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Changing Ownership and Management of State Forest Plantations: India

Draft prepared by

Sushil Saigal

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The conference was jointly organised and run by the Department of Water Affairs and Forestry of the South African Government, the UN Food and Agriculture Organisation and the UK Department for International Development. It is anticipated that this case study, together with several other country case studies and an overview, will be published as a book during 2004.

India

1.1 Introduction

India is a democratic republic with a federal structure, consisting of 28 states and 7 Union Territories. It is the world's seventh largest country with a geographical area of 329 million hectares. Mainland India is comprised of four regions: the great mountain zone (Himalayas), the plains of the Ganga and Indus, the desert region and the southern peninsula. Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep Islands in the Arabian Sea are the two main island groups in India.

The varied terrain of India has resulted in a wide variety of climatic conditions. These range from permanent snowfields in the Himalayas to tropical coastlands; from areas of virtual desert in the north-west to fertile, intensively cultivated rice fields in the north-east.

Due to geographical and climatic diversity, a large variety of flora and fauna is found in the country. India is one of the 12 mega-biodiversity countries in the world and 2 out of 18 global biodiversity 'hotspots' are located in India. A wide variety of forest types are found in India - ranging from alpine forests in the Himalayas to rain forests in the Western Ghats.

With a population of over one billion, India is the world's second most populous country after China. About 72 % of the population lives in rural areas. India also has a large tribal population, which stood at 68 million in 1991 and is perhaps close to 80 million at present.

India is the world's fourth largest economy on purchasing power parity basis with an estimated GDP of US\$ 2.2 Trillion (2000).¹ The annual growth rate of real GDP during the past five years (1997-2002) is estimated at 5.4 %, which is one of the highest among major economies of the world in recent years (Gol 2002a). However, in per capita terms Indian economy ranks a low 145th in the world.² Agriculture and allied sectors³ play a key role in the economy contributing around 24 % of the GDP (Gol 2002a) and accounting for 64 % of the employment (Gol 1999). Another important feature of the economy is that the organised sector accounts for only 27.96 million jobs (19.314 million in the public sector and 8.646 million in the private sector) (Gol 2002a). It means that most of the people work in the unorganised sector.

Land degradation and pollution are the major environmental challenges facing India. More than half of India's area, an estimated 175 million hectares (53.24 %) is subjected to different types of land degradation (Gol 1999).

On the social side, poverty is the biggest challenge facing the country. Although the percentage of population living below the poverty line has declined sharply in the past 25 years - it was 55 % in 1973-74, 36 % in 1993-94 and 26 % in 1999-2000 - the absolute number of the poor people has not come down significantly due to countervailing growth in the population. It is estimated that 260 million people still live in abject poverty. There is high variation in poverty among the states, while only 4.4 % and 6.16 % of the population in Goa and Punjab respectively was living below the poverty line in 1999-2000, the corresponding figures for Orissa and Bihar were as high as 47.15 % and 42.60 %, respectively.

Add map (of decided to have maps for all countries)

¹ Source: www.geographyiq.com. The actual GDP in 2001-02 was Rs. 20,803 billion (Gol 2002a).

² Source: www.geographyiq.com.

³ Forestry and logging is included under the broad head of "Agriculture and Allied Sectors".

respectively. Similar challenges remain in other social sectors. For instance, while literacy has increased sharply from 52 % in 1991 to 65 % in 2001, still around 350 million persons remain illiterate (Gol 2002a).

India initiated a major economic reforms programme in 1991 aimed at de-regulation of the economy to induce accelerated investment, growth, employment, and hence reduction in poverty. This programme has resulted in substantial increase in India's foreign currency assets - from less than US \$1 billion in 1991 to over US \$45 billion at present. The inflation level is also under control and average inflation rate for 52 weeks ending January 19, 2002 stood at 4.7 %.⁴ The debt service ratio has declined from the peak level of 35.3 % of the current receipts in 1990-91 to 16.3 % in 2000-01. India has now been classified by the World Bank as a "less indebted" country (Gol 2002a). In spite of all these achievements, major economic challenges remain. The fiscal deficit has reached alarming proportions in many states. It is widely felt that second generation reforms are needed urgently if India is to accelerate its economic growth.

1.2 Overview of the Indian Forestry Sector

LEGAL AND POLICY CONTEXT

Around 23 % of the country's area (76.53 million hectares) is officially classified as forest land. Forestry is the second major land use in the country after agriculture. The land use pattern in the country is summarised in Table 0.1.

Table 0.1. Land use pattern in India⁵

Land use category	Area (1991-92) in million hectares	Percentage
Net area sown (agriculture)	142.50	43.35
Forest (legal)	76.52	23.27
Urban and developmental use	21.88	6.66
Unculturable wasteland and others	32.83	9.99
Pasture	12.00	3.65
Miscellaneous tree crops	3.00	0.91
Culturable wasteland	16.00	4.87
Fallow land	24.00	7.30
Total	328.73	100.00

Source: Gol 1999

The recorded forest area is legally classified into Reserved, Protected and Unclassed forests, comprising 54.44 %, 29.18 % and 16.38 % of forest area respectively.⁶ In addition, there are certain other forest categories which overlap with these categories. There are 87 National Parks and 485 Wildlife Sanctuaries in the country with a total area of 4.06 million hectares and 11.54 million hectares, respectively. There are 23 Tiger Reserves spread over 3.30 million hectares that have been created under Project Tiger - a major wildlife and biodiversity conservation initiative in the country. In addition, there are 11 Biosphere Reserves with an area of 4.76 million hectares - these are a set of unique ecosystems identified as a unit on the basis of their biodiversity, naturalness and effectiveness as a conservation unit (FSI 1999). In recent years, several thousand village groups have been involved in the protection and management of state forest lands under the Joint Forest Management (JFM)

⁴ Inflation rate for the Wholesale Price Index.

⁵ The slight difference in figures of forest area is on account of rounding off.

⁶ These are defined as follows:

Reserved Forest - An area notified under the provisions of Indian Forest Act or State Forest Acts having full degree of protection. In Reserved Forests all activities are prohibited unless permitted.

Protected Forest - An area notified under the provisions of the Indian Forest Act or State Forest Acts having limited degree of protection. In Protected Forest all activities are permitted unless prohibited .

Unclassed Forest - An area recorded as forest but not included in reserved or protected forest category. Ownership status of such forest varies from state to state.

programme. At present, there are 63,618 Forest Protection Committees (FPCs) protecting and managing 14.1 million hectares of forest lands.

As forestry is on the "concurrent list" of the Constitution of India, the central as well as the state governments have the power to legislate on forestry-related matters. Each state has a Forest Department (FD) that functions independently of FDs in other states. The policy framework and broad guidelines for all states are decided by the Ministry of Environment and Forests (MoEF) at the central government level.

The broad policy framework at the national level is provided by the National Forest Policy, 1988. The National Forest Policy stresses on managing forests for their environmental and ecological functions and for meeting the subsistence needs of forest fringe people. It has set a national goal of bringing at least one-third of country's area under tree cover. However, the policy is only a statement of intention and does not have the force of law.

The legal framework is provided by three main national laws viz. Indian Forest Act, 1927; Wildlife (Conservation) Act, 1972; and Forest (Conservation) Act, 1980. The Indian Forest Act is the basis for forest administration in the country. The Wildlife (Conservation) Act governs the protected area network (national parks and sanctuaries), which covers a total area of 15.6 million hectares. The Forest (Conservation) Act mainly controls the diversion of forest land for non-forest purposes. Two other major central laws affecting forest administration are the Mines Act, 1952 and the Environment (Protection) Act, 1986.

In addition to these major national laws, there are numerous state level policies, laws, rules and orders. These cover a broad range of subjects ranging from forest administration to marketing and transport of forest produce. There are special provisions for the administration of scheduled and tribal areas.

Laws related to the political decentralisation process viz. The Constitution (73rd Amendment) Act, 1992 and *Panchayats* (Extension to the Scheduled Areas) Act, 1996 also impinge upon the forestry sector in a major way as under these laws *Panchayati Raj* Institutions (PRIs) have been given powers over several forestry related matters.⁷

FORESTRY IN THE NATIONAL ECONOMY

Contribution to GDP and employment

While forests occupy 23 % of the land area in the country, the official figures indicate that the contribution of forests to the GDP is a mere 1.3 % (1993-94), down from 2.9 % in 1980-81 (GoI 1999).

However, these figures exclude contribution of the forest-based industries, which are included under the "manufacturing sector". More importantly, these figures are based only on recorded removals from forests, which are only a fraction of actual removals, and do not take into account the environmental services provided by the forests. Contribution of many farm foresters is also perhaps recorded under agriculture rather than forestry. This has resulted in a gross under-estimation of the contribution of forestry in the national economy.

Forestry contributes significantly towards employment generation in the country. Around 70 % of the plantation budget is spent on providing direct wages to workers and only 30 % goes towards material costs. It is estimated that about 250 million person days of employment are generated per year under various forestry development schemes undertaken on state forest lands and other government lands. Activities such as protection, maintenance and harvesting are estimated to generate about 100 million person days and agroforestry and farm forestry programmes another 75 million person days annually (GoI 1999). The overall employment generated in the forestry sector is much more as millions of people are directly dependent on forests for their livelihood and collect several forest products either for their own use or for sale.

⁷ *Panchayati Raj* Institutions are the third tier of government in the country after central and state governments. These are democratically elected bodies.

Forestry and livelihoods⁸

The contribution of the forestry sector in providing livelihood support to a significant proportion of the population, especially the marginalised and vulnerable groups, is not widely recognised. India has perhaps the largest population of the poor (c. 260 million) and indigenous peoples (c. 80 million) in the world. Many of these people reside within or in close proximity of the forests and there is a clear overlap between the forest, poverty and indigenous peoples maps of the country (Poffenberger and McGean 1996). There are an estimated 147 million people living in close proximity of the forests (FSI 1999).

Many of these people depend on forests for meeting basic needs of fuelwood, fodder, small timber for agricultural implements and house construction and even food and medicines in the form of Non Timber Forest Produce (NTFP). Sales of fuelwood and NTFP also generate vital cash income for many households. The dependence is greatest among the poor such as landless workers. In 1981, one in nine rural households did not own any land (Hague 1987, in Mishra 1997). The landlessness is likely to have increased further now.

As mentioned earlier, around 64 % of the labour force in the country is engaged in agriculture. However, 59 % of the landholdings fall under the marginal category (less than 1 hectare) and large holdings (above 10 hectares) constitute a mere 1.6 % of the total holdings. Further, nearly 65 % of the total cultivated area in India is rainfed (Gol 1999). As the bulk of rainfall is received in just three months of the south-west monsoon, only a single crop is possible in most rainfed areas. As the single crop is rarely enough to see most farmers through the year, they have to search for wage labour opportunities in irrigated agriculture fields or in the towns. As wage labour is also often scarce, many have to depend on forests and village common lands for survival.

According to India's submission at the Rio conference in 1992, 70% of rural and 50% of urban people use fuelwood for cooking purposes (World Bank 1993; Dwivedi 1993). Rural communities depend heavily on forests for small timber for house construction, bullock carts, agriculture implements and so on. Many houses in rural areas are still constructed from timber, bamboo and grass. India also has the world's largest livestock population out of which about 25%, i.e. over 100 million, graze on forest lands that have an estimated capacity to support only 31 million (The World Conservation Union 1991, in WRI *et al.* 1994; Dwivedi 1993).

Forest-based activities are often an important source of cash income for the poor, especially in the lean season. A survey of 170 households in nine villages in Bihar showed that fuelwood sale served as a major source of income for 20% of the households (World Bank 1993). In some areas, so many people are engaged in this activity that fuelwood is regularly carried in local trains for sale in the towns. NTFP collection and processing is another source of cash income. Millions of people are engaged in collecting *tendu* (*Diospyros melanoxylon*) leaves for country-cigarette (*bidi*) rolling. In Saharanpur District of Uttar Pradesh, an estimated 200,000 people derive a major part of their livelihood from *bhabbar* grass (*Eulaliopsis binata*) harvesting and processing (Poffenberger and Sarin 1995). A survey carried out in nine villages in West Bengal showed that 72% of the households were engaged in stitching leaf plates from *sal* (*Shorea robusta*) leaves. This activity alone generated nearly half the households' income (Dutta and Adhikari 1991). A study conducted in seven villages spread over four districts in Orissa revealed that as many as 91% of men and 98% of women were engaged in NTFP collection from forest areas. For many, especially women, NTFP collection was found to be the primary occupation. Households having an annual income of less than Rs. 3,000 derived 50% of their earnings from NTFP, whereas those earning over Rs. 6,000 derived 21% from NTFP (Malik 1994). It is estimated that 600 million tonnes of forest produce valued at Rs. 300 billion is collected annually from India's forests (Gol 1999).⁹

Forest based industries

The forest-based industries have traditionally been in the private sector. While some government owned enterprises were started after independence, the bulk of the processing of forest products is

⁸ This section draws on Saigal 1998.

⁹ Rs. = Indian Rupees. 1 US \$ = Rs. 48 approximately

carried out in the private sector. It is estimated that over 90 % of India's wood-based products are manufactured in the private sector (Gol 1999).

The bulk of processing is carried out in small units. For example, there are an estimated 23,000 saw mills in the country and 98 % of these are small units with an annual log intake of 3000 m³ (Gol 1999). It is difficult to estimate the actual number of forest-based enterprises as many of these are not even registered. A survey carried out in Yamuna Nagar and Rajkot districts revealed that as many as 27 % of enterprises in Yamuna Nagar and as many as 98 % in Rajkot were operating without registration with the appropriate authority (Saigal et al. 2002).

Although estimates vary widely, the government estimate is that the total consumption of wood by the wood processing industries is in the range of 24 to 30 million m³ per annum (Gol 1999). The pulp and paper industry produces paper and newsprint worth Rs. 90 billion every year and contributes Rs. 16 billion to the national exchequer through excise duty and taxes annually (Singhania 1997).

The figures for export and import of selected groups of forest products indicate that in 1997-98 India exported forest products worth Rs. 36.3 billion, it imported forest products worth 60.3 billion (ICFRE 2000).

Farm and agro-forestry

In recent years, farmers have emerged as major suppliers of wood, especially as the supplies from the state forests have declined due to greater emphasis on conservation and imposition of green felling ban in several states.

There are 105.29 million operational holdings in the country. While it is not possible to determine the number of farmers engaged in farm and agro-forestry, their involvement is substantial as it is estimated that 50 % of wood supply in the country is currently coming from non-forest sources (Gol 1999). Farmers mainly grow block or field bund plantations of commercially valuable fast growing species such as eucalyptus, poplar, acacias, casuarina and *Leucaena*.

A study carried out in two districts where farm forestry is popular showed that farmers of these districts (Prakasam and Uddham Singh Nagar) are producing nearly 1 million metric tonnes of wood valued at Rs. 1200 million annually and selling it to several wood-based industries (Saigal et al. 2002).

Investment in the forestry sector

Investment in the forestry sector is low. While forest produce worth Rs. 300 billion is extracted annually from the government forests alone, the total investment (government and private) is under 15% of that or Rs. 41.7 billion (Gol 1999).

The forestry sector does not appear to be high on the government's funding priority list. The outlay for forestry in the Five-Year Plans has mostly been under 1% of the total outlay despite the fact that forests are now recognised as being so critical for people's livelihoods and environmental security. The ratio of forestry budget to Gross Domestic Product has declined over the past decade (Kadekodi 2001, in Saigal et al. 2002).

Current status of the resource and its management

As mentioned earlier, around 23 % of the country's area (76.53 million hectares) is officially classified as forest land. However, not all the legally classified forest lands carry forests. At least 17% of forest lands are virtually devoid of tree cover (crown density below 10%) and another 33% have degraded open forest (crown density 10-40%). Less than half the forest lands have reasonably dense forest (crown density above 40%) (FSI 1999). The current status of forests in India is summarised in Table 0.2.

Table 0.2. Status of forests

Category	Area (million hectares)	Percentage of total geographical area	Percentage of forest area
Total geographical area	328.73	100.00	-
Legally classified forest	76.53	23.28	100.00
Actual forest cover ^a	63.73	19.39	83.27
Open forest ^b	25.51	7.76	33.33
Dense forest ^c	37.73	11.48	49.30
Mangroves	0.49	0.15	0.64
Plantations	34	10.34	-
Source: FSI 1999; Gol 1999 a Forest having at least 10 % crown cover b Forest with crown cover between 10 and 40 % c Forest with over 40 % crown cover			

Forest cover is not uniformly spread but is concentrated in the north-eastern states, the Himalayas, the central tribal belt, the Western and Eastern Ghats and in patches of coastal mangroves. There is wide variation in the forest cover in different states as shown in Table 0.3.

Table 0.3. Forest cover in selected states and union territories of India

States / Union Territories	Forest cover (in %)
Arunachal Pradesh, Mizoram, Nagaland and Andaman and Nicobar Islands.	Over 80
Madhya Pradesh, Orissa, Goa and Assam.	Around 30
Kerala and Himachal Pradesh.	Around 25
Karnataka, Andhra Pradesh, Bihar, Maharashtra and Tamil Nadu.	Around 15
Uttar Pradesh and West Bengal.	Around 10
Rajasthan, Punjab and Haryana.	Below 5
Source: FSI 1999 * These states have now been divided. These figures are for undivided states.	

Almost the entire forest area is owned and controlled by the government. As mentioned earlier, the recorded forests are subdivided into reserved, protected and unclassed forests. While most of the reserved and protected forests are under the control of the FDs, there is a significant proportion of unclassed forests, especially in the north-eastern states that are managed by the community groups. Some forests are also under the control of the Revenue Departments e.g. Civil Soyam forests in Uttaranchal; *Judupi Jungle* in Maharashtra and *Khesra* forests in Orissa. In recent years, FD has started involving local communities in the management of forests under the JFM programme. A break-up of forests by ownership and management categories is given in Table 4.

Table 0.4. Status of forests by ownership and management categories

Type of forest	Area (million hectares)
Reserved forest	41.65
Protected forest	22.33
Unclassed forest	12.53
Protected Areas	15.60
Plantations with State Forest Corporations	1.24
JFM forests	14.10
Source: FSI 1999; Gol 1990; Gol 2002b	

Demand and supply scenario¹⁰

There is a huge gap between the demand and sustainable supply of various forest products. In terms of volume extracted, fuelwood is the most important produce of India's forests. Of the total demand for wood in the country, it is estimated that over 80 % of the demand is just for fuelwood. Though

¹⁰ Adapted from Saigal *et. al* 2002.

estimates for its demand vary, most of the studies place it between 210-233 million tonnes for the year 2001 assuming an annual growth rate in demand as being equivalent to that of population growth. The annual allowable cut of fuelwood from government forests is about 44 million tonnes and from private forests it is about 35 million tonnes. Thus, the total *sustainable* cut of fuelwood is 79 million tonnes, leaving a gap of some 131-154 million tonnes. It is obvious that people are meeting their demand for fuelwood and as such there is no gap. However, this gap is being filled through unsustainable removals from forests and plantations and most likely also through unrecorded farm forestry and common land sources.

Industrial wood, which includes all wood other than fuelwood, though comprising a small part of the total demand, is also in short supply. Estimates put the overall demand as ranging between 50 and 65 million m³ for the year 1996. Against this, the annual allowable cut is estimated to be only 26-27 million m³, resulting in a shortfall or unsustainable removal of between 23 and 38 million m³.

Despite the disparity in estimates, this analysis of available demand and supply information, and projections into the future indicate that whether for fuelwood or for industrial wood, gaps currently exist between demand and *sustainable* supply and are likely to increase unless remedial measures are taken.

Key players

The Government is the dominant player in the forestry sector in India. About 97 % of all forests are directly owned and controlled by the government agencies. About 1.13 % of forests are owned by communities and corporate bodies and 1.53 % are private forests (ICFRE 2000).¹¹ The government also closely regulates the forestry on non-forest land and plays a significant role in afforestation efforts on such forest lands. State owned Forest Development Corporations (FDCs) are involved in raising, managing and harvesting plantations. A 1990 estimate puts the total area of plantations under the control of FDCs at 1,236,487 hectares (Gol 1990).

While 90 % of wood-based products are manufactured in the private sector, it does not play an important role in growing or managing plantations directly either on state forest lands or private lands. This is due to a number of legal and policy restrictions discussed later in this paper. In recent years, however, many forest-based industries have started encouraging plantations on farmers' fields. Information gathered from twelve companies indicates that these companies are supplying more than 53 million seedlings annually to the farmers with an estimated annual area coverage of 26,000 hectares. A quarter of this area is planted with seedlings of clonal origin (Saigal *et al.* 2002).

As mentioned earlier, farmers are now important suppliers of wood produce in the country. In the past decade, these communities have started playing an important role as protector and manager of forests through the JFM programme. Under JFM, the FD and the community enter into an agreement to jointly protect and manage forestland adjoining villages and to share responsibilities and benefits. At present, there are 63,618 FPCs that are protecting and regenerating more than 14 million hectares (or over 18 %) of government forest lands under JFM.

In recent years, NGOs have emerged as important players in the forestry sector. The NGO community is diverse with considerable variation in their size and area of operation. Large NGOs such as Centre for Science and Environment, WWF-India and Society for Promotion of Wastelands Development, have successfully lobbied against leasing of state forest lands to industry for raising plantations.

In recent years, the judiciary has started playing an important and proactive role in matters related to the environment. Such has been the level of judicial activism that several Supreme Court judges have earned the sobriquet of "Green Judges". The judgements of the Courts in several Public Interest Litigation cases have virtually set the policy. The courts have extensively referred to and upheld the

¹¹ These percentages reflect the general ownership pattern of recorded forest in the country. It is not possible to provide exact figures as data from some states is not available.

Public Trust doctrine in environmental cases where the government has failed to perform its statutory duty of protecting the environment.¹²

External funding agencies also play an important role in influencing the forest related policies, especially in the states where they have provided loans or grants for forestry projects.

1.3 Commercial Forestry and Plantations: Historical Perspective and Current Status

HISTORICAL PERSPECTIVE

In order to understand the current forestry scenario, it is important to look at the historical context in which it has evolved. Although earliest available records of forestry date back to the Maurya Empire (c. 300 BC), systematic forest management started only during the colonial period (Lal 1992).

In the early part of 19th century systematic forest exploitation was started to obtain timber for ship building, local construction and export. Later on, a large amount of timber was also used for setting up an extensive railway network. The rate of deforestation must have been alarming even then as the India Navy Board stressed the need for conservation policies as early as 1830 to save the forests from devastation (Hobley 1996).

The government started raising timber plantations to compensate for the removal of valuable timber species from natural forests. The first forest plantation established in India was a native teak plantation, which was planted at Nilambur, Kerala in 1840 (Gol 1999).

In 1864, the Indian Imperial Forest Service was set up to manage the country's forests (Guha 1983). Regular planting, mainly of teak, started from 1865 in many teak growing central and southern provinces. Eucalyptus was introduced in the Nilgiri Hills of the present Tamil Nadu State in 1858. Small scale planting of commercially valuable species such as rosewood, mahogany, *toon* (*Cedrela toona*) and *sal* was taken up at various places. Part of the planting was for research purposes - provenance trials, growth studies, etc. Plantation activity got a boost after the *taungya* system was introduced in 1911 (FSI 1999; Gol 1999)¹³ and the First World War and these plantations were often established after clearing mixed natural forests (Hobley 1996). Most of this planting took place on forest lands over which government had declared its proprietary rights through Forest Acts issued in 1865, 1878 and subsequently in 1927.¹⁴ The rights of the local communities over these forests were significantly curtailed (Vira 1995; Singh 1986).

Plantations, however, did not cover extensive area until 1950s, when large-scale industrial plantations were started by the government soon after independence of the country in 1947. The government issued a forest policy in 1952 that listed several 'paramount needs' of the country that were to provide the fundamental basis of forest management. The policy makers, however, included everything from environmental services to industrial raw material and from rural subsistence requirements to revenue for the government under the list of 'paramount needs'. There was no prioritisation of these needs. It is obvious that all of these could not be met simultaneously. There were, however, no guidelines as to how choices are to be made between these competing claims on the forests (Vira 1995).

In reality, industrial and revenue considerations dominated Indian forestry during the years after India's independence. The focus of forest management becomes clear from the fact that in the first 25 years of the development planning (1951-1974), the commercial forestry accounted for over 65 % of physical area coverage and over 80 % of the total financial outlay for afforestation (Vira 1995). As early as

¹² Public trust doctrine essentially means that certain public resources (such as land, running water, air, etc.) are held in trust by the state for the benefit of the people. The state, as trustee for the people, bears responsibility for preserving and protecting the right of the public to the use of these resources for specified purposes.

¹³ Under the *Taungya* system, agriculture crops are grown between the rows of trees in the initial years of the plantation before the tree canopy closes.

¹⁴ The Indian Forest Act of 1927 Act still provides the legal framework for forest administration in India.

1961, at the start of the Third Five Year Plan, it had been estimated that the shortfall in fuelwood supply by 1975 would be around 100 million tonnes as compared to only 4 million tonnes for the industrial wood. Still, three-fourth of the third plan's outlay for afforestation was for commercial plantations (Vira 1995).

The industrial plantations were mainly established on state forest lands after clear felling the native forests, which were perceived to be "low value". This trend continued up to the fifth Five Year Plan (1974-79). Until then, most of the plantations were of teak, *sal*, *deodar* (*Cedrus deodara*), chir pine (*Pinus roxburghii*), eucalyptus and acacias. The cumulative area of such plantations until the end of the Fifth Five Year Plan was 3.33 million hectares. The annual planting rate ranged between 11,000 hectares to 244,000 hectares per annum (FSI 1999).

The report of the National Commission on Agriculture (NCA) in 1976 led to increased investment in plantation establishment. In an attempt to enhance productivity and employment generation, the report recommended large-scale replacement of mixed natural forests of low commercial value with fast growing commercially important plantation species. It recommended that 48 million hectares of state forestland should be committed to production forestry (GoI 1976). The NCA also recommended the creation of Forest Development Corporations (FDCs), which would manage forests on business principles and also attract finance from institutional and other sources.

The NCA viewed local communities' dependence on the forests as a major cause of forest destruction and a major obstacle for production forestry. In order to free forest lands for production forestry, it suggested that local communities' needs should be met by a social forestry programme on *non-forest* lands such as village commons, government wastelands and farmlands (GoI 1976). This led to the birth of social forestry programme under which a very large number of plantations were established near villages.

Box 1. Excerpts from the National Commission on Agriculture Report

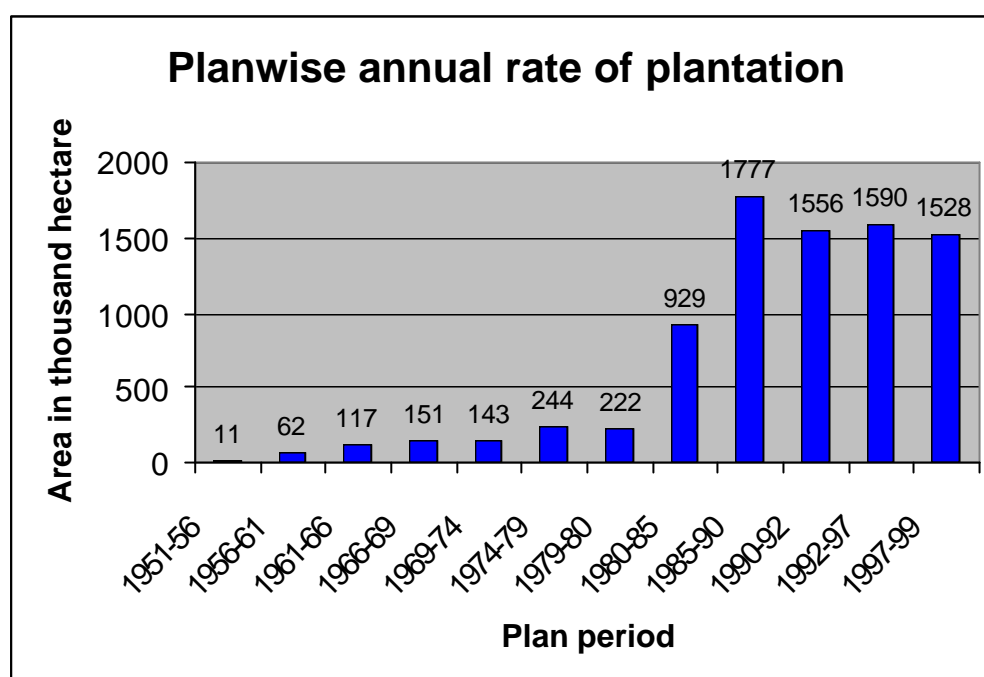
"Free supply of forest produce to the rural population and their rights and privileges have brought destruction to the forest and so it is necessary to reverse the process. The rural people have not contributed much towards the maintenance or regeneration of the forests. Having over-exploited the resources, they cannot in all fairness expect that somebody else will take the trouble of providing them with forest produce free of charge... One of the principal objectives of social forestry is to make it possible to meet these needs in full from readily accessible areas and thereby *lighten the burden on production forestry* (emphasis added). Such needs should be met by farm forestry, extension forestry and by rehabilitating scrub forests and degraded forests"

"There should be a change over from the conservation oriented forestry to more dynamic programme of production forestry. The future production programme should concentrate on clear felling of mixed forests, mixed quality forest and inaccessible hard wood forests and planting these areas with suitable fast growing species yielding higher returns per unit area Production of industrial wood would have to be the *raison d'être* for the existence of forests. It should be project oriented and commercially feasible from the point of view of cost and return"

After the establishment of the FDCs and launching of the social forestry programme, a massive afforestation effort started in the 1980s (see Figure 0.1). While the FDCs mainly established industrial plantations on state forest lands, often after clear felling mixed "low value" forests, social forestry plantations were established near villages on government "wastelands", village commons and private lands. The social forestry plantations were mainly of fast growing species that yielded fuelwood, poles and inferior timber. The social forestry plantations on government lands (such as rail, road and canal side plantations) were established and managed by the FDs with little involvement of the local people. Some social forestry plantations were also established on the degraded forest lands. The plantations on village common lands were often established and managed for a few years by the FDs and then handed over to PRIs after a few years. The plantations on private lands were established by farmers

mainly using seedlings supplied by the FDs either free or at highly subsidised rates. A large proportion of funds for the social forestry plantations came from donor assisted projects.¹⁵

Figure 0.1. Annual rate of plantation development



Source: FSI 1999

The annual planting rate increased to about 1.0 million hectares during 1980-85. Plantation forestry received further impetus when the National Wastelands Development Board (NWDB) was established in 1985. The NWDB was given a target of afforesting five million hectares of wastelands per annum. Although NWDB did not quite achieve its ambitious target, it managed to give a further impetus to the social forestry programme by providing additional funds for plantations. It also got Non Government Organisations (NGOs) involved in government's afforestation effort in a significant way for the first time.

The annual rate of planting increased to 1.78 million hectares during 1985-90 (FSI 1999). In the seventh plan (1985 – 90), a record 8.86 million hectares of new plantations were established. This increase was possible due to increase in investment level after the creation of the NWDB and investment in tree plantations under the poverty alleviation schemes (25 % of funds under National Rural Employment Programme and Rural Landless Employment Guarantee Programme were earmarked for planting purposes). The level of investment in plantations in the Seventh Plan was Rs. 25.87 billion and it was more than double the total cumulative investment of Rs. 11.67 billion made up to the Sixth Plan (Gol 1999).

Annual plantation establishment since 1991 has slightly declined and is of the order of 1.5 million hectares. The area planted in the Sixth, Seventh and Eighth plans were 4.65 million hectares, 8.86 million hectares and 7.95 million hectares respectively. The cumulative area of forest plantations from 1951 until 1999 is 31.20 million hectares (FSI 1999). It is important to note that a significant proportion of estimated area under forest plantations has been calculated on the basis of seedlings distributed rather than actual area planted.

The distribution of cumulative plantation area between states at the end of 1999 is presented in Table 0.5

¹⁵ Between 1981-82 and 1985-86, projects totalling Rs. 9.9 billion were initiated in fourteen states (MoEF 1989, in Vira 1995) (see Box 3).

Table 0.5. Cumulative area of forest plantations by all agencies in all states and union territories from 1951 to 1999 ('000 hectares)

State/Union Territory	Total cumulative plantation area	Area of block plantations	Area converted from seedlings
Andhra Pradesh	2496.56	1260.30	1236.26
Arunachal Pradesh	160.95	155.73	5.22
Assam	451.78	433.58	18.20
Bihar	1326.23	942.12	384.11
Goa	65.60	46.04	19.56
Gujarat	2981.08	1293.95	1687.13
Haryana	742.74	597.02	145.72
Himachal Pradesh	719.44	665.84	53.60
Jammu & Kashmir	382.43	323.04	59.39
Karnataka	2163.22	1573.19	590.03
Kerala	688.12	483.63	204.49
Madhya Pradesh	3364.13	2848.52	515.61
Maharashtra	2965.07	2130.39	834.68
Manipur	154.76	139.69	15.07
Meghalaya	164.48	130.67	33.81
Mizoram	308.55	255.73	52.82
Nagaland	174.20	116.43	57.77
Orissa	1827.41	1458.49	368.92
Punjab	512.38	417.60	94.78
Rajasthan	1410.10	1150.79	259.31
Sikkim	119.23	107.53	11.70
Tamilnadu	2268.18	1616.18	652.00
Tripura	246.64	215.61	31.03
Uttar Pradesh	4185.77	1844.36	2341.41
West Bengal	1157.73	610.93	546.80
Andaman & Nicobar Islands	88.14	83.13	5.01
Chandigarh	10.07	9.85	0.22
Dadra & Nagar Haveli	18.36	11.01	7.35
Daman & Diu	1.39	0.85	0.54
Delhi	44.05	20.18	23.87
Lakshadweep	2.50	0.57	1.93
Pondicherry	7.88	1.91	5.97
Total	31,209.17	20,944.86	*10,264.31

Source: FSI 1999
 * The area has been estimated by the Forest Survey of India using 1990-1999 figures of National Afforestation and Ecodevelopment Board where break up of block plantations and seedlings distributed are available.

CURRENT STATUS

It is very difficult to get an accurate estimate of the total plantation estate in the country and its division between forest land and non-forest lands. It is not known as to how many of the plantations of the plantations included in the cumulative estimate above were unsuccessful, how many have been harvested and replanted, etc. A further complicating fact is that the figures shown in Table 5 do not include plantations established by farmers on their own without taking seedlings from the government.

There are, however, some estimates available. The National Forestry Action Programme report provides a broad estimate about the age distribution of plantations at the end of 1996 based on plan targets and achievements. This is given in Table 0.6.

Table 0.6 Age class distribution of plantations

Age class	Estimate (million hectares)
0-5	5.0 to 8.0
5-10	8.0 to 10.5
10-15	4.0 to 6.0
Above 15	2.5 to 3.5
Source: Gol 1999	

According to these estimates, the plantation estate in the country at the end of 1996 was between 19.5 and 28 million hectares. Out of these 6 to 8 million hectares are estimated to be outside the state forest lands (Gol 1999). The species wise data collected by the Forest Survey of India indicates that 15.3 million hectares of plantations were established by the FDs up to 1997 (see Table 0.7). As these figures pertain to 1996 and 1997 respectively, the present area under plantation estate may be more. The FAO in its Global Forest Resource Assessment (FRA 2000) report estimates that India has 18 % of the world's forest plantations, or about 34 million hectares.

Table 0.7 Species wise plantations established by the Forest Departments up to 1997

Species	Area in '000 hectares	Percentage
<i>Eucalyptus spp.</i>	1,360.91	8.87
<i>Tectona grandis</i>	1,330.09	8.67
<i>Acacia nilotica</i>	801.61	5.23
<i>Acacia auriculiformis</i>	564.67	3.68
Bamboo	408.09	2.66
<i>Pinus roxburghii</i>	318.54	2.08
<i>Dalbergia sissoo</i>	266.58	1.74
<i>Acacia catechu</i>	259.54	1.69
<i>Shorea robusta</i>	250.28	1.63
<i>Gmelina arborea</i>	148.01	0.97
<i>Anacardium occidentale</i>	141.54	0.92
<i>Casurina equisetifolia</i>	133.99	0.87
<i>Pinus kesiya</i>	127.12	0.83
<i>Cedrus deodara</i>	124.93	0.81
<i>Populus spp.</i>	47.48	0.31
<i>Bombax ceiba</i>	37.97	0.25
<i>Acacia mearnsii</i>	37.56	0.24
<i>Picea smithiana, Abies pindrow</i>	16.74	0.11
<i>Hevea brasiliensis</i>	12.30	0.08
<i>Santalum album</i>	10.58	0.07
Others	8,938.10	58.28
Total	15,336.60	100.00
Source: FSI 1999		

As indicated in Table 0.7, the main species in plantations established by FDs are eucalyptus (8.87 %), teak (8.67 %) and *Acacia nilotica* (5.23 %). Another notable feature is that "Others" category constitutes 58.28 %.

1.4 Evolving Demands and Changing Roles¹⁶

COLONIAL PERIOD

The demands on forests and plantations have been changing over time. In the colonial era, the government managed the forests for timber production. Large scale fellings of commercially valuable timber species such as teak, *sal* and *deodar* took place in the country. Plantations of commercially important timber species (native as well as exotic) were also undertaken during the period.

Although the rights of local communities were significantly curtailed, the forest policy was not entirely unsympathetic to their needs as is reflected from the following extract from the first forest policy of 1894:

“Every reasonable facility should be afforded to the people concerned for the full and easy satisfaction of these (subsistence) needs, if not free then at low and not at competitive rates. It should be distinctly understood that considerations of forest income are to be subordinated to that satisfaction” (Gol 1894).

The conversion of forest to agriculture (and hence revenue paying land) was also encouraged as can be seen from the following extract from the same policy:

“It should be remembered that, subject to certain conditions to be referred to presently, the claims of cultivation are stronger than claims of forest preservation... Accordingly, wherever an effective demand for culturable land exists and can only be supplied from forest area, the land should ordinarily be relinquished without hesitation” (Gol 1894).

POST-INDEPENDENCE PERIOD

Commercial forestry and plantations got a further boost after India's independence in 1947 and issuance of a new forest policy in 1952. The 1952 policy was much less sympathetic to local communities' needs as is reflected in the following extract from the policy document:

“ The accident of a village being situated close to the forest doesn't prejudice the right of the country as a whole to receive the benefits of a national asset” (Gol 1952).

The industrial and revenue focus of forestry in the 1950s and 1960s has to be seen in the context of development ideology prevailing in the country at the time. In the 1950s India embarked upon a process of planned development with a focus on self-sufficiency in food production and building up of indigenous industrial infrastructure with active involvement of the government. The forests were viewed as raw material and revenue sources for this economic development programme (Vira 1995).

Substantial capital was also invested to develop forest-based industries (Gadgil *et al.* 1983, in Hobley 1996). This resulted in an increase in consumption of many forest products. For instance, bamboo consumption went up from a mere 58,000 tonnes per annum at the end of the Second World War to about 5 million tonnes in 1987 (Hobley 1996). In order to encourage industrial development, many forest-based industries were given long-term leases in the forest on nominal lease rents or were promised subsidised supply from the government forests.

NATIONAL COMMISSION ON AGRICULTURE

In the sixties and seventies, there was increasing concern about the low productivity of Indian forests. The NCA, which *inter alia* looked into this problem suggested that large scale industrial plantations should be established on state forest lands. The NCA report noted that while forests occupied 23 % of

¹⁶ This section draws on Saigal 1998.

India's landmass, their contribution to the Gross National Product was less than 1 % (GoI 1976). The NCA, however, ignored the non-monetised forest based economy of rural and tribal communities as well as economic value of protective functions of the forests.

When the newly created FDCs started establishing commercial plantations after clearing mixed natural forests, there was stiff local resistance. Rural people, especially tribal communities, who were dependent on mixed natural forests for subsistence and had customary access to these forests, protested against destruction of natural forests. In the Bastar District of Madhya Pradesh, a World Bank supported project to replace 20,000 hectares of native mixed *sal* forest with tropical pines in 1975 had to be dropped after protests by local tribal communities. (Pathak 1994; Dogra 1985; Anderson and Huber 1988). In Bihar, there were protests against replacement of natural forests with teak plantations (CSE 1982).

The NCA report also paved the way for social forestry plantations on non-forest lands. The initial objective was to reduce the dependence of local communities on state forest lands so that these lands could be committed to production forestry. The NCA's other concerns were development of wastelands and increasing agricultural productivity. Both these objectives could also be met through social forestry. The idea was that the plantations would be established on degraded and marginal lands, thereby improving their productivity. It was hoped that the increased supply of fuelwood from these plantations would meet local needs and even generate surplus for the market. This, in turn, would reduce the use of cow dung as fuel so that it could then be used as manure in the agricultural fields.¹⁷

The NCA report greatly influenced forestry during the Fifth Five Year Plan (1974-75 to 1979-80). Social forestry got further support from the environmental lobby within the Central Government as they saw it as a possible solution to the problem of land degradation. Thus, social forestry got support of both industrial and environmental lobbies within the government, albeit for different reasons (Pathak 1994). The energy crisis in the mid-seventies helped in getting international assistance as a major objective of all social forestry projects was meeting the fuel needs of the rural communities (World Bank 1983, in Pathak 1994). This support was based on the assumption that the "real energy crisis" for more than a third of the world's population was the daily scramble to cook dinner (Eckholm 1975, in Rao *et al.* 1992).

Social forestry got a further thrust in the Sixth Five Year Plan (1980-81 to 1984-85). It was during this period that it acquired its connotation of people-oriented forestry (Pathak 1994) and became a significant part of the government's rural development and employment generation efforts. A number of new programmes were started with social forestry as an important component (Vira 1995).¹⁸

At the same time, there was a growing concern about the continuing degradation of forests. This resulted in enactment of major forest conservation oriented laws such as the Wildlife (Protection) Act in 1972 and Forest (Conservation) Act, 1980. While a large number of protected areas were created under the Wildlife (Protection), the Forest (Conservation) Act restricted the change in land use of forest lands by making it mandatory for the state governments to take approval of the central government before forest land is diverted for any non-forest use.

NEW FOREST POLICY

By the middle of 1980s, it was realised that the strategy suggested by the NCA was not working and on one hand there was continuing forest degradation and on the other there were increasing conflicts between the local communities and FDs. The link between environment degradation and poverty was also better appreciated by the policy makers.

¹⁷ According to estimates, over 458 million metric tonnes of wet dung were being used annually as fuel. If this was used in agriculture fields, it could potentially fertilise 91 million hectares and increase food output by 45 million metric tonnes (Srivastava and Pant 1979).

¹⁸ These included the Drought Prone Area Programme, the Desert Development Programme, the National Rural Employment Programme, the Rural Landless Employment Guarantee Programme and the Integrated Rural Development Programme.

Consequently, a new forest policy was issued in 1988. It stated that conservation and local communities' needs should be the major objectives of forest management. It clearly stated that industrial plantations should not be encouraged on state forest lands. The following quotes from the policy document clearly show that the 1988 policy is radically different from the earlier approach:

"The principal aim of Forest Policy must be to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which are vital for sustenance of all life forms, human, animal and plant. The derivation of direct economic benefit (emphasis added) must be subordinated to this principal aim" (Gol 1988).

"The life of tribals and other poor living within and near forests revolves around forests. The rights and concessions enjoyed by them should be fully protected. Their domestic requirements of fuelwood, fodder, minor forest produce and construction timber should be the first charge (emphasis added) on forest produce" (Gol 1988).

"As far as possible, a forest based industry should raise the raw material needed for meeting its own requirements, preferably by establishment of direct relationship between the factory and the individuals who can grow the raw material ... the practice of supply of forest produce to industry at concessional prices should cease. Industry should be encouraged to use alternative raw materials. Import of wood and wood products should be liberalised." (Gol 1988).

"Natural forests serve as a gene pool resource and help to maintain ecological balance. Such forests will not, therefore, be made available to industries for undertaking plantation and for any other activities" (Gol 1988).

"No such programme (plantation), however, should entail clear-felling of adequately stocked natural forests. Nor should exotic species be introduced, through public or private sources, unless long term scientific trials undertaken by specialists in ecology, forestry and agriculture have established that they are suitable and have no adverse impact on native vegetation and environment" (Gol 1988).

An amendment in the Forest (Conservation) Act, also in 1988, further reduced the role of the corporate sector on state forest lands. The following two sub-clauses were added:

- According to Sub-clause 2 (iii) of the Forest (Conservation) Act, any forest land or any portion thereof cannot be assigned by way of lease or similar arrangement, for any purpose whatsoever, including afforestation, to any private person or to any authority/ agency/ organisation not wholly owned, managed and controlled by the government, without the prior approval of the central government.
- Sub-clause 2 (iv) of the Forest (Conservation) Act prohibits clearing of naturally grown trees in forest land for the purpose of using it for reforestation.

JOINT FOREST MANAGEMENT

In 1990, based on encouraging results from some pioneering experiments in community-based forest management, the government started the JFM programme. The Central Government issued a circular (No. 6.21/89-FP dated June 1st 1990) directing all states to involve local communities and voluntary agencies in protection and management of degraded forest lands.

Under JFM, the FD and the village community enter into an agreement to jointly protect and manage forest land adjoining villages and to share responsibilities and benefits. The village community is represented through a body specifically formed for the purpose.¹⁹

The villagers get a greater access to a number of NTFP and a share in timber revenue in return for increased responsibility for its protection from fire, grazing and illicit harvesting. The details vary from

¹⁹ These are known by different names in different States (e.g. Vana Samaraksha Samitis in Andhra Pradesh and Hill Resource Management Societies in Haryana) but most commonly referred to as Forest Protection Committees or FPCs.

state to state as each state has issued its own JFM resolution. In all states, the ownership of the land remains with the government and only management responsibility is shared with the community.

The JFM programme spread throughout the country during the 1990s and community groups emerged as important managers of state forests and plantations. By March 2002, there were 63,616 groups protecting and managing over 14 million hectares (18 %) of state forest lands. The breakdown by states is given in Table 0.8.

Table 0.8. Progress of Joint Forest Management (as on March 1, 2002)

S.No	States	Area under JFM (sq. km)	No of FPCs
1	Andhra Pradesh	17,675.70	6,816
2	Arunachal Pradesh	58.10	13
3	Assam	69.70	245
4	Bihar	741.40	296
5	Chhattisgarh	28,382.55	6,412
6	Goa	130.00	26
7	Gujarat	1,380.15	1,237
8	Haryana	658.52	471
9	Himachal Pradesh	1,112.47	914
10	Jammu & Kashmir	795.46	1,895
11	Jharkhand	4,304.63	1,379
12	Karnataka	1,850.00	2,620
13	Kerala	49.95	32
14	Madhya Pradesh	43,000.00	10,443
15	Maharashtra	6,866.88	2,153
16	Manipur	5,072.92	82
17	Mizoram	127.40	129
18	Nagaland	1,500.00	55
19	Orissa	7,834.67	12,317
20	Punjab	735.60	184
21	Rajasthan	3,093.36	3,042
22	Sikkim	6.00	158
23	Tamil Nadu	3,733.89	999
24	Tripura	319.89	180
25	Uttar Pradesh	507.03	540
26	Uttaranchal	6,066.08	7,435

27	West Bengal	4,880.95	3,545
	TOTAL	140,953.60	63,618
Source: Gol 2002b			

PANCHAYATI RAJ INSTITUTIONS

In 1992, the Constitution of India was amended and PRIs were given a mandate for preparing and implementing plans for economic development and social justice for 29 subjects. The list also included forest related subjects such as social forestry, farm forestry, minor forest produce, fuel and fodder.

In 1996, this constitutional amendment was made applicable to Schedule V areas of the country.²⁰ The *Panchayats (Extension to the Scheduled Areas) Act, 1996* *inter alia* granted ownership rights over minor forest produce to PRIs. Section 4 (m) (ii) of this Act provides that:

"while endowing panchayats in the Scheduled Areas with such powers and authority as may be necessary to enable them to function as institutions of self-government, a State legislature shall ensure that the Panchayats at the appropriate level and the Gram Sabha (village general body) are endowed specifically with the ownership of minor forest produce."

All states with Schedule V areas were requested to amend the state laws so as to bring them in conformity with the Government of India Act.

1.5 Changing Roles of the Private Sector - Achievements and Challenges

ROLE OF FOREST FRINGE COMMUNITIES - JOINT FOREST MANAGEMENT

After the issuance of the 1988 forest policy, protecting environmental services of the forests and meeting subsistence needs of the forest fringe communities are the main objectives of forest management in the country.

The JFM programme aims to fulfil both these objectives. It was started after the realisation among policy makers that it is not possible to successfully implement any forest management strategy unless there is active and willing participation of the forest fringe communities. Further, these communities would have little incentive to participate unless they benefit directly and have sufficient authority to be effective. From the planners' perspective, another positive aspect of JFM is that it focuses on natural regeneration, which requires much less funds as compared to new plantations. Thus, much wider area coverage can be achieved with the same amount of funds.

The JFM programme has led to many positive impacts. The major ones are briefly discussed here (Gol 2002b):

Improvement in the condition of forests: There is evidence that JFM has improved the condition of the country's forests. In the past few years, the overall forest cover of the country has increased by 3,896 sq. km and dense forest cover by 10,098 sq. km. One main reason cited for this improvement is successful implementation of the JFM programme. In areas under JFM, incidents of illegal felling have sharply declined. It has been reported that in Rajasthan, unlike in the past, people did not resort to tree felling in JFM areas even during droughts.

Increase in income: JFM programmes have increased the income of participating communities at several places. It has been estimated that in six states alone, 21.58 million person days of employment was generated through JFM during 2001-02. Over 40 million person days of employment

²⁰ Many tribal dominated areas, excluding the north-eastern states, are included in the Schedule V of the Constitution of India. These areas have special provisions for their administration.

were created through JFM related activities under the Andhra Pradesh Forestry Project (1994-2000). In Harda Division of Madhya Pradesh, irrigation facilities developed under JFM have increased the crop yield by two to five times. In Gujarat, better availability of grass and tree fodder after the initiation of JFM has led to increase in milk production in several villages. For example, in Nisana village (Vyara Division), it has gone up from 40,000 to 200,000 litres per year.

In some states, FPCs have started earning through sale of produce from their forest patches. In four states, FPCs received Rs. 62.59 million through benefit sharing under JFM during 2001-02. Income from NTFP is generally more than the share in timber revenue. Women in several FPCs in West Bengal are able to earn between Rs 4,500 and 6,000 annually through sale of *sal* leaf plates.

Reduction in encroachments: In several places, JFM has helped reduce areas under illegal encroachment and in rate of fresh encroachments. For instance, in Andhra Pradesh, nearly 12 % of the encroached forestland (38,158 hectares) has reportedly been vacated following initiation of the JFM programme.

Change in attitude and relationship: One of the most significant impacts of the JFM programme has been the change in attitudes of local communities and forest officials towards each other and forests. For instance, members of Botha FPC in Buldhana, Maharashtra, even postponed a wedding in the village in order to fight a forest fire. This was unthinkable in the pre-JFM days. In several FPCs, traditional forest protection practices have been revived, for example *kesar chhanta* (sacred groves) in Rajasthan.

However, in spite of all the positive impacts listed above, many challenges still remain. In most states, JFM is still dependent on donor funded projects and its long-term viability is yet to be established. In most states, JFM programmes have been established on the basis of mere administrative orders that can be changed or withdrawn by the FDs at any time. There is no tenurial security for the participating communities. The share of communities in the revenue from forests is still low in many states and there are restrictions on collection and sale of several commercially valuable NTFP.

A key challenge is the right link between PRIs and FPCs. There is considerable confusion over the role PRIs should play in JFM. One suggestion is the FPCs should work under PRIs but many fear that it will destroy the FPCs as PRIs are often highly politicised and large bodies, which are not suited for JFM.

Marketing of produce from JFM forests is emerging as one of the most critical areas in JFM. There are problems in both the pioneering states - West Bengal and Haryana - on this front. In West Bengal, regular harvesting started in 1995-96 but only a small area could be harvested as there was limited market for the products coming out of JFM forests *viz.* cogging sleepers, poles and posts. In 1996-97, only 4673 hectares of JFM forests could be harvested, which was less than a fifth of the potential harvestable area (Guhathakurta and Roy 2000, in Saigal *et al.* 2002). This was because the supply of produce from these forests before the advent of JFM had declined to such an extent that potential buyers were forced to make alternate arrangements. In 1987-88, the annual coupe area was only 181 hectares (Palit 2001). Due to glut of poles in the market, their price has fallen. The price of *sal* poles (51-60 cms. Girth) fell from Rs. 166 in 1992 to Rs. 140 in 1998; during the same period price of eucalyptus poles of similar girth fell from Rs. 110 to Rs. 85 (TERI 1999, in Saigal *et al.* 2002).

In Haryana, the main produce from JFM areas is *bhabbar* grass (*Eulaliopsis binata*). The price of *bhabbar* has registered a sharp decline in recent years. Several FPCs in Yamuna Nagar haven't been able to auction their produce as Ballarpur Industries Limited - the largest buyer - has changed the technology of its plant and doesn't need *bhabbar* in large quantities any longer. Withdrawal of excise concessions on *bhabbar* have made it further unattractive to the company (Saigal *et al.* 2002).

CORPORATE SECTOR INVOLVEMENT ON STATE FOREST LANDS

The role of corporate sector's involvement is a subject of heated debate in the country. As mentioned earlier, the wood-based industries are unable to establish plantations on non-forest lands due to land ceiling restrictions. Some have tried outgrower schemes but the experience has not been very positive (See Box 4 for details).

Many wood-based industries, especially paper and pulp companies, have been lobbying to get about 2 million hectares of degraded forest lands on lease to establish plantations. This is being strongly opposed by some NGOs and environmental action groups. Their main argument is that apart from leasing of state forests to private sector companies being against the National Forest Policy and Forest (Conservation) Act, the companies are likely to overexploit the resource at the cost of local communities if they are allowed access to forest lands. The poor past track record of several companies and forest contractors is also cited by many as a good enough reason to question the very motives of these companies in seeking degraded forest lands.

According to industry sources, the main reason behind the demand for degraded forest lands is that after economic liberalisation the Indian wood-based industry (e.g. paper industry) has begun to face strong competition from overseas companies, which generally have much larger units and thus enjoy competitive advantage over Indian companies due to economies of scale. Indian companies argue that they have to increase the size of their units in order to remain competitive. However, the companies are unwilling to make the large investment needed for setting up new plants (e.g. paper mills) unless at least about a half of their future raw material supply is available from assured sources. In the companies' view, supplies from farm forestry are not reliable and at least half the supplies should come from committed sources such as captive plantations or government supplies. The lack of assured supplies has been cited as the reason for no new green field investment in an integrated pulp and paper mill for the past twenty years. Likewise, there has been no major expansion of wood/bamboo based pulp mills with the exception of one mill - JK Corp.

The Planning Commission of India formed a working group in 1998 to examine this issue in detail. This group strongly recommended against leasing of state forest lands to industry citing a number of reasons:

It will be against the interest of farmers who wish to supply wood to industry as companies would reduce or stop purchasing farm grown wood.

- ❑ It will not lead to additional supply. Cheaper production on farm lands will be substituted by socially more costly production on forest lands.
- ❑ Degraded forests satisfy the fuelwood and fodder needs of a large populace. In fact, these lands are degraded because they suffer from extreme biotic pressure, and require neither capital investment, nor higher technology, but protection and recuperation, which can be done only by working with the people, where industry has neither expertise nor patience.
- ❑ The present market for pulpwood is distorted because of continuing subsidies to industry, especially for bamboo. The proposal of the industry to get free access to forest lands without paying its market price in cash will further distort and create imperfections in the market. Heavy subsidies will then make the supplies to industry totally dependent on the whims of bureaucracy, and thus will increase corruption. Subsidising the rich at the cost of tribal and forest dependent communities will attract public criticism, and may even give rise to militant movements.
- ❑ Paper and other large industries consume just a fraction of forest products. 90 % of forest raw material is processed by 25,000 saw mills and a larger number of cottage units, who would also lay claims on forests, once the large industry is able to snatch concessions from government.
- ❑ There would be claims from coffee, cashew and palm plantation industries. Like the paper industry, they will establish short-term and quick growing species in place of multi-layer mixed forests obtained through regeneration. Its ecological implications need to be taken into consideration.
- ❑ Using forests for growing raw material for industry will be setting the clock back to the 1960s, showing that we learnt nothing from the mistakes of the past 30 years of trying to create man-made forests, which were ecological disasters, besides completely alienating the people and leading to faster degradation.
- ❑ It is not possible to find degraded forests in a contiguous patch of, say, 2000 hectares suitable for effecting economies of scale. Such patches are found only in Reserve Forests of good quality.

- The soil quality (at least 1 m depth) demanded by industry is available in India only on best forests or farm lands. If good forests are not to be used for industrial plantations, the industry is left with no options but to establish contacts with farmers. Even if degraded forests with 1 m soil depth are there at all, they would easily regenerate on their own without much costs, if people are willing to cooperate.
- Industry has shown no interest in leasing-in *non-forest* wastelands when these were offered by the government, and therefore their plan to operate on equally degraded barren forest lands is highly suspect (Planning Commission 1998).

While the working group report has significantly reduced the chances of immediate leasing of degraded state forest land or plantations to the companies, the debate has not died down.

1.6 Potential for Strengthening Private Sector Contribution on State Forest Lands

FOREST FRINGE COMMUNITIES

JFM is a move in the right direction considering the heavy dependence of the forest fringe communities on forests. JFM is now one of the central forest management strategies in the country and the area under JFM has already crossed 14 million hectares. JFM has created space for non-state players such as forest fringe communities in the management of state forest lands, including plantations.

However, as noted above a number of challenges still remain. Many FPCs are still dependent on external funding sources. The JFM programme can be sustainable in the long-term only if the communities are able to get adequate returns from the forest itself rather than depending on external assistance provided by the government or donor agencies.

While community income can be increased through sale of surplus produce, as noted above, marketing has emerged as a major challenge for many FPCs. On the other hand, many forest-based industries are facing shortages of particular forest raw materials. There is thus a potential for developing a link between the FPCs and forest-based industries for mutual benefit. The linkage with forest-based industries could help the FPCs in accessing funds from these industries for investing in the forests. The FPCs can factor in industry's requirements (in addition to other considerations of subsistence, environment, etc.) while deciding on the management strategy for the JFM forests. This would help the FPCs in overcoming the marketing problem and industries in obtaining the appropriate raw material.

Box 2. Involvement of corporate sector in JFM: existing scenario

Industries could partner with FPCs and provide a ready market though this is a contentious issue as many NGOs oppose this stating that this would give back door entry to the corporate sector to forest lands. At present, though a few companies are assisting in the JFM programme (e.g. Tata Electric Company, IPCL and Uttam Steel Limited in Maharashtra and TVS-Suzuki in Tamil Nadu), their involvement has so far been marginal and mainly in the nature of charity or public relations exercise (e.g. Tata Electric company has built some water closets in FPCs while Uttam Steel Limited has provided a steel pipe to Khalapur FPC in Raigarh district). The only state where the involvement of corporate sector has been sought on a meaningful scale in order to sustain the JFM programme is Andhra Pradesh. A government order issued in 2000 permitted companies to enter into tripartite agreement with FPCs and the State Government. However, this failed to take off at the field level due to opposition by NGOs.
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However, concerns raised by many NGOs such as danger of loss of focus on subsistence needs, danger of further marginalisation of the poor and weaker sections and conversion of natural forests

into monoculture plantations will have to be addressed directly by building in safeguards into the agreements between companies and communities.

Recently, the central government has started promoting creation of Forest Development Agencies (FDAs) at the Forest Division level. These FDAs are federations of FPCs registered under the Societies (Registration) Act, 1860. A National Afforestation Programme with a financial outlay of Rs. 10.25 billion for the period 2002-07 has been launched to support afforestation projects of FDAs. As FDAs are legally registered entities representing about 50 FPCs, it may be easier to have a marketing tie up between FDAs and forest-based industries for supply of certain raw material from member FPCs to industries. The tie-up could be in the nature of a supply contract.

CORPORATE SECTOR

While the current policy is clearly against raising new commercial plantations on state forest lands and leasing of degraded forest lands to industry, the possibility of leasing or joint management by the corporate private sector of some of the *existing commercial plantations* of FDCs could be explored.

The present management of these plantations by FDCs is far from satisfactory (see Box 5) and their productivity can be substantially increased through professional management by the corporate sector. As these plantations are already in existence, no felling/conversion of natural forests will be involved. Several companies have made considerable progress in the research and development for tree improvement, especially of commercially important species such as eucalyptus, poplar and casuarina. Companies such as ITC Bhadrachalam Paperboards Limited have developed eucalyptus clones that have a productivity of 20 – 44 m³ per hectare per annum under rainfed conditions. Productivity up to 50 tonnes per hectare per annum has been reported under irrigated conditions. Replacement of existing plantations with these improved plantations can also substantially increase the yield.

1.7 Conclusions and Ways Forward

Indian forestry sector is facing major challenges such as degradation of forests, demand-supply gap and inadequate investment in the sector. The private sector involvement can supplement government's efforts in addressing all these challenges.

Forest-fringe communities are already working with the FDs under the JFM programme to protect and manage 18 % of forest lands, including plantations. The experience with JFM has been quite encouraging in terms of regeneration of degraded forests and plantations and improved livelihood opportunities for the forest fringe communities. However, a number of steps are needed before the JFM programme gets institutionalised in the country. The most important of these is provision of a firmer legal basis to the programme so that the communities' rights in the JFM forests are ensured. The current system of starting JFM through administrative orders is not adequate as the FDs can unilaterally change these and even stop JFM after communities have invested years of effort in protecting and regenerating the forests.

Further, considering that nearly a fifth of state forestland is already under JFM and the area is likely to increase further in the future, the potential for commercial production from these forests and linkages between FPCs and forest-based industries should also be explored.

The current policy and legal framework does not encourage corporate private sector involvement on state forest lands. However, considering the unsatisfactory performance of most FDCs, involvement of the corporate sector in the management of *existing commercial plantations* with the FDCs may be explored. The productivity of these plantations can be substantially improved through better professional management expertise of the corporate sector. This would help ease the raw material shortages facing the industry. However, the corporate sector should be charged commercial rates for land and detailed guidelines should be prepared to ensure that local communities' interests are not compromised and adequate environmental standards are maintained.

It is hoped that through these interventions private sector players such as forest fringe communities and corporate sector can contribute significantly towards better management of state forests and plantations.

Box 3. Details of externally aided social forestry projects started between 1981-82 and 1985-86 (and two follow up projects started in Orissa and Tamil Nadu in 1988-89)

State	Donor	Period	Farm forestry (hectares)	Farm forestry (%)	Common land plantations (hectares)	Common land plantations (%)
Tamil Nadu	SIDA	81-82 to 87-88	85,165	37.94	139,330	62.06
West Bengal	WB	81-82 to 89-90	52,000	55.91	41,000	44.09
Haryana	WB/ DANID A	82-83 to 89-90	30,000	44.78	37,000	55.22
Jammu and Kashmir	WB/ DANID A	82-83 to 89-90	19,000	43.18	25,000	56.82
Maharashtra	USAID	82-83 to 89-90	44,035	54.36	36,965	45.64
Andhra Pradesh	CIDA	83-84 to 89-90	108,100	71.72	42,625	28.28
Karnataka	WB/ ODA	83-84 to 87-88	120,500	80.60	29,000	19.40
Orissa	SIDA	83-84 to 87-88	26,500	31.74	57,000	68.26
Bihar	SIDA	85-86 to 90-91	71,750	42.66	96,450	57.34
Gujarat	WB/ USAID	85-86 to 89-90	230,500	73.55	82,900	26.45
Himachal Pradesh	WB/ USAID	85-86 to 89-90	66,838	59.23	46,000	40.77
Kerala	WB	85-86 to 89-90	69,200	81.13	16,100	18.87
Rajasthan	WB/ USAID	85-86 to 89-	91,500	75.75	29,300	24.25

		90				
Uttar Pradesh	WB/ USAID	85- 86 to 89- 90	147,210	90.90	14,740	9.10
Orissa	SIDA	88- 89 to 92- 93	62,000	46.13	72,400	53.87
Tamil Nadu	SIDA	88- 89 to 92- 93	18,000	22.97	60,380	77.03
All			1,242,298	60	826,190	40

Source: MoEF 1989, in Vira 1995

Abbreviations: SIDA: Swedish International Development Authority; WB: The World Bank; DANIDA: Danish International Development Agency; USAID: United States Agency for International Development; CIDA: Canadian International Development Agency; ODA: Overseas Development Administration (UK)

Box 4. Constraints in establishing plantations on non-forest lands

The private is unable to establish large-scale tree plantations on non-forest lands on account of statutory land ceilings on agricultural land (Note 1) The permissible land holdings are very small, which restrict corporate sector from playing any meaningful role in plantation development (Note 2) The ceiling limits vary from state to state and also for different categories of land. However, the ceiling limits on agricultural land holdings for corporate entities are the same as those for individuals. Thus, a company can own and manage only as much agricultural land as is permitted under law for any individual and this is insufficient to establish plantations on any meaningful scale.

In order to circumvent this problem, many companies have attempted to promote forest plantations on private farm lands. The efforts of the companies can broadly be classified as follows:

1. Supply of free or subsidised seedlings with or without a buyback guarantee.
2. Bank loan schemes under which the company helps the farmer in getting a bank loan to plant trees and provides planting stock, technical extension and buyback guarantee.
3. Leasing or share cropping schemes under which the company establishes and maintains plantations on farmers' land and pays them a fixed lease rent or a share in the crop.
4. Intensive research and development and commercial sale of improved clonal planting stock with or without buyback guarantee.

However, the experience of the companies in cases where they have entered into formal agreements with the farmers has not been good. Thus, The current thrust of most companies is simply on production and supply of seedlings to the farmers without entering into any specific partnership with them. This is due to problems such as:

- Lack of care of subsidised seedlings by farmers
- Cumbersome loan sanction procedures
- Lack of clarity about the agreement with the company among farmers
- Diversion of loan amount elsewhere by farmers
- Failure of companies to obtain the raw material despite giving buy-back guarantee
- Unclear legal framework governing leasing/ share cropping scheme, especially in tribal areas
- Litigation

However, if some of these bottlenecks are removed, many more company-farmer partnerships for plantation development can emerge in the country. For instance, the loan sanction procedures need to be simplified so that the company staff members do not spend most of their time following up with the banks, as has been the experience of many companies so far. Similarly, greater clarity is needed in the legal framework governing plantations on the lands of tribal farmers in Schedule V areas, so that companies do not get embroiled in unnecessary litigation.

Further, in order to increase private sector's direct involvement in establishing and managing forest plantations on non-forest lands, the land ceiling restrictions need to be reviewed. If, for the purposes of land ceiling, forestry is treated at par with other plantation crops such as tea, coffee and banana for which special exemptions are available, the private sector will be able to participate more effectively. To begin with, such an exemption can be granted for plantations established on private wastelands (Note 3).

Notes:

1. Land ceilings are one of the elements of land reforms that seem to alleviate poverty and lead to growth with distributional equity. In 1972, the central government set out land ceiling guidelines for state governments. Accordingly, for a five member family, holdings of the best category of land in a state, with assured irrigation and capable of yielding at least two crops a year should be limited to 10-18 acres; holdings with assured irrigation for

a single crop a year should be limited to 27 acres; and all other types of land should be limited to 54 acres (different states have adopted different ceiling limit). In the case of owners with holdings consisting of different types of land, the total holdings after converting better categories into the lowest categories should not exceed 54 acres (IASSI 1991). [1 acre = 0.404686 hectare].

2. For example, an agricultural land holding by a company or an individual in Andhra Pradesh cannot exceed one standard holding equivalent to 4.05 hectares irrigated land of category (a) or a maximum of 21.85 hectares of un-irrigated land of worst category (k). (Reddy and Reddy 1995, in Lal 1999).

3. There are some existing schemes in different states under which companies can lease land beyond ceiling limits for raising plantations. For instance, Gujarat started a scheme in 1994 under which companies can lease wastelands up to 2000 acres for raising plantations. One company – Vadilal Industries Ltd. – has leased 316 acres of land under this scheme. A similar scheme exists in Tamil Nadu and a company – Galaxy Crystal – has leased 300 acres of land (Planning Commission 1998).

Box 5. Forest Development Corporations

This box examines the experience of Forest Development Corporations (FDCs), most of which were created in the 1970s and 1980s to undertake production forestry. The NCA had recommended that 48 million hectares of forest land should be dedicated to production forestry. The interim report of NCA (August 1972) laid down the following objectives for production forestry:

- To raise the per hectare production both in respect of volume and value
- To create much more employment for skilled as well as unskilled hands
- To give substantial support to the economy of the backward areas and the tribal population which depends for growth on forestry activities
- To expand or establish a large number of industries based on raw material from forests
- To enter the export market in wood and wood products
- To have a sustaining impact on the employment in the secondary and tertiary sectors

By 1990, there were 26 FDCs in 20 states. Karnataka, Orissa and Tamil Nadu had three FDCs each. The chronological order of the establishment of FDCs in the country is set out in the following table.

Chronological order of the establishment of Forest Development Corporations in different states	
Year	Names of Forest Development Corporations Established
1962	• Orissa Forest Corporation
1969	• Forest Development Board of Maharashtra (converted into Forest Development Corporation of Maharashtra in 1974)
1971	• Mysore Forest Plantation Corporation (later on renamed as Kartanataka Forest Plantation Corporation and renamed in 1987 as Kartanataka Forest Development Corporation)
1973	• Kartanataka State Forest Industries Corporation
1974	• Uttar Pradesh Forest Corporation • Himachal Pradesh State Forest Corporation • Tamil Nadu Forest Plantation Corporation • West Bengal Forest Development Corporation
1975	• Kerala Forest Development Corporation • Madhya Pradesh State Forest Development Corporation • Forest Development Corporation of Meghalaya • Bihar State Forest Development Corporation • Andhra Pradesh Forest Development Corporation • Tamil Nadu Tea Plantation Corporation
1976	• Gujarat State Forest Development Corporation • Tripura Forest Development and Plantation Corporation
1977	• Andaman and Nicobar Islands Forest and Plantation Development Corporation • Arunachal Pradesh Forest Corporation
1978	• Karnataka Cashew Development Corporation
1979	• Jammu and Kashmir Forest Corporation
1980	• Simlipahar Forest Development Corporation (Orissa)
1983	• Punjab Forest Development Corporation
1984	• Arasu Rubber Corporation, Tamil Nadu
1985	• Rajasthan State Forest Development Corporation
1990	• Haryana State Forest Development Corporation

NB: Orissa Plantation Development Corporation is the 26th corporation. The Haryana FDC, which was created after the issuance of the new forest policy mainly dealt with marketing of farm forestry produce.

Source: Gol 1990

Not all FDCs are, however, not engaged in the plantation activity. Some are only involved in harvesting, value addition and marketing of produce on behalf of the FD or farmers.

Extract from the Memorandum of Association of the Forest Development Corporation of Maharashtra

Notwithstanding anything contained in any of these articles, the Governor may from time to time, issue such directives as he may consider necessary in regard to the finances, conduct of business and affairs of the Company or Director thereof and in like manner vary or annul directives so issued. In particular, the Governor will have the powers:

- to give directions to the Company as to the exercise and performance of its functions in matters involving national security and substantial public interest.
- to call for such returns, accounts and other information with respect to the property and activities of the Company as may be required from time to time.
- to approve the Company's Five Year Plans, Annual Plans of Development and the Company's Capital Budget.
- to approve the Company's Revenue Budget in case there is an element of deficit which is proposed to be met by obtaining funds from the government.
- to approve agreements involving foreign collaboration proposed to be entered into by the Company.

By 1990, when a major review of FDCs was undertaken, 11 FDCs that were involved in plantation activity had created 966,538 hectares of new plantations, mainly of teak, eucalyptus, bamboo, pine and casuarina. In addition, FDCs of Karnataka, Andhra Pradesh, Tamil Nadu and Kerala had acquired 251,174 hectares of existing forest plantations from the FDs. Five FDCs had established 18,774 hectares of cash crop plantations. (Red Oil Palm, Rubber, Cashew, Tea, Cardamom, Coffee, Lavendar, etc.). Thus, by 1990, the total area of state owned plantations under the control of FDCs was 1,236,487 hectares (Gol 1990).

The performance of FDCs in managing these plantations has been far from satisfactory. The review of FDCs in 1990 noted that the overall success of FDC plantations was not as desired. On an average, the plantations of these FDCs were 55 % to 60 % successful (although the report does not elaborate on this it is most likely the low seedling survival rate). The team reported that FDCs had not achieved the desired improvement of productivity of forest lands as evidenced by low yield, poor growth and low survival of plantations created by them. The quality of the products was also very poor e.g. a large number of sleepers supplied by the FDCs were rejected by the Railways (Gol 1990).

The review also reported poor financial performance; most of FDCs engaged in plantation activity were incurring losses. One of the main reasons for the creation of FDCs was to attract institutional finance for forestry projects. However, FDCs failed even on that front.

The main reasons for the poor performance of FDCs are listed below (adapted from Gol 1990):

- Excess state control:** There is hardly any functional autonomy given to the FDCs to manage their affairs - technical or commercial. The extract from the Memorandum of Association of the FDC of Maharashtra is illustrative of the extent of state control.
- Lack of corporate culture:** Most FDCs work as a government department rather than a corporate entity. Most top level positions are filled by people appointed by the FD. FDCs also do not have any choice in the selection of these people. The Managing Director is normally the number two in the state level administration of the Indian Forest Service.
- Lack of long-term vision:** The average tenure of the Managing Directors of FDCs was found to be only 20 months. This high turnover rate at the top has resulted in poor long-term planning and vision development.
- Diversification into unrelated activities:** Many FDCs have diversified into non-core activities resulting in loss of focus. For instance, the review in 1990 revealed that the Bihar FDC had built

425 primary schools, 18 buildings for higher educational institutes and was running an *Ayurvedic* Dispensary. Karnataka FDC had built tourist cottages to promote tourism in a wildlife sanctuary. Many FDCs in the south of India were engaged in the rehabilitation of Sri Lankan refugees.

- **Excess staff:** Most FDCs are over staffed. Due to labour related laws a large number of casual and daily wage labourers have also been regularised as permanent staff. This has resulted in very high overheads making FDCs uncompetitive in the market.