LEASING OF DEGRADED FOREST LANDS

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PREFACE

Planning Commission constituted a Working Group to examine the prospects of leasing out Degraded Forest Lands to the private entrepreneurs/ Forest Corporations for production of industrial raw material. Out of 14 members of the Working Group, we could not get the views on the draft report of Shri P.C. Srivastava. Out of the remaining 13, 10 members have fully supported the findings of the Working Group that Degraded Forest Lands should not be leased out to private entrepreneurs; and that industries needing forest raw material should establish contact with farmers.

The remaining 3 members, Shri Vishwanath Anand, Secretary, Ministry of Environment & Forests, Shri C.P. Oberai, Inspector General of Forests, and Shri S.C. Mohanty, Special Secretary, Forests and Environment Department, Government of Orissa have also given general support to the report. Sri Anand has stated that "I am not in favour of sale or lease of forest lands to the private sector for the purpose of raising timber". Shri Oberai has stated that, "Regarding the participation of industries in afforestation, I agree that they should have durable tie-up with the private farmers for producing the raw material." Shri Mohanty has stated, " I would generally endorse the arguments developed in the report, both for and against leasing of degraded forest lands to raise industrial plantation."

In the light of these views and the full support of the other 10 members, the report should be taken as reflecting the unanimous consensus of the Group.

However, Sri Anand has raised other important policy issues which have a bearing on this subject. Therefore, his views are enclosed, in full, as Annexure-IV to the report. Similarly, Shri Oberai stressed the need to bring more investment in the forestry sector. His views have, therefore, been fully quoted in the report in the section "Views of the Ministry of Environment & Forests". Sri Mohanty has given arguments in favour of making certain categories of degraded forests available for industrial companies. His views have been reproduced, in full, in the section on "State Governments".

As Chairman of the Working Group, I take this opportunity to thank all the members of the Group, as also experts, who fully cooperated with the Group and who have helped in drafting the report. I also thank Sri Mahapatra, Addl. Secretary, Wastelands Development, and other officers of my Ministry who contributed their ideas to the report. It was, indeed, my pleasure to work with the best brains in the forestry sector and produce this report. I hope it would be found useful by the Planning Commission, Ministry of Environment & Forests, state governments, industry and the academic world.

N.C. Saxena
Chairman of the Working Group

October 16, 1998

Introduction

Vide its letter dated 6th June, 1997 (at Annexure 1), the Planning Commission set up a Working Group (henceforth called the Group) under the chairmanship of Dr. N.C. Saxena, Secretary, Rural Development, Government of India, to examine the prospects of leasing out of degraded forests to the private entrepreneurs/ Forest Corporations. The terms of reference for the Group were as follows:-

Economic, social and environmental feasibility of leasing or otherwise making degraded forest land to the private entrepreneurs/ Forest Corporations.

Implication of Ninth Plan, forest policy, forest law on this issue.

Since it is the paper and pulp industry which has been demanding forest lands on lease either directly or via the Forest Development Corporations (FDCs), we shall essentially consider the merits of making degraded forests available to the paper industry.

In addition to holding meetings of the group, written views were solicited from all members and state governments. The representative of the Government of India sggested in the first meeting that the following, who have generally been representing the case of industries, should be invited and their views heard:-

- Sri Pyare Lal, ITC, Bhadrachalam
- Sri A. K. Mukherjee, ex-IG, Forests
- Sri N. R. Krishnan, ex-Secretary, MoEF
- Dr. B. N. Ganguly, IFS (Retd.)

This was done and they (except Sri Krishnan, who could not attend the meeting) were heard at length. In addition, Mr. V. M. Thapar, Chairman, Joint Committee of the Paper Industry was also invited and given full opportunity to present his views. Some members of the Group and the Additional Secretary, Wastelands Development visited degraded forests in Andhra Pradesh which were considered suitable for leasing by the industry. Sri Pyare Lal accompanied the team. The report is at Annexure 2.

Case for leasing

The case for leasing or otherwise making degraded forest land to the private entrepreneurs either directly or via the government Forest Corporations is based on the following premises:-

There is a great deal of degraded forest land in India which is of no use to anyone. It is lying waste and should be made available to anyone who wishes to use it.

The main constraint in the way of restoring the productivity of such lands is lack of resources. The resources required for increasing the productivity of degraded forest lands through large scale technology based plantations are considerable and are not easily available in the public budget.

Industry is keen to be involved in the afforestation of degraded lands because it is an economically profitable venture.

Involving the industry in establishing high-yielding fast-growing plantations on degraded forest land will result in accelerated rehabilitation of these lands and thereby help in regreening India.

There is a shortage of raw material required by the paper and pulpwood industry; the involvement of capital and technology by the industry would amount to additionality of efforts towards afforestation, and therefore will be socially desirable. It will, without asking for public resources, create new jobs and thus will be a win-win strategy.

There are no serious social or environmental issues in putting degraded forests under industrial plantations.

Making industry self-reliant in their own raw material supply is cost-effective as more public resources could then be diverted for better protection and conservation of natural forests.

Farmers cannot be trusted to supply raw material to the industry, as farmers are essentially concerned with meeting their subsistence needs and have no interest in growing long-gestation crops. In any case relying on farm forestry alone will not give the industry the required cost-effectiveness necessary in today's reformed markets.

These issues will be discussed in this report in detail. We begin with the nature and extent of degraded lands in India. How much is the area of degraded lands in India, and what factors have led to its degradation? We would look at both, the non-forest and forest wastelands.

Area of degraded lands in India

One can estimate the area of degraded lands in India in three ways, based either on the figures of the State Revenue Departments or on the NRSA imagery, or on the FSI data.

According to the nine-fold land-use classification, out of 304 million ha of land in India for which records are available, roughly 40 million ha is considered unfit for vegetation as it is either under urban and other non-agricultural uses such as roads and rivers, or is under permanent snow, rocks and deserts. The break-up of the rest 264 million ha of land which has some potential for vegetation is as follows:-

Table 1: Breakup of culturable lands in India (in m ha)

I.	Cultivated land	142
II.	Forest land	67
III.	Fallows/culturable wastes/ pastures/groves	55
IV.	Total area of culturable lands	264

Land statistics are well developed for cultivated and forest lands, but not for the category III in the above table for non-forest and non-cultivated lands. Information needed for assessing their potential, like ownership, extent and type of degradation, and present and possible future uses, has never been collected on a systematic basis for the entire country. This makes it difficult to estimate how much of the 55 m ha of the non-forest and non-cultivated land is degraded.

The National Commission on Agriculture believed that the entire area of 55 m ha classified under groves (3 m ha), fallows (24 m ha), pastures (12 m ha) and culturable wastelands (16 m ha) was degraded. Had it not been so it would be under the plough! Not all this land can be degraded: land classified as "groves" would seem likely to have trees on it; not all fallows are necessarily degraded; and on some of these lands social forestry has been undertaken. In the absence of any other estimates, we make the arbitrary assumption that one fifth of this land is not degraded, giving a total of 44 ha of uncultivated degraded land. Even this may not be entirely available for tree plantation, as a part may be required for schools, panchayat buildings, cattle resting place, wells and dwellings. In dry areas, the proportions available would be higher. We estimate the area of degraded non-forest lands available for tree growing as 75 per cent of 44 m ha, i.e. 33 m ha. Adding 27 m ha of degraded forests (out of a total of 67 m ha as shown in Table 1), the total comes to 60 m ha.

On the other hand, the NRSA has surveyed 241 districts[1] in India, and they have estimated the area under different categories of wastelands as follows:

Table 2: Category of wastelands

Category	**Area (m ha)**
Snow Covered/Glacial	6.992
Barren Rocky/Sheet Rock	6.251
Sands-inland/coastal	5.572
Salt affected	1.988
Gullied/or ravinous land	2.020
Upland with or without scrub	26.515
Water logged	1.220
Marshy / swampy	0.824
Shifting cultivation land	2.824
Mining/Industrial Wastelands	0.116

Degraded grazing land	3.105
Degraded forests	16.274
Forest Blank	1.814
Grand Total:	75.515 m ha

According to the Forest Survey of India (FSI 1998), 48 per cent area notified as forests had in 1997 a crown density of more than 40 per cent, 34 per cent between 10 and 40 per cent, and the rest 18 per cent has less than 10 per cent or no tree cover at all. Of the area under forests, 37 per cent is tropical moist deciduous forest (where *Shorea robusta* is the main species), 29 per cent is tropical dry forest (where teak is the valued species), 8 per cent is tropical wet evergreen forest, and the rest 26% is subtropical, temperate, alpine and other forests. Nearly 12 m ha has been set apart as protected area for wildlife, out of which 8 m ha has tree cover (World Bank 1993). It may be useful to undertake actual state-wise ground surveys so as to establish the extent of degraded lands in the country.

The FSI estimated current productivity for the entire forests at 0.7 cu m (cubic metres) of wood per hectare per year, which includes both recorded and unrecorded removals from forests. These levels are dramatically lower than the potential, which has been estimated at 2 cu m per ha per year. Achieving this potential which is about three times the current productivity would bring considerable improvement in the economic and environmental well-being of India's land and people.

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1 *These districts were supposed to have more area under wastelands than the districts which are now being taken up in the second phase.*

The annual changes in forest cover, as estimated by the FSI are given below.

Table 3: Changes in forest cover in India annually as per Remote Sensing data

Period	area gained /lost annually in ha
1981-85	(-) 1,47,000
1987-89	(-) 47,500
1989-91	(+) 28,000
1991-93	(+) 2,200
1993-95	(-) 25,000
1995-97	(-) 2,75,000

(FSI 1998)

These three sets of figures, though not comparable (the NRSA data is not from all districts and may include non-culturable wastelands too), give a rough idea of the area of degraded lands in India, though no firm data is available about the nature and extent of degradation. The moot question is: can these lands be commercially exploited and used for industrial plantations?

Leasing of non-forest wastelands

One of the most critical aspects of information about non-forest wastelands pertains to ownership. Not all may be owned by Government. In addition to uncultivated lands which were historically part of the farmers' holding, especially in ryotwari semi-arid areas, many poor families have been allotted lands under various programmes in the last 20 years, although such lands may still be lying uncultivated. Figures from a few states given in Table 4 show that substantial culturable waste area has been privatised as a conscious policy outcome.

Table 4: Allotment of government wastelands to the poor

Name of the State	Area Distributed in lakh acres
Andhra Pradesh	42.02
Assam	5.89
Bihar	9.75
Gujarat	13.81
Karnataka	13.72
Kerala	4.57
Madhya Pradesh	1.71
Maharashtra	10.23
Orissa	7.26
Tamil Nadu	2.07
Uttar Pradesh	24.89
West Bengal	4.32
Rajasthan	.93
Total (including others)	144.96

(MRAE, 1998)

A substantial part of this land may be suitable for growing trees, but not for agriculture. These lands are certainly not available for leasing to industry, but may promote farm forestry, and thus may help in meeting the raw material requirements of the industry. The constraints in meeting this objective are discussed later in the report.

As regards non-private and non-forest wastelands, government wastes close to the villages are used by the community for grazing, but lands distant from villages are lying barren, and are available in large chunks. Some state governments have in the past offered barren lands, such as desert lands of Rajasthan and saline lands of U.P. and Gujarat, on lease to industry. The scheme by the Rajasthan government was advertised in the newspapers in 1990-91 and a minimum of 2000 acres was being offered on a long-term lease, whereas the scheme in U.P. was initiated in 1979, but given up after a few years for want of proposals. The Gujarat government is at present offering land upto 800 ha for reclamation, but again there has been no positive response from forest based industry. Details are described below.

Revenue Department of Gujarat evolved a policy on 9.8.94 under which non-cultivable wasteland including sandy and saline land can be granted to NRI companies, cooperative societies, Indian industrial houses, public limited companies and other persons for developing the land or plantation of medicinal trees by Israel technology or other scientific methods. Taking into account the experience, expertise, access to technology, employment opportunities etc land not less than 100 acres and not more than 2000 acres can be granted on lease of 20 years. The conditions of the lease will be as under :

The lease will be for 20 years at the first instance which could be renewed for another 20 years.

No lease rent will be charged for 20 years after which lease rent as prescribed can be charged which could also be based on percentage of profit.

If the activity could not be started within two years then the time limit can be extended by another year if there are reasonable grounds but after that the lease will be cancelled.

The lease will be subject to the use of land for the purpose for which it has been granted otherwise the land will revert back to government.

So far one industry, M/S Vadilal Industries Ltd. has been granted 316 acres for the purpose of plantation.

Similar facilities for granting leases to industry beyond ceiling limits exist in Tamilnadu. For instance, one industry, Galaxy Crystal has been given a lease over 300 acres of unsyrveyed/umeasured land in village Thillaivilakam, Taluk Thirutthuraipundi, District Pattukotai.

While endorsing such efforts of the state governments, the Group would like to reiterate that the intention here is not to recommend leasing out of lands which are or can be used as pastures and grasslands by the poor. These lands are in any case highly dispersed as these are close to villages. We are recommending to lease such barren lands which are far away from habitations and are available in larger plots of 1000 ha or more, and are of no use to the villagers. These are desert or ravine or saline lands, which require huge investment before they can be made productive. This distinction must be borne in mind, because if grasslands get occupied with plantations then we end up just shifting problems from degraded forests to degraded commons. The experience of leasing of C & D lands in Karnataka for pulpwood plantations should not be forgotten. In 1986 the state government of Karnataka decided to lease out 30,000 ha of common lands to a paper company on a lease rent of 12 per cent of the produce. When agitation and petitions to government did not yield any result, a public interest writ petition was filed by several NGOs before the Supreme Court. The Government of India in this litigation decided to oppose the decision of the state government and side with the NGOs, with the result that the state government was forced to cancel the lease in 1991 (Hiremath *et al*. 1994). This was celebrated as a big victory against the lobby of forest-based industry wanting to grab government lands.

The Group would therefore recommend to the private entrepreneurs to consider reclaiming barren non-forest lands remote from habitations through modern technology. There is an Investment Promotion Scheme of the Department of Wastelands Development, Government of India, where such enterprises would be entitled to 25% subsidy. These lands have the advantage of being available in contiguous patches and hence amenable to economies of scale. However there are two inhibiting factors; poor soil conditions and consequently high cost.

Mr. V. M. Thapar, Chairman, Joint Committee of the Paper Industry, explained that plantations could not be raised on rocky areas or inhospitable terrain. According to him, desert lands of Rajasthan may be thought of for certain type of low price vegetation, such as grasses and bushes, but for paper industry one required lands with good soil depth. Small and dispersed patches are economically not viable. He opined that non-forest wasteland may be useful for plywood industry, but not for the paper industry. The minimum pulp requirement for a viable industrial plant is 1,000 tonnes per day which may be obtained from 4,000 tonnes of wood. This would require about 10,000 ha. of either contiguous or land in sufficiently big patches for plantation. Paper industry has to be internationally competitive which would need raising plantation on good quality lands available in one patch.

As regards cost, it is admitted that the initial cost of reclamation may be high. The Agriculture Finance Corporation in 1986 had identified large chunks of wastelands in the country, and prepared model projects for their development. The cost of reclamation is summarised as follows:-

Table 5: Cost of reclamation of wastelands in 1987

Name of district	Cost per hectare in Rs
1.Chittoor (Andhra Pradesh)	10,100
2.Srikakulum (Andhra Pradesh)	9,600
3.Surat (Gujarat)	8,600
4.Sabarkantha (Gujarat)	8,900
5.Hassan (Karnataka)	10,300
6.Meerut (U.P.)	15,000
7.Raibareli (U.P.)	13,500

(NWDB, 1988)

The above costs need to be compared with the cost of block plantations on farm lands, which were estimated to be only Rs 2800 per ha by the World Bank in 1988 in U.P. Another study (Chatha 1991) found the cost of raising trees on farm lands in Haryana as only Rs 2100 per ha. The cost of raising eucalyptus on farm bunds was even less. One can appreciate the indifferent attitude of industry towards afforestation of barren lands which have little soil left, as the scheme is not economical when compared to the costs of obtaining the same raw material through other sources, such as government forests, imports and private lands.

Present price distortions

As the industry gets subsidised raw material from government forests, there is further no incentive to them to turn over to barren lands. Until very recently highly privileged prices have been the standard practice for industries. A report (CSE, 1985: 91) has mentioned that in Madhya Pradesh in 1981-82 industrialists paid the Forest Department 54 paise for a 4 metre bamboo, while forest dwellers paid a little over Rs 2 a bamboo supplied by the Forest Department. The UP Forest Corporation had calculated that during 1983-84 the actual cost of raising eucalyptus in government forests was Rs 220 per tonne, whereas it was supplied to the Saharanpur paper mill at Rs 140 per tonne, and to the Nainital mill at Rs 196. The market rate for equivalent quality of eucalyptus, as judged from the auction prices, was between Rs 500-700 per tonne during the above period (information based on government records, and all prices are for dry and debarked wood). Although the element of subsidy has been greatly reduced lately, it still continues in many forms. Bhabbar grass is sold by the UP Forest Corporation at Rs 72.50 per quintal to rope-makers, but to industry at Rs 40 per quintal. In A.P., the price that F.D. got by selling bamboo in the open market ranged from 800 to 1200 Rs a tonne in 1990-91, as against Rs 550 at which bamboo was supplied to the industry.

It is obvious that the market for industrial raw material is totally distorted by the present system of committed supply from government forests at concessional rates. Its impact can be summed up as under:

(i) It leads to creation of over-capacity and inefficient use of material by industry. It increases sickness in the industry and prevents its technological upgradation.
(ii) Price difference in open market and concessional rates leads to undesirable practices. There are reported cases of concessional supplies being siphoned off to open market for quick money by some concessionaires.
(iii) Arbitrary fixation of supply/quotas and prices to various units in similar business encourages corruption within the forest department at the cost of industrial efficiency. At the same time the state loses valuable revenue.
(iv) It discourages development of private efforts at tree plantation because of depressed market prices and low market demand from consuming industries.
(v) Since there is a lagged response of forest product supplies to the current signal of price, and expectation of change in government policy (such as allotment of forest land to industry, or new partnership arrangements with FDCs), there is a tendency on the part of industry not to take any initiative, and 'wait and see' becomes the safest policy.

To sum up, so long as these price distortions are not corrected, there will be no incentive to the industry to turn its attention to barren lands.

Barren lands vs. degraded lands

It may be recalled that it has often been asserted by the proponents of leasing that only barren forest lands are to be utilised for plantations. Even some of the statements of the Government of India have created this impression. In an answer to a Parliament Question on the 2nd of August, 1994 asked by Shri S.Vaghela and Sri P.Patel the Minister of State for Environment and Forests, Government of India disclosed that the government was considering to 'involve industry in afforestation of **severely degraded areas**'. The stand of the government as to the quality of land which will be offered to industries was further made clear in a letter dated 2nd August from the Minister to Sri M.S.Swaminathan, President, WWF India, in which he stated that,

'In this case the fact is that there is absolutely no proposal to alienate forest land, or take away the rights of local communities, or to establish mono-cultural plantations, or supplant in any way the efforts of NGOs and coooperatives. The proposal under consideration of government is restricted to areas which are ***almost entirely denuded of forest cover****, which in no way contribute fuel and fodder to local communities, and which are not under joint forest management schemes. ..... a mix of species would be planted to avoid mono-culture, a significant proportion of the land would be planted with purely forest species, would not be harvested ..... Far from abridging the rights of local communities, the proposed scheme will seek to enhance those rights, giving them content and meaning, by increasing biomass availability as well as employment*.' The Minister's letter hinted that such an arrangement was being considered primarily for paper and plywood industry.

Why has the paper/pulp industry been particularly keen to lease "barren" forest lands, and not other categories of equally degraded lands?

Uncultivated public lands can be put in two categories; where density of tree cover is less than 10 per cent, and where it is between 10 and 40 per cent. For the sake of clarity these would be called barren and degraded lands respectively. This distinction is vital, otherwise there is a danger that better quality lands may be put under industrial plantations under the garb of 'afforestation of wastelands'. Although there is no scientific basis for choosing 10 as a cut-off point, yet a limit has to set in order to distinguish lands which are almost devoid of vegetation and have almost ceased to be of importance to the local people from degraded lands which support local livelihoods and provide fuelwood and fodder to them. From the statement and letter of the Minister quoted above it is apparent that the proposal is restricted to barren lands and there is no move to involve the industry on lands with better density of present tree cover. This is also supported by para 9 of the draft guidelines (though not yet finalised, at Annexure 3) prepared by the Ministry on this subject some years back: 'First, the most severely degraded forests below 10% density will be allotted and afterwards next category shall be offered for plantation. The land above 25% density shall not be available for plantation.'

It may be pertinent to mention here that despite the efforts of the Ministry of Environment and Forests, Government of India, to convince everyone that only lands denuded of forest cover will be offered to industry, neither the industry nor the state governments of M.P., Orissa, and Arunachal Pradesh, the states which have shown keenness to lease forest lands to industry, have categorically accepted this position. Industry has clearly stated about the nature of lands of their interest, that these will have to be forest lands with a high tree density, may be ranging between 25 and 40 per cent. In a meeting the District Magistrate of Chindwara, M.P. disclosed that the paper industry was offered 5000 ha of forest lands, but they refused as they thought that it was too degraded and laterite in nature. The industry for good reasons would like to invest their capital only on land which has a good soil texture and where the cost of plantations is less than the cost of alternative supplies. Such lands have to be forest lands of around 40% crown cover, and not barren wastelands, whether inside forests or outside.

The Group was informed that the paper industry which has been in the forefront of putting pressure for leases on government in particular, required about 2 m ha of degraded forest land over a period of 10 years, with soil depth of at least one meter. Industry was not interested in barren lands with poor soil cover. Given the requirement of the industry of good forest land with at least one meter soil depth and an almost contiguous patch of a 10,000 hectares, a question arises whether such lands can ever be located within forest areas and still be classified as degraded forests?

To answer this question we have to look for the extent of forest degradation in India and factors that caused this degradation.

Nature and causes of forest degradation in India

Before considering the viability of leasing of degraded forest lands it is important to analyse the reasons for degradation, and why previous efforts to make these lands productive through plantations had limited success.

Forests are subject to intense pressure from human beings, livestock and urban markets. The relative contribution to deforestation of the two categories of consumers, people and industry, has been a subject of controversy in India, which has blurred its objective analysis. FD officials argue that since commercial and industrial requirements are low as a proportion of the total demand for wood, at less than 20 per cent, peoples' demands put an unbearable burden on forests. The almost continual lopping for fuelwood and/or fodder as well as cattle and goat browsing, that occurs in many areas and prevents adequate regeneration, must play a major role in forest destruction. For instance, most of the Maharashtra soils contain a large clay proportion, compaction by trampling makes the surface impervious to water penetration and increases the soil density. The former leads to run-off, flooding and erosion during the monsoons and the latter reduces the tree growth significantly. The result is that most forest lands have no regeneration.

On the other hand it is argued that subsidised supplies to industries and giving them priority has reduced availability for the people and resulted in their further alienation from the forests turning it into an open access resource. A study showed that one-third of rapid deforestation in Himachal Pradesh was due to excessive exploitation by the forest-dwellers, and the rest due to commercial interests. Often the two processes of industrial extraction and use by the people follow each other. The selective logging of a few large trees creates openings in the crown cover leading to better grass production, which invites cattle and goats. Their browsing makes regeneration difficult, and then the area is invaded by exotic, non-palatable weed species.

Some authors make a distinction between use of fuelwood by rural people, which is largely twigs and branches and hence potentially sustainable, and by urban sector. The greater use of logs and larger branches in the towns means that reasonably-sized trees are sought after and cut, possibly in large patches thus having a more degrading effect on the forest than may be the case with village needs that can be obtained more often from pruning or pollarding branches of trees or even bushes in a limited area. Thus collection of fuelwood for sale in urban areas is the cause of much destruction and degradation of forests.

Most forests are located in regions of poor soil, where agriculture is not very productive, hence forests are the source of a major portion of income through sale of fuelwood, called headloading[2]. A CSE study estimated that at least 3 to 4 million people were involved in headloading, making it India's biggest source of employment in the energy sector. It is a low paid and a high risk occupation, as pilfering wood from RF for sale is an offence (collecting wood for self consumption from PF is permitted on paper, but frowned upon by the forest staff in actual practice). The study commented that it was ironic that tribals, who for centuries lived in harmony with forests were today forced to eke out a living by further destroying their forests.

Discussions with field officers indicate that during the last three decades two other processes led to fast deforestation. One, arising out of political populism, was to allow people to harvest in an unsustainable manner, and the other was pressure on officers to contribute more to revenues. It was not unusual for forest officers to receive letters right down at the operative level from the highest officials of the Forest Department instructing them to produce more revenue. The same pressure was repeatedly conveyed in the monthly meetings of Range Officers, always in the same form: "Range X has contributed (a stated amount revenue) and Range Y is not contributing enough." Ironically, before an election, it was common for a Minister to order that the forests be opened for the people without penalty. But after the election, the same Minister was likely to demand more revenue.

Finally, deforestation has often been associated with sudden policy change or periods of uncertainty, like takeover of private forests, abolition of landlordism, setting up of Forest Corporations, and political unrest.

Once large trees are felled, the old harmony between people's demands and supplies through twigs and branches gets disrupted, and Department's efforts towards replanting come to naught. Thus deforestation, rather than being a continuous phenomenon, could be interpreted as a one-shot operation often directed by governmental activity. It occurs as a result of not just local pressures on resources, but also 'any momentary disruption of the institutional framework responsible for resource protection and management'.

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2 *Fuelwood collection by the poor from public lands and carrying it on their heads to the nearest market. In Orissa for instance, a headloader would earn Rs 25 to 30 a day for a shoulder load and 50 to Rs 60 for a cycle load in 1992. This was against agricultural wage rate of Rs 25 per day fixed by government, and actual payment of about Rs 16 - 17 a day. However, agricultural work is available in mono-cropped areas barely for four months in a year.*

Aggravating the situation was the paucity of funds for the forest sector - forestry accounting for less than one per cent of the development budget as compared to agriculture which received between 20 to 24 per cent. Although the availability of funds has improved in absolute terms, the proportion of forestry budget to the overall plan budget has remained generally less than 1 per cent. However, if flows to this sector from the Ministry of Rural Areas and Employment are taken into account, the share of funds for forestry may well be above one percent.

Deforestation is however not a post independence phenomenon or linked to the increase in population of people and cattle. It is very important to highlight nearly 100 years of extensive destruction that the forests of this country have suffered under the colonial regime. The colonial regime was mainly interested in converting into money as much of the resources as was possible. In the southern parts of the country where British rule lasted little longer, destruction was for even a longer period. The forests were initially worked for producing high quality timbers for the British Navy as well as for export. Large areas of forests were also destroyed for the creation and operation of vast railway net work. In several parts of the country which were far removed from the coal fields, firewood from the forests was the fuel for the railways. Very extensive tracts of forests were also destroyed for conversion into plantations of tea, rubber, coffee, cinchona and indigo. Further, these plantation crops destroyed forests not only for creating plantations but even for their operation due to supply of fuel for the labour and even for marketing the product. Every kilo of tea produced required at least two kilos of firewood. Working of forests for clearfelling as fuel coupes or for large scale plantations of mono-cultures of commercially important trees is another very widely practiced forestry operation which was totally alien in this country and is against all principles of conservation and sustainable management.

One more very significant omission about causes of forest degradation is forest fires. Forest fires have been causing havoc for a very long period of time and were encouraged and tolerated as these fires were not particularly destructive to commercially important species like teak.

To sum up, it is not possible to determine to what extent each of the above factors causes deforestation. It can occur through excessive depletion of young trees by households with even a limited demand for fuelwood under open access forest exploitation. Denying rights to the local people has led to the organised fellings in the Jharkhand area by the people themselves who have been damaging the forests. Local patterns of deforestation vary and it is 'never a simple matter of numbers outstripping environment'. On the whole, pressure from people do contribute a great deal towards forest degradation, which is compounded by subsidised supplies to industry. The alienation of forest lands from the people who need it for satisfying their needs, and consequently forests turning into open access lands has been one of the main cause for degradation as well as for increasing misery of the people. Till the mid-eighties the response of the government to this crisis of deforestation was to bring more area under non-browsable and market oriented single product timber trees in order to reduce pressure from local population and increase state revenues. This strategy turned counter-productive and hastened the process it was designed to prevent.

The correction came in the form of a new Forest Policy in 1988 followed by June 1990 guidelines recommending Joint Forest Management (JFM). Although the old thinking is still not dead, yet by now almost all major States have passed enabling resolutions to implement the programme. The Government of India and the donor agencies, appreciating the realistic foundation of the new concept, have decided to make the JFM the central point of its future forest development programmes.

Characteristics of degraded forests

Degraded forests have three characteristics that must be kept in mind when one is thinking of how best to make them productive. Firstly, degraded forest lands with crown density of 10 and 40 per cent are not likely to be available in contiguous patches, unless combined with good quality forests. According to Mr. Thapar, industrial plantations would require about 10,000 ha. of land in a few close patches for plantation. Paper industry has to be internationally competitive which would need raising plantation on good quality lands available in one patch. The industry would not be able to supervise plantation and protection over lands that are distributed over hundreds of villages. The experience of social forestry showed that there was no continuity in the management and control of thousands of scattered pieces of planted village lands creating enormous problems of protection.

Dependence on forests - Secondly, forests are not spread evenly in India, but are concentrated in the Northeast, the Himalayas and Shivalik ranges, the central belt, strips along the Western Ghats and other hill areas, and in patches of coastal mangroves. More than 50 per cent of forest land is located in the central belt, which is the poorest region in India with heavy tribal concentration. India's forests have generally speaking not been uninhabited wildernesses. Even in the remote forests people have either been living traditionally or were brought by the Forest Department and settled there to ensure the availability of labour. Today, there are about 100 million forest dwellers in the country living in and around forest lands for whom forests have continued to be an important source of their livelihoods and means of survival (Lynch 1992).

Besides fuelwood and other wood products, forests provide what were misleadingly termed "minor" forest products, and now better known as NTFPs. Most NTFPs come from forests, although some trees yielding NTFPs occur on private fields too, providing valuable assets and flows for subsistence and cash. Seventy per cent of NTFPs are collected from the five states of Maharashtra, Madhya Pradesh, Bihar, Orissa, and AP where live 65 per cent of the tribal population (Guha l983: l890). Much collection is done in the lean agricultural months of March-July when other employment is not available.

As most degraded forests are close to habitations, they have extreme biotic pressure, and often have rights of the people recorded on such lands. In fact these lands are degraded primarily because of peoples' pressure. It will be impossible to extinguish such rights, or to reduce biotic pressure. Already, in many protected areas reserved for biodiversity and wild life, government is finding it tough to deal with people's rights of access. If land is used by private entrepreneurs (which is a less legitimate cause than preservation of wildlife), such problems will multiply manyfold, and will attract attention of the social activists and press, who will get a ready made battle field to fight and criticise government. One should not forget the intensity of public feeling and agitations sparked by the Silent Valley Project in Kerala, The Blue Pine Project of M.P. and the Harihar Polyfibre Project of Karnataka. In all such cases proposal to use lands which had peoples' livelihoods depend on it, were strongly resisted by the people.

Thirdly, departmental plantations raised by Forest Department on degraded forest lands have generally been a failure because of pressure from cattle and people, In Orissa, a study by SIDA showed that survival of plantations after a few years was as low as 15%, because peoples organisations were not consulted and their requirements were not taken into considerations. Degraded forest lands require not capital investment, nor even higher technology, but protection and recuperation, which can be done only by working with the people, where industry has neither expertise nor patience. The West Bengal experience shows that about 2000 peoples' forest protection committees have regenerated more than 300,000 acres of sal forests at no extra investment, simply by protection on the promise of

sharing wood and non-wood products with them. People were willing to give their time and labour in looking after regenerating forests, because they identified with "their own forests" and were confident that they would benefit from such an effort. It was this sense of identification which was missing in governmental efforts in the past. Finding funds was not the main constraint. If lands on which peoples' livelihoods are dependent are given to the industry, they may have to employ mafia gangs to keep people out, thus completing the cycle; in addition to politician - mafia nexus and politician - industry nexus we shall witness the rise of industry - mafia nexus.

To sum up the three points made in this section, degraded forests with some soil depth are dispersed, they have extreme biotic pressure and therefore are ideally suited for regeneration provided one works with the people. Such forests are certainly not "useless", as they satisfy livelihood needs of about 100 million people.

Past experience of plantations

One may state here that there is nothing new in the present proposal of using forest lands for commercial plantations. Infact, as this was the practice for about a hundred years in India, a great deal of knowledge on environmental, economic and social impact of using forest lands for industrial plantations is available. What is perhaps new is the suggestion of bringing government forests under private management (although informal arrangements of industry's control over forest lands had existed in the past and still continues over bamboo forests in some states). Therefore we will consider the likely impact of this suggestion under two heads, the impact due to commercialisation of forests, and the implication of privatising forests.

Environmental impact

Till 1988, forest policy in India was to obtain sustained yield of timber from government forests by planting non-browsable and market oriented timber trees. Right from the First Plan in 1952, emphasis was laid on the conversion of "low" value mixed forests into "high" value plantations of commercial species like teak, and eucalyptus. Thus scientific forestry was equated with raising of man-made forests, designed to meet industrial requirements. A diverse forest eco-system was converted by government into a single species 'timber mine'. The foresters, who were to conserve the forest eco-system, became the main agents of reducing the diversity of forest species.

The National Commission on Agriculture (NCA) unfortunately put its stamp of approval on this approach in the following terms, *'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'etre for the existence of forests. It should be project-oriented and commercially feasible from the point of view of cost and return'*.

It is interesting to note that the NCA made a specific recommendation (see Para 42.3.18) against leasing forest lands to industry. It wanted government to allocate to them forest raw material from the enhanced programme of commercial forestry on forest lands. Out of 64 m ha of forest lands in India, the NCA recommended that 48 m ha should be dedicated to production forests, and the rest 16 m ha for biological diversity. Thus the NCA did not want any part of forests to be used for grazing or meeting other subsistence needs of the people.

For instance, in Madhya Pradesh, as in other states, the entire thrust of forestry was towards the high forest system, created after clear-felling and ruthless cutting back of all growth, except of the species chosen for dominance. The 6th Five Year Plan (1980-85) of Madhya Pradesh stated, *'to produce 25 million cm of industrial wood it would be necessary to subject 5.5 million ha of production forest lands to the intensive management, that is to clear-felling and planting. .... with the massive plantation programme being launched in the state, there would be extensive monocrops of teak in the forests. .. we should clear-fell and plant roughly one lakh hectare annually if we want production of industrial wood to keep pace with demand in future*.' As regards efforts made in the past to meet tribal demands for fruit, medicinal herbs etc. from forest lands, the same Plan document admitted, *'no special programme were taken, which could directly contribute to the upliftment of the tribal economy.*'

For their part, plantations have usually been single species, or involving only a few species, equally entailing loss of diversity and access, and often on a large scale, and in practice hardly pursuing an objective of benefiting the local people, beyond wages. In Kerala, for example, since 1970, 1.5 lakh ha of area has been brought under man-made plantations replacing mixed forests (FAO, 1984:37). Although watershed protection was mentioned as one of the objectives in the working plans, no prescriptions existed and no steps were taken to enhance protective value of forests. The same FAO study observed that timber production and revenue maximisation got the highest priority, while watershed management was ignored.

Some of the basic roles to be performed by the forests which cannot be performed by any other land use are (i) regulation of the water cycle; and sustaining stream flows; (ii) bio-diversity conservation and (iii) amelioration of climate. While timber and pulpwood can be grown on any piece of land, these basic roles can be secured only by the well managed and well preserved natural forests.

Conventional forestry based on clear felling disrupts the annual circulation of nutrients, and increases soil erosion (Spurr and Barnes, 1980: 240). Monoculture plantation forestry is also prone to pest attack. Thus eucalyptus plantations in Kerala raised after clearfelling dense green and deciduous forests have been devastated by fungal diseases, and the consequent low productivity defeated the very purpose for which they had been raised (Nair, 1985). Similar was the experience of teak plantations in north Bastar, M.P. (Anderson and Huber, 1988: 63). On the other hand, mixed forests draw and give nutrients to the soil at different stages of their growth, and hence are ecologically far more beneficial than plantations. One of the main outputs from forests should be water, which is possible only when forests are considered more in the context of local rather than "national" needs.

Tropical forests support complex ecological chains while playing an essential and salutary role in the earth's climate and atmosphere. They can return as much as 75 percent of the moisture they receive to the atmosphere. Thus they have a profound effect on rainfall. Yet these vast natural forests, surrounded by poor populations, were rapidly diminished as they were being converted into plantations to meet market demands.

Thus raising short-term and quick growing species in place of multi-layer mixed forests has serious ecological implications. For restoring ecological balance mixed species should be encouraged through protection and regeneration, and not plantation of mono-cultures. Using degraded forest lands 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.

The proponents of leasing to the private entrepreneurs have argued that the environmental risk would be minimised by the following measures:-

20% of identified areas will be developed as permanent forest.

Balance 80% area to be planted with (minimum) 3 species - no single specie to cover more than 50% area.

Lops and tops to be made available to local communities free to meet fuelwood requirements.

However, looking at the past record of involving industry, it is very difficult to believe that the above measures would be carried out with sincerity. The industry may, for instance, turn around and claim that other species did not survive, or that the people themselves uprooted the seedlings of other species. Once the control over land is given to the industry, it is difficult to ensure safety clauses. As the above measures reduce the profitability from investment, it is but natural that industry would tend to ignore these, once it has physical control over land, and with money power has 'managed' those in power.

One may also bear in mind that two or three species do not make a forest. Besides these would be periodically harvested, thus leading to loss of biodiversity and risk of soil erosion as well as encroachment for agriculture. The needs of the local communities, who basically need small amounts of NTFPs, are in harmony with the basic objective of biodiversity conservation, as it does not involve clear-felling. Industry has no credible plan to meet the hardships which would be caused to the local communities, which have historically depended on these lands for meeting their basic needs.

Economic impact

One of the main arguments given in favour of involvement of industries in afforestation is that government lacks funds, and with limited resources it is not possible to afforest degraded lands. It is conveniently forgotten that this same argument was given by the National Commission on Agriculture when it recommended in August, 1972 that Forest Development Corporations (FDCs) registered under the Companies Act should be created to attract institutional finance.

There are 26 FDCs in the country, out of which 11 have raised plantations over 12,36,487 ha, mostly in the states of AP, Maharashtra, Karnataka, MP, Tamilnadu and Gujarat. A government evaluation of FDCs mentioned, 'FDCs have 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.'

These were set up in each state to augment state resources; logic was simple, for commercial activities banks will be too willing to lend money. Did the Corporations succeed in attracting bank funds? A simple answer is no. For instance, the Madhya Pradesh State Forest Department Corporation was registered in July, 1975, but its total paid up capital of Rs 16.30 crores is contributed entirely by the state government. The Corporation was created so as to attract bank funds, and create additionality of resources for the government. However, in the last ten years, the Corporation has been able to get bank funds in only one year. In other years, there was no additionality of resources. It depended entirely on government funds for its schemes. There were several reasons for the Corporations in not having succeeded in achieving even the limited economic objective of rasing commercially viable industrial plantations.

Apart from poor management, most commercial species require the presence of mixed forests for adequate growth. Sri R.S. Mishra, IFS, in the working plan of South Betul Division for the period 1973-74 to 1987-88, has appropriately remarked that it is in the mixed forest that invasion of teak is rapid, whereas in blank and understocked areas teak makes slow gain. Both the Sal Expert Committee and Dr. Ram Prasad, ex-Director, S.F.R.I., Jabalpur, have commended that sal itself regenerated best when there is appropriate support vegetation. The position in relation to teak could not be better summed up than in R.S. Mishra's words, "Mixed species found on the archaen soils are naturally deep rooted. In doing so they extend the zone of underground drainage and soil aeration to a greater depth. It is this..... which is responsible not only for spreading but also for good health, vigour and quality of teak, which requires both good drainage and good soil aeration for its pure expression. The removal of mixed species very soon leads to surface compaction.... This is how mixed species are ecologically important in relation to teak in the high forests of Betul district." Provided that the mixed forests are worked for nistar in a scientific manner, there is no reason why the very biotic pressures which now operate in the forests should not be used as a means of creating the best growing conditions for teak and sal.

It is now being proposed by some that the management of degraded lands should remain with government corporations but private companies may invest their money in the plantations. If government banks have not found the activities of these corporations worthy of investment, why would private companies do so? Forestry being a long gestation activity, it requires stable tenure. If land, management, and source of funds is going to be with three different parties; government, FDCs, and private industry respectively, the risk for the investor is very high, unless there is unwritten and unstated understanding between the parties.

Another reason for failure of commercial plantations has been the acute pressure on such lands, as well as the activities of smugglers. Commercial plantations increase hostility between government and the local people. In some districts, such as Bastar and Rajnandgaon, tribals have organised themselves and resist planting of commercial species on forest lands. Instances are not wanting where people (not naxalites) uprooted commercial seedlings planted by the FD or Forest Corporations. The experience of tribal states, such as Andhra Pradesh, shows that awareness among the tribals is likely to increase in future (as it should), and that they can no longer be taken for granted in the matter of choice of species. Despite the popularity of teak in the Forest Department in A.P., it was difficult to protect teak in natural forests, as it was being smuggled and stolen at a very fast rate. The experience of Maharashtra and Gujarat is that after teak is ten years old, villagers cut it illegally and take it away. The future of pure teak plantations, which take 60 to 80

years, is therefore bleak. Thus planting market oriented species encourages smugglers or indisciplined behaviour.

To sum up, if public sector banks have not found the performance of FDCs inspiring enough to invest in them, it is difficult to believe that the private sector will lend money to the FDCs, unless of course industry wishes to revert back to the days of almost free supplies from government forests. The PCCF Andhra Pradesh has suggested that 'a review is necessary of the utilisation of forest lands given to FDCs, as they are serving the interest of the industry rather than the poor forest dwellers.' Industrial plantation whether by the private entrepreneurs or by the FDCs has had little chance of success so far in the face of acute human and cattle pressure.

Social impact

Turning a complex forest into a genetically simplified plantation converts the local tribal into a second-class inhabitant. One-third of the total growing stock in Madhya Pradesh is in one district alone, Bastar, where there should be no shortage of fuelwood and other forest products, and yet it is ironic that foresters - tribal relationships are at its worst in Bastar, thus suggesting that the real issue is not shortages of fuelwood and fodder, but larger issues of control and power. The argument of the industry that only 2 m ha out of 67 m ha of government forests need be given to industry is of no consolation to those local forest dwellers from whom their life support system will be snatched.

No less a figure than Sri Dalvi, IG Forests, while addressing the 1981 International Conference on tropical forest management at Dehradun illustrated the inherent conflict arising out of forest plantations in the following terms:

'Let us consider another example of a natural forest predominantly of sal. This forest represents to poor forest-fringe-dwellers a source of livelihood yielding seeds for sale, branches and leaves for fuel and manure. The decision to convert this sal forest to industrially more valuable species like teak may satisfy the needs for higher revenues which may or may not be used for the welfare of these same people, but would certainly deprive them or an output from the forest which they were enjoying'.

Other writers have been less charitable about the intentions of the government. An ex-Forest Secretary of Madhya Pradesh writes,

This (the policy of giving priority to industries and subsidising industrial raw material) is clearly discriminatory. The rights of a huge section of society cannot be wiped out in order to benefit a few industrialists. For instance, the Orient Paper Mills was promised a lakh (100,000) ton of bamboo per year from four districts of the state. This eliminated all bamboo from Rewa, Panna, Satna and Shahdol. When such a situation arises the Forest Department tells the villagers to fend for themselves because there is nothing in the forests for them (NCHSE, 1987; iv).

The total number of cane, bamboo and basket weavers in 1981 was 8.2 lakhs, of which 6.9 were in rural areas. A common problem of all bamboo artisans is that of raw material shortages. The major cause for this is their diversion to paper and other industries, which often procure the raw material from state government at throw-away prices, much to the disadvantage of the artisans.

A plantation loses the old character of the forests. For instance, mahua is of no significance to the Forest Department, nor any efforts have been made to increase its number in forests. No doubt, mahua is also not felled by the department, but its significance for them is not the same as for tribals. Compared with the Forest Department, tribal involvement in mahua is pervasive to a profound degree. In addition to collecting flowers and seeds for sale at the weekly market, or for exchange for salt or cloth, tribals use the wood to support the canopy at wedding celebrations, the dried flower to add bulk to their food or to feed their animals, the seeds and the flowers for preparing liquor and for religious ceremonies. Creation of such mixed forests is possible only when people are not alienated, and are at the centre stage of forest planning.

Transfer of management of forest lands to industry

As already stated, Ministry of E & F claims that there is no proposal to alienate forest land, and that forest land will continue to be with government. However, the proposals which have been drawn by the state governments and the industry assume that the management of forest lands will be transferred to them, though not ownership, through a MOU between the FDC and the industry. These proposals are being discussed below.

The Orissa government has proposed that the industry should pay 25% of the outlay of the project as interest free loan, and then it will appoint a Project Manager and become overall incharge of the project, solely responsible for day to day working, execution of works and implementation of the Project till harvest. The industry will have the option to buy the produce from the plantations at the prevailing market rate, and the FDC can dispose off the produce only after the refusal of the industry in writing (which gives a veto power to the industry, and hence it will decide what is the market rate). Twenty five percent of the produce including lop-tops, bark and small timber will be earmarked for local people at rates to be decided by government in consultation with the Project authorities. It appears from the MOU between the FDC and the industry (which has already been signed in April 1993) that the rest of the 75% of the expenses will come from banks, which is possible only when plantation is on fertile lands. In any case the MOU never states that only degraded forest lands will be taken up. Also, if land remains under the control of the industry, chances of a part of the production being siphoned off under the table cannot be ruled out.

Similar to Orissa, the Arunachal Pradesh Government has also proposed that industry will have the right of surface utilisation for the purpose of raising tree plantation. In other words, land will remain under the control of industry. They will also be allowed to raise temporary structures. One wonders if this is not alienation of forest lands or if this is not leasing, how else does one define leasing or subletting. The Arunachal Pradesh government proposes that the gross revenues accrued from the plantation activity will be shared with the government in ratio of 75:25. In other words, the government is leasing out the forest lands by charging a rent of 25% only. In addition, government would charge Rs. 2500 per ha. as 'opportunity cost' of the allotted land. The annual share of the department from the sixth year onwards should not be less than Rs. 10,000 per ha. The government has already identified 25,000 ha. which the wood-based industry proposes to regenerate over a period of 15 years on an investment of about Rs. 250 crores.

The draft conditions formulated by the Ministry of Environment and Forest in 1994 (at Annexure 3) reveal that the industry will get the right over land for undertaking afforestation and right over fixed percentage of forest produce. but land will not be leased to the industry. It is difficult to understand the fine distinction which is proposed in the guidelines between leasing and handing over possession to the industry. These guidelines suggest that the land above 25% density shall not be available for plantation, although the proposals finalised by the State Governments do not restrict themselves to 25% density.

In a letter dated 15th July,1994 addressed to the Minister, E& F, GOI, Sri Thapar, Vice-Chairman, Joint Committee on Paper Industry has given two models for raising pulpwood plantation. Both envisage handing over of the possession of forest lands to industry. The proposal is silent over the question of parting any revenue or royalty to government. Establishment of social forestry on 15-20% of land is seen as rent, in other words, almost free of charge. Purely from commercial point of view, it may be more profitable for government to auction forests!

There is no mention in either the Government of India guidelines or the State Government's proposals or those from industry as to how the rights and concessions which people enjoy over these lands will be affected. As degraded forest lands are most likely to be protected forests, the issue of peoples' rights cannot be swept under the carpet. It is significant that the Government of Arunachal Pradesh, which has the second highest area under forest after Madhya Pradesh, has identified reserved forests of Paya and Digru located in district Lohit to be leased to industry. On the one hand, the Forest Conservation Act specifically mentions that the reserved forest land will not be de-reserved and the new Forest Act (which is still in a draft stage)

bans not only de-reservation but disallows any form of Joint Forest Management on reserved forests, on the other hand control and possession over reserved forests is being proposed to be handed over to private parties. It is feared that other States will also follow suit because industry will not like to get into legal hassles of dealing with rights and concessions of a large number of forest dwellers. Is it fair to surrender exclusive control over forests to the rich, and deny people's participation even on a joint basis? Politically too, it would be difficult to sell this idea in a country where there is so much of land hunger.

Sometimes industries, in order to maximise production use methods which are destructive to trees. An obvious example is extraction of resin from pine trees. Where industries held bamboo leases they utilise even the better quality bamboo for pulp, although according to rules only inferior quality bamboo should be used as pulp, and the better quality should be sold to artisans. Furer-Haimendorf (1985) describes how a particular paper mill in Andhra Pradesh exploited bamboo in a tribal region by bringing in hundreds of labourers from different states and used methods of extraction which endangered future regeneration.

Many countries such as Malaysia and Philippines have experience of leasing out forests to logging companies. The general experience has been that bifurcation of ownership and management leads to faster deforestation and the arrangement is not conducive to long-term investment by either parties. Moreover, political masters see such arrangements as patronage, and give concessions to the industry at a price. For instance, in many developing countries, license fees is waived or its recovery stayed after the industry has paid "political subscription". Once possession over forest lands is transferred to the rich, such concessions appear justified in the interest of "sustained production". The suggestion that the management of forest lands should be given to private industry amounts to nothing but share cropping. A great deal of literature exists in agriculture on the evils of share cropping and leasing. In our own country, the abolition of intermediaries and zamindari system in the early '50s was based on the rationale that it is only owner cultivation which can maximise production, and that share cropping is inimical to production. When compared with agriculture, forests require even more secure tenure, otherwise with diluted rights over forests, industry is likely to behave in a very irreponsible manner, and maximise short term gains at the cost of environmental considerations.

Implication of leasing for forest policy and law

Considering the heavy dependence of the people on forests, the Group has come to the conclusion that forests can be sustained only if the forest policy is geared to meeting the needs of the people, and involves them in its management. For almost a century and until 1988, the policy was to use these lands for commercial purposes, and to look upon the people as a liability. This led to deforestation, which increased rural poverty and unemployment on the one hand, and social unrest and conflict over rights on the other. A shift in policy occurred in 1988 as planners recognised the difficulty of excluding people from forests, although the policy instruments of improving the effectiveness of communities in local protection are still not very well understood.

The Forest Policy, 1952 declared that village communities should in no event be permitted to use forests at the cost of 'national interest', which was identified with defence, communications and vital industries. It wanted forests to be used to produce valuable timber for industry and other national purposes. The policy stated,

The accident of a village being situated close to a forest does not prejudice the right of the country as a whole to receive benefits of a national asset. The scientific conservation of a forest inevitably involves the regulation of rights and the restriction of the privilege of users depending upon the value and importance of the forest, however irksome such restraints may be to the neighbouring areas..... While, therefore, the needs of the local population must be met to a reasonable extent, national interests should not be sacrificed because they are not directly discernible, nor should the rights and interests of future generations be subordinated to the improvidence of the present generation.

In budgetary allocations too, emphasis was laid on the conversion of 'low' value mixed forests into 'high' value plantations of commercial species such as teak and eucalyptus. Forestry at that time meant raising trees in order to get sustained yield of timber in perpetuity. Exotic species were introduced to create man-made forests. Between 1952 and 1980 over three million ha of plantations were established, the major proportion of which were to fulfil industrial needs (CSE 1982). Out of Rs 670 million spent on afforestation during 1966-74, roughly Rs 560 million[3] was on production forestry alone (GOI, 1981: 45). The use of bamboo for paper manufacture accelerated from a low of 58,000 tonnes at the end of the Second World War to over 5 million tonnes by 1987 (Hobley, 1996).

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3 *Both figures are not adjusted for inflation*

The National Commission on Agriculture (NCA) also supported the view that, '*Resources for industrial raw material, both for internal consumption and export, should be stepped up through large-scale industrial plantations on forest lands*.'

Thus the entire thrust of forestry during the first four decades after Independence was towards the production of a uniform industrial cropping system, created after clear-felling and ruthless cutting back of all growth, except of the species chosen for dominance. Far more emphasis was placed on plantation rather than on management of existing trees.

The 1988 Forest Policy

In all sectors of the economy, where both government and private sector work, it is generally the government sector which looks after the infrastructure or welfare needs of the people, whereas market needs are met from the private sector. Thus health, education, and roads etc. which are non-commercial programmes and look after the welfare needs of the people are under the domain of government, whereas private sector looks after commercial production. It was strange that in forestry this distribution of responsibility was not being followed, and the reverse was being attempted so far and even endorsed by the NCA, as it suggested that forest lands were to meet the commercial needs of the economy and farm lands were to produce 'fuelwood

and fodder'. As regards village lands, despite rhetoric to the contrary, these lands in actual practice produced commercial polewood or urban fuelwood, and did not meet subsistence needs of the poor. This conceptual weakness was perhaps one of the main reasons for the failure of the social forestry model.

This anomaly was corrected by the new forest policy announced in 1988 which is radically different from the two previous policies. According to this, forests are not to be commercially exploited for industries, but they are to conserve soil and the environment, and meet the subsistence requirements of the local people. The policy gives higher priority to environmental stability than to earning revenue. Derivation of direct economic benefit from forests has been subordinated to the objective of ensuring environmental stability and maintenance of ecological balance. It discourages monocultures and prefers mixed forests. The focus has shifted from 'commerce', and 'investment' to ecology and satisfying minimum needs of the people, providing fuelwood and fodder, and strengthening the tribal-forest linkages.

Parra 2.2 of the new Policy defines the basic objective of forest management:-

The principal aim of the 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 must be subordinated to this principal aim.

Para 4.3.4.3 of the new Policy reads as follows:-

The life of tribals and other poor living within and near forest 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 on forest produce.

Similarly Para 4.6 of the Policy lays down:

Having regard to the symbiotic relationship between the tribal people and forests, a primary task of all agencies responsible for forest management, including the forest development corporations should be to associate the tribal people intimately in the protection, regeneration and development of forests as well as to provide gainful employment to people living in and around the forest. While safeguarding the customary rights and interests of such people, forestry programmes should pay special attention to undertaking integrated area development programmes to meet the needs of the tribal economy in and around the forest areas, including the provision of alternative sources of domestic energy on a subsidised basis, to reduce the pressure on the existing forest areas.

The Policy states in para 3.5 that '*Minor Forest Produce provides sustenance to tribal population and to other communities residing in and around the forests. Such produce should be protected, improved and their production enhanced with due regard to generation of employment and income*'.

As regards supplies to industry, the first part of Para 4.9 states:-

As far as possible, forest based industry should raise the raw material needed for meeting its own requirements, preferably by establishment of a direct relationship between the factory and the individuals who can grow the raw material by supporting the individuals with inputs including credit, constant technical advice and finally harvesting and transport services.

It is also stated in the same para that '*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*.'

Two factors must have weighed upon the minds of policy planners in suggesting a diminished role for forest industries on forest lands in the new Forest Policy. First, the popularity of eucalyptus among farmers

increased the availability of pulpwood at a cheap price for the paper industry. In some states, such as Gujarat, large farmers even took to teak plantations, a timber crop which takes 30 to 60 years to mature. And secondly, liberalised imports of pulpwood was permitted which eased the supply for the industry. With new sources of supply, it was no longer considered crucial for the industry to depend on government forests.

The implementation of the Policy was facilitated by the Government of India by issuing a resolution in June 1990 making it possible for the Forest Departments to involve people in the management of forests. In the states of Orissa, Andhra Pradesh, West Bengal, and Bihar there are a large number of groups protecting forests either on their own or initiated by the Forest Department, as Table 6 would indicate.

Thus in the previous policies people and the environment were seen, all too often, as antagonistic. The forest - people interaction was conceptualised as a zero-sum game, in which both parties could not win. According to the JFM philosophy, the conflict model is neither necessary nor useful. To the contrary, ways can be sought in which the interests of people and of long-term sustainability are harmonised in a mutually supporting manner. This has also sharply reduced the rate of forest degradation, as stated in a recent World Bank report:

Forest canopy cover has held up surprisingly well under these depredations. Four biennial estimates of forest surface cover during the 1980s and early 1990s show little variation over roughly last ten years despite net removal before reforestation/ afforestation of about 3.3 m ha worth of wood annually. Trends in "Forestry and Logging" output and prices over the last 30 years suggest that there has been some curtailment of the exploitation of forest resources since the mid 1970's.

Table 6: Actual forest cover & Area under JFM in certain states (sq.km)

State/UT	Forest cover	Area under JFM	JFM area as per cent of forest cover
Kerala	10,334	20	0.19
Himachal Pradesh	12,521	60	0.48
Jammu & Kashmir	20,440	141	0.69
Karnataka	32,403	339	1.05
Rajasthan	13,353	244	1.83
Gujarat	12,578	259	2.06
Madhya Pradesh	131,195	3,500	2.67
Orissa	46,941	2,960	6.31
Haryana	604	63	10.43
Andhra Pradesh	43,290	6,480	14.97
Bihar	26,524	7,103	26.78
West Bengal	8,349	4,493	53.81
Total	358,532	25,662	7.16

(SPWD 1998)

The proposal of the industry would reverse the present happy trend and bring us back to the 1970s when the rate of deforestation was alarmingly high.

Forest Conservation Act

The other policy initiative taken by the Government of India is the Forest Conservation Act, 1980. This Act limits the powers of the state governments, and they cannot de-reserve Reserved Forests or divert forest lands for non-forest purposes unless permission of the Government of India has been obtained. The states cannot now lease out forests to the private entrepreneurs/ Corporations not owned by government. The operative section 2 (iii) of the Act (after amendment in 1988) reads as follows:

'No State Government or other authority shall make, except with the prior approval of the Central Government, any order directing that any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any other authority, corporation, agency or any other organisation not owned, managed or controlled by government.'

Despite the stringent law, some states, such as Orissa, have decided to assign bamboo forests to paper industry, who have been appointed sub-agents of the OFDC. An interesting issue of law arises whether the arrangement with the paper industry amounts to leasing of forests or not. The official position is that it is leasing of forest produce, and not of land, and hence the provisions of the Forest Conservation Act are not attracted. However, an arrangement would amount to leasing of land if the lessee pays a royalty to the owner of land, the payment to wage labourers is made by the lessee, and the lessee has the right to take the produce away. In the present case all the three conditions are satisfied. Therefore forest leases in favour of private parties in Orissa are against the Forest Conservation Act. As the permission of the GOI has not been taken for the assignment of bamboo forests to industry, the entire arrangement is unlawful. Officers are taking grave risk of prosecution in being a party to such illegal arrangements. Even if the GOI does not launch prosecution, NGOs are likely to drag government officials to court on this vexed issue.

In the late 1960s the system of appointing labour contractors was abolished all over India, as it had led to corruption, theft, and development of unhealthy nexus between bureaucracy/politicians and contractors. The present arrangement in Orissa not only revives the old contractor system, but is even worse, as at least in the older system there was some transparency and fair play, as only the highest bidder could become contractors. The order appointing industry as ‘raw material procurer’ goes to the extent of stating that ‘other terms and conditions may be settled in consultation with the industry.’ This must be the only case in government where lessees are appointed first and then are left free to lay down their own terms! Probity demands that one advertises and gets the offer of terms from the lessees, before deciding who should get the lease.

The staff of the OFDC, who were supposed to check malpractices by the industry, has been transferred to the paper industry, with the result there is dilution of checks on the number of trucks taken out, whether proper harvesting precautions are being followed, or whether minimum wages are being paid to the workers, etc. The industry has rights of harvesting but it makes no efforts to follow the prescribed silvicultural practices to ensure adequate regeneration. Technically, it is obligatory that the party which is felling bamboo should simultaneously undertake cleaning and other silvicultural operations to ensure adequate regeneration, but under the present scheme, the industry is under no obligation to do so, thereby endangering further production of bamboo.

It is interesting that for satisfying the needs of the common people, GOO has asked the paper industry to harvest 5000 tonnes of long bamboo. Thus, even the owner has to request the industry to meet the demands of the poorer section of society. Local enquiries showed that the industry was not meeting the demands of the poor on the plea that the poor do not turn up to get subsidised bamboo!

Despite the prescription in the new Forest Policy, 1988 that the needs of the forest dwellers will be the first charge on the forest produce, the poor in Orissa have to meet their demand for bamboo by stealing, while the industry gets subsidised bamboo and has the first charge. From one depot the disposal of bamboo was as follows:-

To industry	33,60,000 pieces (roughly at 15 paise a piece)
Through open auction	27,275 pieces (Rs 10 to 13 a piece)
Sent to other divisions	2,892 pieces
Local sale to cultivators (tenants)	350 pieces (at Rs 4.30 per piece)
Sale to artisans	nil

Only those who own land and thus are tenants and pay cess are entitled to fuelwood and bamboo, that too after a lot of verification from several officials. There is no system by which the landless and artisans can get bamboo even at a price, and thus are forced to resort to illegal harvesting.

In pursuance of the National Policy of 1988, Government of India on 24 December 1996 enacted a new Act, Provisions of Panchayats (Extension to the Scheduled Areas) Act, 1996. 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 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. In view of the legal rights of PRIs created over forests in the Schedule V areas (where most forests are located), it would now be illegal to lease out forests to the private entrepreneurs/ Forest Corporations.

Views of the Ministry of Environment & Forests and state governments

The latest stand of the Ministry of Environment & Forests**,** Government of India is best explained in a letter from Minister for Environment and Forests, dated 27th Oct, 1997 addressed to Prime Minister:

'In reacting to a similar demand, this Ministry had prepared a proposal in 1995 for the Cabinet that severely degraded forest lands may be leased out to industry for growing timber for meeting the needs of the wood pulp based industry. The main ingredients of this proposal were:

(i) Severely degraded forest areas (less than 10% density), which are preferably free of traditional and community rights, to be made available for afforestation to State Forest Development Corporations (FDCs) in financial and technical collaboration with private sector.

(ii) A pre-design spatial mix of least three species with no single species having more than 50% population to ensure a minimum level of bio-diversity.

(iii) 20% of the project area to be planted for non commercial use in consultation with local village communities for meeting their *bona fide* requirements of fuel, fodder and small timber.

(iv) Installation of a management committee with equal representation of the State, FDC, industry and village community / panchayat to be formed for overall technical supervision.

(v) 5% percent of the quantities of the forest produce or its value from thinnings and final felling will go to FDCs as its share.

(vi) The scheme will also be open to registered cooperative societies consisting of local landless unemployed tribal educated youth, ex-service personnel etc.

The then Cabinet considered this proposal on 3rd July 1995 and decided that a Group of Ministers should consider this proposal, after which the proposal should be brought back to the Cabinet.

Subsequently, the Planning Commission set up a Committee on 6th June 1997 headed by Shri N. C. Saxena, Secretary, Department of Rural Development, to examine the issue of leasing forest land to industry for the purpose under consideration. This Committee held one meeting on 16th June 1997 and has yet to arrive at a conclusion.

This Ministry organised its Annual Conference of State Forest Secretaries and PCCFs on 26th and 27th September, 1997. Some States like Andhra Pradesh, Madhya Pradesh raised a demand that State Governments should be allowed to lease out severely degraded forest lands to industry for raising commercial species of timber. As the matter was one that permitted two strongly opposing view points, it was decided to set up a Working Group to go into this issue and give its report within 8 weeks.

Prior to this, the Supreme Court, while dealing with the issue of how to prevent large-scale illicit felling in the North Eastern States and other areas had, *inter-alia*, observed that the Government should not take any steps to dilute the existing forest Policy. Further, the definition of forests was also expanded to cover what is understood to be a forest in the dictionary sense of the meaning and as is understood in common parlance.

Keeping in view these sensitivities and the somewhat complicated nature of the issues involved, I feel we should wait for the existing Committees to examine the matter in depth after which we can proceed further.

In view of these reasons, I thought that I would bring to your notice that we will require some more time to examine the issues involved and to come out with a proposal within 4 weeks may not be possible. As soon as the Committees have examined the various issues, my Ministry will examine their recommendations for further necessary action.'

In response to the draft report of the Group, Sri Oberoi, the IG Forests sent the following comments:-

'In this regard, I would like to state that we should attempt to bring more and more investment in the forestry sector to ensure achieving the national target of bringing one-third of land mass under tree / forest cover. Regeneration and improving the productivity of degraded forest is a national imperative. To achieve this, we must try to involve the people as well as other sectors in afforestation activities. Regarding the participation of industries in afforestation, I agree that they should have durable tie-up with the private farmers for producing the raw material. Regarding greening the degraded forest areas, I would like to state that 15 million ha. of marginally degraded forests where adequate root stock exists, would be tackled through aided natural regeneration, gap filling and enrichment planting under the JFM Programme. Apart from other arrangements to green another 15 million ha. degraded forests devoid of root stock and self-regenerative capacity, attempts should also be made to enhance and utilize the institutional capacity of the State Forest Corporations. For this purpose, the corporations should take up forest plantations with adequate inputs and suitable genetic material propagated through most appropriate technology. This will ensure bringing vegetation cover on the completely barren lands. Then only, it would be possible to meet the requirements of various sectors of the society and to keep the pressure off the well stocked forests, which are the bio-diversity repositories and serve diverse ecological roles.'

State Governments

Several states expressed their views either in writing or in the meetings. These are described below.

Tripura

Massive plantation of industrial species as captive plantation would result in monoculture, which is ecologically undesirable. Insisting on mixture and imposing restrictions on monoculture would not be encouraging to the industries and they may back out. Though the forests are degraded, they may not be totally depleted of biodiversity values. Minor Forest produce may be available and many herbs, shrubs and other lower vegetation of food, medicinal and eco!ogicai values may be existing in those areas. Large-scale plantation (monoculture) would wipe them out.

Most such degraded lands need eco-restoration through soil conservation, which would need several ameliorative measures. Since such measures are costly, industries may not be motivated enough to take up such operations. Furthermore, Agroforestry and farm Forestry are likely to be adversely affected.

Ecological status of any forest land fully stocked or degraded, cannot be decided on the basis of tree density alone. Total importance of land is to be judged on the basis of aesthetic, ecological and biological parameters. Therefore even if areas of less than 10% tree density are selected, biodiversity conservation aspect will not receive due care.

It has not been clearly established whether there has been actual shortage of raw materials particularly, in pulp and paper industries. In many cases it has been shown that price of some raw materials like eucalyptus poles in certain states registered a decline in real terms. It can hardly be said that there is actual shortage of such raw materials.

It is a fact that industry would like to invest their capital only where the cost of plantation is less than the cost of alternative supply. Thus only good forest land can meet this requirement. Incidentally, these forest lands are also the areas on which local poor depend highly for subsistence. It is also a point of controversy

whether industry would come forward to invest in degraded forests, which are quite poor in innate productive capacity.

Regarding augmentation of financial resources inviting corporate investment for afforestation, it can be said that substantial external funding is now available for such work in the country and such funding is expected to grow in magnitude in future. The proposal is not going to effectively attract institutional finance for the SFDCS, either.

The expectation underlying the proposal that such lease would help in combating encroachment may not be achieved because the scheme if ultimately materialises, would be implemented over actually a very small percentage of degraded forest land and it would hardly cover the extensive balance degraded area (30.8 million ha.) of the country. On the contrary, the biotic pressure may be diverted to the adjoining better quality forests. Also the problem of encroachment is very complex and such lease is not going to address anyone of them. Therefore, this will be of little significance.

It is felt that leasing of degraded forest and will amount to snatching away of life support system of local tribals and poor fringe dwellers. Most degraded forests have extreme biotic pressure and often have rights of the people recorded on such land. It will be virtually impossible to extinguish such rights or reduce biotic pressure. People's rights to access is already a chronic problem in protected area network of the country. If such land is used by industries who will generally be perceived as alien to the area, will accentuate to the problem to an unmanageable limit. The past experience of granting lease to industries have not been always good. It is reasonable to expect that industry would maximise profit of their venture and may use methods, which may not be very conducive to sustained conservation and development of forests. Exercising strict control and vigilance every time may not be possible. Bifurcation of ownership and management may result in complications leading to faster deforestation. Furthermore, it is also not known how many industries/ entrepreneurs demonstrated their keenness to afforest degraded forest lands and if so, with what terms.

State specifities in Tripura - Referring to the proposal under Tripura scenario, it is to state that total degraded forest land in the state is 85,100 ha. (58,400 ha. In erstwhile P.F. and 26,700 in R.F.). Out of this area, 8620 ha. are encroached. Due to lack of infrastructure, industries and employment opportunities, a large section of rural population depend on forests for livelihood. It will be almost impossible to extinguish such rights or reduce biotic pressure on such lands. Even in the 4 sanctuaries of the state reserved for biodiversity and wildlife conservation, much difficulty is being experienced to deal with people's right to access and protecting the resources there.

The bona-fide householder and cultivators who are inhabitants of villages entirely surrounded by Reserved Forests in Tripura are eligible under Notification No. 1 dated 29-4-1952 of Forest Department to have the forest produce free from such Reserved Forests free of royalty up to a limit as indicated therein for their own personal use but not for barter or sale. Such concessions were also extended from protected forests which are now unclassified government forests by Notification No. 3 dated 29-4-1952. Besides, other concessions had also been allowed like grazing of cattle free of charge, shifting cultivation jhuming) by hillmen jhumias etc. The hillmen Jhumias also enjoy several other concessions from these forests. Thus, the seriousness of the conflict likely to generate as aresult of such lease can easily be comprehended.

Ecologically the state is situated in the maximum potential productivity zone. Many degraded forest areas of the state do not require capital investment, not even very advanced technology but proper protection and regeneration methods. Existing rootstock in degraded forest areas, if appropriately protected, would effectively afforest such areas.

Furthermore, there are no large-scale wood based industries in the State and in the past no industry so far came forward with any request or proposal to afforest in degraded forest on lease. The State Government has undertaken a large-scale project of economic resettlement of tribals. There have been serious constraints of availability of suitable land out side the forest area. In conformity with the recommendation of

Sukia Commission , the State Government is preparing a proposal for utilisation of degraded forest land for resttlement of tribals.

In view of the details presented in the aforesaid paragraphs, the State Government is not in a position to recommend leasing out of forest land for raising industrial plantations.

MP – The MP Rajya Van Vikas Ltd. invited tenders from private entrepreneurs in June 1996 to undertake plantations on a contract basis in four tribal districts, Seoni, Rajnandagaon, Chindwara, and Betul. This was objected to by the GOI on the grounds that it was not permissible under the Forest (Conservation) Act, 1980. There were also problems related to technical and financial bids, therefore all the tenders called for were rejected.

Sikkim – All forest lands in Sikkim are located in slopes which are fragile and plantation by private entrepreneur will not be environmentally sound, besides there is no Forest Corporation.

Pondicherry – Degraded forest lands should be brought under social forestry by involving local people, and should not be leased to the private entrepreneurs/ Forest Corporations.

Mr. Chitrapu, PCCF, **Tamil Nadu** opined that increasing prices of wood especially firewood and pulp motivated the farmers to produce wood on their farm land. Use of farmland and degraded private land for tree planting is helpful in preserving the biodiversity of the country. Leasing of degraded forest land to industries may be beneficial to industry but from social and environmental point of view we might be losers. Moreover, the paper industry is a very polluting industry. Citing the example of Indonesia where the forests have been privatised, he further said that the present problem of "smog" is a fall out of such privatisation. He, therefore, did not favour leasing of forest land to industry.

Shri S. D. Mukherjee, PCCF, **Andhra Pradesh**, informed that the Andhra Pradesh Government had embarked upon an ambitious programme of joint forest management in which people's committees have been given a very important role in deciding the choice of species and in forest management. If industry wanted particular species to be raised on such forests, they would have to persuade people's committees. He had sent a proposal to this effect to the paper industry, who have not responded so far. The industry should also promise a guaranteed minimum price, so that communities can put some area under eucalyptus and bamboo. He calculated that even if 5% of the area under JFM is put under commercial species, it would produce sufficient wood for industry. According to Sri Mukherji, the Bhadrachalam paper mill spends Rs 35,000 per ha in producing eucalyptus on its private farm, whereas similar quality can be produced by the communities at 1/3rd the price.

When this issue was raised in the meeting in the presence of the industry representatives, they said that it amounted to communal farm forestry which is worse than farm forestry on private lands, as far as hassles of supply to industry are concerned. The industries could raise sample clonal plantations on 1/2 to 1 ha of private plots taking the villagers in confidence. The industry is therefore in no mood to negotiate with the communities. Despite this reluctance of the industry to liaise with community groups, the PCCF would welcome a tripartite agreement among people, industry and Government but stated that management and control cannot be given to industry. The field notes given at annexure 2 throw more light on this proposal. Representatives from industry were not in favour of such an arrangement, as they wanted outright control over land without paying any price for it.

Mr. R. D. Jagati, Chief Wild Life Warden, **Haryana**, expressed his fears that leasing out of degraded forest land to private entrepreneurs may strangulate the flourishing agro-forestry sector of the State. The Yamunanagar Paper Mill gets 75% of its raw material from farmers and thus supports farm forestry in a big way. Haryana also exports farm forestry wood to other States. This was confirmed by representatives of industry who informed that wood is transported up to 500 kms for supplying the needs of industry. He further added that degraded forest lands are of two types - (1) barren lands where no economically viable plantations could be raised and (2) marginally productive degraded lands which form bulk of the wastelands.

Degraded forest lands are generally in the vicinity of good forests and access of the industry to degraded forest lands would put immense pressure on them. He also expressed his doubts about the machinery identifying the "suitable degraded forest land". It is quite likely that the field machinery may be pressurised in declaring good quality forests as degraded. He further added that improved clones and techniques require good soil and inputs and are not suitable for barren lands.

Orissa - Responding to the draft report of this Group, Orissa Government sent detailed comments disagreeing with some of the recommendations of this Group. These are quoted below in full.

'The main argument against leasing out degraded forest land for the above purpose is that good and not-so-degraded forest lands may be diverted for captive industrial plantation, and in the process, forest-dependent livelihoods of the local communities may be adversely affected. This could be resolved by entrusting the task of selection of degraded forest areas to independent committees (of both Government officials and non-officials and village spokespersons) which would confine strictly to scrub lands with less than 10 per cent standing tree cover, where peoples' livelihood dependence is minimum. In Orissa, there are extensive tracts of such degraded lands recorded as forest, which do not provide any real livelihood support to the local communities, as there is hardly any vegetation or biomass output from these lands. These lands have suffered this fate on account of various unsustainable practices, the most important of which is Podu (shifting) cultivation. Some of these lands are in reasonably large compact chunks, and are quite suitable for growing Eucalyptus and similar other quick-rotation pulpwood species. There is very little viable root-stock left on these lands which could not be regenerated even with appropriate involvement of the local communities. Plantation is the answer to rehabilitation of such lands, and if industries are willing to come forward to invest funds in raising plantation on these lands, it should be welcome.

Such lands could be selected on widely dispersed locations so as to minimise the socio-economic costs to the local communities. Also, the mix of species to be raised, model of plantation, harvesting plant and sharing of the produce could be decided in each case, separately as local issues, by integrating the stake-holding interests of the local communities into the detailed design of any such plantation scheme. Difficulties would arise only when any single blueprint of plantation model is sought to be implemented at all such places. The proposed joint venture between the State-owned Forest Development Corporation and the Private Industry could carefully work out an appropriate mechanism to adequately address the site-specific social and ecological issues in grounding any such plantation.

One of the express objectives of allowing some industries a direct role in raising their raw material resources on forest lands will be to introduce the genetic improvement technologies so as to achieve a quantum jump in productivity from all such plantations. It is possible that the raw material now being supplied to the paper industries in Orissa by working the bamboo forest coupes could be met alternatively by raising highly productive plantations over about only 25000 ha. of degraded forest land, and if this is feasible, it would be a positive and pragmatic intervention to help relieve the pressure on the forests on account of bamboo exploitation.

The debate between 'farm forestry' and 'captive industrial plantation on degraded forest lands' need not be an either-or situation. There is space for both in our kind of situation where large scale farm forestry is not feasible in the immediately foreseeable future as a source of raw material for the industrial requirement. An industry-led farm forestry or contract farming, with appropriate liberalisation of transit and other restrictions and price-support intervention is certainly worth pursuing vigorously as a long term objective.

The market requirement of commercial and industrial wood being far in excess of the present availability, there need not be any apprehension that farmers will lose their motivation to take to farm forestry when industries are allowed to produce part of their raw material requirement from forest lands.

The question of equity on access to forest lands as between the local communities and the private industries will have to be resolved by carefully selecting the lands to exclude those with substantial user-dependence of the local people, and also by working out the appropriate royalties to be paid by the industry for the produce

of the captive plantation, which may be based on the social cost and opportunity cost of making the degraded forest lands available for such plantation. There need not be any subsidy of any kind to the industry in the proposed arrangement. The whole arrangement would be based on the willingness of any industry accept the appropriate conditions.

Coffee, cashew and palm plantation are non-forestry activities, and there is a legal prohibition on such activities on forest lands. So, there is no question of entertaining any claim of such industries to degraded forest land on the analogy of paper industries.'

Andamans & Nicobar opposed leasing on the ground that there are no degraded forests in the UT.

Meeting demand for pulpwood through farm forestry

Since the private entrepreneurs/ Forest Corporations would use land for commercial production of wood, it is relevant to discuss present demand/supply scenario for timber and pulpwood, which are the two main commercial output from trees. Out of these, timber used by the construction industry, mining, transport and communication, etc. is processed in small and cottage sector by a large number of decentralised sawmills. Its number is estimated to be around 25,000 in the country. They have made no demand for allotment of land, also because timber takes about 40-60 years to grow.

The main demand for leasing of forests has come from the paper industry, which uses bamboo and eucalyptus, which can be grown in about 5-8 years. The current utilisation of wood and bamboo by the paper industry is 3.2 million tonnes (mT), whereas the demand has been assessed as 6.4 mT by the industry. Mr. Hari Shanker Singhania, the then Chairman of the Development Council for Paper and Pulp industry, prepared a report in June 1990 according to which the demand for pulpwood was likely to increase from 4 to 8 million tonnes between 2000 and 2015, whereas production would increase only from 2.5 to 3.3 million tonnes. It also suggested that the entire requirement for paper industry could be met by allocating 2 million ha of forest lands. This looks exaggerated as the industry claims to be able to produce 20 cum/ha/yr by using clonal technology.

Timber prices after 1987 seem to be stabilising because of liberal imports of logs. The government has been encouraging import of logs and pulpwood by providing relief in custom tariffs. Timber (in log or sawn form) and pulp have been included under Open General Licence (OGL). On the whole the rate of customs duty is low. Since import of timber is under OGL, private entrepreneurs have been making their own arrangements for import. Hardwoods are mostly imported from the tropical countries of Malaysia, Burma, Indonesia, Brazil, Papua, New Guinea, Singapore and Vietnam. Import of coniferous wood, though in small quantities, has also taken place from temperate countries like USA, USSR, Canada, France, Austria and Finland. Pulp is being imported from Canada, Finland, Norway, Portugal, Sweden, USA, USSR, Brazil, Indonesia, Thailand, Chile and Australia. As imported timber is comparatively cheaper than locally grown timber, liberalised imports have helped to conserve forest resources and check prices in the timber market.

Imported timber is mostly used by the building and construction industry, plywood industries and by the railways for making sleepers. The imported timber has also benefited a large number of saw mills, particularly in urban centres and in the vicinity of sea ports. There has been a quantum jump in recent years in the import of timber. In 1989-90, the total import was estimated at. 1.5 mcum (Singh, Ashbendu 1992: 72). The total value of imports in 1995-96 had touched Rs 5000 crores, and the quantity imported may well be 50 per cent of recorded timber production from forest lands. In addition, 1 to 1.5 mcum of newspaper grade pulp, which is almost 50 per cent of the present consumption, is imported. The Group felt that although timber imports may continue, the desirability of importing pulpwood in the face of its surplus indigenous production may be examined again.

Shortage of raw material and farm forestry

As already stated, paper industry has been demanding 2 m ha for growing hardwoods such as eucalyptus for pulp. As against this there is 141 m ha of cultivated land and 20 m ha of farmer owned uncultivated degraded lands. These lands have the potential of producing pulpwood, especially in view of the fact that both eucalyptus and bamboo are short rotation crops, eminently suitable for the farm sector. In fact the bogey of raw material crunch is no longer valid, given the vast expansion in farm forestry programme in the last twenty years.

Trees on farm lands before 1975 - In regions of abundant forests, farmers rarely plant trees on farm lands, as gathering from forests is considered more cost effective, but even in these regions trees occur naturally on farm lands. Trees can be good investments as savings banks for the poor, enabling them to accumulate capital. But trees would become poor people's banks only when their right to ownership of trees is not

disputed and impeded by law or bureaucratic regulations. Quite often this was not the case. Movement of tree logs and tree products obtained from private lands was restricted during the colonial period, in order to prevent theft of similar products from FD lands. A widespread impression prevailed in the villages that all trees belong to the Government, and so does land on which such trees exist. In contrast to Africa, where trees are often planted to establish tenure rights, in India they are often removed to demonstrate claims to land.

These laws were continued and often made more stringent even after the British left. There are three different sets of laws: a farmer cannot harvest trees without permission; a permit is required to transport them; and lastly some trees can be sold only to the FD. In most States people can sell trees only after going through a laborious process of getting a permit from designated minor functionaries - with consequences easy to imagine. These forest laws leave villagers in doubt whether any wood they produce will belong to them. Perversely, the immediate impact of such legislation is always more destruction of private trees as people wish to cash their assets before the government machinery to enforce laws is set up. Besides, such controls act as self-fulfilling prophecies: they deter protection and promote irresponsible felling.

Such laws have contributed to a decline in tree density on homesteads, boundaries and crop lands. The All-India Rural Credit Survey Report studied 75 districts from all over the country in 1951-52, and noted that in most districts either no expenditure was reported or less than one per cent of the families reported expenditure on the laying of new orchards and planting of trees. Farmers' indifference to planting of trees was also due to market distortions caused by government selling timber and pulpwood at a highly subsidised price to industries during the period 1950 - 1980. Another factor was the spread of irrigation, because of which trees on crop lands were not needed, and were felled or not protected. The area under privately owned tree crops and groves in the country was 2.77 per cent of the total reporting area in 1951-52, but fell to 1.15 per cent by 1980-81, showing a substantial reduction in the area under farm trees.

The 'hog cycle' of farm forestry

The trend of decline in the density of trees was reversed in the late 1970's when wood prices shot up and farmers responded to price signals and market opportunities by planting trees, especially eucalyptus on their lands.

The salient features of the farm forestry programme (USAID 1988; World Bank 1990; SIDA 1990) are:

More trees were planted in commercialised and surplus producing agrarian regions than in subsistence oriented eastern states, despite the fact that rainfall and soil conditions were more favourable to trees in the east rather than in the low rainfall (but irrigated) NW India.

Eucalyptus was the most favoured tree with the farmers as it grew straight, had a small crown, which allowed more trees to be planted per unit of area, and caused little shading when planted on field boundaries. It did not attract birds, was non-browsable, hence easy to protect, and yielded straight poles which were perceived to have a good market.

Eucalyptus was planted more for sale as small timber, poles or pulpwood, than for use as fuelwood, although because of glut conditions it was often sold as fuel to brick kilns and fuelwood depots.

And finally, farmers' enthusiasm to plant eucalyptus declined after 1988, as the tree failed to generate the kind of returns farmers were expecting from its sale. In contrast to other agricultural innovations (e.g., high yielding variety of seeds) which, after a fast initial growth, stabilised at a high level of adoption, the popularity of eucalyptus farming shot up quickly during 1981-86 but declined equally fast afterwards.

The disenchantment with eucalyptus can be attributed to the following three factors:-

1. **Production problems** - In most farm forestry plantations, farmers resorted to dense plantations of over 4000 eucalyptus seedlings to a hectare, or the distance between two adjacent trees in case of bund plantation was just about a metre, which led to a poor quality of produce good enough only for fuelwood (Athreya 1989; IMRB 1989). Second, due to rapid increase in demand for eucalyptus seedlings by farmers in the early eighties, seed collection was not done properly by the Forest Department and private nurseries, and poor quality seedlings were allowed to be planted (World Bank 1988). Third, many farmers had planted eucalyptus on farm bunds, hoping to get a good income after six years. They were not advised that trees could cause loss of agricultural production. And lastly, the genetic status and composition of eucalyptus hybrid is less than optimal, due to gradual and continuous genetic deterioration this material has undergone over almost 150 years in India. This leads to poor yield. Further performance could be improved if the species now used was replaced by pure strains of suitable eucalyptus species and provenances selected to match specific site conditions. And last, under the climatic and soil conditions prevailing in many areas of the country intensive weeding and soil working were essential, which was frequently neglected by the farmers (ODA 1989).

2. **Market imperfections**- Compared with markets for other agricultural products, wood markets are still not fully geared to receiving farm production. Farmers rarely bring their produce to the markets, they rather wait for the buyers to come to them. There are legal restrictions on the transport of wood. These are designed to prevent illicit felling from government forests, but they act against the interests of producers, as these rigid laws act as a barrier between the producer and the market, and bring uncertainty in the operation of sale transactions. These laws have acted as a single most inhibiting factor behind the unpopularity of farm forestry programmes. Even when some laws were liberalised, these were not publicised, with the result that harassment continued as usual. The main thrust of government's intervention should be to remove uncertainty and reduce risk, which farmers face while planting trees.

Unlike agricultural products which are supplied only from private farms, government was a big supplier of eucalyptus logs and poles to the market. Traders and paper mills preferred eucalyptus from government depots to collecting it from farms as it was of a superior quality, cheaper and available in bulk. Farmers' awareness about buyers, the prevailing market price, and government rules is weak. Due to these market imperfections, middlemen's margins are sometimes large, leading to high price differentials between what producers get and what consumers pay. Producers are thus deprived of the true market potential.

3. **Lack of demand** - Due to the above factors eucalyptus grown by farmers remained thin, and had little use as timber, which required trees of bigger dimensions and higher density than available from farm lands in a short rotation period of 5-7 years. The output was suitable for pulping, but paper mills, based on wood, are supplied subsidised wood from the state Forest Departments. Although lately many of them have started collecting eucalyptus from the farmers too, yet there are organisational and locational problems in buying wood from scattered farmers and transporting it over a long distance. The eucalyptus crop from farms, when it reached the market in the mid-eighties, was initially sought to be used as poles for scaffolding. But the demand for poles is far less compared with demand for pulpwood or timber, and the market was not able to absorb the substantial production of eucalyptus poles. Even when trees gained girth timber from eucalyptus was found to be far inferior in quality and durability than other timbers, and hence fetched a very low price. Ultimately, much of eucalyptus wood is now being sold as fuelwood at less than the expected price. Farmers' produce as fuelwood competes with wood supplies from government, and with coal and petroleum products. These commodities have administered prices. Thus farmers could not get the expected price for their output.

There could be other factors too that have prevented farm forestry sector from realising its potential. We need to further energise the private farm forestry sector through other means also. The Ministry of Agriculture could be requested to examine why full potential has not been achieved here. Issues such as greater flexibility in institutional financing, involvement of the poor in large scale nursery raising, technical support from the Forest Department and elimination of legal restrictions, which hamper the growth in this sector need to be reviewed. The Ministries of Environment & Forests, Finance, Industry and other stakeholders could play a useful role in assisting the Ministry of Agriculture to draw up a dynamic package of incentives.

Impact of tree farming on the availability and prices of pulpwood

Thus despite farmers enthusiasm for planting eucalyptus prices started falling, as the demand from other sectors for farm wood was not enough and industry preferred imports or subsidised supplies from government. In Haryana the total consumption of poles for construction by households in 1985-86 was 66,090 cum, which is only 2.3% of the total supply of 3 million cu m wood from farm forestry (NCAER 1987). According to a study (Athreya 1989), the Haryana paper mill was buying eucalyptus from the farmers at Rs 440-460 a tonne at the factory gate in 1986, but not only the price came down to Rs 330 in 1988, also the factory started imposing a quality cut of 10%, reducing the effective price to Rs 300 only. If inflation of 8% is taken into account the fall in prices during 1986-88 amounts to almost 40%.

A fall in pole prices has been noticed in several regions, where eucalyptus planting by farmers had been popular. In Gujarat, the price of an eucalyptus pole of 35-40 cm girth and 3-4 metre length has fallen from Rs 39 to 34 during 1985-89 at current prices, as quoted in the World Bank Report on India (1993):-

Table 7: price of eucalyptus poles in major market in Gujarat (in Rs./piece)

Year	Ahmedabad	Bharuch	Mehsana	Rajkot	Kuchch	State
1985	35	35	46	41	37	39
1986	31	30	39	41	35	35
1987	24	37	41	40	35	35
1988	23	39	39	29	35	33
1989	24	46	34	25	40	34

A World Bank/USAID team assessed the retail price of eucalyptus poles in Feb-March, 1988 in the north Indian markets at Rs 400 a ton (USAID, 1988), a fall from the earlier price of Rs 500 a ton. In Chandrakona (West Bengal), one of the largest eucalyptus market in eastern India, the price of eucalyptus pole of 30 cm girth fell from Rs 25 to 18 during 1988-90 (IIM 1991). In the same area, the farm gate price for a similar product fell from Rs 26.70 in 1985 to Rs 10.20 in 1989 (Singh and Bhattacharjee 1991). In the Punjab, poles used to sell for Rs 200-300 per piece in 1984-85 but the price fell to Rs 40-45 per piece after 1988 (Khare and Rao 1991). If inflation of eight per cent per annum is taken into account, the price in 1988 was only 15 per cent of the price in 1984.

The decline in the price of eucalyptus poles in West Bengal in nominal terms (if inflation is taken into account, the fall in prices would be even more drastic) has been reported by the World Bank report (1993) to be as follows:-

Table 8: Changes in the price of eucalyptus poles in West Bengal

Market Price (Rs. per pole)						
1985	1986		1987	1988	1989	
9	3	15	15	13.5	12	12
12	4	28	28	25	24	22
15	5	58	58	52	50	48
18	6	100	105	96	90	82
21	7	125	125	110	105	100
24	8	160	128	125	115	115

These figures clearly show farmers' keenenss and capacity to supply eucalyptus to industry. It is also learnt from the industry sources that the profitability of paper mills has considerably improved in the last ten years due to fall in prices. According to the Labour Bureau, Shimla, fuelwood prices in 20 towns of India increased in absolute terms by 73% between 1989-96, whereas the rise in wholesale price index during the same period was 93%, thus confirming increasde availability of wood.

Due to extensive fuelwood plantations outside the forests in Tamilnadu working of natural forests for meeting fuel requirements has been banned. Contrary to the expectations of fuelwood famine consequent on the closure of coupes, many of the drier tracts of Tamil Nadu now produce enough quantities of casuarina wood to meet not only the fuelwood requirements of the towns and cities but also pulpwood requirement of some of the industries located within Tamil Nadu as well as the adjoining States. Extensive teak plantations have been taken up on the canal banks in the Cauvery delta in Thanjavur district and significant quantities of timber are becoming available from these plantations. It is also relevant to point out that Tamil Nadu receives hardly 800 mm. average annual rainfall and if these things are possible in a State so poorly endowed this can be replicated in a much more striking manner in the rest of the country.

It was unfortunate that in many farm forestry programmes, like in Orissa and A.P., where bamboo could grow quite well on homesteads and other such lands with good moisture (such as tubewell enclosures), no special emphasis was given to bamboo. The area under bamboo, both on forest and private lands, must have gone down in the last 30 years. On the other hand, the area under eucalyptus has considerably increased. In several states natural forests were clear-felled and eucalyptus planted in their place during 1960-80, as encouragement to man-made forests was the priority at that time. Seventeen per cent of the geographical area of U.P. is declared as government forests, and more than half of the total timber output from government forests consisted of eucalyptus in 1987-88, despite the fact that before 1960 its area in U.P. was negligible (UPFC 1990).

The success of farm forestry seems to have influenced the general price of fuelwood too throughout the country.

Although the supply of eucalyptus to markets has gone down a great deal in the last five years, yet the price of pulpwood has not increased, except in northern region, as the following Table supplied to the Group by Mr. Thapar shows:-

Table 9: Prices of pulpable bamboo, wood and grasses – Rs/air dry MT (1% Moisture)

Year	Eastern India		Western India		Northern India		
	Bamboo	**Wood**	**Bamboo**	**Wood**	**Euca**	**Bhabar**	**Khair**
1993-94	1630	1280	1310	1670	1425	2170	985
1994-95	1700	1285	1320	1575	1725	2370	1025
1995-96	1935	1325	1465	1725	2240	2650	1120
1996-97	2450	1420	1610	1800	2375	4400	1645
1997-98	2470	1540	1715	1920	2820	4500	1710

Considering the rise in general price index over the same period, the rise in price of pulp material does not indicate "acute shortage". For Southern region, the following figures from Tamilnadu show that administered prices were increased drastically only recently.

Table 10: Details of prices for pulpwood and wattle bark [4]

Year	Bluegum	Ecu. grandis	Debarked Wattlewood	Pine wood	Ecu. hybrid	Bamboos	Wattle Bark
1990-91	965	830	680	-	510	380	2200
1991-92	1065	920	690		520	380	2300
1992-93	1175	1015	760	840	575	420	2530
1993-94	1295	1120	840	925	635	465	2785
1994-95	1425	1235	925	1020	700	515	3065
1995-96	1570	1360	1020	1125	770	570	3375
1996-97	2748	2380	1785	1969	1348	1140	4725
1997-98	-	-	1785		1348	-	4135

If industry produces its own raw material, who would farmers sell to? Where is their market, if not industry? Sixty per cent of farm land is owned by rich and affluent farmers, who are market oriented, and can be trusted to fulfil the requirements of industry. They are even prepared to produce teak wood, if government removes restrictions on the felling of teak trees from private lands and on its movement. Since the overall demand of the industry is limited, and if allowed to be met by leasing it would necessarily reduce the size of the market for farmers. Leasing of forest lands will thus adversely affect the farm forestry programme, which is one of the cheapest and most sustainable method of producing wood.

Thus the claim of the industry that it would create additionality of efforts and funds is not true, as any afforestation by them will be at the cost of tree planting efforts by farmers on privately owned degraded lands, tubewell enclosures, and homesteads, where the social cost of production is minimal, as these lands are of little use for cultivation. Farmers exploit their own family labour (which is unpaid), and therefore can produce wood cheaper than industry. Farmers harvest their trees during the lean agricultural season and thus are able to achieve further saving in costs by spreading family labour inputs more evenly throughout the year. Quality of soil on farm lands (which is the most crucial factor in cost of production) is far better than the "degraded forests" which could be made available to the industry, and hence despite the constraint of absence of marketing infrastructure, farm wood would always be cheaper than wood produced on degraded forests.

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4 *The rates are for standing crops, harvesting and transport is by the industry. Additional 5% administrative charges are also collected from industry. To avoid losses, weight worked out on the basis off stacked volume converted to weight based on a fixed formula or actual weight at weigh bridge which is higher in the quantity to be paid for.*

Group's suggestions

If degraded forests are not to be leased to industry, two questions need to be answered. First, what is the best strategy for halting degradation of forests and putting them back to greenery? Second, how should industry meet its demands for raw material? These issues are discussed below.

Forest lands

The two main components of afforestation, farm forestry and afforestation of Forest lands, should have different objectives and approach. Farm forestry and agroforestry should aim at maximising sustained economic returns from land, whereas public forestry should aim at maximising welfare through production of such commodities like fuelwood, fodder, NTFPs, etc., which are needed by the people. The choice of species, though subject to agroclimatic and technical considerations, would also be different for the two programmes. Short duration exotics, which give high market value would be suitable for farm forestry, whereas species which have their value in the crown, and not in the stem would be suitable for public forestry.

Therefore, as mandated by the Forest Policy, 1988, government forests should conserve soil and the environment, and meet the subsistence requirements of the local people. Timber is a product of the dead tree, whereas people collect branches for fuel from living trees allowing the stem to perform its various environmental functions. Moreover, gathering is more labour intensive than mechanised clear-felling. Hence in a poor country, livelihood based forestry will be more sustainable than timber-based forestry.

This would be reversing the priorities as were traditionally understood between what is the main product and what is the by-product from forests. Choice of species and management should be radically changed to suit the new policy. From forest lands, leaves, twigs, and dead wood should become the main intended products, and timber would be a by-product from large multipurpose trees. For quick benefits to the poor, long gestation trees should be supplemented with an understorey of bushes and shrubs so as to satisfy their immediate needs. The proposed changes are explained in brief in Table 11:-

Table 11: Technical options

	traditional	suggested options
objective	reduce people's dependence on forest lands	increase supply of goods desired by people
production goal	high stem biomass	high crown biomass
client	market & industry	forest dwellers & local people
timber	main product	by-product
silviculture	conversion to uniform	selective felling and protection
species	exotics & commercial	grasses, bushes, shrubs & NTFPs
production through	planting	mainly natural regeneration [5]
usage through	harvesting	gathering

1

5 *Favouring natural regeneration does not mean rejecting plantation, it simply means that the focus shifts to assisting existing plants and emphasizing local diversity (Rathore and Campbell 1995).*

Regeneration vs. planting on degraded lands

The success of JFM is generally seen as proving the superiority of natural regeneration over plantation as a technique for improving productivity and biodiversity in forests. While this is no doubt true, there are several circumstances where plantation cannot be avoided. Three such situations could be: creating a fuelwood

reserve before beginning protection by the community; planting on lands incapable of regeneration; and thirdly where desired species do not come up as a result of protection. These are discussed below.

Mere protection of a not-so-degraded area may transfer human and cattle pressure to some other area, as people have to meet their daily requirement of fuelwood somehow or the other. Therefore production of biomass through quick growing shrubs, bushes and grasses must be undertaken on degraded and barren lands before the beginning of community protection, so that peoples' demands are met in a sustained manner from these bushes and shrubs, while people protect forest lands in anticipation of more valuable NTFPs and forest products. The issue of how to meet the economic needs of the people for the first few years, during which they have to reduce their dependence on the protected land must be faced squarely. Although the success of many JFM experiments is generally alluded to leadership or peoples' efforts, it is seen that in almost all such cases there was an alternative source of fuel available to them. In Southwest Bengal, the task of peoples' protection of degraded forest lands became easier because the farm forestry programme in that area had been highly successful, increasing fuelwood supplies and incomes even for the poor. In Eklingpura, Udaipur, where community protection has been highly successful, plenty of prosopis shrubs in and around the village provide fuelwood to everyone almost at zero opportunity cost. On the other hand, in another village of the same district, Shyampura, which had no prosopis in its vicinity, a local NGO was struggling to promote protection, but was finding it difficult to prevent unauthorised removals from the area (Choudhury 1993). These examples illustrate the importance of creating a fuelwood reserve before expecting people to start protection.

The other situation warranting planting is where land is so degraded that regeneration is slow, or root stock is absent because of which regeneration is not possible. There may be other barriers to natural recovery such as the presence of weeds, unfavourable soil and climatic factors, a low presence of fertile trees and a lack of symbiotic microbial associations necessary for seedling establishment (Perera *et al*. 1995). In extreme situations where soil erosion has reached conditions characterised by gullies and ravines with little or no vegetation, natural regeneration alone may have very little or no impact on improving vegetative cover. In such a situation, there may not be sufficient incentive for the people to give their time and labour for protection in lieu of the intermediate and final products, which may be available after inordinate amount of delay and waiting. Intensive soil working is required in such cases. Natural regeneration can also be enhanced or accelerated by soil and water conservation measures like contour trenching, vegetative bunding, and small check dams. In denuded areas where severe over-exploitation has reduced possibilities for rapid natural regeneration, nurseries and plantations will be needed to provide employment, and so would be fodder and fuelwood in the quickest possible time. The whole idea is consider how a continuous flow of forest products can be ensured to the communities.

The third situation where planting may be necessary is where due to protection, species which come up do not coppice well. As peoples' demands cannot be curbed for a long period, some amount of harvesting becomes unavoidable after a few years of patient waiting. In case the species do not coppice well, harvesting leads to a non-sustainable situation, and land may become denuded again. A similar situation will be when the root stock is already quite degraded, and species likely to come up are not valuable in the perception of the people, and therefore they may be reluctant to contribute their labour for protection. In such cases the strategy of natural regeneration alone may not be enough to enforce the necessary discipline. May be, if plantation of species desired by the people is taken up the perception of the tract's value may increase, and every one may cooperate. Enrichment planting could also increase the supply of raw material for the local craft or artisan based activity. An active strategy of forest restoration through management is likely to be more successful than simply abandoning lands and hoping that the regenerating forest will survive the numerous threats to it. Such a strategy would include accelerating by simple silvicultural methods, such as trenching, ploughing, weeding and thinning. However planting should be done in such a way that existing root stocks or advanced regeneration is encouraged to grow as part of the mixed stand.

Choice of species - Having thus established the need for artificial planting in many situations, the question arises which species should be given priority. Species have been so far based on convenience of staff rather than needs of people. People have not been asked what trees they prefer, least of all the poor. Socially useful species producing fruit, fodder and other NTFPs have had little place. Felling for timber may produce

income to government but village consumption of tree products is little increased. Technology for subsistence goods has to be different from large scale plantations for markets.

Therefore even on barren forest lands, where plantation is required, one should change the nature of species from commercial species to planting of usufruct based trees. These should be supplemented with grasses, legumes, shrubs and bushes to yield fuelwood and fodder in the shortest possible time. An immediate identification of quick growing shrubs with high calorific value, with their retention in the forest to serve fuel requirements, the development of pastures, and the development of massive fuelwood plantations around centres of high consumption and encouragement of silviculturally sensible exploitation of fuelwood species would also be important components of the new policy. This would strengthen tribals' access to forests, and therefore benefits would be directly appropriated by them.

Foresters and foreign experts who advise the GOI and the donor agencies, because of their training and experience, have looked upon trees as timber, to be obtained after felling. Therefore, even in the social forestry programmes market oriented species were planted. The traditional Indian way of looking at trees has, however, been different. As opposed to trees for timber, Indian villagers for centuries have depended on trees for their sustenance. There has been little felling. Instead, trees have been valued for the intermediate products they provide, which sustain and secure the livelihoods of the people.

The difference can be understood by comparing how fuelwood species are viewed in the two perspectives. As per received wisdom, fuelwood is obtained by felling trees having a high calorific value, or as a by-product from lops and tops of timber trees. Casuarina and eucalyptus therefore seem perfectly justified on public lands. But the poor tribals obtain fuelwood from twigs and branches of living trees, and not by felling trees, and often get little from the felling of so-called fuelwood trees. Casuarina and eucalyptus may be justified on farm lands, if they improve farm incomes on a sustainable basis. But these hardly serve the poor, when raised on public lands.

Given the inefficiency of administration and `soft' character of the political system, one could generalise that out of a tree on public lands the stem goes to the rich and the towns, whereas branches, leaves and twigs belong to the poor. Therefore the strategy should be to opt for species which have high proportions of branches and twigs relative to stem wood.

This requires a complete reversal of the recommendations of the National Commission on Agriculture, 1976 which favoured commercial plantations on forest land, and trees for consumption and subsistence on private land (Saxena 1990). "Scientific" forestry should therefore mean that wild fruits, nuts, NTFPs, grasses, leaves and twigs become the main intended products from forest lands and timber a by-product from large trees like mahua and sal. The reverse has been the policy for the last 100 years. Although after the advent of the new forest policy in 1988 there has been a lot effort to involve forest communities in management, sufficient thought has not been given to make necessary changes in the technology which will be suitable to the changed objectives.

At the same time JFM should not be seen as a panacea for forest degradation. Not all social groups are hit equally by the decision to protect and keep livestock out of the proposed area to be protected in JFM. For low income rural families to participate, it is important that benefits start flowing as early as possible, either in the form of gatherable biomass or new opportunities of employment. This will require policy shifts and afforestation programmes on other categories of land - farm lands, village lands and FD lands remote from village habitation. Simultaneous development of all categories of land in the same region will also provide short-term benefits to the most needy. The distinguishing features of these programmes are described in Table 12.

Table 12: Recommended features of afforestation programmes on different categories of lands

	farm lands and homesteads	village lands	FD lands close to village	FD lands distant from village
Who protects?	farmer	village group	FPC via JFM	FD
Management by	farmer	village group	FPC and FD	FD
Purpose	enhanced production and profits	village subsistence and village incomes	subsistence and income needs of the village, esp. the poorest	production of gatherable biomass and NTFPs
Technology	plantation and agroforestry	plantation	natural regeneration supplemented by plantation on barren lands	mostly natural regeneration

One practical implication of including programmes on different types of land in the same project would be that these would have to be implemented in the same Range or group of villages, rather than being implemented, as happens currently, in different Ranges, which loses complementarity.

As already stated, barren lands under JFM would need artificial plantation. Should commercial species be banned on such lands for all times to come? On this vexed issue we have an open mind. In the initial phase, communities are at a low level of awareness and preparedness, therefore FD has an upper hand in decision making. During this phase subsistence and livelihood needs must be given topmost priority. However, with greater control and confidence, the communities become more democratic and less inequitous, and may also like to use such lands for income generating trees, including horticultural and pulpwood trees. When control over forest lands is truly decentralised to the poor and needy in the village, their desire for even pulpwood trees should be viewed sympathetically. At this stage the industry could help the community with technology and extension, just as they would do so for a private farmer.

In the village visited by AS (WD) it appears that the villagers were confident enough to deal with the industry on their own terms. The recommendation of the committee should therefore be seen as not permitting in all cases pulpwood species on forest lands, but responding favorably to villagers' desire in order to strengthen village control over forest lands. The relevant para of the report is quoted below:

' the team is of the opinion that since industries would like to have control over the management and implementation of the JFM projects to ensure required return on their capital, their association in VSSs per se is not feasible. However, their intervention by supply of cloned plantation material to the villagers, the VSSs and general buy back guarantee is welcome. The suggestion of PCCF, Andhra Pradesh for constitution of JFMDA is quite reasonable and workable. This agency can provide corpus and some areas in the degraded forest can be planted with high yielding cloned seedlings keeping in view the existing bio diversity and suitable inter mix of species'

One of the banes of planning in India has been that at a particular time there is one fashionable idea and it is sought to be imposed over the entire state/country ignoring agro-ecological diversities and location-specifities. Thus the earliest forestry projects emphasised fuelwood and fodder, and it was believed that these are the real priorities everywhere of the rural poor, although later research showed that the problem was more complex, and required varied approach. Some years later farm forestry became name of the game, and every district was given ambitious targets in seedling distribution, ignoring constraints imposed by the specificity of farming systems. This resulted in reporting of bogus figures to show unrealisable targets. Now Joint Forest Management rules the roost. Perhaps after five years it would be realised that structural conditions do not suit the JFM approach every where in the country, unless radical changes are introduced in the pattern of Forest Settlement. The disadvantage of this kind of uniformity in policy prescription are many and well-known. Even today there would be areas where social forestry concept is relevant or where the cheapest way of producing wood would be via the farm forestry. However, these programmes get a low

priority by way of international funding when compared to Joint Forest Management for which high targets are set in all the villages ignoring both, the capacity of the Forest Department to build up and respond to local institutions, and the need to simultaneously introduce several other tenurial and silvicultural reforms so essential for the success of the JFM approach.

Farm forestry and forest-based industry

For farmers, fuelwood would remain a by-product of wood, and the main product would be more remunerative products, such as poles or pulpwood. Therefore they would be too keen to plant income generating trees, if the right conditions are created. To boost production of pulpwood market constraints should be removed. First, a great source of market imperfections in wood markets is the legal and procedural framework which makes cutting and selling privately owned trees difficult, irksome and complicated, besides unremunerative (Chambers *et al*. 1989). Therefore these restrictive laws could be abolished. Second, government should stop import of pulpwood and subsidies on government supply of wood to industries, thereby inducing industry to buy from the farmers at a remunerative price. In fact, government should shift to non-commercial species on forest lands, as producing eucalyptus on public lands adversely affects the farm forestry programme, which is one of the cheapest and most sustainable method of producing wood.

Third, it could also initiate schemes for linking farmers with industries, in ways similar to the linking of poplar growing farmers with a Swedish match factory in north India (Chandra 1986; Ghosh 1994). This experiment shows that, with technological backup, timber size trees suitable for sawing can be raised on farm lands within 8 years. In fact, due to farmers' enthusiasm for growing poplar its enhanced supplies have led to establishment of several plywood factories in that area, thus providing considerable downstream employment. Improvement in technology and extension is required for all farm forestry species, so as to result in production of thicker logs suitable for sawing. WIMCO plans to sell 1.5 million seedlings to farmers a year.

Similar tie-up with farmers is being tried by the ITC-run Bhadrachalam Paper Mills in AP. The industry produces improved seeds, grows the seedlings in their nurseries, and gives them to the farmers for planting. Farmers get crop loans from the banks, and extension service from the industry. This example shows that improved planting material can improve productivity from 7 to 20 cum/ha/year. A minimum price is guaranteed to the farmers by the industry, although farmers are free to sell their produce to anyone they like. NABARD has rightly insisted on free choice for farmers, although industry would like the farmers to be bonded to them. The farm forestry project was formally approved by NABARD in June 1989 and re-finance assistance was sanctioned. The project envisages planting 1500 ha of marginal agricultural land (owned by individual farmers) with fast growing tree species (such as Eucalyptus and Casuarina) in eight districts. Trees are planted along field bunds, boundaries and irrigation channels in rows, and as blocks combined with intercrops. ITC Bhadrachalam provides important services to farmers within the project. These include the supply of high quality seedlings (from improved stock), extension services, a buy-back guarantee for pulpwood, assistance in loan procurement, and research and development support. This has increased the supply of pulpwood to the ITC Bhadrachalam and has provided incomes and fuelwood (from lops and tops) to farmers.

ITC Bhadrachalam Paperboards Ltd of Andhra Pradesh increased its output from 42,000 tonnes in 1979 to 94,000 tonnes in 1995 without any increase in supply from natural forests. This was made possible entirely through wood obtained from farmers. The Company is also selling clonal plants at Rs 6 a clonal seedling, and found that those farmers who paid a higher price for their seedlings took better care of their plants, and survival was as high as 95%.

Between 1988-94 South India Viscose, Tamil Nadu (SIV) sold 20 million seedlings to farmers. Its sale of eucalyptus wood from farmers has been increasing every year as follows:-

Table 13: Eucalyptus procured from farmers by SIV in tonnes

5,000

25,000

40,000

1996 60,000

The recent upsurge in the number of companies offering private teak plantations to the urban rich is well known. This may be the only example in India where urban private capital is getting invested in rural areas; generally the flight of capital has so far been only from rural to urban sector, and therefore such schemes need not be discouraged. They have been able to get around the problem of ceiling on land by buying the land in the name of each investor. Paper and plywood industry, if desirous of acquiring large chunks of degraded forest land to take the advantage of economy of scale, should learn from the experience of such private sector initiatives.

Even small farmers can be benefited if they are linked with industry for markets. Whether an activity would be economically viable for small and medium holdings or not depends on two factors; divisibility of inputs and scale of economies. Tree planting requires divisible inputs of seeds, fertilisers, water and labour. It is quite feasible to plant just a few trees on a small piece of land. Secondly, economies of scale favour small scale production, as it requires family labour in off-season (for harvesting at least), uses land with little opportunity cost, and can be taken up along with agriculture in appropriate agroforestry models. The only disadvantage with small farmers is that of risk, which can be overcome by offering to the farmers proven technology and extension.

It is a myth that industry cannot deal with farmers directly. For several crops like sugarcane, potato, rice, cotton etc. industry has been in touch with the farmers for decades. No industry imposes a condition that farmers are bound to sell to that industry, as is being demanded by the paper industry in India. Such a restriction would mean exploitation of the farmers, and must be opposed.

It is not being denied here that there could be transitional problems in building up communications by industry with farmers. These were noticed in the case of supplies of eucalyptus from farms to paper mills. First, many mills are designed for bamboo, and not for eucalyptus. Because of a shortage of bamboo, the mills are closed, or running at low capacity. It was unfortunate that in many farm forestry programmes, like in Orissa and A.P., no special emphasis is given to bamboo. Second, many others requiring wood are located in the east and south, where forest lands are located and where eucalyptus plantations were first started on forest lands. For them to transport wood over a distance of more than 200 km from the north-west would be uneconomic. Hence the paradox of abundant availability of raw material in the north and west part of the country, and low capacity utilisation of mills in the east and south of the country continues. A practical solution would be to split the processing units; to establish a new pulp making plant close to farm forestry areas, and transport pulp to the paper mill. Third, buying small lots from a large number of dispersed farmers requires the setting up of a new marketing infrastructure, whereas paper mills like to get large-scale consignments from forest depots. And last, it is not easy to obtain government permission to move wood bought from private sources, as restrictions exist on transport of wood in many states.

But these are temporary problems and can be sorted out by mills with the help of government. Wherever paper mills are active in buying from farmers, it is observed that they are able to buy almost the entire marketed farm eucalyptus from the region. In districts Kolar and Bangalore of Karnataka, where the interest of farmers in growing eucalyptus continued for a longer period than in north-west India, a study shows that most of farm eucalyptus is being bought by paper mills. In Kolar, 97.5% of privately grown eucalyptus was marketed, of which 97% went to the Harihar Polyfibres; in Bangalore 92% was marketed, all to the same paper mill. Similar preference in favour of the paper mill was noticed in the village Bagwala (about 20 kms

from a paper mill in district Nainital, U.P.) in early 1991, as almost the entire produce from the village was reaching the mill gate. Of the total wood arrivals in Lalkuan wood market, 7 km from the paper mill of Nainital, almost 90% was being sold to the mills (Saxena 1994). This was perhaps because traders were able to achieve a large turn-over if they supplied to the mills.

It has also been suggested by industry that farmers should produce fuelwood for their own consumption, leaving industrial wood to be produced by government or by industry. The experience of the last 15 years shows that farmers in commercial regions are more interested in producing for the market. While planning for wood production on farms one must keep in mind the likely requirement of marketed wood. A World Bank report (1991), quoting FAO figures, states that the total extraction of wood in India in 1988 was 264 million cum, of which 240 million cum was consumed as fuelwood. Thus, of the total wood consumption in the country, only 10% is industrial wood. Most fuelwood is collected, both for consumption and sale. The gatherers can always beat the producers over the pricing of fuelwood; the producers would be price-takers, rather than price-makers. This means that the market price of fuelwood would always be lower than its social cost for replacement of growing stock through investments in plantations. Therefore the market price of fuelwood does not make its production on farms an attractive financial proposition in countries with large open access lands and vast poverty (French 1985). Further, the entire arable land in green revolution areas is devoted to high cost commercial farming. Thus the opportunity cost of diverting land to tree crops is very high, which is not likely to be compensated by returns from growing fuelwood. Farmers would always prefer to use their lands for high value output, such as industrial raw material. Thus fuelwood which has to be gathered by the vast millions of people has to come from public lands, and pulpwood and other cash producing raw material from farm lands. Forest lands should continue to be used for preservation of environment and bio-diversity, and for meeting the subsistence needs of the poor, as envisaged in the Forest Policy. This should be done mostly through regeneration, which is cost effective provided peoples participation is ensured.

Summing up

Of all the forest based industries, paper and other large industries consume just a fraction of forest products. Ninety per cent of forest raw material is processed by 23,000 saw mills and a larger number of cottage units. The policy so far has been to provide subsidised raw material to large industry whereas small and cottage scale industry have to depend on market forces. In addition, now the large scale industry is using its political clout to get possession over fertile lands. The proposal, to say the least, is grossly unjust. It deprives forest dwellers the use of forest lands, which they are legally and morally entitled to use, and it deprives farmers from selling their produce to the only market that exists, which is large industry.

In a Parliament Question answered sometime in mid 1991, detailed reasons were put forward by the Ministry of Environment & Forests as to why land should not be allotted to industry. These were as follows:-

1. Villagers have traditional rights over forest lands. Assigning forest lands to industry would create resistance in the local village communities.

2. Degraded forest lands should be regenerated to meet local needs as a first charge.

3. For restoring ecological balance mixed species plantation should be done, and not mono-cultures.

4. Industry should establish direct contacts with farmers, as provided in the NewForest Policy.

5. If paper industry is given land, it will lead to similar demands from tea, rubber and spices industry.

It is hoped that the Ministry will keep the above factors in mind before re-opening this issue. If government does not settle this controversy quickly and keeps the hopes of industry of getting free access to forests alive, investment by the industry in setting up of a new marketing infrastructure for buying from farmers would never be forthcoming. In the interest of viable farm forestry, this appears to be the only option. The claim of the industry over forest lands is not based on sound economic rationale, it is a seductive myth and a ploy to grab the better quality forest lands capable of regeneration free of cost. Handing over possession of valuable forests for captive plantations is against all principles of liberalisation and open markets. On the other hand, supply from farmers would be at the market price, taking into account all costs. Market should function in all cases where 'safety nets' are not called for (Chopra 1995). Thus the proposal is not only against the ecological policies of government - the 1988 Forest Policy in particular - but also its economic policies.

To sum up, leasing of forests to the private entrepreneurs either directly or indirectly through Forest Corporations needs to be opposed for the following reasons:-

- It will be against the interest of farmers who wish to supply wood to industry.
- It will not create any additionality of production. On the other hand, cheaper production on farm lands will be substituted by socially more costly production on forest lands. Government would be forced to give forest lands free to the industry, thus reverting to the old days of supplying heavily subsidised raw material to the paper industry.
- 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 tribals 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 percent 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.
- Besides there would be claims from coffee, cashew and palm plantation industries. Like paper industry they will raise 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 ha suitable for effecting economies of scale. Such patches are found only in Reserve Forests of good quality.
- The proposal would be against the Forest Policy, the Forest Conservation Act, and the Provisions of Panchayats (Extension to the Scheduled Areas) Act, 1996.
- 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. Such an arrangement will be via the JFM route.
- Industry has shown no interest in leasing-in non-forest wastelands, and therefore their plans to operate on equally degraded barren forest lands is highly suspect.

Annexure 1

No. M-12016/1/97-E&F

Planning Commission
(Environment & Forests Unit)

Yojana Bhavan
Sansad Marg
New Delhi-110001.
6th June 1997

O R D E R

Sub: Constitution of Working Group on the prospects of Leasing out Degraded Forest Lands to the Private Entrepreneurs / Forest Corporations

In pursuance of the decision taken in the meeting of Ninth Plan proposal of Ministry of Environment & Forests held on 5th May, 1997 under the Chairmanship of Principal Adviser (E&F), a Working Group on the prospects of leasing out the degraded Forest Lands to the Private Entrepreneurs / Forest Corporations has been constituted under the Chairmanship of Dr. N. C. Saxena, Secretary, Department of Wasteland Development. The first meeting of the Working Group is scheduled for 16th June 1997 at 11.00 a.m. in Room No. 247-A, "A" Wing, Nirman Bhavan, New Delhi. The composition of the Working Group is as follows:-

Dr. N. C. Saxena Secretary Department of Wastelands Development Nirman Bhavan, New Delhi.	CHAIRMAN
Secretary Ministry of Environment & Forests Paryavaran Bhavan CGO Complex, Lodi Road New Delhi-110003.	Member
Inspector General of Forests Ministry of Environment & Forests Paryavaran Bhavan CGO Complex, Lodi Road New Delhi-110003.	Member
Shri P. C. Srivastava Principal Chief Conservator of Forests Government of Uttar Pradesh 17 Rana Pratap Marg Lucknow.	Member
Shri S. D. Mukherjee Principal Chief Conservator of Forests Government of Andhra Pradesh Hyderabad.	Member

Shri C. G. Mishra — Member
Principal Chief Conservator of Forests
Government of Orissa
BHUBANESWAR.

Shri R. D. Sharma — Member
Additional Chief Conservator of Forests
Government of Madhya Pradesh
Bhopal.

Shri V. R. Chitrapu — Member
Principal Chief Conservator of Forests
Government of Tamil Nadu
Chennai.

Shri R. D. Jagati — Member
Chief Wildlife Warden
Government of Haryana
Chandigarh.

Shri K. N. Singh — Member
Chief Conservator of Forests
17 Rana Pratap Marg
Lucknow.

Prof. Shekhar Singh — Member
Indian Institute of Public Administration
I. P. Estate
Ring Road
New Delhi-110002.

Shri S. S. Rizvi — Member
Consultant
WWF India
172-B Lodi Estate
Max Mueller Marg
New Delhi-110003.

Dr. Anil Aggarwal — Member
Director
Centre for Science & Environment
41, Tuglakabad Institutional Area
New Delhi-110062.

Shri Uma Shanker Singh — Member-Secretary
Deputy Adviser (Environment & Forests)
Planning Commission.

The terms of reference of the Working Group is as follows:

1. Economic, Social and Environmental feasibility of leasing or otherwise making degraded forest land to private entrepreneurs / forest corporations.

2. Implication of Ninth Plan approach, Forest Policy, forest law on this issue.

sd/-

(UMA SHANKER SINGH)

Deputy Adviser(E&F)

Copy forwarded to:

All Members of the Working Group.

Copy also to:

PPS to Member-Secretary.
PS to Adviser (Agri. & E&F).
Joint Adviser (E&F).

sd/-

(UMA SHANKER SINGH)

Deputy Adviser(E&F)

Annexure 2

Government of India

Ministry of Rural Areas and Employment

Department of Wastelands Development

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REPORT OF THE CENTRAL TEAM ON FIELD VISIT TO ANDHRA PRADESH REGARDING PROSPECTS OF LEASING OUT OF DEGRADED FOREST LAND TO PRIVATE ENTREPRENEURS (5TH-7TH MAY, 1998).

A working group on the prospects of leasing out degraded forest lands to the private entrepreneurs / forest corporations has been constituted under the Chairmanship of Dr. N. C. Saxena, Secretary(RD-WD). The PCCF Andhra Pradesh, vide his letter dated 18.10.1997 had given a suggestion to associate the wood based industries / entrepreneurs in the Joint Forest Management (JFM) programme to make best use of the degraded forest lands that will give maximum return to the people on sustainable basis and simultaneously provide raw material to the wood-based industries. Secretary (RD-WD) desired that Additional Secretary (WD) should visit some of the proposed areas along with officers of Ministry of Environment & Forests, nominee of IIPA. Accordingly, a team consisting of Shri S.B. Mahapatra, AS(WD), J.D. Sharma, DIG(DoWD), Shri Munindra, AIG(MoEF), Ms. Gopa Pandey, Professor, IGNFA, Dehra Dun (nominee of IIPA) had undertaken field visits in Khammam, Forest Circle and also had consultation with the villagers, executive committee members of Van Sarakshan Samiti (VSS); Vice President, ITC Bhadrachalam and PCCF, Andhra Pradesh. The CCF(JFM), A.P. and Conservator of Forests, Khammam Circle and other field officials also accompanied the team during the visit.

2. Originally, the proposal of PCCF was to allow the private entrepreneurs to invest money in degraded forest lands through the Joint Forest Management (JFM) committees so that the entrepreneurs can get back their investment by repurchase of surplus forest produce & the villagers may also get small timber etc.. Later on, the PCCF informed that now the position stands changed and the industries are not willing to invest their money through VSSs for want of adequate security of their investment and return. It was suggested by the PCCF that an autonomous body (Joint Forest Management and Development Agency) as suggested by the Expert Committee set up by MoEF on 'Review of Afforestation Policies and Rehabilitation of Wastelands' and 'to Review the Implementation of National Forest Policy - 1998' be established at State level to implement JFM activities. This JFMDA, being an autonomous body, can get the funds from Ministry of Rural Areas and Employment i.e. EAS, IWDP, DPAP, and MoEF/NAEB, Ministry of Agriculture and Foreign Donor Agencies.

The apex body of JFMDA can have the representatives of State Forest Development Corporation, Wood based Industries, reputed Non-Government Organisations including Mahila Sangathans and Tribal Development Department. Funds from this agency can flow to the DFOs of the areas who will act as PIAs and JFM committees consisting of local people can execute the action plan.

3. Presently, in some of the divisions, the VSSs are assisted for development of these areas under the World Bank aided project. Further, the Commissioner(RD), A.P. has agreed to give an assistance of Rs.31.11 crores to A.P. Forest Department under EAS in DPAP areas which will be utilised for assisting the VSSs in the non-WB project areas in pursuance of D.O. No. 12074 2-2(3)95-E&F, dated 1st January 1998 of Adviser, Planning Commission. Still, a sizeable number of villagers have degraded areas to be regenerated.

4. During the field visits, the degraded forest areas being protected by GOMMUKOYAGUDEM village in Bhadrachalam Mandal of Khamam circle were inspected. This VSS has been formed on 21.3.96 after detailed PRA exercise. An area of 150 ha. of degraded forest has been earmarked and handed over to the VSS for protection and treatment. During 1997, an area of 20 ha. has been treated, out of which clonal

plantation of eucalyptus has been raised over 1.75 hectare. In the rest of 18.25 ha. area, teak stumps have been planted at the espacement of 3mt. x 2 mt. Water absorption trenches have been dug and in the mid space species like the Sapindus emarginatus (Soap nut), Feronia elephantum (Velga) and Emblica officinalis (amla) etc. have been planted. For clonal plantation of eucalyptus, the expenditure is about Rs.34,800.00 per ha. The cost is being met from the World Bank aided project. The villagers were quite enthusiastic and taking keen interest in protection and management of forest. Two NGOs - DARTA and JESS were associated with the villagers in this area. Bank account has been opened where the money available for the treatment of the area from the project funds was deposited and withdrawals are made jointly by the local person (Secretary) along with Forest staff. The villagers were happy about growth of clonal plantation. However, they were of the view that whole area should not be taken up under plantation and some area should remain earmarked for raising fuelwood and fodder. They were not prepared for giving management and control to industries or any other outside agency. ITC Bhadrachalam has been associated with this VSS in providing high quality clonal seedlings on 50% subsidy i.e. out of Rs. 7 per plant, Rs. 3.50 are re-imbursed and they also stand committed for buying back any surplus produce from the private individuals as well as VSS on the rate applicable for the year.

5. The team also interacted with Mr. P. Lal, Vice President, ITC, Bhadrachalam and Mr. S.N. Rao, Dy. G.M. ITC, Bhadrachalam on issue of associating the industries and VSSs in management of degraded forest lands. During the discussions it emerges that the ITC, Bhadrachalam has an annual requirement of 2.6 lakhs tonnes of pulp wood for producing 65000 tonnes of pulp for which at 7 years rotation, an area of 2600 ha. is needed annually and 18200 on gross basis for plantation. However, the ITC is also contemplating to enhance its capacity to 2 lakh tonnes of pulp per annum for which requirement of pulp wood will be 8 lakh tonnes per year needing an annual planting area of 8000 ha. Consequently, a gross area of 56000 ha. will be required for raising clonal plantation giving high yield. Apart from ITC Bhadrachalam, there are other wood based industries like A.P. Rayons, Sirpur Paper Mills, A.P. Paper Mills and Novapan. The current requirement of bamboo for these wood based industries is 13,70,000 tonnes per year. Assuming the productivity of 100 cum/ha to clonal plantation, the annual planting and harvesting area comes to 13,700 ha. and on gross basis 95,900 ha. for seven years harvest cycle. It was also informed by ITC that A.P. has nearly 36.8 lakh ha. of degraded land and this requirement comes to 2.6% of such degraded forest lands.

6. Coming to the modalities for associating wood based industries in development of degraded forest lands, the ITC, Bhadrachalam expressed:

i. The degraded lands require high input in the order of Rs. 32,000/- per ha. An industry from its own resources cannot contribute this large amount. At the best, it can contribute 25% funds from own resources and balance from the Government subsidy and institutional finance.

ii. Since the industries are answerable to their shareholders and money borrowed from financial institutions has to be refunded along with accrued interest, they would like firm assurance that the investment along with interest will be available to them on maturity in cash or kind. To ensure this, the industry would like to have control in management and implementation of the programme.

iii. The VSSs, State Forest Department and Government are not in position to provide assurance to such proposals due to typical nature of the venture.

iv. The industry is also prepared to go for joint venture in this regard with the help of Andhra Pradesh Forest Development Corporation, however, its final admissibility and feasibility is debatable.

v. The industry feels that if the Government is keen to attract large scale financial and technological investments by the wood based industries in support of JFM , innovative policy changes, legally valid institutional frame work defining specific role and responsibilities and rights of all partners in Joint Forest Management including the industrial units, need to be firmed up.

vi. ITC Bhadrachalam is motivating the farmers to raise clonal plantations of eucalyptus on their marginal lands and providing buy back guarantee to the farmers. However, the farmers are free to sell the eucalyptus in open market if they so like.

CONCLUSION

7. The constraints of funding are paramount problem in forestry sector. The JFM movement remains a philosphy without assured financial support. However, in Andhra Pradesh, the JFM programme has been planned in very systematic manner. The State has identified 6806 villages for the purpose and 1665 VSSs have been covered in the World Bank aided project. For 3738 VSSs, the Rural Development Department of Andhra Pradesh has provided an assistance of Rs. 31.11 crores. However, financial resources are required for covering balance 1403 villages and other villages where VSSs will be formed in near future.

8. After considering the view points expressed by the VSS members, Forest Department officials and representatives of industries, the team is of the opinion that since industries would like to have control over the management and implementation of the JFM projects to ensure required return on their capital, their association in VSSs per se is not feasible. However, their intervention by supply of cloned plantation material to the villagers, the VSSs and general buy back guarantee is welcome. The suggestion of PCCF, Andhra Pradesh for constitution of JFMDA is quite reasonable and workable. This agency can provide corpus and some areas in the degraded forest can be planted with high yielding cloned seedlings keeping in view the existing bio diversity and suitable inter mix of species. Instead of pure large plantation of one species, strip mixture/mixture of small blocks with interspersed natural growth can be thought of. About 25% of degraded forest area can be kept for theuse by the villagers while in 75% area the blanks can be afforested with quick growing species as suggested above. Since the VSSs will get good return from industries on sale of their surplus produce, high investment in these pockets by JFMDA can be considered. Constitution of JFMDA and its active role in rejuvenating the degraded forest lands will also help to chalk out long term perspective plan ans strategy for development of degraded forest/non forest wasteland involving rural people.

Annexure 3

Draft guidelines drawn up by the Government of India in 1994 for the afforestation of degraded forests through involvement of forest based industries.

1. Land will be leased to Forest Development Corporation (FDC) who, in turn, will enter into proper MOU with the user agency without leasing the land to them. This MOU will give right to the user agency for undertaking afforestation and right over fixed percentage of forest produce at the time of harvesting.
2. FDC will be represented in the Board of Directors of the user agency.
3. FDC will be entrusted with the responsibility of overall supervision of the plantations e.g. species selection, number of trees to be planted, soil treatment etc. Actual operation will be done by the user agency.
4. Funds for afforestation will be provided by the user agency.
5. 25% of the area will be planted with species for the purpose of supplying fuel, fodder etc. Cost of plantation and maintenance will be borne by the user agency. Entire produce out of such plantation will vest with the State Government.
6. At the time of harvesting 12.5% of the forest produce from the balance 75% area shall be made available to the State Government which the State Government will be free to sell at market price. However, the first preference shall be given to the user agency. This together with 25% planted area will be treated as opportunity cost of the land.
7. Grass and lops & tops below 5 cm diameter will be made available free of cost to the local population.
8. Standing trees above 20 cm diameter in the area applied for will not be felled and shall continue to be the property of the Government.
9. First, the most severely degraded forests below 10% density will be allotted and afterwards next category shall be offered for plantation. The land above 25% density shall not be available for plantation.
10. Entire area will not be clear felled at a time which can be ensured by proper selection of species with different rotation. Projects with strong research base and advanced techniques of plantation will be given preference.
11. User agency will prepare a detailed project report giving details of land identified, choice of species, pattern of plantation, rotation period, expected yield, financial inputs, source of funding, proposed MOUs etc. after suitable lands are identified.
12. Each proposal will be examined under Forest (Conservation) Act, 1980 as well as from policy point of view and decision be taken after its detailed examination.
13. Only existing industries which already have access to wood from natural forests will be eligible. New industries which come up later will not be eligible.
14. Such industries will have to meet at least 40% of their requirement from farm forestry, balance 60% will also include imports, supply from natural forests and their plantations.
15. Formal proposals will be sent only after publishing about the proposed plantation and inviting objections from local community and also getting clearance from gram sabha.

Annexure 4

D. O. No. PS/Secy(E&F)/10/98

October 8, 1998

Sub: **USE OF DEGRADED FOREST LANDS FOR GROWING INDUSTRIAL RAW MATERIAL**

Dear N. C.,

Please excuse me in having taken time in responding to the draft report sent by you on the above subject. Let me first compliment you on the quality of the report prepared by you, which certainly reflects your commitment to the issues that have been raised. I am giving below some suggestions / comments, which I hope you may find relevant.

1. The introduction section of the report mentions about a visit by some members of the Working Group to degraded forests in Andhra Pradesh, and their report has also been annexed. The conclusions of this team are at variance with the Group's final suggestions. Therefore, it is not clear whether or not the report reflects the consensus views of the Group as a whole.
2. The report goes to establish the extent, nature and category of wastelands, but there is no reference to FSI data on the subject. In any case, rather than rely on macro-level estimations alone, it would be helpful to carry out actual ground surveys so as to establish the extent of land available for this purpose. I understand that some States have already carried out such assessments.
3. In my view, we should arrive at a State-wise estimation of degraded forestlands and selectively spot check this. It is only after this that we should proceed towards the finalisation of views or a policy on the subject.
4. The draft report appears to suggest that the needs of the paper sector should be met entirely from the private farm forestry sector. The rationale perhaps being that private farm forestry sector will only be motivated if there is no other player in the market. While there is some merit in such a view, this is not the only factor that has prevented this sector from realising its potential. We need to further energise the private farm forestry sector through other means also. The Ministry of Agriculture could be requested to examine why full potential has not been achieved here. Issues such as greater flexibility in institutional financing, involvement of the poor in large scale nursery raising, technical support from the Forest Department and elimination of legal restrictions, which hamper the growth in this sector need to be reviewed. The Ministries of Environment & Forests, Finance, Industry and other stakeholders could play a useful role in assisting the Ministry of Agriculture to draw up a dynamic package of incentives.
5. I am not in favour of sale or lease of forestlands to the private sector for the purpose of raising timber. It is, however, felt that forestlands do have a part to play in meeting some of the demand for commercial species of timber. It is also felt that the roles of the private farm forestry sector and State Forest Corporations are not mutually exclusive. It is correct that in the past displacement of eco supportive tree species by commercial species of timber on forestlands has had a negative impact on the biological diversity of an area. However, the Forest Policy of 1988 clearly recognizes this and the lessons we have learnt from our past experience. Even then, it can be ensured that Government enterprise does not repeat such mistakes. Similarly, the economic and social consequences of governmental initiatives in plantation activity should be consistent with principles of socio-economic justice, which keep in view the rights and needs of communities that are dependent on forestlands or meeting their requirements. It should not be difficult for these concerns to be woven into a set of guidelines, which would govern operations of the State Forest Corporations in this sector. After all, guidelines under the Forest Conservation Act, 1980 have been successfully implemented over two decades to strictly regulate the use of forestland for non-forestry purposes.
6. The Ministry of Agriculture would also similarly need to keep in view concerns arising from diversion of private agricultural rich lands for farm forestry, impact on soil nutrients and effect on water table. The importance of food security is something which will need to be given primacy. While forests have a very important role to play in maintaining ecological stability, conservation of biological diversity is no less

important in non-forest areas. Besides, plantation forestry is a legitimate component of forest management. And although the ecological and biodiversity values of plantations cannot be comparable with those of natural forests, bringing degraded forestlands under tree cover is in itself an adequate environmental compensation. The choice and mix of species to be planted can also be regulated to meet multiple objectives, including the needs of local communities.

7. As regards the proposal to ban import of paper pulp before such a recommendation is made, it would be advisable to project scenarios in event of significant shortfalls in supplies of timber on import prices of paper, cost to the consumer, effect on foreign exchange outflows and economic impacts on domestic industry. This would need a separate in-depth examination based on data and cost pricing which is not available to the present study and would perhaps be a matter more fit for examination by the BICP.
8. If some performers in the Public Sector, which includes State Forest Corporations, have not measured up to the best levels of efficiency, we need to examine the reasons. It should not be forgotten that invariably they do not operate on a level playing field. Rather than see them as being managed by self-motivated interests, we need to see how they can be made to perform more efficiently.
9. The draft talks about a hidden agenda / statements which suggest a sell-out to industry, or which reflect on the administrative ability of members of the Forest Service to successfully perform their duties in an impartial manner. This is a reference which is based on a pre-supposition, which I find difficult to accept. If there have been some aberrations at some levels in the implementation machinery, this cannot lead us to a much wider conclusion which suggests a systematic failure on the part of the Forest Department.

With warm regards,

Yours sincerely,

(Vishwanath Anand)

Dr. N. C. Saxena

Secretary

Department of Rural Development

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