History of conflictual relations with local communities
- Reluctance to accept dilution of state authority
- Concern about reduction in personal authority and prestige
- Resistance to increased accountability and reduced scope for corruption
- Alliances with local elites (Vira, 1999).

5.2 Relationship between FD staff and other stakeholders

5.2.1 Relationship between FD staff and local people Where the FD has promoted JFM there have sometimes been problems in the way it has related to local communities. There has been a tendency to treat VSS members as labourers rather than rightful protectors of the forest (CWS, 2001). (See also section 3.2.1.)

5.2.2 Corruption There have also been problems over the handling of finances. For example, in some villages in Udaipur District, Rajasthan, the FD opened the committee's account in post offices without involving the community as a whole

(Singh, n.d.). Instead, they only involved the head of the management committee, and this created problems within the community. In at least one village there have been problems between the community and the forest guard over the depositing of revenue from grass-cutting in the post office account, with the forest guard taking the money to put in the account, but not telling the committee the account number, so that they are unable to verify whether the money has actually been deposited (Singh, n.d.).

Similar problems exist in other states. For example, in Andhra Pradesh “transparency has become a much-debated issue in this [JFM] programme among people, NGOs and the forest department as corruption has trickled down to the village level as a result of the programme” (NTGCF, 2001). In Madhya Pradesh some observers of the situation in Harda District recently argued that “the reality of bribery, corruption, intimidation and increased exploitation of *adivasis* under the much acclaimed success of JFM in Harda ... points to the need for a systematic and independent review of the functioning of JFM ... in the whole of MP” (Sarin, 2001).

5.2.3 Relationship between FD staff and NGOs The national government’s JFM guidelines also see a role for NGOs. Where NGOs are involved in JFM there is a need for close collaboration between the FD and NGOs, and where the two have worked together they have proved effective. However, in Rajasthan most of the time these linkages have been absent (Vardhan and Negi, 1999). It appears to NGOs that the FD expects them “to do all the things that it could not manage” itself, while not trusting them to do the work well (*ibid*). Where NGOs have been actively involved in JFM they complain of the FD applying double standards in relation to: (a) the amount of bureaucratic hassle and delay (in one case three years) involved in getting FPCs registered (compared with cases where only the FD has been involved); and (b) the definition of degraded land where afforestation can be taken up (*ibid.*; Suess, 1995).

5.3 Other state policies and programmes

State governments in India tend to treat JFM as another isolated programme, which they think can be implemented without making any changes in other sectoral programmes (Saxena, 1997). However, several aspects of policies, programmes and laws may have a strong influence on the success of JFM, as is illustrated by the following two examples. First, there is often a conflict at the state level between the government’s JFM programme (and overall forest policy) and the state’s policies and legislation for NTFP collection and marketing. Second, state government policies on encroachment can also inhibit the effectiveness of JFM and CFM. These two issues are discussed below.

5.3.1 NTFPs Unfortunately, the legal, policy and marketing environments for NTFP collection and processing in India generally operate to the detriment of local people who want to derive an income from NTFPs. In most Indian states “the marketing environment for realising the full value from NTFPs is constrained by exploitative governmental regulations restricting sale, processing and transport” (Saxena, 1997). Often local people have no right to process NTFPs or sell them on the open market.

Consequently, although some people, and particularly poorer groups, are sometimes critically dependent on NTFP collection for both subsistence and cash needs, the returns are low and it appears that in many cases “people take it up only for want of

any other alternatives” (Saigal *et al.*, 1996). In Orissa, some rely on illegal fuelwood headloading as their principal income-generating activity, and hence perceive PFM as a threat to their livelihoods (Conroy *et al.*, 1999). They indicated, however, that if NTFP collection were more remunerative they would prefer to switch to that, as they would no longer be incurring the risks associated with illegal activities.

5.3.2 Encroachment Encroachment is widespread in Andhra Pradesh (CWS, 2001), Gujarat (AKRSP, 2001), Rajasthan and other states, and has been taking place for decades (Jodha, 91). The term usually refers to the use of land to grow crops, but construction of houses is sometimes involved. It is a major political issue. In Rajasthan there is a *de facto* government policy of periodic regularisation (Vardhan and Negi, 1999). Unfortunately, the expectation that long-standing encroachments will be legalised sometimes leads to new ‘spurts’ of encroachment (*ibid.*). Encroachment is usually done by more powerful members of the village, and is a threat to the interests of the majority of villagers. Thus, NGOs involved in enclosure of the commons are sometimes motivated by the desire to prevent further encroachment, so that all members of the community, and particularly the poor, can continue to benefit from its use.

There is also a lack of support among government officials for removing encroachers when common lands (both forests and revenue land) are developed (SPWD, 1998). Overall, a state government’s *de facto* policy towards encroachment, and the behaviour of its officials, sometimes undermine forest protection initiatives.

5.4 State agency rigidity/blueprint approach

The approach taken by FDs and other government agencies tends to be rigid, e.g. regarding the choice of management unit (e.g. revenue village versus hamlet) or the size of the forest to be protected. By contrast, communities involved in CFM have developed a wide variety and complexity of institutional arrangements. It is doubtful whether the FD would be able to work out which arrangements would be most appropriate for new VSSs: rather, communities are generally best-placed to identify which arrangements are best for them. (However, outsiders can make them aware of arrangements from elsewhere that they might not otherwise have considered.) This is why a co-management programme between the state and communities should be flexible, and be prepared to support a plurality of approaches and arrangements.

5.5 Sustainability of PFM: motivation and net benefits

The formation of forest protection committees (FPCs) under the state JFM programmes has given a major boost to PFM in semi-arid India. In the early stages, FDs are able to generate community interest through entry-point activities⁴ and by providing wage labour for S&WC work, tree-planting etc. However, this does not guarantee the sustained interest of the community.

⁴ Entry point activities are sometimes related to forests and sometimes not. The latter include construction of schools and roads, and provision of borewells with hand pumps.

The fragility of FPCs is illustrated by the following two examples⁵. In Rajasthan, at the end of 1996 the FD had formed 1729 forest protection committees (FPCs) under the JFM programme, but 43% of these were not active (Kapoor *et al.*, 1996). In Andhra Pradesh, where the FD has established a large number of VSSs, the FD does not always have the resources to build them up; and some have been formed without people's knowledge and exist only on paper (NTGCF, 2001).

The *size* of the benefits available from the forest, particularly NTFPs, may have an important bearing on a community's willingness to become involved in, and to sustain, forest protection (Saigal *et al.*, 1996). Local people's perception of *how clear and secure their rights* are under JFM or CFM (see section 5.6) is also likely to affect their level of motivation and commitment to forest management. Conflicts can also threaten sustainability: these are discussed in section 5.7.

Community forest management, where communities have initiated protection themselves, and have not been given wage labour by the FD, is rare in semi-arid regions, and is found predominantly in higher rainfall areas in eastern India, notably Orissa and Jharkand⁶. This might, at least in part, be due to relatively low returns in semi-arid regions: degraded forests in eastern India are more productive than degraded forests in semi-arid areas, by virtue of their species composition and other edaphic factors (Vardhan, 2001). (Also see section 4.4.)

Benefits to the community tend to be low during the first few years after initiation of protection. One of the reasons is that where FDs have had a major say in species selection they have given priority to timber species, whose gestation period under these conditions is typically 15-20 years (*ibid.*). Plant and tree species that would yield benefits more quickly tend to be neglected: these include bushes, shrubs, medicinal plants and grasses (*ibid.*). Furthermore, the management and silviculture rules governing JFM are still geared to production of timber rather than other tree and forest products: so there may not be any provision in the microplan for lopping or pruning of the trees (*ibid.*).

Various measures can be taken to increase the benefits that communities derive from managing forests. These are discussed in section 7.

5.6 Rights to the forest and its products

It is not long since FDs were policing forests to ensure that local people stayed out of them: in a way JFM is a departure from the historical norm. Thus, it would not be surprising if people doubted how secure their rights are under JFM. In the north coastal region of AP people "do not believe that the forest department would ever share their power over the forest with the people and that it [JFM] is only a temporary programme" (NTGCF, 2001).

⁵ Similar situations can also be found outside of semi-arid India. In Orissa, in one block/panchayat visited by researchers in 1997, 32 communities had been approached by the FD in 1993/94 to join the JFM programme, but protection was only functional in three of these (Conroy *et al.*, 1999).

⁶ It has been suggested that the presence of Sal (*Shorea robusta*) in eastern India, a fast-growing species that coppices well, is one reason for the large number of CFM groups there. While that may be true, a large proportion of the forests managed by CFM groups contain little if any Sal, so there must be other factors at work.

BOX 5.1 The Insecurity of Rights under JFM: An Example from Maharashtra

Botha is a small village in Buldhana district of Maharashtra. A Forest Protection Committee was formed there in August 1996 under the auspices of the JFM programme, and until the end of 1997 the FPC was very active in the protection of the allotted forestland. However, the picture changed after the creation of the Dyanganga Wildlife Sanctuary in January 1998, in accordance with a resolution of the Maharashtra State Government to establish a certain percentage of forestland in every division as protected area. Land allotted to the FPC was also covered under this newly formed sanctuary, and the area was transferred from the jurisdiction of the FD's Territorial wing to that of the Wildlife wing. In the sanctuary area the rights the local people had been given under the JFM programme were no longer valid: these became mere concessions. The relationship between the FD and the villagers became somewhat strained. People felt betrayed, arguing that 'the wildlife for which the sanctuary was declared increased as a result of protection done by the FPC, so the villagers should not be denied their rights'.

After declaration of the sanctuary the villagers could not enter that area without the permission of the DFO (Wildlife). Nevertheless, the FPC decided to continue with the protection of the allotted land, and the villagers still collect dry wood and tree fodder even from the sanctuary area. The CF (Wildlife) has given oral permission for that, but there is nothing in writing. The villagers strongly feel that the FPC should have legal recognition. The FPC is trying to take back from the Wildlife wing the 1468 ha of forestland that was protected under the JFM Programme. They registered the FPC and the Wildlife Protection Committee in May 2001 under the Bombay Public Trust Act 1950 and Societies Registration Act of 1860.

Source: Girija Godbole, personal communication.

Local people would be justified in being sceptical about the security of their rights under JFM, since these are not enshrined in law; and there are already cases where VSSs have had their rights taken away from them without any consultation. This can happen if a forest is suddenly designated as a wildlife sanctuary, as in the case described in Box 5.1. It can also happen if a developer is given a lease to mine or quarry in an area where a VSS is protecting forest, as has happened in Andhra Pradesh (NTGCF, 2001).

5.7 Sustainability and conflicts

Participatory forest management is a complex business. Forests provide a wide range of products of subsistence and/or commercial value (direct uses); as well as performing environmental services (indirect uses), and often having religious or cultural significance (non-use values). Even small 'patches' of forest may be used by people from several villages or hamlets; and different sub-groups within a particular hamlet or village may derive different products from the forest. Management of larger areas of forest is even more complex, as they may transcend administrative, political and social boundaries.

Given the complexity of forest management, designing PFM programmes, or working out how best to support CFM, is not easy, and conflicts are probably unavoidable, if not inherent (Anderson *et al*, 98). Thus, how best to manage conflicts is an important issue that is receiving increasing attention (Resolve, 1994; Conroy *et al.*, 2001). Unfortunately, the actions of FD staff quite often create conflicts or exacerbate existing ones: this is particularly so in relation to the boundaries of protected sites. A report on JFM on north coastal Andhra Pradesh observed that "Disputes over forest

boundaries are seen in almost all VSS because the traditional village boundaries were not respected by the department while demarcating VSS areas” (NTGCF, 2001). An example of this kind of problem, this time from Rajasthan, is given in Box 5.2.

BOX 5.2 PHILA MAGRA: An Example of Multi-Dimensional Conflict

Phila Magra is the name of a JFM site that was created under the auspices of Rajasthan’s JFM programme. It is situated close to the boundary of the villages of Philan and Sabal, in Udaipur District, and the precise location of the boundary has been a matter of dispute for almost 25 years.

Unfortunately, when it initiated the site with the villagers of Philan, the Forest Department did not make any attempt to tally the boundary of the site with the Revenue Department’s records of the village boundary. The people of Sabal were apprehensive about the establishment of the site, as the disputed part would come under the control of Philan, perhaps forever, so they opposed the physical work at the outset. However, when they had the opportunity of wage labour on the site they took it, and their opposition temporarily subsided.

Once the PSPA was created people from Sabal frequently defied the enclosure rules, grazing cattle there and stealing grass or wood; and recently some cut and removed trees and bushes, claiming a share in the patch. The dispute remains unresolved. The conflict over Phila Magra is not purely a boundary dispute, nor is it entirely an inter-village conflict. Within Philan there are different sub-groups with conflicting interests. The Rajputs of Philan, who do not depend much on the village pastureland, have not made any significant contribution to efforts to resolve the dispute, and the Rajput leader has been covertly supporting the people of Sabal with a view to winning their votes in the Panchayat elections.

Source: Pandey and Thakur, 2001

5.7.1 Conflict management Communities are sometimes unable to manage conflicts effectively themselves, and therefore some commentators see the involvement of an external development agency as essential in many cases. For example, Singh observes: “For balancing the forces within the village an outside agency like NGO/[Forest] Department is necessary in order to make protection mechanism effective ... In the light of divergent interest groups the role of NGO in strengthening the hand of those who are interested in protection process is a crucial factor” (Singh, n.d.).

Another approach is to strengthen the capacity of local organisations and communities to manage conflicts themselves (Conroy *et al.*, in press). This has the merit of avoiding the financial costs that villagers could otherwise incur, and reducing demands on the time and resources of development agencies.

A further, related issue is whether development agencies should avoid working with villages where there is no strong consensus in favour of forest protection. A development agency, such as the FD or an NGO, may be able to sustain a protection initiative in a conflict-ridden community for a certain period of time, but the costs may be high and the long-term efficacy of the intervention is bound to be questionable. There are conflicting views on whether it is preferable to avoid working with villages or communities that are already conflict-ridden.

5.8 NTFPs and rights to products

In many states monopoly rights over the collection, processing and marketing of nationalised NTFPs (and certain others) have been vested in government agencies. These agencies, in turn, either auction or lease NTFP collection to private contractors.

These rights are not generally available to the communities involved in managing the forests, either under the JFM programme or in the context of CFM. The contractors exploit the villagers in various ways. For example, in Gujarat they take bribes, and pay only in kind, not cash); and, as a result, returns to collectors are poor (AKRSP, 2001).

A survey of some villages in Gujarat's Sabarkantha district found that tribals and other dependent on NTFPs had to get licences at every step – to buy the raw material, to transport it and to sell it (Chowdhry, 1996, cited in Khare et al., 2000). Even tapping gum requires a licence. The women collecting it are obliged to sell it to the Forest Corporation, where they get 25% of the market price (ibid.).

5.9 Compartmentalisation of natural resources under co-management schemes

Compartmentalisation of natural resources can have two disadvantages: extra administrative burdens for villagers; and a lack of integrated natural resource planning. If one local body had responsibility for the management of all natural resources this could have significant benefits: for example, livestock grazing could be regulated in a holistic, coordinated way⁷.

JFM focuses on forests and watershed development focuses on other natural resources. Each programme requires the establishment of a village committee, and other programmes not associated with natural resources may do the same. Multiple committees can be a significant burden for villagers, so government agencies (and NGOs) should try to work in a more coordinated fashion and not force new committees onto villagers.

6. DEMANDS FOR CHANGES IN MANAGEMENT SYSTEMS

There have been calls for various changes in the way in which forests are managed. Three of the most important ones are described below.

6.1 Greater devolution of power to communities

There is widespread concern that under JFM the FD is too dominant relative to the communities. While FDs have the power to veto communities' decisions, and to dissolve the VSS if they believe it has acted improperly, the communities have no corresponding rights, powers and sanctions in relation to the FD's actions. For example, a community has to obtain approval from the FD for each bamboo harvest; but if the FD causes damage to the bamboo by delaying the approval there is nothing the community can do about it.

Thus, there have been calls from NGOs and researchers for a shift along the state/community control spectrum towards greater community control than is currently the case with JFM (Conroy *et al.*, 99; Jeffery and Sundar, 1999; Khare *et al.*,

⁷ The gramdaan village mentioned earlier, Seedh, has developed such a system. Large ruminants are taken to the forests, small ruminants are taken to the pasture lands, and grazing is not allowed in a third area of common land.

2000; Poffenberger and McGean (Eds), 1996; Saxena, 1997; Suess, 1995; Suryakumari, 2001). A recent consultation exercise in Andhra Pradesh suggested that many communities would like to move in this direction, but some of them lack confidence and are diffident about it (Suryakumari, 2001). Capacity-building measures (e.g. training in maintaining records and book-keeping) will be needed to ensure that communities are well placed to assume additional powers and responsibilities. Legal recognition of the rights of FPCs to forest products is an important dimension of the devolution of powers, for the reasons discussed in section 5.6.

Communities would have greater autonomy in decision-making regarding planning, utilisation of available funds, collection of fines from forest offenders, etc. The FD's role would be to provide technical guidance and, where necessary, external support (e.g. in taking action against smugglers, or mediating in inter-village conflicts that cannot be managed effectively by the communities themselves).

6.2 *Shift to multi-purpose forest management*

This goes hand in hand with the greater devolution of power. The latter would mean that communities play the major role in setting management objectives and developing microplans. The FD's role would be to provide technical advice on how best to achieve the objectives in a sustainable way.

Staff of forest departments in India still tend to see timber as the most important product to be derived from the forest, and to regard any other forest products as of minor importance. Until very recently, the word 'silviculture' "has been virtually synonymous with production of timber"; and the *Guidelines for Preparation of Working Plans and Felling in Forests*, issued by the government in 1983, do not even make a reference to NTFPs (Lal, 2001).

For local communities involved in forest protection, however, NTFPs tend to be the most important products. There are two reasons for this. First, the benefits from NTFPs are available during the first few years of forest management, and are fairly certain; whereas the benefits of timber are many years in the future, and are likely to be perceived by communities as relatively uncertain. Second, it is natural for people to value short-term benefits more highly than ones expected in the distant future: this is reflected in the economists' convention of discounting future benefits.

The demand for multi-purpose forest management, instead of foresters' conventional focus on timber, has been coming from various sources (e.g. Ravindranath *et al.*, 1996; NAEB, 2000). In a recent review of JFM programmes in Andhra Pradesh, Karnataka and Tamil Nadu, the National Afforestation and Eco-Development Board concluded that "there is a need to shift to multipurpose and NTFP based forest management" (NAEB, 2000). General proposals for multi-purpose management, in which NTFP production is given at least as much priority as timber, have been put forward by a former Director of the Indian Institute of Forest Management (Lal, 2001).

Grazing Grazing is traditionally one of the main uses of forests in semi-arid India. Where communities are managing forests grazing is generally permitted, but under

JFM programmes it is normally banned for five years while the forest regenerates and newly planted trees get established. Many people are questioning whether a ban of this duration is necessary, and expressing concern over the impact of such bans when the forest area constitutes a large proportion of the previous grazing area for the villagers concerned (Anthra, 2001; Vardhan, 2000).

A more gradual approach to enclosure of forests is needed, in which one small patch is enclosed each year, so that a sufficiently large grazing area is available at any one time. When developing the management plan for the forest, communities should be free to choose grazing as an objective if they want to. This would then have implications for management: for example, prevention of canopy closure in one part of the forest, so that grass is still able to grow; or planting of fodder trees.

In Andhra Pradesh, NAEB recently concluded that there appears to be “a need to evolve a grazing policy under the JFM programme” (NAEB, 2000); and one of the recommendations from a recent stakeholder consultation exercise was that a “grazing policy has to be evolved” (Suryakumari, 2001).

6.3 Greater benefits for women and poor groups

The initiation of CFM or JFM affects different groups in different ways, with some being disadvantaged by the process, at least in the short term. The people who bear the costs or losses due to JFM need to be properly compensated. Similarly, the distribution of benefits needs to be in proportion to the contributions in various ways. There is a widespread demand for greater equity in the distribution of benefits; and better representation of poorer and weaker groups on FPCs to help ensure that their needs and concerns are taken into account (Sarin *et al.*, 1998; Khare *et al.*, 2000).

6.4 Extending participatory forest management beyond degraded forests

Until now JFM has only been introduced in areas where the forest has become degraded. Since about 40% of India's forests are considered to be degraded, this means that 60% of the forests are excluded from the ambit of JFM (Khare *et al.*, 2000). This 60% includes 20% that have been designated as protected areas. There is nothing in the 1988 forest policy, however, that says that JFM should only be practised on degraded forests, and many people believe that this restriction is inconsistent with the policy's objective of forest conservation (*ibid.*). This is because the forests that are relatively well preserved tend to be subjected to the greatest pressure by organised timber smugglers and poachers, as well as local people. There have been calls, therefore, to extend PFM to non-degraded forests.

7. CONCLUSIONS AND RECOMMENDATIONS

Communities will only have a sustained involvement in forest management if the benefits they derive from it are reasonably large and secure. The *size* of the benefits should generally be greater than the costs, even in semi-arid regions. Nevertheless, the growth of trees can be quite slow, and the benefits from managing degraded forests during the first few years tend to be limited. Various measures are needed, therefore, to: (a) maximise yields, particularly during the early years of managing what was a degraded forest patch; and (b) maximise revenues.

A shift to multi-purpose forest management is needed, and this would mean less emphasis on timber in the long term, and more emphasis on NTFPs in the short- and medium-terms. Livestock-keeping is particularly important in semi-arid regions, and this needs to be recognised when forest management plans are being prepared.

The perceived *security* of the benefits from forest management is equally important. Arrangements for sharing benefits between communities and the state need to be made as clear as possible, and communities' rights need to be given legal recognition. *Legal recognition will help to strengthen the position of forest management communities vis-à-vis the state, which is important. The capacity of communities needs to be strengthened in relation to:*

- *managing forests sustainably;*
- processing and marketing forest products;
- effectively articulating their needs and concerns to the state.

7.1 Policy and practice: institutional issues

7.1.1 Shifting the balance of power between FDs and communities For the reasons discussed earlier, state governments should make FDs more accountable to the communities and reduce the powers of the FDs over them.

7.1.2 Legal recognition of VSSs or other CBOs involved in forest management is one way of strengthening their position vis-à-vis state agencies and legal processes. This has been recommended in AP (Suryakumari, 2001), and is under consideration as one component of the next phase of the state's JFM programme (S. Anwar, *pers. comm.*). This applies not only to CBOs involved in JFM, but also those involved in CFM.

7.1.3 Creating a positive rapport between the FD and communities To achieve this there needs to be clarity of rights and responsibilities, and uncertainty and ambiguity should be minimised. It requires cooperation among all stakeholders including the Forest Department and the NGOs. In Gujarat (and probably elsewhere) various factors create uncertainty among communities, including: delay in approval letters, delay in registration of the FPCs, non-signing of agreements, going back on promises, and provision for withdrawal of the FPC by the FD without compensation to the community (AKRSP, 2001).

7.1.4 Capacity building of local community-based organisations There is a need to create awareness and build capacities of CBOs involved in forest management.

This requires training in leadership and management on one hand and handling greater responsibilities on the other. The CBOs need to operate efficiently and transparently. Giving more responsibilities, like collection and marketing rights of different NTFPs, to the CBOs or their federations would also contribute to their capacity building.

There is a need for the CBOs to federate properly at various higher levels (talukas/districts/state) into organisations that have legal recognition. The federal structure of cooperatives may be suitable for this purpose (AKRSP, 2001).

7.1.5 Relationship between CBOs and panchayats Until now, PFM has functioned more or less independently of panchayats, but with the amendments to the constitution this is likely to change over time as panchayats begin to assert their powers. It would be preferable to develop relationships in a planned way, rather than a haphazard one. The following suggestions have been put forward by CBOs and NGOs in Andhra Pradesh (Suryakumari, 2001):

- Sarpanch should be invited as a guest to VSS meetings;
- VSS resolutions should be shared with the panchayat;
- VSS accounts and expenditure should be presented to the Gram Sabha for social audit.

Existing CBOs want to maintain their autonomy from the panchayat, so that they can retain the benefits of forest management. Where CBOs have been managing the forest for some time their usufructuary rights should be safeguarded. In Scheduled areas, where the Gram Sabha has the right to manage the forest, an amendment may be required to the panchayati raj legislation to achieve this (*ibid.*).

7.1.6 Moving to multi-purpose forest management This will be quite a radical shift for some FD staff and for communities themselves, since for the first time management plans will be based on community priorities and objectives. Both parties are likely to need training in how to implement this new approach.

7.1.7 Exclusion of livestock-keepers In Andhra Pradesh this is a high priority issue that needs to be addressed with urgency. The factors giving rise to the exclusion from VSSs (or non-participation) of shepherds and other poor small ruminants keepers should be investigated, and necessary actions taken to prevent this happening in the future. Some NGOs in AP have suggested that shepherds should have their own separate committees (CWS, 2001).

7.2 Policy and practice: increasing the benefits to communities

7.2.1 Greater priority for plants and shrubs Changes in FD practices are required regarding types of species planted (e.g. medicinal plants, grasses and shrubs as well as trees) to ensure that intermediate benefits to communities are increased.

7.2.2 Maximum sustainable yields Another area in which it may be possible to increase benefits is the harvesting of fruits and seeds, such as those from custard apple (Seetaphal) and Ratanjot respectively. This is sometimes done in an unregulated fashion, on a 'first come, first served' basis, which results in the fruit being harvested

prematurely at well below its full size (N.C. Jain, *pers.comm.*). If the harvesting was carried out in a regulated way the size of the harvest, and hence the total income (where sales are involved), could be significantly increased.

7.2.3 Revenue from NTFPs Policy, legal and institutional issues are of paramount importance in relation to livelihood activities involving NTFPs. They determine how the revenue from NTFP sales is distributed to different stakeholders in the collection and marketing chain. Existing restrictions mean that there is a need for legal and policy changes before local people can maximise the potential benefits from NTFPs.

Negotiating NTFP prices with government agencies In Udaipur District, Rajasthan, where people are involved in collection of *tendu* leaves, local NGOs (Astha and Prayas) have been successful in helping tribals to organise themselves more effectively to fight for and obtain substantially higher wages from the state agencies for this activity. One component of the strategy adopted by Prayas was the formation of a tribal co-operative society (SPWD, 2001).

Market structure The structure of the market exerts a strong influence on the prices that collectors can obtain for NTFPs: prices will tend to be higher where there are several buyers who are not colluding with each other. Monopsonies created by government policies must be removed. VSSs involved in Andhra Pradesh's JFM programme have said they would like to see the GCC's monopsony position abolished (Suryakumari, 2001).

Processing and commercial marketing of NTFPs by local people could, in principle, increase local value addition and net revenues further. Yet government regulations and laws sometimes debar them from undertaking these activities. Collectors and CBOs should be given processing rights (e.g. for leaf plate-making), where they are currently excluded. Where federations of VSSs or other CBOs exist they should be given rights for marketing NTFPs.

Initiatives to promote such enterprises have met with only limited success so far. However, one in Karnataka, promoted by a community development-oriented NGO called Vivekenanda Girijan Kalyan Kendra, has achieved significant progress. It has established units for the processing of honey, forest fruits (into jams and pickles) and herbal medicines, which are performing well financially; and management of the first two has been taken over by the local tribal people (Capistrano, 2000). Substantial capacity development of the CBO is required for this kind of initiative.

As entry barriers to NTFP collection and marketing are low, there is always the possibility of new (and wealthier) entrants becoming involved, as the returns become more attractive. It is important, therefore, that there is strong policy support and well-defined and enforceable rights for poor local people who are most dependent on NTFPs (Capistrano, 2000).

7.3 Research issues

7.3.1 Multi-purpose management systems The traditional narrow focus on timber means that it is not even known at this point whether it is feasible to manage a forest

for production of timber and NTFPs simultaneously (Lal, 2001). A major programme of research is required to fill this knowledge gap and to develop suitable management plans for a range of situations. In the words of one expert:

“Developing silvicultural systems and management models for NWFPs which involve multi-species, multi-storey crops, multi-products in different proportions of desired yield, in different ecological and socio-economic settings needs intensive, persistent, and long-term research indigenous knowledge and ethnobiology could contribute immensely to evolution of proper management systems” (*ibid.*).

7.3.2 Harvesting practices for NTFPs Special methods have been developed by researchers for obtaining the maximum yields of desired parts of some commercial plant and tree species. Generally speaking, however, such methods have not been developed in a participatory way, i.e. with the involvement of local people, hence their suitability from a social and ergonomic point of view is uncertain. There is a need for participatory research on harvesting practices, in collaboration with forest users, drawing on their knowledge as well as that of the scientists. This would be analogous to the considerable body of work done on participatory technology development with farmers.

7.3.3 Forests, grazing and fodder The contribution of forests to livestock feeding should be taken into account when management plans are prepared, and further research is needed here. This should include options involving **regulated** grazing, as it may be necessary to reduce the number of livestock units to make grazing sustainable. In particular, there is a need to investigate management options that are more ‘small-ruminant friendly’, since small ruminants are not well suited to stall-feeding, compared to large ruminants, and hence are more dependent on grazing.

7.3.4 NTFP trends Comprehensive data and knowledge about NTFP production, collection and marketing trends is often lacking at the state level, and these gaps need to be filled. The study done by Tewari means that there is a reasonably good level of knowledge and understanding of the situation in Gujarat (Tewari, 1998): similar systematic studies should be carried out in other states.

7.3.5 Maximising net benefits Economic and financial aspects of JFM and CFM need to be studied systematically to improve understanding of the conditions leading to the maximisation of net benefits, so that government funds are used efficiently. This should include:

- a comparison of the economics of JFM and CFM (including the impact of soil and water conservation measures on yields, survival rates of saplings of different species, and optimum planting density);
- identification of ways to increase the returns from CFM/JFM in semi-arid regions, e.g. by regulating the harvesting of fruits (such as custard apple) and seeds, so that they have reached their full size before being harvested;
- the social arrangements required to enable the achievement of maximum sustainable yields of NTFPs.

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ANNEX 1 SOME TREE SPECIES OF SEMI-ARID PENINSULAR INDIA

Scientific name	Other Name (English, Hindi)	Andhra Pradesh	Karnataka	Tamil Nadu	
		Nizamabad	Karnara circle	Dharmapuri	Salem
<i>Acacia leucophloea</i>				✓	
<i>Albizia amara</i>				✓	✓
<i>Annona squamosa</i>	Custard apple, <i>Seetaphal</i>	✓		✓	
<i>Anogeissus latifolia</i>		✓	✓		
<i>Azadirachta indica</i>	<i>Neem</i>			✓	✓
<i>Buchania lanzan</i>		✓			
<i>Butea monosperma</i>	Flame of the forest, <i>Dhak</i>	✓			
<i>Cassia fistula</i>		✓			
<i>Cassia siamea</i>				✓	✓
<i>Chloroxylon swietenia</i>		✓		✓	✓
<i>Cordia macleodii</i>			✓		
<i>Dalbergia paniculata</i>		✓			
<i>Diospyros melanoxylon</i>	<i>Tendu</i>	✓	✓		
<i>Emblica officinalis</i>	<i>Amla</i>		✓		
<i>Ficus religiosa</i>	<i>Pipal</i>		✓		
<i>Hydnocarpus laurifolia</i>			✓		
<i>Lagerstroemia laceolata</i>			✓		
<i>Lagerstroemia parviflora</i>		✓	✓		
<i>Madhuca latifolia</i>	Butter tree, <i>Mahua</i>	✓			
<i>Semecarpus anacardium</i>		✓			
<i>Tectona grandis</i>	Teak, <i>Sagwan</i>	✓	✓		
<i>Terminalia paniculata</i>			✓		
<i>Terminalia tomentosa</i>		✓	✓		
<i>Wrightia tinctoria</i>	<i>Khirni</i>	✓		✓	✓

Source: NAEB, 2000.

ANNEX 2 GLOSSARY AND ABBREVIATIONS

Adivasi	tribal
AKRSP	Aga Khan Rural Support Programme
APPS	Anantha Paryavarana Parirakshana Samithi
Beedi	Country cigarette
CBOs	Community-Based Organisation
CFM	Community forest management
CPR	Common pool resource
CRIDA	Central Research Institute for Dryland Agriculture
CWS	Centre for World Solidarity
FD	Forest department
FPC	Forest protection committee
JFM	Joint forest management
MEOS	Mass Education and Organisation Society
NAEB	National Afforestation and Eco-Development Board
NGO	Non-governmental organisation
NTGCF	National Tree-Growers Cooperative Federation
NTFP	Non-Timber Forest Products (includes firewood)
NWFP	Non-Wood Forest Products (excludes firewood)
PF	Protected forest
PFM	Participatory forest management (includes CFM and JFM)
PRI	Panchayati raj institution
RD	Revenue Department
RF	Reserved Forest
VSS	Vana Samrakshana Samiti (forest protection committee)