UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

PROJECT PAPER

INDIA

NATIONAL SOCIAL FORESTRY PROJECT

(386-0495)

VOLUME I

JUNE 1985

USAID/INDIA

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AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: _____ — DOCUMENT CODE: 3

2. COUNTRY/ENTITY: India

3. PROJECT NUMBER: 386-0495

4. BUREAU/OFFICE: Asia [04]

5. PROJECT TITLE (maximum 40 characters): National Social Forestry

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 03 DD 31 YY 90

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 85 B. Quarter 3 C. Final FY 88

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. Total	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. Total
AID Appropriated Total	1,250	17,350	18,600	3,755	79,745	83,500
(Grant)	(1,250)	(950)	(2,200)	(3,755)	(2,745)	(6,500)
(Loan)	(-)	(16,400)	(16,400)	(-)	(77,000)	(77,000)
Other U.S. 1.						
Other U.S. 2.						
Host Country	-	20,000	20,000	-	85,000	85,000
Other Donor(s) IDA	255	164,745	165,000	255	164,745	165.000
TOTALS	1,505	202,095	203,600	4,010	329,490	333,500

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	C. PRIMARY TECH. CODE 2. Loan	D. OBLIGATIONS TO DATE 1. Grant	D. OBLIGATIONS TO DATE 2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	E. AMOUNT APPROVED THIS ACTION 2. Loan	F. LIFE OF PROJECT 1. Grant	F. LIFE OF PROJECT 2. Loan
(1) FN	B253	160	160	-	-	-	-	6,500	77,000
(2)									
(3)									
(4)									
TOTALS								6,500	77,000

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 067 | 033 | 031

11. SECONDARY PURPOSE CODE: B243

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BR	BS	ENN	PART			
B. Amount	56,900	7,600	11,400	7,600			

13. PROJECT PURPOSE (maximum 480 characters)

(a) Develop effective government and private sector capacities in Uttar Pradesh, Rajasthan, Gujarat and Himachal Pradesh for carrying out alternative social forestry programs; (b) help build the capabilities of the four states and the central government to evaluate the effectiveness of their different social forestry programs and to develop policies and government and private sector initiatives to meet India's long term forestry needs.

14. SCHEDULED EVALUATIONS: Interim MM 03 YY 88 | | MM | YY | Final MM 09 YY 90

15. SOURCE/ORIGIN OF GOODS AND SERVICES: ☐ 000 ☐ 941 ☒ Local ☐ Other (Specify) _____

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment)

(1) 27

17. APPROVED BY — Signature: [signature] — Title: — Date Signed MM DD YY: — 18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY:

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PROJECT SUMMARY AND RECOMMENDATIONS

A. Background and Rationale Increased population and a rising economy have accelerated consumption of forest products in India to a rate which has outstripped the country's capacity to replenish supplies. Since forest products are a staple of life, particularly as a source of energy in rural areas, India is faced with marked reductions in rural living standards and its environment unless deforestation is reversed.

In response, the GOI has instituted large-scale "social forestry" programs to promote tree planting throughout the country. This social forestry movement faces three fundamental tasks: 1) the need to find cost effective means to mobilize individuals, groups, and community organizations outside government to take up tree planting; 2) the need to solve the particular problem of reforesting common lands which present perverse incentives for overuse; and 3) the need for equity -- meeting the needs of the relatively poor. Social forestry programs have made commendable progress so far in meeting these challenges. However, the rate of planting to date falls well short of requirements, and the institutional and technical infrastructure required for the program needs further strengthening. While farm forestry on private land has proceeded rapidly, the Government has been less successful in promoting social forestry on public lands. Policies and programs which can fulfill India's social forestry needs over the long term are still evolving.

B. Social Forestry and Rural Growth Although originally considered an energy or environmental program, social forestry is a powerful vehicle for promoting rural growth. Farm forestry, which will be the main element of this project, can be carried out on scraps of land around households, on bunds and on land which is unfit for other agriculture. It is thus able to produce income for small landowners and those with only household plots. This project contains several elements to bring opportunities for farm forestry more within the reach of the poor. For instance, it will emphasize small, widely dispersed nurseries for distributing seedlings and provide for the agricultural extension service to advise on agroforestry as part of its regular training and visit (T&V) system. The programs in the project to promote tree planting on government lands near villages can improve relative income distribution by improving their productive capacity and giving the landless access to productive resources which were previously unavailable to them. Social forestry confers particular benefits on women and children by reducing the burden of gathering firewood.

More generally, this and other social forestry projects will increase supplies and lower relative prices for poles, small timber, fuelwood, and tree fodder. These relative price declines provide greatest benefits to the poorest. Finally, the environmental benefits of social forestry are also generalized. That is, investing in increased productivity of India's land and water resources redounds to the benefit of all, not just a particular income group. For all these reasons, USAID/New Delhi continues to emphasize social forestry strongly in its program.

C. Summary Project Description This is USAID/New Delhi's third social forestry assistance project. Its goal is to raise incomes and employment among the rural poor by increasing production of small timber, fuelwood, fodder and other forest products. An important collateral goal, served by achievement of the main goal, is to arrest erosion of the natural environment caused by deforestation. Its purposes are twofold: (a) develop effective government and private sector capacities in the states of Uttar Pradesh, Rajasthan, Gujarat, and Himachal Pradesh for carrying out alternative social forestry programs; (b) help build the capabilities of the four states and the central government to evaluate the effectiveness of their different social forestry programs, and develop policies and government and private sector initiatives to meet India's long term forestry needs.

The project's three elements are summarized below:

1. Alternative Tree Production Programs Funds will be provided to carry out several types of plantation programs including farm forestry, "tree-tenure" schemes targeted at landless persons and marginal farmers, community-managed plantations on wastelands near villages, and plantations on government wastelands which will largely be managed by the state forest departments. Close to 75 percent of the 709,000 hectares included in the project will be planted by the private sector, either by private farmers or in several pioneering programs which give persons, primarily landless households, the right to plant trees for their own benefit on public lands. The program also continues efforts to establish viable, locally managed community tree plantations on common lands and promote improved forest and land management generally through cooperative efforts of state forest departments with local entities.

2. Institutional Development Funds will be provided to the four states to expand staff, develop research, extension, and training facilities, and (with special emphasis) build effective monitoring, evaluation, and planning capabilities.

3. Social Forestry Support Office The project will assist the GOI to build within the new Ministry of Environment and Forests the capacity to facilitate the exchange of information and lessons learned among the states, assist the states in evaluating different state programs in terms of their relative effectiveness, carry out national studies of needs in social forestry, and foster common and cost effective approaches toward implementation of the variety of centrally sponsored, state, and donor-assisted social forestry programs. Effective establishment of this capacity is considered a key step in achieving the project's purposes.

The total cost of the five-year project is estimated at $327.8 million. AID will contribute $77.0 million in loan funds and $3.0 million in grant funds. The International Development Association proposes to contribute $165.0 million. The host country will contribute $82.8 million. AID will, in addition, directly obligate $3.5 million for program management and technical support, thus bringing the total AID authorization to $83.5 million.

D. Project Issues Since the inception of social forestry in India, the states and GOI have been wrestling with a number of difficult issues. For instance, what part of the social forestry program can be carried out by government and what part by the private sector? How much government subsidy is needed in programs aimed at private farmers? What is the relative role of the forest department vis-a-vis other government agencies such as agricultural extension? How can the panchayats (the local village councils) be activated to take responsibility for the community tree plantations on a genuine self-help basis? What is the role for PVOs and NGOs in social forestry?

The design for this project builds on lessons derived from past social forestry projects. It embodies a number of policy and administrative reforms designed to extend the reach and lower the cost of social forestry in India. As noted above, it is directed predominantly to farm forestry as the most cost-efficient means of augmenting wood supplies and improving rural incomes. It expands the government's tentative steps to introduce private incentives on public lands by giving villagers rights to "own" individual trees and/or their products while the government retains the right to the underlying land. It emphasizes use of small semi-private nurseries to distribute seedlings because they are more efficient than centralized forest department nurseries. It seeks revision of seedling distribution policies to encourage cost recovery. Additionally, under its auspices the agricultural extension service T&V system will provide advice to households taking up farm forestry.

There are three issues, two substantive and one administrative, which have presented themselves in developing this project. These are:

1. Community-Managed Wasteland Plantations Are there further steps to be taken within the project to improve the village woodlot program?

As explained in the project description, state governments have successfully established numerous village woodlots, but they have been less successful in persuading panchayats or other village bodies to assume responsibility for managing the woodlots or underwriting their costs. The problem is one of ensuring that the panchayats have sufficient incentives and resources to undertake long-term responsibility for managing tree stands. Under this project, the four states propose to extend village woodlots to an additional 95,000 hectares. Several steps to try to improve the woodlot program are incorporated in the project design. AID and IDA have agreed to include this element in the project, and plan to work closely with the states on local management issues. USAID/New Delhi will assign a full-time professional which it will recruit under this project to focus also on problems of community management.

2. PVOs and NGOs Are there further steps to be taken in the project to expand involvement of PVOs/NGOs in social forestry?

India's numerous PVOs and NGOs are playing a role in social forestry, but effective means to marry the grass roots capabilities of these agencies with the resources available through forest departments have so far eluded India's planners. This project provides funds which the four states can grant to NGOs or PVOs to carry out studies on specific operational issues. The states still hesitate, however, to utilize outside organizations, and the procedures for doing so are cumbersome. Recently, the GOI announced its intention to establish a National Wasteland Development Board to coordinate social forestry programs across government, and this body may develop procedures for better use of private agencies. AID plans to give concerted attention to promoting better use of PVOs and NGOs over the life of the project.

3. AID Monitoring Arrangements Are the proposed monitoring arrangements for the project sufficient?

Many of this project's tangible products (hectares of trees planted) will, by design, be so widespread as to render physical verification possible only on a spot check or sample basis. The planting targets for different programs are expected to change over the life of the project as a result of evaluations and experience.

In addition, the project's principal objective is to promote qualitative institutional and policy change, not merely to fulfill quantitative reforestation targets. In this context, the following monitoring and implementation procedures are proposed. Joint AID/IDA missions will visit the four participating states twice a year. One of these visits will be during the September-November period. State consultations during this mission will focus on such matters as progress made in project-assisted monitoring, evaluation, and staff training activities, emerging policy and procedural constraints, and the pace and quality of the social forestry field programs, e.g. farm forestry, tree tenure, and community woodlots. Within the context of the AID and IDA project documents, mutual agreement will be reached with each participating state regarding the ensuing year's program. State and Center allocations will be made for social forestry over the course of the year. Allocations and subsequent expenditures will be made in accordance with the project agreements as clarified through official project correspondence and mutual agreement. AID and IDA will disburse assistance funds upon receipt of certified statements of expenditure from the states and the GOI. The documentation behind the certified statements of expenditure will be available for inspection and audit by the donors, and will be audited by the GOI on an semiannual basis according to its regular procedures. The states will prepare annual progress reports on the project. USAID/New Delhi will add two additional FSNs to manage the project, and USAID/New Delhi staff will make frequent visits to the states in consultation with state authorities to review progress, support implementation activities, and follow-up on the recommendation of the joint supervision teams. These visits will focus more on qualitative changes in program operations rather than on quantitative achievement of physical outputs.

USAID/New Delhi also plans the direct obligation of $3.5 million in grant funds to finance a Program Management and Technical Support Facility which will support this and other AID-assisted activities in the sector. This facility will provide for full-time expatriate specialists in 1) monitoring and evaluation systems, 2) community forest management, and 3) forestry research, education, and training. It will also provide funds for short-term consultants and special activities. Authorization of this grant component is vital to AID's ability to support achievement of the purposes of this project.

E. Recommendations The project has been developed by the GOI, state governments, AID and IDA on the basis of an extensive joint appraisal mission with the help of a number of specialized consultants, and, most importantly, on the basis of AID, IDA, GOI and state experience with social forestry programs in the past. USAID/New

Delhi has reviewed the project and concluded that it is operationally feasible and technically, socially, administratively, and economically sound. The project is consistent with and supportive of AID policy. USAID/New Delhi recommends that the project be approved by AID/ Washington and that an AID loan for $77.0 million and grants of $3.0 million for project activities and $3.5 million for the Program Management and Technical Support Facility be authorized.

I. PROJECT BACKGROUND AND RATIONALE

A. Problem Increased population and the demands of a growing economy have reduced forested land in India to about 40 million hectares or 12 percent of its total area. Diminishing availability and increasing real prices for forest products (growing at about 6 percent a year) are curtailing income growth, particularly among the rural poor for whom fuelwood, small timber, fodder for livestock, and other forest products are essential items. This is particularly true in rural areas where nearly 55 percent of the energy consumed by households comes from wood, mostly twigs and branches and where animal dung and crop wastes account for another 25 percent. Deforestation has, in addition, increased top soil erosion and water run-off and turned extensive acreage into wastelands.

Current estimates of the annual growth of wood of the entire public forest estate plus production from community and private lands run at about 40 million cubic meters. Against this figure must be placed estimates of annual wood consumption in the neighborhood of nearly 200 million cubic meters. The difference between the two figures is made up by cutting into whatever standing forests are left. This, on balance, means that even less will be produced to meet the needs of future years. Regarding those future years, total wood demand in the year 2000 is expected to reach about 300 million cubic meters. Of this the annual demand for fuelwood alone is estimated at 200-230 million cubic meters.

To meet the year 2000 gap between consumption and production, it is estimated that approximately 5 million hectares per year need to be planted over the next ten years. In other words some 10 billion seedlings will have to be planted annually to avoid continued deforestation and its consequences.

In response, the Indian forest departments, in addition to expanding their traditional reforestation programs, embarked in the late 1970's on large-scale, innovative programs of social forestry to assist rural communities and individuals grow trees on government and private land near their villages. As Table 1 below indicates, social forestry is the fastest growing element in India's forestry program. The GOI has reported that as a result of efforts undertaken so far, last year some 2 billion seedlings were planted all over India under various state and centrally sponsored schemes. This is a marked improvement over earlier levels but still falls far short of the level that will compensate for annual felling and removals.

TABLE 1: EXPANSION OF SOCIAL FORESTRY
(Millions of Rupees in Current Terms)

Plan Period	Social Forestry	Production Forestry	Other[1/]	Total
First (1951-56)	2	11	64	77
Second (1956-61)	20	49	143	212
Third (1961-66)	54	157	248	459
Post Third (1966-69)	43	187	189	419
Fourth (1969-74)	71	373	450	894
Fifth (1974-79)	525	547	1,016	2,088
Annual Plan (1979-80)	227	144	312	683
Sixth (1980-85) 2/	3,518	1,003	2,404	6,925
Seventh (1985-90)	38,000	8,000	16,000[3/]	62,000

Although a good start has been made, much remains to be done. The GOI plans a major increase in social forestry outlays in the Seventh Plan (1985-90). Prime Minister Rajiv Gandhi has assigned forestry a high priority in the agenda of tasks for his government. Four months ago in his first major policy address the Prime Minister stressed his concern regarding the precarious state of India's environment and forests. He announced a new mandate under which India would increase tree planting activities fivefold to meet the target of reforesting 5 million hectares of wastelands every year. During the next month, the Prime Minister created a new Ministry of Environment and Forests, and he currently holds the ministry's portfolio. As a result of these changes, the primary GOI office responsible for national forestry matters found itself elevated from a simple division within the Ministry of Agriculture to a full-fledged department with its own Secretary in a Ministry headed by the Prime Minister himself. The institution of a National Wastelands Development Board has also been announced, and steps are underway to constitute and convene it.

From its inception, this rapidly expanding social forestry program in India has faced three fundamental tasks. First, the government has had to reach out and energize a massive number of individual households, village organizations and private groups to plant trees. Although expansion of forest departments is a requisite for progress in social forestry, the problem, by definition, is too big to be solved by government alone.

1/ Includes forestry research, education and training, wildlife management, conservation, etc.

2/ The Seventh Plan figures presented here are tentative and unofficial. More accurate estimates will be available by mid-1985.

3/ Includes approximately Rs. 2,250 million proposed for forestry research and Rs.1,500 million for education and training.

Second, the fact that much reforestation must be done on government-owned or common lands complicates the task of mobilizing widespread tree planting campaigns. Strong group cohesion or outside supervision is needed to establish and preserve tree stands on common land, which otherwise invite overuse on a first-come, first-served basis. Much of the government and common land in India is currently under no effective control.

Third, the government has to deal with the problem of equity. Dwindling fuelwood supplies and rising wood prices have hit hardest those with the fewest alternative resources. The GOI is concerned that social forestry meets the needs of the poor.

B. Current Programs Estimated social forestry expenditures and physical achievements for the Sixth Plan Period (April 1980 to March 1985) broken down by centrally sponsored schemes, donor-assisted and other state schemes are given in Annex II.A. Generally, social forestry development is a state responsibility. The GOI provides financial assistance through a number of centrally sponsored schemes which finance half the cost of plantation activities taken up under these schemes. Alternatively, statewide foreign donor-assisted projects finance a share of direct plantation costs and also help finance incremental staff, training, civil works vehicles and other essential inputs. Finally, using their own resources, states design and operate their own social forestry schemes. These schemes are discussed below in terms of the form they take as field programs.

One of the early social forestry efforts developed in India, community woodlots planted primarily on common lands around villages, was designed to address simultaneously all three of the concerns identified above. Under these schemes locally elected councils representing a village or several villages, known as panchayats, are supposed to manage community tree plantations on village common land and distribute the produce, giving particular emphasis to the needs of the poor. Despite difficulties experienced in implementation, their innate appeal remains strong. As a result, community woodlots have been promoted in most Indian states often with the strong encouragement of foreign donors.

Although a large number of trees have been planted under these efforts, they have so far not been successful in creating true community management -- that is, an independent local ability to manage plantations for sustained yield and distribute benefits equitably among the villagers. The program has suffered from the facts that panchayats have no staff or resources which they can devote to developing woodlots, that Indian villages often are divided into factions which make group action difficult, that panchayat members come from the village elites and may lack solicitude for the poor, and that tree plantations are slow to

produce returns and thus may offer insufficient financial incentives for group action. In this context, the community woodlot program has been a more costly, top down forest department effort than its planners originally envisaged

While they may be problematic, GOI and State Seventh Five-Year Plan social forestry programs reflect a commitment to the continued establishment of community managed wasteland plantations. No doubt this will prove to be a difficult mandate, but there are states which continue to have significant amounts of commonly managed grazing lands and wastelands which could and should be more productive. Furthermore, if the correct institutional mechanisms are developed, this could happen in a way which provides landless households and other poor groups with supplementary sources of fuelwood, fodder and other essential forest products. Although the payoffs from such institutional development activities may be down the road, they are potentially very significant and worth pursuing.

On the other hand, the government has had marked success in expanding private farm forestry. Rising wood prices have made tree farming profitable. Private forestry, principally for poles and other higher value wood products, accounts for about half of the seedlings planted in India today. Farm forestry provides the highest economic returns at minimum cost to the government (about one fifth the cost of plantations on government land). Since individuals can plant trees on scraps of land around homesteads, on bunds, and on land which is otherwise unsuited for agriculture, farm forestry is able to meet the needs of some of the landless as well as those of marginal, small and medium landowners. Most private planters intend to dispose of their stem wood through commercial channels, but the tops and branches are used as fuelwood, to augment supplies and reduce pressure on traditional sources.[4/]

Farm forestry, however, does not assure that the needs of the poorest will be fully met nor does it address the problem of common lands. Several states have recently begun experimental programs to introduce private incentives on common lands. For instance, tree tenure schemes are being tried under which landless or marginal farm households are given rights to plant and "own" trees on common land, while the government retains rights to the land. In Rajasthan approximately 3,000 households will be given tree tenure rights on 2.5 hectares each. In Uttar Pradesh, landless households identified by village officials will plant and maintain over 11,000 hectares of community wasteland under a similar tree tenure system. Such programs, if widely spread, have the potential to meet both equity and common lands concerns.

4/ See final IDA Supervision Report prepared for first phase of the Uttar Pradesh Social Forestry Project.

In addition, the government is accelerating programs to replant denuded forest department lands. The direct costs are borne by the forest departments which seek to recover their investments at harvest time. These programs provide employment for villagers as well as benefits in the form of grasses and tree loppings for fodder and fuelwood. Efforts will be made to identify ways through which local residents will play a greater role in protecting and maintaining these plantations in return for an increased share of their benefits. For example, the Gujarat Forest Department has developed a "permanent labor engagement model" wherein a family is paid a fixed monthly income throughout the year in return for raising and protecting 2.5 hectares of forest department plantation every year. The family is also promised 20 percent of the net returns when the plantations are harvested.

At this stage in the development of social forestry in India, there has been some notable progress. Meanwhile, the process of evolving approaches and programs which can more efficiently accelerate reforestation across the country continues. As has been the case in many Indian development programs, (e.g. agriculture), much analysis, evaluation, and widespread on-the-ground experience is needed before the current efforts can coalesce into a set of programs which will meet India's needs on a sustainable, long-term basis.

C. Operational Problems In addition to these questions of overall program design, there are a number of specific operational issues which affect the program.

--Cost Recovery Seedling distribution policies (e.g. ceiling on free distribution of seedlings and systems for charging for additional seedlings) need to be adjusted in several states so that the government is not, on the one hand overly subsidizing commercial growers and is not, on the other, discouraging the participation of the relatively poor. Cost recovery policies and procedures for other types of social forestry models (e.g. community and government- managed plantations) must also be developed.

--Training The forest departments are seeking to transform themselves from their traditional roles as policemen and managers of forest reserves into service departments capable of interacting with villages and rural people. This entails retraining field staff and revising training curriculums--a task which is progressing only slowly so far.

--Monitoring and Evaluation It is particularly important for the forest departments to develop strong monitoring and evaluation capabilities. This is the first step needed if the process of searching for cost effective approaches to social forestry is to be based upon accurate data and experience drawn from current programs.

Although most states now have monitoring and evaluation units, they are not well trained in survey methods nor well attuned to the sociological dimensions of forest programs.

--Intergovernmental Relations There is a need to sort out relative roles among the many government agencies involved in social forestry both between and within the center and state governments. For instance, the question of relationships between the state forest departments and the agricultural extension service is crucial to carrying out the farm forestry program.

--NGOs/PVOs India's many private organizations are playing a role in social forestry, but effective means for marrying their grassroots capabilities with resources available from foreign donors or through forest departments have so far eluded India's planners. More involvement by NGOs/PVOs can significantly lessen the burden on government.

D. AID and Other Donor Programs The proposed project follows AID-assisted social forestry projects in Madhya Pradesh and Maharashtra. The Madhya Pradesh Social Forestry Project ($25 million in AID funds) focuses principally on expanding the state and panchayats' capacities to manage community tree plantations on common land. It has generally met its targets for expansion of the state social forestry organization and establishment of community plantations. As elsewhere, however, it has been less successful in persuading panchayats to bear the responsibility for managing the plantations. The Maharashtra Social Forestry Project ($30 million in AID funds) is split evenly between promoting community and private farm forestry. Targets for establishment of plantations have been exceeded, but project research and training activities are behind schedule. As in Madhya Pradesh, the actual degree of panchayat involvement in establishing woodlots is not clear.

In addition to these efforts, IDA, which initiated large-scale outside assistance for social forestry in India, is completing the first phase of assistance projects in Gujarat and Uttar Pradesh. It is also assisting additional projects in West Bengal, Jammu and Kashmir, Haryana, Karnataka, and Kerala. (See Annex II.B. for descriptions of the IDA-assisted projects in Uttar Pradesh and Gujarat. SIDA (Sweden) is assisting in Tamil Nadu and Orissa, while CIDA (Canada) is supporting activities in Andhra Pradesh.

Even before the initiation of the first externally-assisted social forestry project in 1979, the GOI and the donor community were concerned that social forestry was a field in which little rigorous research had been conducted and few proven technologies were available. As investments in field activities have grown, so has everyone's concern that the fundamental scientific basis upon which these investments are based is much too thin. At the same

time, shortages of trained field extension personnel and supervisory staff are growing quite critical. For these reasons this project cannot be reviewed apart from complementary technical transfer and institutional development activities which will be taken up under the existing AID Agricultural Research Project and the proposed Forestry Research, Education and Training Project.

AID provides modest project-specific research and training support under the social forestry projects in Madhya Pradesh and Maharashtra. Similar support, geared primarily to meet the immediate needs of project implementation, will be provided under the National Social Forestry Project. (See Section II.C.2.b. below and Annex III.C.) However, given the scale and complexity involved in expanding the capacity of Indian forestry research, education and training institutions, a separate, well-concerted effort is in order.

In November 1982, AID/Washington approved a USAID/New Delhi PID for a forestry research, education and training support project. This approval was given with the understanding that USAID/New Delhi would take part in a World Bank joint donor review of India's requirements in the subsector and that the future project design would be in keeping with the review team's findings. The review took place in February 1983 with Asia Bureau and S&T Bureau foresters serving as full-time members. All of the participants in the review were struck by the complexity of the investment program required. It was recommended that as individual, self-contained components of the overall program were identified by the GOI, they could be forwarded to AID or other donors for financial support.

Possible components identified by the joint review team in collaboration with the GOI included the following:

a) all-India agroforestry research pursued under the auspices of the Indian Council of Agricultural Research (ICAR);

b) strengthening individual state agricultural university forestry departments and forestry research activities, including, where necessary, construction of new laboratories and other buildings;

c) strengthening the capability of selected state agricultural universities to award B.Sc. degrees in forestry;

d) training teachers for all levels of forestry education and introducing incentives to attract and retain good staff in teaching positions;

e) revitalization of the Indian Council of Forestry Research and Education (ICFRE) and provision of funding and policy

planning advice to enable it to play a lead role in project formulation and implementation;

f) upgrading the status of the Forestry Research Institute and Colleges (FRI & C) at Dehra Dun to an institution of national importance (National University) and strengthening teaching facilities to enable FRI&C to award M.Sc. and Ph.D level degrees;

g) expanding the FRI&C regional forestry research institutes and developing specialized capability in areas of common national interest;

h) a program of All-India Coordinated Research concentrating on a few research impact points likely to raise productivity and rural incomes; and

i) creating an effective national forestry research information and records service.

USAID/New Delhi is currently collaborating with ICAR in the design of an agroforestry research subproject for inclusion under the on-going Agricultural Research Project. This subproject would be designed to support ICAR's All-India Coordinated Research Project on Agroforestry initiated in 1983. Research institutions supported by the AID-assisted subproject will include nine ICAR research centers (including the Central Arid Zone Research Institute in Jodhpur, the Indian Grasslands and Fodder Research Institute in Jhansi, and the Central Soil and Water Conservation Research and Training Institute in Dehra Dun) as well as all 23 state agricultural universities. Detailed design of the subproject is expected to begin in mid 1985.

Given Prime Minister Rajiv Gandhi's recent call for a fivefold increase in the current rate of tree planting, the acute shortage of qualified field extension workers and mid-level managers has received increased attention. One result is that the GOI is seeking ways to tap the education and training capabilities of the state agricultural universities. ICAR and USAID/New Delhi recently began discussing what role the Agricultural Research Project, with its new mandate to deal with education matters, may play in this regard. In the meantime, other AID resources may be tapped before the end of 1985 to assist the GOI in taking the initial steps to enhance the forestry education capacities of the State Agricultural Universities.

While the type and degree of foreign donor assistance is still uncertain, the GOI is preparing proposals to upgrade the research, education and training capacities of FRI&C Dehra Dun and its regional research centers throughout India. Tentative steps are also being taken to reconvene ICFRE, although its function and

authority, as well as the scope for foreign donor assistance, have yet to be determined. Given the PID approved in November 1983, USAID/New Delhi's improved understanding of the problems and institutions involved, on-board expertise and potentially significant backup support from AID/Washington, AID stands in a good position to assist in strengthening and supporting the programs of these institutions. The initial obligation under the Forestry Research, Education and Training Project is expected during FY 86 or FY 87 pending receipt of GOI proposals now in process.

E. Rationale Increased population and a rising economy have accelerated consumption of forest products in India to a rate which has outstripped the country's capacity to replenish supplies. Since forest products are a staple of life, particularly as a source of energy in rural areas, India is faced with marked reductions in rural living standards and its environment unless deforestation is reversed.

In response, the GOI has instituted large-scale "social forestry" programs to promote tree planting throughout the country. This social forestry movement faces three fundamental tasks: 1) the need to find cost effective means to mobilize individuals, groups, and community organizations outside government to take up tree planting; 2) the need to solve the particular problem of reforesting common lands which present perverse incentives for overuse; and 3) the need for equity -- meeting the needs of the relatively poor. Social forestry programs have made commendable progress so far in meeting these challenges. However, the rate of planting to date falls well short of that required, and the institutional and technical infrastructure required for the program needs further strengthening. While farm forestry on private land has proceeded rapidly, the Government has been less successful in promoting social forestry on public lands. Policies and programs which can fulfill India's social forestry needs over the long term are still evolving.

Although originally considered an energy or environmental program, social forestry is a powerful vehicle for promoting rural growth. Farm forestry, which will be the main element of this project, can be carried out on scraps of land around households, on bunds and on land which is unfit for other agriculture. It is thus able to produce income for small landowners and those with only household plots. This project contains several elements to bring opportunities for farm forestry more within the reach of the poor. For instance, it will emphasize small, widely dispersed nurseries for distributing seedlings and provide for the agricultural extension service to advise on agroforestry as part of its regular training and visit (T&V) system. The programs in the project to promote tree planting on government lands near villages can improve relative income distribution by improving their productive capacity

and giving the landless access to productive resources which were previously unavailable to them. Social forestry confers particular benefits on women and children by reducing the burden of gathering firewood.

More generally, this and other social forestry projects will increase supplies and lower relative prices for poles, small timber, fuelwood, and tree fodder. These relative price declines provide greatest benefits to the poorest. Finally, the environmental benefits of social forestry are also generalized. That is, investing in increased productivity of India's land and water resources redounds to the benefit of all, not just a particular income group. For all these reasons, USAID/New Delhi continues to emphasize social forestry strongly in its program.

The proposed project will support the second phase of social forestry activities in Uttar Pradesh and Gujarat and to initiate subprojects in Rajasthan and Himachal Pradesh. The project will also enhance the capacity of the GOI's new Ministry of Environment and Forests to play a stronger supportive and role in building state level monitoring and evaluation capacities, in facilitating the exchange of information among states, and in helping states plan more cost effective approaches to social forestry.

The project embodies a number of administrative and policy reforms designed to address some of the key problems in social forestry discussed above. As already noted above, it is directed predominantly to farm forestry as the most cost-efficient means of augmenting wood supplies and improving rural incomes. It expands the government's tentative steps to introduce private incentives on public lands by giving villagers rights to "own" individual trees and/or their products, while the government retains the right to the underlying land. It emphasizes use of small semi-private nurseries to distribute seedlings because they are more efficient than centralized forest department nurseries. It provides for the agricultural extension service to supplement the flow of technical agroforestry information going to individual farm households though its T&V system. It strongly emphasizes monitoring and evaluation at both the state and central levels in order to assist the process of developing further reforms by analyzing cost effective approaches to social forestry.

With this project, AID will be supporting the development of social forestry programs in 6 of the 22 Indian states. This project, plus the experience drawn from on-going efforts and complementary research and education activities now under design, place AID in an excellent position to assist the GOI improve and expand its programs in this dynamic sector.

II. PROJECT DESCRIPTION

A. Project Goal The project's goal is to raise incomes and employment among the rural poor by increasing production of small timber, fuelwood, fodder, and other forest products. An important collateral goal, served by achievement of the main goal, is to arrest erosion of the natural environment caused by deforestation.

B. Purposes The project's purposes are twofold. (a) develop effective government and private sector capacities in the states of Uttar Pradesh, Rajasthan, Gujarat and Himachal Pradesh for carrying out alternative social forestry programs; and (b) help build the capabilities of the four states and the central government to evaluate the effectiveness of their different social forestry programs and develop policies and government and private sector initiatives to meet India's long-term forestry needs.

C. Project Elements The three main elements of the project are described below. (Annex II.C. contains descriptions of project elements excerpted from the World Bank National Social Forestry Project Staff Appraisal Report.)

1. Alternative Tree Production Programs Several types of plantation programs will be carried out in each of the states as listed in Table 2.

TABLE 2: ALTERNATIVE TREE PRODUCTION PROGRAM
(Equivalent Hectares)

	Category	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh	Total	Percent Total
A.	Agroforestry						
	Farm Forestry (seedling distribution)[5/]	134,000	80,000	200,000	53,000	467,000	66%
	Private Wasteland Planting			30,500	13,000	43,500	6%
	Improved (grafted) Orchards		4,000			4,000	v.s.
B.	Tree Tenure for Poor & Landless						
	Strip Plantations	1,210				1,210	v.s.
	Household/Group Farm Forestry	11,000	7,500		833	19,333	3%
	Arjun Plantations	1,000				1,000	v.s.

5/ Hectare figure derived by dividing number of seedlings to be distributed by 1500.

Category (Contd.)	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh	Total	Percent Total
C. Wasteland Plantations (Community-Managed) for Community Needs						
Community Woodlots (Rainfed)	14,000	5,000	20,000	41,000	80,000	11%
Community Woodlots (Irrigated)			5,000		5,000	v.s.
Tree Fodder Plantations			10,000		10,000	1%
D. Wasteland Plantations (Government-Managed) for Community Needs						
Rehabilitated Degraded Forests		20,000	30,400	5,000	55,400	8%
Strip Plantations	740	4,300	15,000		20,040	3%
Urban Fuelwood			2,500		2,500	v.s.
Total Plantations	161,950	120,800	313,400	112,833	708,983	100%

a. Agroforestry Farm forestry will be by far the largest production component in all participating states totaling nearly 470,000 hectares.6/ As noted earlier, farm forestry yields the highest benefits to farmers, costs the least and gives the farmer control over the choice of species and use of product. The only direct cost to the forest departments will be in seedling production. In addition, Gujarat and Himachal Pradesh will carry out a program of private wasteland planting on highly eroded land. The departments will assist farmers establish tree plantations by providing incentive payments during the initial months. These will also help the farmers to recoup their investment costs or make up for minor production forgone. Only highly eroded land will qualify for this subsidy.

Over the course of project design, a predominant concern was that the project incorporate measures which would help ensure that landless, marginal, and small farm households gain access to social forestry programs and secure a measure of project benefits. These benefits are defined primarily as 1) seedlings, information and (to a certain extent) land required for pursuing agroforestry, 2) day labor opportunities, and 3) grass, tree fodder, fuelwood or other forest products produced through community managed woodlots or plantings on wastelands managed more directly by the forest departments. However defined it is clear that more direct links between benefits and poorer households are needed if equity concerns are to be addressed. In this regard, specific aspects of the agro-

6/ Hectare figure derived by dividing number of seedlings to be distributed by 1500.

forestry models are described immediately below. Similar discussions are found in the following sections treating the other alternative tree production models.

First, whether the problem has been one of transportation or simply being aware of the availability of seedlings, recent studies have shown that poorer households living more than 4 or 5 kilometers from a source of planting materials are unlikely to avail of seedlings for farm forestry. Since the likelihood of seedling survival also drops as the distance from nursery to planting site increases, for both social and silvicultural reasons project design calls for nurseries to be much more widely dispersed, though perhaps somewhat smaller than previously. As the forest departments themselves will be hard pressed to directly manage each small field nursery, there will be a more widespread devolution of nursery management and supervision responsibilities to private households or schools and similar institutions willing to contract with the departments for seedling production.

Given the growing concern for departmental cost recovery and the view that there is no need for the departments to routinely subsidize large farmers producing for the commercial pole, small timber, and pulpwood markets, it has been proposed that all states begin charging for seedlings distributed under this project and other social forestry activities undertaken by the states. This, however, raised the related question of whether charging for seedlings would discourage poorer families from lifting seedlings for farm forestry. In this regard it should be noted that sufficient empirical evidence exists to permit a thorough examination of this question over the course of the project through improved monitoring and evaluation of seedling distribution activities. For example, until recently the Uttar Pradesh Forest Department has charged 25 paise for each seedling distributed under the state social forestry program. Similarly, Himachal Pradesh routinely charges the nominal price of 10 paise for every seedling, primarily with a view to minimizing wastage and encouraging more rational distribution and use. Gujarat and Rajasthan on the other hand have provided all social forestry seedlings free of charge. By pooling data generated through monitoring of their seedling distribution programs, these states can provide information needed to answer the question and move towards an improved seedling price policy. In the meantime, to make sure poor households are not excluded, project calls for 100 free seedlings to be distributed yearly to every household requesting seedlings from the field nurseries.

The information poorer households need to encourage and improve their farm forestry efforts will be much more likely to reach them as a result of improved field extension methodologies undertaken as part of the project. For instance, by tapping into the extensive

agricultural extension service training and visit (T&V) system, the ability to effectively deliver farm forestry messages to potential beneficiaries, particularly marginal and small farm households, will be greatly enhanced. Also special efforts to hire women as forest department extensionists will be encouraged as a potential means of improving the flow of information and planting materials women need to take up private farm forestry near their houselots or in family fields.

b. Tree Tenure for Poor and Landless The tree tenure schemes proposed under this project have the potential for addressing both equity concerns as well as the need for more efficient management of the land in question. Primarily, however, they represent pilot attempts to find more direct means of touching landless households through social forestry. An earlier pilot has gone quite well in West Bengal wherein landless households were allotted small tracts of government wastelands. The title to the land remained with the government, but the households were given rights over any trees they could plant and protect.

Under the project, Uttar Pradesh, Rajasthan and Himachal Pradesh will sponsor similar experimental and potentially significant tree tenure schemes. The forest departments will consult with adjacent communities and arrange for landless persons and marginal farmers to use up to 2.5 hectares of wasteland for a fixed term. The farmers will own the trees they plant on this land and take full responsibility for managing and protecting their tree stands. The Uttar Pradesh tree tenure component will include pilot planting of 1000 acres of Terminalia arjuna on highly alkaline soils which have practically no other use.

c. Community-Managed Wasteland Plantations The project will also continue support for community-managed woodlots and fodder lots to be established in collaboration with panchayats on common lands. Most of these will be rainfed plantations (80,000 hectares), but in selected instances in Gujarat (5,000 hectares) existing irrigation facilities will be tapped on a pilot basis.

To date the primary social forestry project benefit realized by many poor households has been the day wage opportunities generated through forest department nursery work or thorough site preparation and planting operations on panchayat or government land. Some landless households have also benefited through the collection of grass or fallen twigs in community woodlot sites, strip plantations or reforested degraded areas. These sites, whether community managed or more directly managed by the forest departments, hold the potential for providing more significant benefits to poorer households over the longer term, provided improvements are made in their design, management and proposed distribution procedures.

As noted earlier, developing effective community-managed woodlots remains a problematical aspect of the Indian social forestry program. Almost all of the externally-assisted projects have had such components, and the institution of community-managed plantations constitute the core of the AID-assisted projects in Madhya Pradesh and Maharashtra. These attempts at community management are made difficult by the fact that the typical village is composed of numerous groups divided along the lines of caste, class, religion, economic and social standing, and political affiliations. Social forestry field staff and the panchayats themselves are generally very short on the conceptual tools and commitment needed to draw a consensus from such a situation, particularly a consensus which takes into account a set of equity considerations considered important by external donors, the GOI and the state governments. Apart from the difficulties involved in organizing the villages for self-help schemes, a lack of panchayat funds and local discrepancies in the availability of common land have handicapped the programs in most states. This is not to say there have not been some success stories, and Maharashtra may be doing comparatively better than other states in this regard.

While they may be problematic, draft GOI and state Seventh Five-Year Plan social forestry programs reflect a commitment to the continued establishment of panchayat managed forests. No doubt this will prove to be a difficult mandate, but there are states which continue to have significant amounts of common lands and wastelands which could and should be more productive. Furthermore, if the correct institutional mechanisms are developed, this could happen in a way which provides landless households and other poor groups with supplementary sources of employment, fuelwood, fodder and other forest products. Although the payoffs from such institutional development activities may be down the road, they are potentially very significant and worth pursuing. Therefore, another major design consideration was to ensure that the project incorporated measures likely to improve the willingness and ability of panchayats and other local groups to assume increased responsibilities for managing community woodlots. Certain measures are included and these are summarized below.

During project design, social considerations weighed heavily in developing the silvicultural prescriptions proposed for community-managed and department managed wasteland plantations. Proposed species mixes, harvesting cycles and methods were examined with an eye towards end products, means of distribution and end users. The process clarified underlying design assumptions and permitted modifications in design which were more in keeping with project goal and purpose. For example, the inclusion of certain species and exclusion of others may reflect a planning bias towards commercial

poles and small timber and away from tree fodder and fuelwood species preferred by poorer local households. Similarly, when discussing harvesting intervals and cycles it becomes obvious whether off-take will be annual or biannual to meet local needs for fuel or whether more longer-term harvests are envisioned to produce timber or raise money for panchayats.

Each of the community or government managed wasteland plantation models proposed by the states were subjected to the interactive computer model discussed in sections VI.C.2 and VI.D. Although the analysis and data were rough, the process forced state planners to articulate in greater detail than before the methods proposed for distribution production from these sites. Based upon what was said, the computer could quickly indicate where project benefits were likely to go. This, in turn, facilitated a discussion of the rationale behind the benefit distribution pattern and, more often than not, resulted in recommending changes in the distribution method or species mix and harvesting methods. Through this process better congruence was achieved between the design of the alternative social forestry models proposed by the states and overall project objectives, particularly the concern with equity.

Drawing on the experience from Maharashtra and certain other states, it appears that the development of a simple agreement between the panchayat and the forest department at the outset of activities enhances at least some aspects of local participation in establishing and protecting the plantations. Therefore the project calls for the execution of such resolutions, petitions or agreements prior to plantation establishment.

In some states where this joint agreement/planning process has been attempted, the level of detail and information called for in the plan formats has proven excessive. The plans were either not completed or have gotten in the way of effective forest department-village interaction and consensus development. Therefore, a simplified plan structure and contents have been recommended under the current project. Annex V.A. provides an indicative table of contents.

In most states a shortage of trained field staff limited the degree to which forest department representatives could interact with the panchayats, particularly during the first critical years. Under the project the farm forestry extension burden will be shared with the agricultural extension service training and visit system. As a result more forest department field staff will be available to work more exclusively on the community managed wasteland plantation component with its specialized group extension and community mobilization aspects. Perhaps more importantly, substantial investments will be made in entry level and on-the-job training to improve the group communication and negotiating skills of forest department field staff working with the panchayats.

As described below, the project will build the planning, monitoring and evaluation capacities of the participating state forest departments. If this is successful, the states themselves will be better able to define the constraints to improved community management and will themselves recommend and pilot test improvements for overcoming these constraints. A number of recommendations have already surfaced in this fashion. One calls for significantly increasing the incentives for panchayats through guaranteeing them the larger share of benefits (in cash) from woodlots they assist in managing. A second recommendation calls for providing a simple line of credit to interested panchayats which would use it to establish woodlots with the forest department providing only technical guidance. If provision is made for ideas such as these to be tested and modified over the course of implementation, there is likely to be significant improvement in community-managed models by the end of the project.

In the four participating states, special social forestry planning officers will be appointed. They will have a specific mandate for modifying social forestry models and distribution methods based upon monitoring and evaluation findings. Significant in this regard is the fact that some of the earliest community woodlots planted in the late 1970's and early 1980's will be harvested during the life of this project. Two woodlots were harvested last year in Gujarat, and the produce was distributed by the panchayat albeit with heavy forest department supervision. If the results from these first two woodlots are at all indicative, much will be learned as the process continues there and picks up in other states as well.

Finally, USAID/New Delhi will augment its staff with a community management specialist (See Section V.C.). This specialist will specifically monitor the community woodlot component and be responsible for collaborating with the states in seeking ways to encourage panchayat assumption of woodlot management responsibilities. However, because of the difficulties faced by community management schemes, this aspect of the project will be carefully monitored and consideration given to reducing allocations for this element over the life of the project unless methodologies for creating self-sustaining village management are found.

d. Government-Managed Wasteland Plantations The project will also support tree planting by the forest departments on 55,000 hectares of degraded land and 20,000 hectare of strips alongside roads, railways, canal banks and other unutilized areas. Although such plantations involve less popular participation than the schemes described above, they are justified economically by their production of fuelwood, small timber and poles, and fodder which will be allocated in part to the rural poor. They also generate considerable employment and conservation effects. Forest department staff will supervise planting, maintenance, protection, harvesting and distri-

bution of benefits. Adjacent villagers will benefit through availing of employment opportunities and by cutting grass within the plantations for fodder and collecting fallen wood, leaves and thinnings, as agreed with forest department staff.

e. Fuelwood Saving Devices An alternative to producing more wood is to improve the efficiency with which wood is consumed. Therefore, programs to promote the testing and application of new, energy-efficient stoves and crematoria are included in the state subprojects. The efficiency of traditional cooking methods used in rural households is very low and can be increased substantially (10 to 20 percent) through scientifically designed, low-cost improved stoves. Improved crematoria can reduce wood consumption by 20 to 40 percent over traditional cremation methods. Despite these potential benefits, programs to distribute improved stoves have failed to make much headway in India. Better designs tied to better understanding of Indian women's preferences for cooking are needed. In this project, it is proposed to fund a field evaluation in Himachal Pradesh of improved stoves and pressure cookers made by the Indo-German Dhauladhar Project in order to solicit users' recommendations. The Himachal Pradesh subproject also provides for hiring women forest extension staff to work as part of their other duties in the promotion of improved stoves. In Gujarat, the forest department will also hire women extensionists to assist in the distribution of some 10,000 improved stoves.

It is to be stressed that the aim of the plantation and fuelwood conservation programs described above and listed in Table 2 is to develop cost-effective, sustainable statewide approaches to social forestry, not merely to complete the exact hectarage and planting targets set forth. Hence, the mix of project elements described above and the quantitative targets are expected to change during implementation as a result of experience, evaluation, and project reviews.

2. Institutional Development The project will strengthen forest department capacities in each state. State institutions have been evaluated with a view toward expanding their capability to handle the entire social forestry program in the state, not just activities being financed under this project.

a. State Level Organizational Enhancement The project provides for additional forestry staff, vehicles, equipment, housing, offices and incremental operating costs. Table 3 shows key professional staff to be added in each state. Details of state organizational arrangements and needs are given in Section VI.E.1 and Annex VI.A.

Table 3: KEY INCREMENTAL STAFF TO BE ADDED UNDER NSFP
(Number of Staff Positions)

	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh
Chief Conservator of Forests		1		
Additional Chief Conservator	2		1	1
Conservator of Forests	9	1	2	1
Deputy Conservator of Forests	28	10	14	5
Assistant Conservator of Forests	88	6	9	41
Ranger Forest Officer	359	60	37	84
Deputy Ranger	343	22		79
Forester	1,329	137	22	
Social Forestry Worker (at Guard level)	1,685	657	78	364
TOTAL	3,843	894	163	575

Administratively, separate line organizations for social forestry were set up in Uttar Pradesh and Gujarat under the initial IDA-assisted projects and will continue in this project. However, both AID and IDA have agreed with the GOI and with Himachal Pradesh and Rajasthan that new organizations need not be created in these two states. Since a relatively high proportion of Himachal Pradesh is already forested, the state will maintain its existing organization and add social forestry staff in each district as well as add training, monitoring and evaluation, and other support functions at headquarters. Rajasthan, with almost no natural forests and only a minimal program of "traditional" forestry, will run its social forestry program within the existing organizational structure. The question of whether social forestry requires a separate organization within forest departments has become an important issue in India. Earlier thinking was that separate systems were necessary because of the marked differences between social and traditional forestry programs. However, regular forestry staff have been increasingly involved in social forestry, and the case for separate units, which are administratively more costly, is not as compelling as once thought.

b. Research, Extension and Training This project will provide funds for improving research, extension, and training in the four states including additional staff, equipment, vehicles, and some limited facilities.

Social forestry is a field in which little rigorous research has been conducted and few proven technologies are available. While it is true that India has one of the longest histories of organized forest research of any country, social forestry presents a new research agenda. It entails many new issues addressed principally

through social science methods. Silviculturally, it involves the propagation, planting, tending and harvesting of different species than those which have dominated Indian forestry in the past. The end uses are different and the sites are also largely different from those dealt with in traditional forestry research.

Nevertheless, the research components included in the project under the state subprojects are quite modest, given the level of resources being put into social forestry and the need for solutions to some fundamental technical problems in the subsector. This is because it has proven very difficult to implement state-level social forestry research in existing projects and because of the severely limited capacity of the state forest departments to undertake social science research of a sufficient quality or expanded silvicultural research on social forestry species. The fundamental constraints to improved research are significant enough to warrant concerted attention under a separate set of project activities. (See discussion of activities under the Agricultural Research Project and the proposed Forestry Research, Education and Training Project in Section I.D. above.)

In the meantime, the limited research activities supported under this project are geared to provide better information on immediate problems faced by project management. These are outlined in detail in Annex III.C. Generally speaking, project supported silvicultural research included under the state subprojects focuses on seed source identification, seed collection and handling, nursery practices, optimizing productivity and reducing costs. The project makes provision for some additional staff and facilities in this regard. Funds have also been provided through which each state can contract with the state agricultural university or technically qualified private institutions for supplemental silvicultural, agronomic, and social science research. Project support will help ensure that each state is able to take advantage of and participate in the qualitative improvement programs supported by AID and other donors under the auspices of ICAR and FRI&C.

Given the importance and scope of farm forestry in the state subprojects, extension and promotional activities will be critical to project success. The forest departments will continue to have primary responsibility for nursery development, community mobilization and plantings on community and government land. However, the project will rely increasingly on village level extension workers fielded under the agricultural extension training and visit (T&V) system in promoting planting by private households on their own lands. To an extent this will release the forest departments from having to expand their own field staff. Much more importantly, it will greatly improve field coverage due to the larger number of extension staff already or soon to be in place and will automatically help integrate agroforestry recommendations with

other advice on crops. The agricultural extension training and visit (T&V) system is well established in Gujarat and Rajasthan, and is being established in Uttar Pradesh and Himachal Pradesh. The forest department will designate Rangers to serve as Forestry Subject Matter Specialists (SMS). These SMS will attend monthly planning meetings and fortnightly training sessions for T&V Village Extension Workers (VEW's) as appropriate. Under the project each state will be required to give assurances of such cooperation, either by Government order or letter of understanding. Gujarat has already done so. Rajasthan will be expected to do so shortly. Himachal Pradesh and Uttar Pradesh will undertake to do so once the T&V system has been initiated in these states, and special covenants to this effect will be included in the project agreement.

Additional emphasis would be given to basic and in-service training of forest department staff under each state subproject. A large number of existing staff working in social forestry lack training at their professional level. Many have been promoted from lower levels or transferred into social forestry from other branches of the forest department and lack adequate orientation to their new task.

Present curricula require greater emphasis on operation of nurseries, seed collection and storage, and extension methodology. They are being revised to reflect these needs, and should include lectures and workshops on preparing village level plans or community managed woodlots. Short intensive courses for senior management and training for Rangers who will serve as Forestry Subject Matter Specialists to the agricultural extension services will also be provided.

In general, the states under this project will use existing training institutions. A small amount of financing for improving these facilities is included. In addition, the project will provide for study tours or fellowships in India and abroad. Brief descriptions of present and proposed training programs and facilities in each state are described in Annex VI.A.

c. Planning, Monitoring, and Evaluation The project will strongly emphasize building GOI and state level planning, monitoring and evaluation capacities. As described below, the monitoring and evaluation program for this project is essentially that described in An Operational Guide to the Monitoring and Evaluation of Social Forestry Projects in India developed by the GOI and States in collaboration with World Bank and FAO and with input from other interested donors. This guide is consistent with Asia Bureau guidelines for data collection activities.

The project provides for the expansion and upgrading of the social forestry planning and policy formulation staff in the four states. As mentioned above, each state will appoint a social forestry planning officer whose mandate will be to modify, evolve and pilot test new social forestry models. The officer will be responsible for seeking ways to encourage and improve active community management of village woodlots. The officer will review the design, utility and substance of the management plans and resolutions developed in a collaborative fashion by the forest department with concerned panchayats or with tree tenure participants. This will include continual analysis of proposed product distribution arrangements and the incentive structure for all participants including landless households. The social forestry planning officer will be the primary user, at the state level, of monitoring and evaluation findings.

Monitoring and evaluation units have been included in all previous donor-assisted projects in order to develop systematic methods for analyzing project results and improving subsequent planning and policy formulation. Operationalizing these state units has been difficult. Progress has been slow due to lags in appointing staff compounded by lack of relevant social science skills and unfamiliarity with the objectives and usefulness of evaluation activities.

For these reasons, in 1982 the GOI requested the World Bank and FAO to help develop guidelines for monitoring and evaluation which could be used in social forestry projects throughout India. The result, entitled An Operational Guide to the Monitoring and Evaluation of Social Forestry in India, has been issued to the states for pilot testing after extensive review and revisions by the center and state governments and foreign donors. A workshop to review initial results from using the guide is scheduled for later this year.

In its present form, the Operational Guide provides suggested formats for collecting monitoring information such as information on seedling production and distribution through nursery records and annual reports, monitoring of village woodlot records, and monitoring of strip plantations through annual records (see Section VI.E.2 and Annex VI.B.). It also provides detailed guidelines and sample questionnaires for carrying out evaluative surveys and in-depth studies of farm forestry, village woodlots and other components of the social forestry program. Additionally, in the course of designing this project, a computer program was developed which allows states to analyze the magnitude and distribution of benefits, the costs, the rates of return and cost recovery implications of each type of social forestry model. USAID/New Delhi plans to work with the states to help them incorporate the Operational Guide as well as this procedure into their evaluation and planning efforts.

It is suggested that the project agreement contain a special covenant stipulating that the states base their monitoring and evaluation programs upon the Operational Guide and forward their findings to the GOI, AID and IDA on a regular basis.

Annex V.A. identifies the key social issues which will be examined by the monitoring and evaluation units and by independent researchers contracted to conduct special studies under the project. Among other questions, those relating to equity, community management and roles of women will be addressed.

The Operational Guide and other available evaluation methods are excellent tools for improving evaluation and policy formulation, provided the state and center forestry departments have the capacities to use them. The project provides funds to establish posts for statisticians and sociologists or economists in the four state monitoring and evaluation units. It will also provide training for monitoring and evaluation personnel in questionnaire and survey design, sampling and interview methods, statistical analysis, data processing and microcomputer use, and qualitative research methods. Funds for microcomputers, software, and other equipment are included in the project. In addition, the project provides funds for special evaluation studies to be contracted to outside organizations. These studies, on subjects such as constraints to use of improved stoves and crematoria and the social dynamics of community woodlot management, will be coordinated and managed by the state monitoring and evaluation units. A detailed analysis of existing monitoring and evaluation capabilities and plans for the future, particularly training, are contained in Annex VI.B.

Finally, USAID/New Delhi will augment its staff with a full-time monitoring and evaluation systems specialist, with a solid background in social science research methods and computer processing (see Section V.C.). This specialist will be assigned specifically to monitor and facilitate those project activities geared to strengthening and operationalizing the center and the states' monitoring and evaluation offices.

3. Social Forestry Support Office Although the scope and financing for centrally sponsored as well as donor-assisted social forestry schemes both grew considerably over recent years, the staff and resources allocated in central government for social forestry support have remained virtually the same. Thus, support to individual states and schemes has been spread increasingly thin. However, forestry's inclusion in the "concurrent list" enjoins a particular responsibility for the GOI to become more closely involved with the states in policy and program implementation and evaluation. The project will assist the GOI to build within the new Ministry of Environment and Forests the capacity needed to meet

central responsibilities in the rapidly growing and changing social forestry subsector. This enhanced capacity will permit the Ministry and its new Department of Forests and Wildlife to assist states in project preparation, review progress of all social forestry schemes, maintain records of total plantation achievements and expenditures by state, arrange training and technical assistance support where the nature of the activity and economics of scale warrant it, and expedite nominations for international training. This will entail facilitating the exchange of information and lessons learned among the states, assisting the states in evaluating different state programs in terms of their relative effectiveness, carrying out national studies of needs in social forestry, and fostering common and cost effective approaches toward implementation of the variety of centrally sponsored, state, and donor-assisted social forestry programs. The Department will act in close cooperation with the states, other GOI agencies conducting social forestry activities, and with external supporting agencies.

The strengthening of the social forestry support office will involve the appointment of approximately 36 key incremental staff to the offices of the Additional Inspector General of Forests, Chief Project Economist and Deputy Inspector General of Forests/ Monitoring (see Table 17). It is recommended that the project agreement include as a Special Covenant a provision that the GOI sanction these new positions by a mutually agreeable date. The project provides funds for these key staff members to receive training or retraining at domestic and international facilities.

In addition, funds will be provided for India-wide training and technical assistance functions, such as training of extension trainers or assistance in introducing computerized monitoring systems, which can be more efficiently done by the Support Office than by each state on its own. A training coordinator in central headquarters will organize such training in consultation with the states.

Finally, it is proposed that the Support Office take the lead in organizing a series of all- India coordinated evaluative studies along the lines of the all- India coordinated research programs. The first is planned to be a joint effort of all state monitoring and evaluation units to evaluate their farm forestry seedling distribution programs using the commonly agreed methodology contained in the Operational Guide. There will be workshops for all participants before, during and at the end of the process. The second such all-India study is expected to be a similar effort regarding their community woodlot programs.

The Support Office is a small element in the overall National Social Forestry Project, but its effective operation is a key step in achieving the project's purposes.

D. Conclusion The National Social Forestry Project makes a number of advances toward meeting the fundamental tasks for social forestry. These include the need to energize a widespread, popular tree planting movement outside government, the need to solve the problem of common lands, and the demands of equity -- meeting the needs of the poor. The project expands farm forestry and contains several features to bring the program within the reach of more people, particularly poorer households. It seeks to strengthen the woodlot program and introduce new schemes on common land which potentially have particular significance for marginal farmers and the landless. It takes steps to improve administrative performance and strengthen state level extension, training, and, more modestly, research capabilities. Finally, it seeks to institutionalize improved capacities for monitoring, evaluation, planning and policy formulation in order to continue to build an efficient and sustainable social forestry program in the future.

III. COST ESTIMATES AND FINANCIAL PLAN

A. Cost Estimates Total project costs are estimated at $327.8 million. Of this, the total foreign exchange component is estimated at $6.4 million. These estimates are based upon January 1985 "base" prices. Physical contingencies have been estimated at 10 percent of civil works and 5 percent of other costs except for staff salaries and staff travel allowances for which no physical contingencies have been provided. To cover cost escalation, provision has been made for price contingencies at the following projected inflation rates:

	Local Costs	Foreign Costs
1985	8.5%	5.0%
1986	8.5%	7.5%
1987	8.5%	8.0%
1988	8.5%	8.0%
1989	8.5%	8.0%
1990	8.5%	5.0%

B. Project Financing Of the total $327.8 million, AID will finance $80 million, roughly one quarter of the project cost. Of this, $77.0 million will be on a loan and $3.0 million on a grant basis. The International Development Association (IDA) is proposing a contribution of $165 million. The Government of India and the participating states will provide the remaining $82.8 million, equal to 31 percent of the total. AID will also finance and directly obligate, $3.5 million in grant funds for program management and technical support. (See Section V.C. for a description of this grant element.) The total AID project authorization will therefore be $83.5 million.

Table 4 summarizes project costs by project elements. Table 5 breaks down donor and GOI/state contributions by project element. Table 6 shows the budget for project inputs. Table 7 indicates how AID, IDA and the GOI will divide financing for the project's inputs.

AID grant financing will be used to support the "software" components of the project (see Table 7). That is, over the life of the project, AID grant funds are expected to finance 50 percent of the total requirements for the following line items:

(a) domestic staff training;
(b) international staff training;
(c) workshops and seminars sponsored by the Support Office;
(d) farmer training and extension;
(e) technical assistance consultants (local);
(f) special studies and evaluations; and
(g) research operations and research grants to state agricultural universities.

As also indicated in Table 7, AID loan funds will be used to finance 30 percent of the total direct costs incurred over the life of the project for the following:

(a) farm forestry and nursery development (i.e. Agroforestry Models);
(b) tree tenure scheme (i.e. Tree Tenure for Poor and Landless);
(c) community forests (i.e. Community-Managed Wasteland Plantation Models);
(d) wasteland plantations (i.e. Government-Managed Wasteland Plantation Models);
(e) distribution, monitoring, evaluation and further development of a modest number of fuelwood saving devices; and
(f) the salaries of incremental staff hired by the forest departments.

Civil works, vehicle and equipment procurement, staff travel allowances and vehicle operation and maintenance costs required for the project will not be financed by AID. The GOI and participating states will be exclusively responsible for financing furniture procurement, building rent and maintenance, office operating costs and related expenditures.

Table 8 shows how the inputs financed by the project will be applied to project outputs in each state and the Social Forestry Support Office. Table 9 provides a tentative disbursement schedule by semester end dates set to coincide with the close of the US and GOI fiscal years. More detailed state-by-state cost estimates may be found in the supporting volume entitled "India National Social Forestry Project: Project Cost Tables, Financing Tables, Disbursement Tables."

TABLE 4
NATIONAL SOCIAL FORESTRY PROJECT
SUMMARY COSTS BY PROJECT ELEMENTS

PROJECT COSTS	(RUPEES '000) LOCAL	FOREIGN	TOTAL	(US$ '000) LOCAL	FOREIGN	TOTAL	% FOREIGN EXCHANGE	% TOTAL BASE COSTS
A. GUJARAT								
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	882,803.8	8,605.2	891,409.0	73,567.0	717.1	74,284.1	1	29
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT								
1. Organization & Management	90,884.2	2,772.5	93,656.7	7,573.7	231.0	7,804.7	3	3
2. Research, Extension, Training	12,535.1	1,179.6	13,714.7	1,044.6	98.3	1,142.9	9	0
a. Research	3,896.4	84.3	3,980.7	324.7	7.0	331.7	2	0
b. Extension	2,727.2	53.8	2,781.0	227.3	4.5	231.8	2	0
c. Training	5,911.5	1,041.5	6,953.0	492.6	86.8	579.4	15	0
3. Planning, Monitoring, Evaluation	6,223.8	240.1	6,463.9	518.7	20.0	538.7	4	0
a. Planning	1,566.9	49.1	1,616.0	130.6	4.1	134.7	3	0
b. Monitoring, Evaluation	4,656.9	191.0	4,847.9	388.1	15.9	404.0	4	0
Subtotal - Institutional Development	109,643.1	4,192.2	113,835.3	9,137.0	349.3	9,486.3	4	4
TOTAL GUJARAT	992,446.9	12,797.3	1,005,244.3	82,703.9	1,066.4	83,770.4	1	33
B. HIMACHAL PRADESH								
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	281,389.9	2,753.8	284,143.7	23,449.2	229.5	23,678.7	1	9
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT								
1. Organization & Management	120,496.7	4,080.7	124,577.4	10,041.4	340.1	10,381.5	3	4
2. Research, Extension, Training	20,462.6	1,522.8	21,985.4	1,705.2	126.9	1,832.1	7	1
a. Research	5,486.6	138.5	5,625.1	457.2	11.5	468.7	2	0
b. Extension	4,182.9	190.3	4,373.2	348.6	15.9	364.5	4	0
c. Training	10,793.1	1,194.0	11,987.1	899.4	99.5	998.9	10	0
3. Planning, Monitoring, Evaluation	15,954.3	362.4	16,316.7	1,329.5	30.2	1,359.7	2	1
a. Planning	0.0	0.0	0.0	0.0	0.0	0.0	0	0
b. Monitoring, Evaluation	15,954.3	362.4	16,316.7	1,329.5	30.2	1,359.7	2	1
Subtotal - Institutional Development	156,913.6	5,965.9	162,879.5	13,076.1	497.2	13,573.3	4	5
TOTAL HIMACHAL PRADESH	438,303.4	8,719.8	447,023.2	36,525.3	726.6	37,252.0	2	15
C. RAJASTHAN								
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	198,078.1	1,934.1	200,012.2	16,506.5	161.2	16,667.7	1	7
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT								
1. Organization & Management	67,662.8	3,409.2	68,304.9	5,638.6	284.1	5,922.7	5	2
2. Research, Extension, Training	17,979.3	1,626.6	2,153.2	1,498.2	135.5	1,633.7	8	1
a. Research	2,190.6	52.2	2,242.8	182.5	4.3	186.8	2	0
b. Extension	9,307.5	341.2	9,648.7	775.6	28.4	804.0	4	0
c. Training	6,481.2	1,233.2	7,714.4	540.1	102.8	642.9	16	0
3. Planning, Monitoring, Evaluation	9,304.3	176.4	9,480.7	775.4	14.7	790.1	2	0
a. Planning	0.0	0.0	0.0	0.0	0.0	0.0	0	0
b. Monitoring, Evaluation	9,304.3	176.4	9,480.7	775.4	14.7	790.1	2	0
Subtotal - Institutional Development	94,946.4	5,212.2	100,158.6	7,912.2	434.3	8,346.5	5	3
TOTAL RAJASTHAN	293,024.4	7,146.1	300,170.8	24,418.7	595.5	25,014.2	2	10
D. UTTAR PRADESH								
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	584,119.9	5,727.6	589,847.5	48,676.7	477.3	49,154.0	1	19
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT								
1. Organization & Management	465,658.0	19,799.5	68,304.9	38,804.8	1,650.0	40,454.8	4	16
2. Research, Extension, Training	149,432.3	6,685.7	2,153.2	12,452.6	557.1	13,009.7	4	5
a. Research	6,266.7	185.6	6,452.3	522.2	15.5	537.7	3	0
b. Extension	56,382.2	1,614.4	57,996.6	4,698.5	134.5	4,833.0	3	2
c. Training	86,783.4	4,885.7	91,669.1	7,231.7	407.1	7,639.0	5	3
3. Planning, Monitoring, Evaluation	9,481.3	169.7	9,651.0	790.1	14.2	804.3	2	0
a. Planning	3,263.9	58.3	3,342.2	273.6	4.9	278.5	2	0
b. Monitoring, Evaluation	6,198.4	111.4	6,309.8	516.5	9.3	525.8	2	0
Subtotal - Institutional Development	624,571.6	26,654.9	651,226.5	52,047.5	2,221.3	54,268.8	4	21
TOTAL UTTAR PRADESH	1,208,691.4	32,382.6	1,241,074.0	100,724.3	2,698.5	103,422.8	3	41
E. ELEMENT THREE: CENTRAL SUPPORT OFFICE	47,404.2	1,032.8	48,437.0	3,950.3	86.1	4,036.4	2	2
TOTAL BASELINE COSTS	2,979,870.3	62,078.7	3,041,949.3	248,322.5	5,173.2	253,495.8	2	100
Physical Contingencies	134,077.8	3,632.0	137,709.8	11,173.1	302.7	11,475.8	3	
Price Contingencies	742,164.5	11,323.8	753,488.3	61,847.0	943.6	62,790.6	2	
TOTAL PROJECT COSTS	3,856,112.5	77,034.4	3,933,146.9	321,342.7	6,419.5	327,762.2	2	

TABLE 8 (CONTINUED)

RAJASTHAN							UTTAR PRADESH									Physical Contingencies	
ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION	ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION	CENTRAL SUPPORT OFFICE	Total	%	Amount
11,658.9	-	109.3	832.8	2,061.1	-	-	78,593.6	-	1,353.3	15,083.7	45,740.4	-	-	1,948.7	217,262.9	10.0	21,726.3
12,967.8	-	82.7	413.5	516.9	-	471.4	52,051.1	-	319.1	1,137.2	4,652.0	103.4	206.8	1,369.8	88,220.7	5.0	4,411.0
420.7	-	259.9	1,808.8	946.5	-	525.4	1,944.8	-	332.6	2,379.8	631.5	141.3	276.3	3,033.0	23,702.1	5.0	1,185.1
775.9	-	19.0	68.7	74.9	-	90.1	33.4	-	52.1	781.9	860.1	52.1	52.1	390.9	4,318.7	5.0	215.9
-	-	-	1,175.9	521.3	-	-	-	-	-	-	20,662.4	-	-	3,127.5	36,447.9	5.0	1,822.4
-	-	-	-	1,015.1	-	-	-	-	-	-	1,725.6	-	-	-	5,024.5	5.0	251.2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,085.0	2,158.0	5.0	107.9
-	-	-	-	-	-	-	-	-	-	5,598.2	-	-	-	-	6,119.5	5.0	306.0
-	-	-	1,175.9	1,536.3	-	-	-	-	-	5,598.2	22,387.9	-	-	5,212.5	49,749.8	5.0	2,487.5
-	-	-	52.1	-	-	-	-	-	-	-	-	-	-	573.4	2,502.0	5.0	125.1
-	-	-	-	-	-	260.6	-	-	104.3	-	-	-	364.9	729.8	2,914.8	5.0	145.7
-	-	521.3	-	-	-	-	-	-	-	-	-	-	-	-	755.8	5.0	37.8
-	60,447.3	-	-	-	-	-	-	332,612.9	-	-	-	-	-	-	525,158.4	5.0	26,257.9
-	521.1	-	-	-	-	-	-	-	-	-	-	-	-	-	89,406.3	5.0	4,470.3
-	31,031.4	-	-	-	-	-	-	118,788.1	-	-	-	-	-	-	149,819.5	5.0	7,491.0
-	22,369.7	-	-	-	-	-	-	124,000.4	-	-	-	-	-	-	586,776.6	5.0	29,338.8
-	54,808.7	-	-	-	-	-	-	14,446.1	-	-	-	-	-	-	607,659.8	5.0	30,383.0
-	199,178.2	-	-	-	-	-	-	589,847.5	-	-	-	-	-	-	1,958,820.6	5.0	97,941.0
-	834.0	-	-	-	-	-	-	-	-	52.1	-	-	-	-	6,643.9	5.0	332.2
25,823.3	200,012.2	992.1	4,351.9	5,135.6	-	1,347.5	132,622.9	589,847.5	2,152.4	25,033.0	74,272.0	296.8	900.0	13,258.0	2,354,891.4	5.5	128,607.7
40,037.6	-	1,103.1	4,184.4	1,483.7	-	7,040.2	206,254.0	-	3,395.8	3,252.0	11,385.1	1,610.7	2,186.6	19,371.2	423,160.7	0.0	0.0
1,356.7	-	37.9	157.4	581.2	-	181.8	54,543.6	-	625.5	2,513.3	2,711.5	475.4	1,999.3	4,404.6	81,856.7	0.0	0.0
231.9	-	5.6	41.6	123.6	-	-	53,091.5	-	8.3	3,468.3	249.8	124.9	281.0	5,204.0	66,768.1	5.0	3,338.4
2,581.0	-	52.0	426.2	233.9	-	337.8	30,996.4	-	270.3	2,650.6	1,330.5	187.1	311.8	1,247.3	53,011.0	5.0	2,650.5
1,041.5	-	52.1	567.1	156.4	-	573.4	7,749.1	-	-	21,079.4	1,720.1	646.4	630.7	4,951.9	62,261.1	5.0	3,113.1
45,248.7	-	1,250.6	5,296.8	2,578.8	-	8,133.2	352,834.6	-	4,299.9	32,963.7	17,397.1	3,044.4	5,409.7	35,179.0	687,057.5	1.3	9,102.0
71,071.9	200,012.2	2,242.7	9,648.6	7,714.4	-	9,480.7	485,457.5	589,847.5	6,452.3	57,996.6	91,669.1	3,341.2	6,309.8	48,437.0	3,041,948.9	4.5	137,709.7
2,066.8	10,000.6	60.6	311.0	385.5	-	112.9	15,162.7	29,492.4	189.2	3,365.8	6,165.6	62.8	106.2	1,330.5	137,709.7	0.0	0.0
16,405.1	56,274.3	491.0	2,134.0	1,254.5	-	2,206.5	140,569.8	134,485.9	1,432.2	18,754.3	16,512.9	807.6	1,425.7	10,488.2	753,488.2	4.2	31,589.1
89,543.8	266,287.1	2,784.3	12,093.6	9,354.4	-	11,800.1	641,190.0	753,825.7	8,073.7	80,116.6	116,347.6	4,211.6	7,841.7	60,255.8	3,933,146.9	4.3	169,298.8
4,619.0	-	91.0	578.8	417.9	-	279.6	26,992.6	-	190.8	1,605.4	1,814.8	92.3	172.2	1,827.3	47,141.4	4.8	2,244.8
3,920.3	2,478.8	59.3	395.5	1,506.1	-	197.6	25,100.0	7,080.7	224.1	2,088.0	5,773.2	69.9	128.7	1,187.6	77,034.4	5.5	4,265.9

TABLE 8
NATIONAL SOCIAL FORESTRY PROJECT
COSTING OF PROJECT ELEMENTS BY ACTIVITY

(RUPEES '000)

	GUJARAT							HIMACHAL PRADESH						
	ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION	ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION
I. INVESTMENT COSTS														
A. CIVIL WORKS	27,817.0	-	130.1	-	-	-	-	25,139.5	-	1,361.6	803.6	1,074.3	-	3,552.8
B. VEHICLES	3,101.4	-	-	87.9	-	77.5	527.2	8,789.8	-	222.3	351.5	222.3	-	556.2
C. EQUIPMENT	2,804.5	-	493.4	-	31.2	-	259.7	6,090.5	-	107.9	567.1	323.6	-	324.1
D. FURNITURE	629.7	-	10.4	-	-	-	-	247.2	-	15.4	32.9	27.3	-	104.7
E. TRAINING														
1. STAFF TRAINING DOMESTIC	-	-	-	-	4,962.3	-	-	-	-	-	-	5,998.5	-	-
2. STAFF TRAINING INTERNATIONAL	-	-	-	-	1,116.6	-	-	-	-	-	-	1,167.3	-	-
3. CENTRALLY - SPONSORED WORKSHOPS	-	-	-	-	-	-	-	-	-	-	-	73.0	-	-
4. FARMER TRAINING AND EXTENSION	-	-	-	521.3	-	-	-	-	-	-	-	-	-	-
Sub-Total TRAINING	-	-	-	521.3	6,078.9	-	-	-	-	-	-	7,238.8	-	-
F. TECHNICAL ASSISTANCE	-	-	1,824.4	-	-	-	-	-	-	-	-	-	-	52.1
G. SPECIAL STUDIES AND EVALUATION	-	-	-	-	-	-	78.2	-	-	-	74.0	-	-	1,303.1
H. RESEARCH OPERATION AND GRANTS TO SAUS	-	-	-	-	-	-	-	-	-	234.6	-	-	-	-
I. PLANTATION														
1. NURSERY DEVELOPMENT	-	47,419.9	-	-	-	-	-	-	84,678.3	-	-	-	-	-
2. FARM FORESTRY	-	65,003.3	-	-	-	-	-	-	23,881.9	-	-	-	-	-
3. TREE TENURE PLANTING	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. COMMUNITY FOREST	-	284,281.6	-	-	-	-	-	-	156,125.0	-	-	-	-	-
5. WASTELAND PLANTATION	-	489,491.8	-	-	-	-	-	-	13,913.2	-	-	-	-	-
Sub-Total PLANTATION	-	886,196.5	-	-	-	-	-	-	283,598.5	-	-	-	-	-
J. FUELWOOD SAVING DEVICES	-	5,212.5	-	-	-	-	-	-	545.2	-	-	-	-	-
Total INVESTMENT COSTS	34,354.5	891,409.0	2,458.3	609.1	6,110.0	77.5	865.1	40,267.3	284,143.7	1,941.8	1,829.2	8,885.7	-	5,895.1
II. RECURRENT COSTS														
A. STAFF SALARIES	38,713.2	-	271.1	484.8	88.6	1,097.8	2,607.3	64,164.8	-	1,900.0	1,875.6	2,432.6	-	8,309.6
B. STAFF TRAVEL ALLOWANCE	3,698.3	-	132.9	96.4	86.0	59.4	265.1	6,659.5	-	205.9	147.5	185.6	-	731.8
C. BUILDING RENT AND MAINTENANCE	2,868.8	-	32.5	2.5	2.5	-	78.1	685.2	-	113.1	7.8	40.7	-	106.2
D. VEHICLE OPERATION AND MAINTENANCE	4,112.1	-	291.0	374.2	374.2	348.2	602.9	5,249.2	-	131.0	275.5	178.8	-	449.0
E. OFFICE AND OTHER EXPENDITURE	9,909.8	-	794.9	1,214.0	291.6	33.1	429.5	7,551.3	-	1,333.4	237.7	263.8	-	834.0
Total RECURRENT COSTS	59,302.2	-	1,522.4	2,171.9	842.9	1,538.5	3,982.8	84,310.1	-	3,683.3	2,544.0	3,101.4	-	10,421.6
Total BASELINE COSTS	93,656.7	891,409.0	3,980.7	2,781.0	6,953.0	1,616.0	4,847.9	124,577.4	284,143.7	5,625.1	4,373.2	11,987.1	-	16,316.7
Physical Contingencies	3,953.2	44,570.5	185.3	110.0	338.9	22.9	98.8	3,944.6	14,207.2	244.0	157.7	522.2	-	541.9
Price Contingencies	22,325.9	214,996.3	884.5	660.8	1,634.6	396.3	1,072.6	30,005.7	67,455.0	1,238.3	1,036.3	2,914.3	-	3,625.8
Total PROJECT COSTS	119,935.8	1,150,975.7	5,050.5	3,551.8	8,926.5	2,035.3	6,019.3	158,527.8	365,805.8	7,107.4	5,567.2	15,423.5	-	20,484.3
Taxes	2,240.2	-	125.7	29.1	7.7	25.4	239.3	4,920.4	-	118.3	281.2	168.8	-	303.3
Foreign Exchange	3,460.6	10,732.7	102.1	64.3	1,278.4	58.8	216.9	5,115.9	3,426.1	166.5	238.2	1,522.2	-	441.6

C. RAJASTHAN					
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	13,314.4	6,657.2	2,219.1	22,190.7	-
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT					
1. Organization & Management	2,311.1	1,247.0	3,903.9	7,462.0	384.9
2. Research, Extension, Training	669.1	392.2	958.8	2,020.1	90.6
a. Research	78.4	64.0	90.4	232.8	7.6
b. Extension	293.8	198.7	515.3	1,007.8	48.2
c. Training	296.9	129.5	353.1	779.5	34.8
3. Planning, Monitoring, Evaluation	282.8	242.8	457.8	983.4	23.3
a. Planning	0.0	0.0	0.0	0.0	0.0
b. Monitoring, Evaluation	282.8	242.8	457.8	983.4	23.3
Subtotal - Institutional Development	3,263.0	1,882.0	5,320.5	10,465.5	498.9
TOTAL RAJASTHAN	16,577.4	8,539.2	7,539.6	32,656.2	498.9
D. UTTAR PRADESH					
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	37,691.3	18,845.6	6,281.9	62,818.8	-
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT					
1. Organization & Management	16,673.0	6,273.2	30,486.3	53,432.5	2,249.4
2. Research, Extension, Training	6,250.8	2,111.9	8,682.2	17,044.9	300.9
a. Research	259.8	119.6	293.4	672.8	15.9
b. Extension	1,604.2	406.1	4,666.1	6,676.4	133.8
c. Training	4,386.8	1,586.2	3,722.7	9,695.7	151.2
3. Planning, Monitoring, Evaluation	354.9	146.3	503.3	1,004.5	22.0
a. Planning	97.7	52.4	200.9	351.0	7.7
b. Monitoring, Evaluation	257.2	93.9	302.4	653.5	14.3
Subtotal - Institutional Development	23,278.7	8,531.4	39,671.8	71,481.9	2,572.3
TOTAL UTTAR PRADESH	60,970.0	27,377.0	45,953.7	134,300.7	2,572.3
E. ELEMENT THREE: CENTRAL SUPPORT OFFICE	1,519.6	999.4	2,502.3	5,021.3	152.3
TOTAL PROJECT COSTS	165,055.1	80,000.0	82,870.1	327,762.2	3,928.5
TECHNICAL SUPPORT & PROGRAM MANAGEMENT		3,500.0			
TOTAL AUTHORIZATION		83,500.0			

NOTE: Figures may not add exactly due to rounding.

TABLE 5
NATIONAL SOCIAL FORESTRY PROJECT
COST OF PROJECT ELEMENTS BY SOURCE OF FINANCING
(US$ '000)

PROJECT COSTS	INTERNATIONAL DEVELOPMENT ASSOCIATION	AGENCY FOR INTERNATIONAL DEVELOPMENT	GOVERNMENT OF INDIA	TOTAL	DUTIES & TAXES
A. GUJARAT					
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	57,548.8	28,774.4	9,591.5	95,914.7	-
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT					
1. Organization & Management	3,361.8	1,273.6	5,359.3	9,994.7	186.7
2. Research, Extension, Training	568.0	478.9	413.7	1,460.6	13.5
a. Research	141.9	106.1	172.8	420.8	10.5
b. Extension	72.1	44.5	179.4	296.0	2.4
c. Training	354.0	328.3	61.5	743.8	0.6
3. Planning, Monitoring, Evaluation	209.7	125.5	336.0	671.2	22.0
a. Planning	58.8	35.6	75.2	169.6	2.1
b. Monitoring, Evaluation	150.9	89.9	260.8	501.6	19.9
Subtotal - Institutional Development	4,139.5	1,878.0	6,109.0	12,126.5	222.3
TOTAL GUJARAT	61,688.3	30,652.4	15,700.5	108,041.2	222.3
B. HIMACHAL PRADESH					
I. ELEMENT ONE: ALT. TREE PRODUCTION PROG.	18,290.3	9,145.1	3,048.4	30,483.8	-
II.ELEMENT TWO: INSTITUTIONAL DEVELOPMENT					
1. Organization & Management	4,502.5	2,150.8	6,557.3	13,210.6	410.0
2. Research, Extension, Training	881.7	621.8	838.0	2,341.5	47.4
a. Research	173.2	76.7	342.4	592.3	9.9
b. Extension	147.4	66.4	250.1	463.9	23.4
c. Training	561.1	478.7	245.5	1,285.3	14.1
3. Planning, Monitoring, Evaluation	625.3	351.4	730.3	1,707.0	25.3
a. Planning	0.0	0.0	0.0	0.0	0.0
b. Monitoring, Evaluation	625.3	351.4	730.3	1,707.0	25.3
Subtotal - Institutional Development	6,009.5	3,124.0	8,125.6	17,259.1	482.7
TOTAL HIMACHAL PRADESH	24,299.8	12,269.1	11,174.0	47,742.9	482.7

TABLE 6
NATIONAL SOCIAL FORESTRY PROJECT
PROJECT INPUTS
SUMMARY

	(RUPEES '000)			(US$ '000)		
PROJECT COSTS	LOCAL	FOREIGN	TOTAL	LOCAL	FOREIGN	TOTAL
INVESTMENT COSTS						
A. Civil Works	206,702.2	10,560.8	217,263.0	17,225.2	880.1	18,105.3
B. Vehicles	70,948.4	17,272.3	88,220.7	5,912.4	1,439.4	7,351.8
C. Equipment	21,392.8	2,309.3	23,702.1	1,782.7	192.4	1,975.1
D. Furniture	4,318.7	-	4,318.7	359.9	-	359.9
E. Training						
1. Staff Training Domestic	36,447.9	-	36,447.9	3,037.3	-	3,037.3
2. Staff Training International	516.0	4,508.5	5,024.5	43.0	375.7	418.7
3. Centrally Sponsored Workshops	2,158.0	-	2,158.0	179.8	-	179.8
4. Farmer Training and Extension	6,119.5	-	6,119.5	510.0	-	510.0
Sub Total Training	45,241.4	4,508.5	49,749.9	3,770.1	375.7	4,145.8
F. Technical Assistance	2,502.0	-	2,502.0	208.5	-	208.5
G. Special Studies and Evaluation	2,914.8	-	2,914.8	242.9	-	242.9
H. Research Operation and Grants to SAUS	755.8	-	755.8	63.0	-	63.0
I. Plantation						
1. Farm Forestry and Nursery Dev.	608,597.1	5,967.6	614,564.7	50,716.4	497.3	51,213.7
2. Tree Tenure Planting	148,364.7	1,454.8	149,819.5	12,363.7	121.2	12,484.9
3. Community Forest	581,078.9	5,697.8	586,776.7	48,423.2	474.8	48,898.0
4. Wasteland Plantation	601,759.3	5,900.5	607,659.8	50,146.6	491.7	50,638.3
Sub Total Plantation	1,939,799.9	19,020.7	1,958,820.6	161,560.0	1,585.1	163,145.1
J. Fuelwood Saving Devices	6,643.9	-	6,643.9	553.7	-	553.7
TOTAL INVESTMENT COSTS	2,301,219.9	53,671.5	2,354,891.4	191,768.3	4,472.6	196,240.9
RECURRENT COSTS						
A. Staff Salaries	423,160.7	-	423,160.7	35,263.4	-	35,263.4
B. Staff Travel Allowance	81,856.7	-	81,856.7	6,821.4	-	6,821.4
C. Building Rent and Maintenance	63,522.1	3,246.0	66,768.1	5,293.5	270.5	5,564.0
D. Vehicle Operation and Maintenance	47,849.9	5,161.1	53,011.0	3,987.5	430.1	4,417.6
E. Office and other Expenditure	62,261.1	-	62,261.1	5,188.4	-	5,188.4
TOTAL RECURRENT COSTS	678,650.4	8,407.1	687,057.6	56,554.2	700.6	57,254.8
TOTAL BASELINE COSTS	2,979,870.3	8,407.1	3,041,948.9	248,322.5	5,173.2	253,495.7
Physical Contingencies	134,077.8	62,078.7	137,109.7	11,173.1	302.7	11,475.8
Price Contingencies	742,164.5	3,632.0	753,488.2	61,847.0	943.6	62,790.6
TOTAL PROJECT COSTS	3,856,112.5	77,034.4	3,933,146.9	321,342.7	6,419.5	327,762.1

TABLE 7
NATIONAL SOCIAL FORESTRY PROJECT
PROJECT INPUTS BY SOURCE OF FINANCING
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION		AGENCY FOR INTERNATIONAL DEVELOPMENT		GOVERNMENT OF INDIA		TOTAL	
	Amount	%	Amount	%	Amount	%	Amount	%
PROJECT COSTS								
INVESTMENT COSTS								
A. Civil Works	12,249.4	50.0			12,249.4	50.0	24,498.8	7.5
B. Vehicles	1,704.9	19.2			7,193.5	80.8	8,898.4	2.7
C. Equipment	228.4	9.5			2,176.2	90.5	2,404.6	0.7
D. Furniture					429.9	100.0	429.9	0.1
E. Training								
1. Staff Training Domestic	1,981.7	50.0	1,981.8	50.0			3,963.5	1.2
2. Staff Training International	255.4	50.0	255.4	50.0			510.8	0.2
3. Centrally Sponsored Workshops	116.6	50.0	116.7	50.0			233.3	0.1
4. Farmer Training and Extension	330.7	50.0	330.7	50.0			661.4	0.2
Sub Total Training	2,684.4	50.0	2,684.6	50.0			5,369.0	1.6
F. Technical Assistance	133.7	50.0	133.7	50.0			267.4	0.1
G. Special Studies and Evaluation	158.5	50.0	139.6	50.0			298.1	0.1
H. Research Operation and Grants to SAUS	41.1	50.0	41.1	50.0			82.2	.0
I. Plantation								
1. Farm Forestry and Nursery Dev.	39,447.6	60.0	19,723.8	30.0	6,574.6	10.0	65,746.0	20.1
2. Tree Tenure Planting	10,095.0	60.0	5,047.5	30.0	1,682.5	10.0	16,825.0	5.1
3. Community Forest	37,586.3	60.0	18,793.2	30.0	6,264.4	10.0	62,643.9	19.1
4. Wasteland Plantation	39,286.8	60.0	19,643.4	30.0	6,547.8	10.0	65,478.0	20.0
Sub Total Plantation	126,415.7	60.0	63,207.9	30.0	21,069.3	10.0	210,692.9	64.3
J. Fuelwood Saving Devices	432.4	60.0	216.2	30.0	72.1	10.0	720.7	0.2
TOTAL INVESTMENT COSTS	144,048.5	56.8	66,423.1	26.2	43,190.4	17.0	253,662.0	77.4

RECURRENT COSTS

A. Staff Salaries	13,511.9	29.7	13,576.0	30.0	18,068.0	40.0	45,155.9	13.8
B. Staff Travel Allowance	5,439.2	62.4			3,282.3	37.6	8,721.5	2.7
C. Building Rent and Maintenance	3,675.0	50.0			3,675.0	50.0	7,350.0	2.2
D. Vehicle Operation and Maintenance	2,967.0	52.4			2,697.0	47.6	5,664.0	1.7
E. Office and other Expenditure					7,036.6	100.0	7,036.6	2.1
TOTAL RECURRENT COSTS	21,006.7	28.3	13,576.0	18.1	39,679.5	53.6	74,262.2	22.7
TOTAL PROJECT COSTS	165,055.2	50.4	80,000.0	24.4	82,869.9	25.3	327,762.2	
TECHNICAL SUPPORT & PROGRAM MANAGEMENT			3,500.0					
TOTAL AUTHORIZATION			83,500.0					

NOTE: Figures include provision for physical contingency and cost escalation.
Figures may not add exactly due to rounding.

TABLE 8
NATIONAL SOCIAL FORESTRY PROJECT
COSTING OF PROJECT ELEMENTS BY ACTIVITY

(RUPEES '000)

	GUJARAT							HIMACHAL PRADESH						
	ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION	ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION
I. INVESTMENT COSTS														
A. CIVIL WORKS	27,815.0	-	130.1	-	-	-	-	25,139.5	-	1,361.6	803.6	1,074.3	-	3,552.8
B. VEHICLES	3,101.4	-	-	87.9	-	77.5	527.2	8,789.8	-	222.3	351.5	222.3	-	558.2
C. EQUIPMENT	2,804.5	-	493.4	-	31.2	-	259.7	6,090.9	-	107.9	567.1	323.0	-	324.1
D. FURNITURE	629.7	-	10.4	-	-	-	-	247.2	-	15.4	32.9	27.3	-	104.7
E. TRAINING														
1. STAFF TRAINING DOMESTIC	-	-	-	-	4,962.3	-	-	-	-	-	-	5,998.5	-	-
2. STAFF TRAINING INTERNATIONAL	-	-	-	-	1,116.6	-	-	-	-	-	-	1,167.3	-	-
3. CENTRALLY - SPONSORED WORKSHOPS	-	-	-	-	-	-	-	-	-	-	-	73.0	-	-
4. FARMER TRAINING AND EXTENSION	-	-	-	521.3	-	-	-	-	-	-	-	-	-	-
Sub-total TRAINING	-	-	-	521.3	6,078.9	-	-	-	-	-	-	7,238.8	-	-
F. TECHNICAL ASSISTANCE	-	-	1,824.4	-	-	-	-	-	-	-	-	-	-	52.1
G. SPECIAL STUDIES AND EVALUATION	-	-	-	-	-	-	78.2	-	-	-	74.0	-	-	1,303.1
H. RESEARCH OPERATION AND GRANTS TO SAUS	-	-	-	-	-	-	-	-	-	234.6	-	-	-	-
I. PLANTATION														
1. NURSERY DEVELOPMENT	-	47,419.9	-	-	-	-	-	-	84,678.3	-	-	-	-	-
2. FARM FORESTRY	-	65,003.3	-	-	-	-	-	-	23,881.9	-	-	-	-	-
3. TREE TENURE PLANTING	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. COMMUNITY FOREST	-	284,281.6	-	-	-	-	-	-	156,125.0	-	-	-	-	-
5. WASTELAND PLANTATION	-	489,491.8	-	-	-	-	-	-	18,913.2	-	-	-	-	-
Sub-total PLANTATION	-	886,196.5	-	-	-	-	-	-	283,598.5	-	-	-	-	-
J. FUELWOOD SAVING DEVICES	-	5,212.5	-	-	-	-	-	-	545.2	-	-	-	-	-
Total INVESTMENT COSTS	34,354.5	891,409.0	2,458.3	609.1	6,110.0	77.5	865.1	40,267.3	284,143.7	1,941.8	1,829.2	8,885.7	-	5,895.1
II. RECURRENT COSTS														
A. STAFF SALARIES	38,713.2	-	271.1	484.8	88.6	1,097.8	2,607.3	64,164.8	-	1,900.0	1,875.6	2,432.6	-	8,300.6
B. STAFF TRAVEL ALLOWANCE	3,698.3	-	132.9	96.4	86.0	59.4	265.1	6,659.5	-	205.9	147.5	185.6	-	731.8
C. BUILDING RENT AND MAINTENANCE	2,868.6	-	32.5	2.5	2.5	-	78.1	685.2	-	113.1	7.8	40.7	-	166.2
D. VEHICLE OPERATION AND MAINTENANCE	4,112.1	-	291.0	374.2	374.2	348.2	602.9	5,249.2	-	131.0	275.5	178.8	-	449.0
E. OFFICE AND OTHER EXPENDITURE	9,909.8	-	794.9	1,214.0	291.6	33.1	429.5	7,551.3	-	1,333.4	237.7	263.8	-	834.0
Total RECURRENT COSTS	59,302.2	-	1,522.4	2,171.9	842.9	1,538.5	3,982.8	84,310.1	-	3,683.3	2,544.0	3,101.4	-	10,421.6
Total BASELINE COSTS	93,656.7	891,409.0	3,980.7	2,781.0	6,953.0	1,616.0	4,847.9	124,577.4	284,143.7	5,625.1	4,373.2	11,987.1	-	16,316.7
Physical Contingencies	3,953.2	44,570.5	185.3	110.0	338.9	22.9	98.8	3,944.6	14,207.2	244.0	157.7	522.2	-	541.9
Price Contingencies	22,325.9	214,996.3	884.5	660.8	1,634.6	396.3	1,072.6	30,005.7	67,455.0	1,238.3	1,036.3	2,914.3	-	3,625.8
Total PROJECT COSTS	119,935.8	1,150,975.7	5,050.5	3,551.8	8,926.5	2,035.3	6,019.3	158,527.8	365,805.8	7,107.4	5,567.2	15,423.5	-	20,484.3
Taxes	2,240.2	-	125.7	29.1	7.7	25.4	239.3	4,920.4	-	118.3	281.2	165.8	-	303.3
Foreign Exchange	3,460.6	10,732.7	102.1	64.3	1,278.4	58.8	216.9	5,115.9	3,426.1	166.5	238.2	1,522.2	-	441.6

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TABLE 8 (CONTINUED)

RAJASTHAN							UTTAR PRADESH									Physical Contingencies	
ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION	ORGANIZATION AND MANAGEMENT	ALTERNATE TREE PROD PROGRAMS	RESEARCH	EXTENSION	TRAINING	PLANNING	MONITORING AND EVALUATION	CENTRAL SUPPORT OFFICE	Total	%	Amount
11,658.9	-	109.3	832.8	2,061.1	-	-	76,593.6	-	1,353.3	15,083.7	45,740.4	-	-	1,948.7	217,262.7	10.0	21,726.3
12,967.8	-	82.7	413.5	516.9	-	471.4	52,051.1	-	315.1	1,137.2	4,652.0	103.4	206.8	1,369.8	88,220.7	5.0	4,411.0
420.7	-	259.9	1,809.8	946.5	-	525.4	1,944.8	-	332.6	2,379.8	631.5	141.3	276.3	3,033.0	23,702.1	5.0	1,185.1
775.9	-	19.0	68.7	74.9	-	90.1	33.4	-	52.1	781.9	860.1	52.1	52.1	340.9	4,318.7	5.0	215.9
-	-	-	1,175.9	521.3	-	-	-	-	-	-	20,132.4	-	-	3,127.5	36,447.9	5.0	1,822.4
-	-	-	-	1,015.1	-	-	-	-	-	-	1,725.6	-	-	-	5,024.5	5.0	251.2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,085.0	2,158.0	5.0	107.9
-	-	-	-	-	-	-	-	-	-	5,598.2	-	-	-	-	6,119.5	5.0	306.0
-	-	-	1,175.9	1,536.3	-	-	-	-	-	5,598.2	22,387.9	-	-	5,212.5	49,749.8	5.0	2,487.5
-	-	-	52.1	-	-	-	-	-	-	-	-	-	-	573.4	2,502.0	5.0	125.1
-	-	-	-	-	-	260.6	-	-	104.3	-	-	-	364.9	729.8	2,914.8	5.0	145.7
-	-	521.3	-	-	-	-	-	-	-	-	-	-	-	-	755.8	5.0	37.8
-	60,447.3	-	-	-	-	-	-	332,612.9	-	-	-	-	-	-	525,156.4	5.0	26,257.9
-	521.1	-	-	-	-	-	-	-	-	-	-	-	-	-	89,406.3	5.0	4,470.3
-	31,031.4	-	-	-	-	-	-	118,788.1	-	-	-	-	-	-	149,819.5	5.0	7,491.0
-	22,369.7	-	-	-	-	-	-	124,000.4	-	-	-	-	-	-	586,776.6	5.0	29,338.8
-	84,868.7	-	-	-	-	-	-	14,446.1	-	-	-	-	-	-	607,659.8	5.0	30,383.0
-	199,176.2	-	-	-	-	-	-	589,847.5	-	-	-	-	-	-	1,958,820.6	5.0	97,941.0
-	834.0	-	-	-	-	-	-	-	-	52.1	-	-	-	-	6,643.9	5.0	332.2
29,823.3	200,010.2	992.1	4,351.9	5,135.6	-	1,347.5	132,622.9	589,847.5	2,152.4	25,033.0	74,272.0	296.8	900.0	13,258.0	2,354,891.4	5.5	128,607.7
40,037.6	-	1,103.1	4,104.4	1,483.7	-	7,040.2	206,254.0	-	3,395.6	3,252.0	11,385.1	1,610.7	2,186.6	19,371.2	423,160.7	0.0	0.0
1,356.7	-	37.9	157.4	581.2	-	181.8	54,543.6	-	625.5	2,513.3	2,711.5	475.4	1,999.5	4,404.6	81,656.7	0.0	0.0
231.9	-	5.6	41.6	123.6	-	-	53,091.5	-	6.3	3,468.5	249.8	124.9	281.0	5,204.0	66,768.1	5.0	3,338.4
2,581.0	-	52.0	426.2	233.9	-	337.8	30,996.4	-	270.3	2,650.6	1,330.5	187.1	311.8	1,247.3	53,011.0	5.0	2,650.5
1,041.5	-	52.1	567.1	156.4	-	573.4	7,949.1	-	-	21,079.4	1,720.1	646.4	630.7	4,951.9	62,261.1	5.0	3,113.1
45,248.7	-	1,250.6	5,296.8	2,578.8	-	8,133.2	352,834.6	-	4,299.9	32,963.7	17,397.1	3,044.4	5,409.7	35,179.0	687,057.5	1.3	9,102.0
71,071.9	200,010.2	2,242.7	9,648.6	7,714.4	-	9,480.7	485,457.5	589,847.5	6,452.3	57,996.6	91,669.1	3,341.2	6,309.8	48,437.0	3,041,948.9	4.5	137,709.7
2,966.8	10,000.6	60.6	311.0	385.5	-	112.9	15,162.7	29,492.4	189.2	3,365.8	6,165.6	62.8	106.2	1,330.5	137,709.7	0.0	0.0
16,405.1	56,274.3	491.0	2,134.0	1,254.5	-	2,206.5	140,569.8	134,485.9	1,432.2	18,754.3	18,512.9	807.6	1,425.7	10,486.2	753,468.2	4.2	31,589.1
89,543.8	266,287.1	2,794.3	12,093.6	9,354.4	-	11,800.1	641,190.0	753,825.7	8,073.7	80,116.6	116,347.6	4,211.6	7,841.7	60,255.8	3,933,146.9	4.3	169,298.8
4,619.0	-	91.0	578.8	417.9	-	279.6	26,992.6	-	190.8	1,605.4	1,814.8	92.3	172.2	1,827.5	47,141.4	4.8	2,244.8
3,920.3	2,478.8	59.3	395.5	1,506.1	-	197.6	25,100.0	7,080.7	224.1	2,088.0	5,773.2	69.9	128.7	1,187.6	77,034.4	5.5	4,265.9

TABLE 9
NATIONAL SOCIAL FORESTRY PROJECT
PROJECTION OF DISBURSEMENTS BY SEMESTER
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION	US AGENCY FOR INTERNATIONAL DEVELOPMENT			GOVERNMENT OF INDIA/STATES	TOTAL
		AID GRANT	AID LOAN	AID TOTAL		
SEMESTER END DATE						
9/30/85	6,152.2	0.0	3,076.2	3,076.2	1,025.2	10,253.6
3/31/86	10,876.5	222.5	4,616.1	4,838.6	4,983.8	20,698.9
9/30/86	10,876.5	230.8	4,616.1	4,846.9	4,975.5	20,698.9
3/31/87	14,986.3	294.1	6,397.1	6,691.2	6,417.5	28,095.0
9/30/87	14,986.3	294.6	6,397.1	6,691.7	6,417.0	28,095.0
3/31/88	17,434.7	303.7	7,827.0	8,130.7	8,135.5	33,700.9
9/30/88	17,434.7	303.7	7,827.0	8,130.7	8,135.5	33,700.9
3/31/89	19,604.7	328.4	9,483.9	9,812.3	10,068.9	39,485.9
9/30/89	19,604.7	328.4	9,483.9	9,812.3	10,068.9	39,485.9
3/31/90	16,549.3	346.9	8,637.8	8,984.7	11,239.6	36,773.6
9/30/90	16,549.3	346.9	8,637.8	8,984.7	11,239.6	36,773.6
TOTAL	165,055.1	3,000.0	77,000.0	80,000.0	82,707.0	327,762.2

NOTE: Totals may not add exactly due to rounding errors.

TABLE 10
NATIONAL SOCIAL FORESTRY PROJECT
PROJECTION OF DISBURSEMENTS BY SEMESTER
AID LOAN DISBURSEMENTS BY ACTIVITY
(US$ '000)

SEMESTER END DATE	FARM FORESTRY & NURSERY DEVELOPMENT	TREE TENURE PLANTING	COMMUNITY FORESTS	WASTELAND PLANTING	FUELWOOD SAVING DEVICES	STAFF SALARIES	TOTAL LOAN DISBURSE-MENTS	CUMUL-ATIVE TOTAL
9/30/85	1,171.4	81.0	1,072.4	751.4	0.0	0.0	3,076.2	3,076.2
3/31/86	1,269.2	124.9	1,315.8	1,279.6	16.7	609.9	4,616.1	7,692.3
9/30/86	1,269.2	124.9	1,315.8	1,279.6	16.7	609.9	4,616.1	12,308.4
3/31/87	1,760.6	274.0	1,657.7	1,698.7	19.4	986.7	6,397.1	18,705.5
9/30/87	1,760.6	274.0	1,657.7	1,698.7	19.4	986.7	6,397.1	25,102.6
3/31/88	2,004.1	570.0	1,892.0	2,040.0	22.7	1,298.2	7,827.0	32,929.6
9/30/88	2,004.1	570.0	1,892.0	2,040.0	22.7	1,298.2	7,827.0	40,756.6
3/31/89	2,288.7	858.3	2,182.9	2,398.9	24.1	1,731.0	9,483.9	50,240.5
9/30/89	2,288.7	858.3	2,182.9	2,398.9	24.1	1,731.0	9,483.9	59,724.4
3/31/90	1,953.6	656.0	1,812.0	2,028.8	25.2	2,162.2	8,637.8	68,362.2
9/30/90	1,953.6	656.0	1,812.0	2,028.8	25.2	2,162.2	8,637.8	77,000.0
TOTAL	19,723.8	5,047.5	18,793.2	19,643.4	216.2	13,576.0	77,000.0	

NOTE: Totals may not add exactly due to rounding errors.

TABLE 11
NATIONAL SOCIAL FORESTRY PROJECT
PROJECTION OF DISBURSEMENTS BY SEMESTER
AID GRANT DISBURSEMENTS BY ACTIVITY
(US$ '000)

SEMESTER END DATE	DOMESTIC STAFF TRAINING	INTER-NATIONAL STAFF TRAINING	CENTRALLY SPONSORED WORKSHOPS	FARMER TRAINING EXTENSION	TECHNICAL ASSIST-ANCE	SPECIAL STUDIES AND EVAL-UATIONS	RESEARCH OPERATIONS AND GRANTS TO SAU'S	TOTAL GRANT DISBURSE-MENTS	CUMUL-ATIVE TOTAL
9/30/85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/31/86	139.1	28.7	9.9	28.0	13.8	0.0	3.0	222.5	222.5
9/30/86	139.1	28.7	9.9	28.0	13.8	8.3	3.0	227.8	450.3
3/31/87	186.6	36.2	10.7	30.3	12.4	14.0	3.9	290.2	740.5
9/30/87	186.6	36.2	10.7	30.3	12.4	14.5	3.9	290.7	1,031.2
3/31/88	206.8	20.6	11.6	32.8	13.4	14.3	4.2	299.5	1,330.7
9/30/88	206.8	20.6	11.6	32.8	13.4	14.3	4.2	299.5	1,630.2
3/31/89	223.4	22.2	12.6	35.6	13.1	17.0	4.5	323.9	1,954.1
9/30/89	223.4	22.2	12.6	35.6	13.1	17.0	4.5	323.9	2,278.0
3/31/90	235.0	20.2	13.7	38.7	14.2	20.1	5.0	341.9	2,619.9
9/30/90	235.0	20.2	13.7	38.7	14.2	20.1	5.0	341.9	2,961.8
TOTAL	1,981.8	255.4	116.7	330.7	133.7	139.6	41.1	3,000.0	

NOTE: Totals may not add exactly due to rounding errors.

For AID's purposes the direct foreign exchange costs are estimated at about $4 million. This represents the costs of overseas training and most of the inputs financed by the Program Management and Technical Support facility (see Section V.C.) With the exception of $255,000 in international training proposed for IDA financing, these costs are expected to be financed by AID. The following tables provide the "derived" foreign exchange component of each project activity.

Retroactive financing to October 1, 1984 will be permitted to support activities needed to ensure a strong start during the project's first year. These preparation activities include such things as staff recruitment and training, collection of seed, establishment of nurseries, and preparation of seedlings and planting materials which will be distributed during the first year's monsoon (June-July 1985). Since last October the participating states have proceeded with these activities at their own risk but in keeping with their subproject proposals.

IV. IMPLEMENTATION

A. Responsible Authorities and Plan Framework The project will be implemented by the state governments of Uttar Pradesh, Rajasthan, Gujarat, and Himachal Pradesh, and the Ministry of Environment and Forests of the Government of India. The project is synchronized with the GOI planning cycle and designed to support state and GOI activities over the Seventh Five-Year Plan Period (April 1985-March 1990).

B. Summary Schedule of Project Events Initial annual implementation targets for the subprojects and their elements are given in the supporting volume, "National Social Forestry Detailed Cost, Financing and Disbursement Tables." Changes made over the course of implementation will be officially recognized in Project Implementation Letters.

Assuming a June 1985 project authorization, the schedule of significant events to start and implement the project is as follows:

Activity	Date
Project Agreement Signed	June 1985
Project Implementation Letter No. 1 Issued	July 1985
Conditions Precedent Completed	December 1985
Submission of Information Regarding Selected State Models	December 1985
Coordination Arrangements made with State Ag. Extension Services	December 1985
Key Incremental State Forest Department Staff Position Sanctioned	December 1985

Activity (Contd.)	Date
USAID/New Delhi Senior FSN Project Managers Hired	December 1985
Long-Term Technical Support and Program Management Staff Contracted	March 1986
First AID/IDA Supervision Completed	April 1986
Submission of Proposed Structure of Central Forestry Organization	April 1986
First Centrally-Sponsored M&E Workshop (Farm Forestry Evaluation Survey Design)	May 1986
International Staff Training Initiated	June 1986
Second AID/IDA Supervision Completed	October 1986
Third AID/IDA Supervision Completed	April 1987
First Centrally-Sponsored M&E Seminar (Findings of State Farm Forestry Surveys)	May 1987
Fourth AID/IDA Supervision Completed	October 1987
Second Centrally-Sponsored M&E Workshop (Community Woodlot Evaluation Survey Design)	August 1987
Joint AID/IDA Mid-Term Review Completed	March 1988
Second Centrally-Sponsored M&E Seminar (Findings of State Community Woodlot Surveys)	August 1988
Fifth AID/IDA Supervision Completed	October 1988
Sixth AID/IDA Supervision Completed	April 1989
Seventh AID/IDA Supervision Completed	October 1989
Final AID/IDA Supervision Completed	April 1990
Project Assistance Completion Date	March 31, 1990
Submission of Project Completion Report	September 1990

C. Disbursement The steps involved in disbursing the AID and IDA loans will be as follows. Joint AID/IDA supervision missions will visit the four participating states twice a year. One of these visits will be during the September-November period. State consultations during this mission will focus on such matters as progress made in project-assisted monitoring, evaluation, and staff training activities, emerging policy and procedural constraints, and the pace and quality of the social forestry field programs, e.g. farm forestry, tree tenure, and community woodlots. Within the context of the AID and IDA's project documents, mutual agreement will be reached with each participating state regarding the ensuing year's program. State and Center allocations will be made for social forestry over the course of the year. Allocations and the subsequent expenditures will be made in accordance with the project agreements as clarified through official project correspondence and mutual agreement. Reimbursement will be made on the basis of certified statements of expenditures, sent by the appropriate state and Ministry of Environment and Forestry officials to the Department of Economic Affairs (DEA) of the GOI, Ministry of Finance. The documents supporting these certified statements of expenditure will be retained by the originating agencies and will be available for

inspection by the GOI and AID. After review, DEA will forward the certified statements of expenditure to the New Delhi office of World Bank which will arrange disbursements for IDA's share of the expenditures as specified in Table 7. World Bank will then transmit the expenditure statements with a statement of IDA disbursements to USAID/New Delhi which will disburse funds for AID's share of expenditures as also specified in Section III.B. and Table 7. To facilitate GOI and state assumption of loan financed recurrent costs, donor assistance for these items will be provided on a declining share basis over the course of the project.

AID grant funds will be used to finance activities under the line items identified in Section III.B. and Table 7. In those instances where these activities are undertaken by the implementing agencies themselves, grant funds will be disbursed upon receipt from DEA of certified statements of expenditure as detailed above for loan funds. In those instances where the implementing agency contracts with or grants funds to a third party (such as a state agricultural university or private research group), AID will disburse against certified statements of expenditure providing that the original grant agreement or contract was reviewed and approved by AID prior to its execution. Finally, it is expected that in certain instances, AID may be asked by an implementing agency to arrange for the provision of services on their behalf. In these cases direct financing, most likely through AID contracts, will be used. Such direct AID financing will be used for international training and may also be used for arranging workshops, providing Indian or expatriate technical support, and contracting for studies, evaluations or research.

IDA and AID will coordinate on financing of the above activities so that while specific items may be financed wholly by AID or by IDA, total expenditures will be shared on a fifty-fifty basis as set forth in Section III and Table 7, items E through I.

D. Accounts and Audit The GOI and the states will keep separate accounts of expenditure under the project. In each state, the forest department will maintain at headquarters and in its field offices separate project accounts in a readily identifiable form using the project budget heads in Table 7. In order to control expenditures, divisional accounts will be consolidated and rendered to the Accountant General of each state every month. The normal auditing procedures in the states will be used. These consist of an internal audit on the basis of spot checks every six months and random annual checks including physical verification of inventory ledgers, as well as the forest department's own annual spot check of stores and equipment.

All project accounts will be externally audited by the Comptroller and Auditor General of India on an annual basis each fiscal year. This shall be done in accordance with consistently applied and sound auditing principles. The audited records, together with certified copies of project accounts, will be submitted to AID and IDA within six months after the end of the fiscal year. Such reports and audits will show, among other things, that goods have been received or work performed, and that payments have been made. All reports will be submitted by the states through the Ministry of Environment and Forests to DEA for transmission to AID and IDA.

E. Procurement AID will not finance procurement for civil works, vehicles, equipment, and furnishings under the project. Direct AID procurement of services will be in accordance with all applicable AID and US Government procurement regulations.

F. Special Covenants The following actions are considered essential to achieving project outputs and purpose.

(a) Each state will carry out the monitoring and evaluation of its subproject in a manner satisfactory to the Cooperating Country and AID and furnish the results to AID at least once a year;

(b) After the third year's planting program, but not later than March 31, 1988, each State will undertake a joint review of its subproject with the Cooperating Country and AID;

(c) State monitoring and evaluation personnel will participate in centrally sponsored workshops and seminars on monitoring and evaluating selected aspects of state field programs;

(d) Each state shall continue to revise and update its wood balance study every two years;

(e) By December 31, 1985 both Himachal Pradesh and Uttar Pradesh shall make arrangements to ensure that their Departments of Forests and Departments of Agriculture Extension Services cooperate to provide social forestry extension services to farmers;

(f) The project states will review current arrangements concerning procedures for selecting participants for private wasteland planting schemes, tree tenure schemes, community managed woodlots and tree fodder plantations, the rights and responsibilities of these participants and the procedures for advising them of their rights and responsi-

bilities; where Government Orders and instructions including proforma agreements are not comprehensive, the states would take appropriate remedial action by December 31, 1985.

(g) Personnel receiving project-financed training will be assigned, after completion of training, to project-related responsibilities in accordance with state and GOI requirements;

(h) In order to ensure the coordination of forestry activities with other State agencies, the States shall maintain, at all times, coordination committees for social forestry activities;

(i) The following states shall by December 31, 1985 create and sanction the following positions: for Rajasthan, a Conservator for Planning, Monitoring and Evaluation, and for Uttar Pradesh, one Additional Chief Conservator of Forests and a Conservator for Planning;

(j) Himachal Pradesh shall ensure that: (a) single line of administrative command for field staff, from circle Conservator on down is maintained; (b) a steering committee headed by the State Forest Secretary meets at least quarterly in order to discuss and assign work priorities to field staff;

(k) The Cooperating Country shall: (a) by April 30, 1986, furnish to AID the proposed structure of the central forestry organization; (b) sanction by April 30, 1986 and fill by October 31, 1986 the position of the head of the Central Social Forestry Organization; and (c) thereafter maintain said position and those of the Chief Project Economist and the Deputy IGF/Monitoring;

(l) The project states would undertake socioeconomic studies to ascertain farmer response to charging for seedlings, as a basis for determining a program of action for implementing the principle of full cost recovery; the results of these studies would be discussed with AID at the time of the mid-term review and thereafter they would start implementing their programs; until such programs are undertaken for the project, each state would gradually reduce free distribution of project seedlings in accordance with a schedule agreed with AID and seedlings above the free limit would be charged for at rates, also agreed with AID, which would progressively be increased to cover the direct cost of production; and

(m) By September 30, 1990 the Cooperating Country shall prepare and furnish to AID a report, of such scope and in such detail as AID may reasonably request, on the execution and initial operation of the Project, its costs and the benefits derived and to be derived from it, the performance of the Cooperating Country and AID of their respective obligations under the Project and the accomplishment of the purposes of the Project.

V. MONITORING AND EVALUATION

A. Monitoring Arrangements In addition to the routine monitoring and evaluation studies undertaken by the Social Forestry Support Office and strengthened state monitoring and evaluation units (Section II. C. above) and in addition to audit reports received from the Accountant General (Section IV.D. above), AID and IDA will undertake a regular program to monitor the project.

Each state will be responsible for preparing annual progress reports for submission to the Department of Wildlife and Forests. This will include physical achievements and financial outlays presented according to a standard format developed by the GOI for collecting this data on a state-by-state basis. Based on the state reports, the Department will prepare annual progress reports summarizing project expenditures and activities.

There will be two major AID/IDA supervision missions of approximately two to four weeks duration each year. One will occur in September-November, and the other will be scheduled to coincide with seasonal project activities. The findings of each supervision mission will be documented through preparation of a supervision summary report, which will include the joint mission's recommendations.

As described in Section V.C., USAID/New Delhi staff will consist of FSN project managers and long and short term expatriates assigned to monitor and facilitate project activities in the fields of community management, the development of effective state level monitoring and evaluation capacities, research, education and training support, forest product supply and demand analyses and others, as needed. In addition to participating in major AID/IDA supervisions, these individuals will carry out periodic visits in collaboration with state authorities. These visits will focus more on qualitative changes in program operations rather than achievement of quantitative physical outputs. Their primary purpose will be to follow up on recommendations of the joint supervisions, provide technical support to overcome implementation bottlenecks, and facilitate essential technical transfer and institutional development acti ities.

By design, field activities supported by the project are small scale and widespread. For instance, over 4,000 nurseries and 7,000 community woodlots will be established, and well over a million individual households are expected to avail of seedlings to plant trees on their own property under the agroforestry program. Therefore, field monitoring of physical accomplishments such as plantations established and hectares planted will be done by USAID/New Delhi staff on a spot basis using simple rapid reconnaissance methods. Initially USAID/New Delhi FSN project managers are expected to spend a minimum of 3 days in each state every month performing spot checks of field activities. Normally 5 to 7 field sites (nurseries, community woodlots, private plantings, etc.) can be visited over the course of a working day. Therefore, between 15 to 20 spot checks will be performed in each state every month or, say 50 to 80 spot checks across the four participating states. These will be supplemented through field trips conducted by other USAID/New Delhi staff including the community woodlot management and monitoring and evaluation systems specialists.

As stated in the section on disbursements in Section IV.C. above, AID and IDA will make disbursements against certified statements of expenditure submitted from the states through the GOI. USAID/New Delhi staff will make periodic spot checks of these expenditures in addition to reviewing state and GOI audit reports.

B. Evaluation Arrangements To assess progress towards the project's purposes and goal in a more substantive fashion, AID and IDA will undertake a mid-term review of the project after the third year's planting program but not later than March 31, 1988. The groundwork for this review will be laid not only by the previous supervision missions, but, more importantly, by studies conducted by each state's monitoring and evaluation unit according to the Operational Guide for Monitoring and Evaluation of Social Forestry and by wood balance studies and the like. These studies are integral to the project's efforts to improve monitoring and evaluation capability and policy formulation, but they will also be an important source of information for the mid-term project evaluation.

Finally, each participating state will prepare a project completion report for its particular subproject based on a mutually agreeable proforma. These will be submitted to the GOI for consolidation and transmittal to AID and IDA by September 30, 1990.

C. AID Program Management and Technical Support USAID/New Delhi will add two senior FSN project managers to its staff. Each will be responsible for monitoring and facilitating activities in two state projects.

Previous and on-going social forestry projects have demonstrated that special attention needs to be paid to several activities proposed under this project. These include:

-- operationalizing effective monitoring and evaluation in the states;

-- encouraging active management of community woodlots by panchayats or other local bodies;

-- imparting essential supplementary skills to staff assuming social forestry project management, monitoring and evaluation, or extension responsibilities;

--instituting project research activities; and

-- improving the data base for current and future projects through supply and demand studies for forest products, land use studies, and the like.

In the past, USAID/New Delhi's ability to monitor these critical activities effectively and assist project implementors overcome related bottlenecks has been severely limited by the shortage of relevant technical skills among its own staff members. With approval of this project, AID assistance will begin to flow to four new states, and USAID/New Delhi's ability to deal with these recurring problem areas will be limited unless special steps are taken.

Therefore, it is proposed that at the time of authorizing the proposed $80.0 million in grant and loan funds, an additional $3.5 million grant be authorized to create a Social Forestry Program Management and Technical Support Facility. Over the life of the project, these funds will be directly obligated by AID through execution of AID direct contracts, Joint Career Corps agreements, cooperative agreements, etc.

The facility will be used to provide the program management and technical support needed to ensure that critical institutional development and technical transfer components of the project get the attention they need. For example, the facility will initially be tapped to acquire the services of three specialists whose professional skills will augment the capabilities of USAID/New Delhi staff on a full-time basis over the life of the project.

The first of these specialists will be assigned specifically to monitor and facilitate the project's capacity-building efforts in monitoring and evaluation. The second specialist will be assigned responsibilities in monitoring community woodlot activities and assisting state staff (particularly the new social forestry planning

officers) in encouraging more active management of community forests by panchayats. This specialist will be hired through a JCC arrangement if possible, although other arrangements will be explored by USAID/New Delhi. The third specialist (preferably a JCC) will carry special responsibilities for monitoring and facilitating research, extension, and training assistance funded by AID. All three specialists will serve for at least 48 months.

In addition, the facility will draw on local and expatriate sources to provide critical short-term assistance required by USAID/New Delhi to meet social forestry program needs. In addition to trouble shooting within the problem areas identified above, short term assistance will be required to meet other needs, such as preparation and completion of the mid-term project review scheduled for completion by March 1988. Finally, the facility will be used for several special activities such as analytical studies, workshops, and seminars as well as support for Indian participation in international training and conferences.

The types and levels of in-kind support proposed under the facility are indicated below.

Program Management and Support Facility

I - Long-Term Services	
(Expatriates)	
A - Monitoring and Evaluation Systems	48 person months
B - Management of Community Woodlots	48 person months
C - Forestry Research, Education and Training	54 person months
II - Short-Term Services	
(Expatriates)	
A - Monitoring and Evaluation Systems	8 person months
B - Management of Community Woodlots	4 person months
C - Wood Balance Analysis	4 person months
D - Mid-term Review	4 person months
E - Other	8 person months
(Local Sources)	
A - Monitoring and Evaluation Systems	12 person months
B - Management of Community Woodlots	16 person months
C - Wood Balance Analysis	6 person months
D - Other	23 person months
III - Special Activities	
A - Workshops and Seminars	8 meetings
B - Contract Studies	7 studies
C - International Training	12 participants
D - Other	

Specialists will be competitively sought under AID and US Government acquisition regulations. Wherever feasible, opportunity to compete will be accorded to minority and disadvantaged firms and individuals through special procedures developed by AID for the purpose.

VI. SUMMARY OF PROJECT ANALYSES

A. Introduction The starting point for design of each state subproject was a detailed "preparation report" or proposal prepared by the concerned forest department. These proposals and supporting documentation were reviewed by a joint IDA/AID project design team during visits to the states between October 1984 and February 1985 and again during subsequent discussions with state representatives in New Delhi. Where appropriate, the team recommended modification of the proposed design, and such changes were discussed in detail with the states.

Recommendations made by the design team were based primarily on lessons or examples drawn from on-going social forestry projects in India, as well as certain norms or design criteria developed at the start of the design activity and further elaborated and amended over the course of design itself. Points of agreement and recommended modifications were documented through the preparation of Aide Memoires and are reflected in other design correspondence on file in the donors' offices and with the forest departments. Additionally, on the more critical aspects of project design, individual members of the design team prepared written analyses attached here as Annexes III through VI. The major findings of these analyses and related significant outcomes in project design are summarized below.

B. Technical Analyses Over the course of project design, three separate analyses of a technical nature were prepared as a result of special attention given to:

- improving the design and utility of state level wood balance studies needed to upgrade the quality of project planning and implementation;

- the silvicultural aspects of project design, particularly to ensuring consistency between the stated objectives and the silvicultural prescriptions, unit costs, estimated production and harvesting schedule of each state's alternative tree planting models;

- opportunities for decreasing fuelwood demand through design and promotion of fuelwood saving devices, primarily improved stoves and crematoria.

1. Wood Balance Studies The wood balance situation in each of the four states and for India as a whole is generally not well known. Inventory figures are insufficient and consequently little is known about growth. Removal estimates are reasonable for legal harvests, but either illegal removals are high or farm forests contribute far more to estimated consumption than expected. The current situation confirms without doubt that there are dramatic imbalances in each state but there is little basis for either projecting future balances or planning efficient long-term programs for closing the gap between growth and renewals in critical commodities like fuelwood. Over the longer term much support will be provided in this regard by an upgraded Forest Survey of India (an active GOI program currently supported by SIDA).

In the meantime, the project provides for wood balance studies to be undertaken by the participating states to develop a basis for estimating future consumption and planning future supplies for major products like fuelwood, pulpwood, poles and timber. The study findings will help define the needs of different user groups and help determine the composition of planting targets and species selection. To serve as effective management tools, these studies need to be revised continuously, and the project will provide the staff required to do this. The forest departments of Gujarat and Uttar Pradesh will produce draft wood balance studies before the close of April 1985. Himachal Pradesh and Rajasthan are to provide detailed wood balance study proposals shortly after project initiation.

2. Silvicultural Aspects

a. Nurseries Small nurseries have the advantage of being near to farmers and thus reducing transportation costs for seedling distribution. They also provide considerable employment and serve as a focus for extension promotion and advice. Therefore all state subprojects will support the development of a large number of small, widely dispersed nurseries, in a trend away from large, central forest department nurseries. These small nurseries may be on family holdings with land rented and family labor hired by the forest departments. Alternatively, seedlings may be grown on a contract basis. Finally, they may be on forest department land, supervised by department staff and run by hired labor, or on school grounds and run by children and staff. The forest department will provide technical advice and will supply seed, fertilizer, polythene bags and other materials to those growing seedlings. Close supervision of these nurseries by the forest department is needed at least over the short term to ensure good quality of seedlings. Ultimately, such small nursery operators are expected to become a main source of planting material for farmers, but this will depend upon farm forestry becoming well established and upon appropriate seedling pricing policies. Larger departmental nurseries will be used to provide seedlings for block plantations and other departmental plantings and also for distribution to farmers.

As for nursery techniques, seed will be sown in seedbeds or directly into the sleeves. Seedlings from seedbeds will then be transplanted into polythene sleeves. All states will take measures to reduce the cost of seedlings, by using smaller sleeves where the species are suited to such techniques. Other measures will include training for nursery staff in improved handling between nursery and planting site and careful quality control of stock issued from nurseries. Newly established nurseries will be equipped with pumps for irrigation, unless water is otherwise obtainable at the site.

b. Plantation Establishment Very little site clearance is required in any of the states as most vegetation has already been removed. However, in most cases pitting is necessary to provide rooting conditions for planted trees. The size of pits depends upon the state of the soil, the species to be planted and traditional practices of the forest department. Normally the size varies from 30 cm square to 60 cm square. Pits are usually dug in the pre-monsoon period when labor demand is slack. With the coming of the monsoon in June and July, nursery stock is then planted out. However, direct sowing of some species is practiced in Uttar Pradesh and Rajasthan. In this case mounds and trenches are used to provide a seedbed for germinating seeds and to provide protection against animals. Table 12 shows the number of trees to be planted per hectare under each model.

TABLE 12: NUMBER OF TREES PER HECTARE, BY PLANTATION MODEL

Model	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh
A. Agroforestry				
Farm Forestry	1,500	1,500	1,500	1,500
Private Wasteland Planting			2,000	500
Improved (Grafted) Orchards		100		
B. Tree Tenure for Poor and Landless				
Strip Plantations	3,120 to 3,600			
Household/Group Farm Forestry	2,500	1,670		1,100
Arjun Plantations	5,000			
C. Wasteland Plantations (Community-Managed) for Community Needs				
Community Woodlots (Rainfed)	2,500	1,600	1,750	1,100
Community Woodlots (Irrigated)			10,000	
Tree Fodder Plantations				
Trees			100	
Grasses			20,000	

Model	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh
D. Wasteland Plantations (Government-Managed) for Community Needs				
Rehabilitated Degraded Forests		1,320	2,000	2,000
Strip Plantations	2,500 to 3,100	1,300 to 2,000	2,500	
Urban Fuelwood			2,500	

In order to ensure the highest survival rates, most trees will be nursery raised in polythene sleeves which are subsequently removed at planting to ensure minimum disturbance to the root system. Experience has shown that bare-rooted seedlings are not generally suitable for issue from nurseries except where the distance between nursery and the planting site is minimal or where more temperate conditions exist at higher altitudes. The "basket" method of seedling distribution, wherein a large number of fingerling seedlings in a basket are distributed to farmers who then raise the seedlings to larger size themselves, will be continued or introduced in states where the technique is untried. Also, farmers will be encouraged to collect seeds from nurseries for raising themselves or for direct sowing. Direct sowing will be used mainly for Acacia tortilis, Acacia arabica, and Prosopis juliflora/chilensis.

In Uttar Pradesh, where many soils are highly alkaline, soil acidifying agents will be applied to both strip and block plantings, typically at 300 kg per hectare applied at planting time. Fertilizer application is heavy in Gujarat, with 20-50 kg per hectare of compound fertilizer or urea being used in similar plantation models. In other states, the use of fertilizers is not common, except in nurseries. Maintenance of plantings will include the replacement of casualties for up to two years. Different levels of mortality are estimated for each state depending on experience. Up to 30 percent casualty replacements have been included in all project estimates. Weeding will be carried out to ensure survival and good early growth. In farmer's fields weeding may be expected to be of a higher standard than in forest department plantings. A particular feature of the maintenance system would be that local people or private owners will be encouraged to cut and remove grass and herbaceous fodder from plantations, thus performing a valuable weeding function and reducing the dry season risk of fire. The trees will eventually suppress much of the weed growth as the canopy closes. Watering after seedling establishment is prescribed for some models in the lowland states of Uttar Pradesh, Rajasthan and Gujarat, the objective being to lengthen effectively the wet season and to ensure improved survival and growth.

c. Plantation Protection Experience in the four states differs widely over the amount and type of protection needed for planted trees. Protection also depends on the species used, e.g., whether palatable to wild or domestic animals or susceptible to termite damage. In general, termite protection is given by application of persistent insecticides in the nursery. If attacks are noted after planting out, localized applications of insecticide are made. For protection against browsing and illegal cutting, wire fencing is used in some areas of Rajasthan and Himachal Pradesh for strip plantations, especially along routes used by migrating herdsmen. However, the most common and effective method of fencing is the use of a trench planted or sown with a live hedge of thorny (Acacia or Prosopis) or unpalatable (Euphorbia or Ipomea) species. Wire fencing will be phased out as soon as possible in favor of systems using locally available materials. In degraded hills in Rajasthan and Gujarat, effective protection is afforded by dry stone wall construction. Watchmen will be provided for most plantation areas, at a rate of one per five to ten hectares depending on the shape and nature of the site. The allocation of land tenure sites to landless poor for tree planting makes paid watchmen unnecessary in that model. Since most of the benefits from community wasteland plantations go to the local population, the need for paid watchmen will also be reduced in those models as effective community management procedures are instituted.

d. Production In all cases, and as far as practicable, model designs stress quick-maturing and coppicing species which enable early harvesting, thinning and lopping to provide households fuelwood and fodder. The species have been chosen for their adaptability in social forestry situations and many are truly multipurpose. The relative quantities by category of products may vary somewhat in reality. For instance, trees grown for pole production can be sold for fuelwood and vice versa, depending on farmer or market requirements. Production based on yields experienced to date, is shown below in Table 13.

The main outputs from both agroforestry and tree tenure models (which account for nearly 75 percent of plantings in the proposed project) as well as plantations established on government and community lands will be fuelwood and poles. Other important products will be bamboo, small timber, fodder leaves and grasses, fruits and minor forest products. Most plantation designs include a mixture of fuelwood, fruit and fodder producing species, with local variations such as greater emphasis on bamboos in Gujarat and fodder in Himachal Pradesh.

TABLE 13: ESTIMATED PRODUCTION AT FULL DEVELOPMENT

Model	Unit	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh
Fuelwood	mt.	740,000	3,900,000	491,000	
-conifer	mt.				26,200
-broadleaf	mt.				2,700,000
Poles	no.	14,800,000	22,000,000	6,700,000	
Small timber	cu m.	89,000		38,300	
Bamboo	no.		6,800,000		
Grass	mt.	67,000	82,000,000	8,110	180,000
Leaf fodder	mt.		860,000	800	2,900,000
Dry fodder	mt.		50,000		
Stemwood	cu m.				520,000
Edible flower	mt.	8,000			
Fruit	mt.	5,600	11,250	12,000	
Ber fruit	mt.		2,100		
Neem Seeds	mt.		2,250		
Bidi leaves	mt.		304		
Seed pods	mt.			59,000	
Fallen Wood/lops	mt.			8,200	
Oilseeds	mt.	5,000			
Cocoons	(000 nos.)	60,000		40,000	
Other tree by products	mt			40,000	

e. Review and Redesign Since it is not possible to predict with certainty the response of farmers and panchayats to the alternative approaches suggested above and to leave room for improvements, flexibility will be maintained during project implementation and will allow shifting from one category of planting to another. Monitoring and evaluation results will play a major role in this regard. Also a mid-term review will be held after completion of the third year's planting.

3. Improved Stoves and Crematoria The rationale for including fuelwood saving devices in the project is based upon the notion that eventually substantial improvements in wood balance can be gained more inexpensively through increased efficiency of consumption than through extensive and expensive planting programs. This is demonstrated conclusively by the AID/Futures Group fuelwood computer

Note: Full development years vary by products depending on gestation periods and rotation cycles. For the major products, it is Years 10-15 in Uttar Pradesh, Gujarat and Rajasthan and Years 26 and 50 in Himachal Pradesh.

simulation, as well as a growing body of evidence from Gujarat and Nepal that improved stoves and crematoria can realistically result in fuelwood savings of 10 to 40 percent.

Generally speaking, however, previous forest department experience with the introduction of improved stoves and crematoria has been mixed. For example, in Uttar Pradesh only minimal advantage was taken of the improved stove component under the first IDA-assisted social forestry project. On the other hand, the forest department in Gujarat installed 10,000 improved magan stoves during the last two years of the previous project as well as 1,000 improved crematoria. Given these differing levels of interest and capability as well as the recent announcement of a massive GOI improved stove program, "National Project on Demonstration of Improved Chulas" (see Annex III.D.) the primary consideration over the course of project design became the appropriate role for forest departments in promoting fuelwood saving devices.

First it must be noted that the bulk of activities involving improved stoves will now be carried out under the GOI project primarily by the rural development departments in each state. However, that project included no concurrent means for monitoring and evaluating the stoves in field conditions. There is thus still a potential role for forest departments and other agencies in developing systems for evaluating field efficiency and social acceptability of various technologies and distribution systems.

Secondly, the advantages of forest department participation in improved stove and crematoria programs are several. By distributing improved stoves and crematoria, the forest department is perceived as delivering a good or service to individual households and communities. This can dramatically improve their relationship with the people and the quality of their extension work. In addition, the forest department has considerable experience with operations of this scale carried out extensively throughout the state.

Finally, the disadvantages of forest department participation, except perhaps in the case of Gujarat, are also many. To date, most forest departments have little or no familiarity with the technologies involved and evinced only minimal interest. Fuelwood saving technologies require a whole new set of skills and organizational delivery systems if they are to be effective. Thus, any major program would add a considerable work burden outside of the central forestry (tree growing and harvesting) sector, and at this juncture would compete with the new national project.

For these reasons, relatively small components for improved stoves and crematoria have been included in this project with the emphasis being placed on action research projects. These will allow the forest departments to keep in touch with developments in the field and ensure that additional methods are tried and monitored. For example, in Himachal Pradesh advantage will be taken of the progress made by the Indo-German Dhauladhar Project in establishing a program of improved stoves and pressure cookers. The Himachal Pradesh subproject will fund an evaluation of these devices under field conditions, soliciting users' recommendations. The Himachal Pradesh subproject also provides for hiring women forest guards to work as extension agents for promotion of improved stoves, among other things. The project will provide funds in all four states for improved crematoria in areas where significant segments of the population use these common facilities.

C. Economic and Financial Analyses Economic and financial analyses completed by the design team included:

- examination of economic rates of return generated by the project as a whole and by the individual state subprojects under alternative cost, yield and price assumptions;

- analysis of the financial rates of return and implications of alternative forest department cost recovery procedures proposed for the alternative tree planting models proposed by each state;

- a brief review of marketing of social forestry products, possible problems and related project-assisted activities;

- estimation of the number of workdays of employment generated by the project for unskilled labor; and

- identification of the recurrent costs in project design

1. Economic Rates of Return As summarized in Table 14 below the economic rate of return on the project is 27 percent and for each of the four states as follows: Uttar Pradesh 25 percent, Gujarat 26 percent, Rajasthan 17 percent, and Himachal Pradesh 34 percent. These economic rates of return show little sensitivity to changes in most variables. Total benefits would have to decrease by 67 percent for the rate of return of the project to fall below the opportunity cost of capital at 12 percent. Alternatively, total project cost would have to increase by 201 percent. Under the unfavorable circumstances of both a reduction in benefits by 20 percent and an increase of costs by 20 percent (or a lag in the benefit stream by one year), the economic rate of return for the project would still be 21 percent and all states would equal or exceed the opportunity cost of capital. For details see Annex IV.A.

The Base Case results have been computed on the following basis:

a) All costs taken are base costs and exclude physical contingencies;

b) Investment costs are taken over the entire project period including the pre-project year (Year 0);

c) 100 percent of staff costs for project period and 100 percent of extension staff costs through Year 15 have been taken; this provides for continued forest department supervision of the schemes and gradual handing over to local beneficiaries or panchayats; and

d) other recurrent costs at 100 percent total for the project period and 100 percent of the total costs of the extension components only in years 7-15.

The rates calculated underestimate the real return by not including other important external benefits of the project. These include:

a) the demonstration effect of highly visible plantings on private, community and government wastelands and peripheries of houselots and fields, which have contributed greatly to community and household awareness and acceleration of the social forestry program;

b) tangible benefits from replacement of tree cover, arrest of soil erosion and land degradation and consequences for improved soil productivity over the longer-term;

c) short-term improvements in the immediate environment including shade along byways, aesthetic benefits, health benefits from smokeless stoves, etc.;

d) an increase in productivity attributed to time savings by local communities, particularly women, resulting from access to nearby fuel and fodder sources and from the use of improved stoves, crematoria, and pressure cookers; and

e) an increase in agricultural productivity as a result of returning animal dung and agricultural wastes to the fields, in cases where they would otherwise be collected to meet fuel needs.

In the calculation of economic costs and benefits, all values are in 1985 constant prices at an exchange rate of Rs. 12 = US$1. The economic analysis has been made in border rupees, using a standard conversion factor of 0.8 and specific conversion factors as needed. Due to seasonal unemployment and underemployment, the shadow wage rate for unskilled labor is taken as 70 percent of financial wages, which have been prescribed under the Minimum Wages Act in each of the states. Traded goods and services have been valued on the basis of their financial c.i.f. import prices, adjusted by tax rates, foreign exchange component and local material and labor inputs. The opportunity cost of land is taken to approximate zero in the base case economic rate of return calculations, as the social forestry plantings are either on very poor, highly overgrazed and marginal lands with virtually no substitution of agricultural crops, or on peripheries with no shade or deleterious effects on field crops. Government-managed plantations are on wastelands and no land value has been imputed. A summary of economic and financial prices used are shown in Annex IV.B.

TABLE 14: RESULTS OF ECONOMIC AND SENSITIVITY ANALYSIS

Economic Rates of Return
(Percent)

	Gujarat	Himachal Pradesh	Rajasthan	Uttar Pradesh	NSFP
Base Case	26	34	17	25	27
Total Benefits down 20%	22	31	14	21	23
lagged 1 yr.	22	30	15	21	24
Total Costs up 20%	23	32	14	22	24
Total Costs up 20% and benefits down 20%	19	28	12	19	21

Switching Values
(Assumed Opportunity Cost of Capital = 12 Percent)

	Gujarat	Himachal Pradesh	Rajasthan	Uttar Pradesh	NSFP
Total benefits	-59	-87	-42	-56	-67
Total Project Costs	144	647	71	127	201

2. Financial Rates of Return and Cost Recovery A simple computer program was developed to generate 30-year cash flow tables and overall financial rates of return for each alternative tree planting model proposed by the states.7/ The same program then determined the financial rates of return to the concerned forest departments based upon varying assumptions regarding government cost recovery policies and procedures. The program was used in an interactive/iterative fashion during design discussions with state officials. The detailed tables are on file with the donor offices and concerned state forest departments and are compiled in the bound volume, "Distribution Modes and Rates of Return for Alternative Social Forestry Models." The results of the analysis and discussions are summarized in Table 15.

The analysis shows healthy financial rates of return for most models, mostly in the 11-35 percent range except for strip plantations in Gujarat and Rajasthan (4-8 percent). These lower returns are associated with high investment costs mainly borne by forest departments and exemption of part of the plantations from harvest for aesthetic, shade and demonstration purposes.

Rates of return for forest departments are lower by varying degrees, about one third for most models in Gujarat and Rajasthan and considerably less in Uttar Pradesh and Himachal Pradesh. In about half of the cases, financial rates of return for the forest departments is zero or negative.

This situation is due to differences regarding state guidance on forest department cost recovery. Generally the departments are more concerned with some measure of cost recovery in nominal terms without too much emphasis on the time value of money. Therefore, the cost and return estimates presented in column 7 of Table 15 are in 1985 prices and are not discounted over the projected cash flow period. That is, the percentage cost recoveries are strictly nominal and actual cost recoveries would be lower, given the long gestation periods involved (e.g. up to 50 or 80 years in the case of Himachal Pradesh). The cost recovery indices, computed in terms of net present value and using a 10 percent discount rate are shown in Column 8 of Table 15.

7/ Costs and returns have been calculated in financial 1985 prices. In cases involving farmers' labor inputs and outputs accruing to rural households, these inputs and outputs have been valued at imputed prices equal to financial wages and prices. This assumes that the farmer has the option to use his labor or the plantation products at home or offer them for sale at market rates.

TABLE 15: RESULTS OF BENEFIT DISTRIBUTION, FINANCIAL RATE OF RETURN AND COST RECOVERY ANALYSIS
(Per Hectare Basis)

State/Model /a	FRR of Model %	FRR of FD %	% of Benefits to			Total Cost to FD in nominal terms (over 30 yrs)	Returns to FD as % of Cost to FD	NPV to FD (at 12% Discount Rate)	Plantation Targets
			Villagers	Panchayat	Forest Dept.	Rs/ha			ha
Column	1	2	3	4	5	6	7	8	9
UTTAR PRADESH									
A. Farm Forestry	58.0	-	100	-	-	-	-	-	201 mill seedlings (134,000 ha equiv)
B. Tree Tenure for Poor and Landless (Beneficiary Managed)									
1A. Roadside Strip Plantation	10.9	0.5	76	-	24	18,941	112	-14,254	900
1B. Railside Strip Plantation	10.0	-2.5	85	-	15	19,387	71	-17,699	310
2. Croup Farm Forestry (Unirrigated block plantations)	23.1	2.4	84	-	16	8,804	186	-6,930	11,000
3. Irrigated Blocks (Arjun)	36.3	negative	100	-	-	15,600	0	-13,036	1,000
C. Plantings on Community Wastelands (Joint Dept.-Panchayat Managed)									
1. Community Woodlots, Rainfed	19.2	2.3	64	18	18	8,804	186	-6,930	14,000
D. Planting on Government Wastelands (Dept.-Managed)									
2A. Roadside Strip Plantations	10.9	3.4	52	-	48	23,941	178	-12,033	600
2B. Railside Strip Plantations	10.0	0.6	70	-	30	24,387	114	-16,801	140
GUJARAT									
A. Agroforestry									
1. Farm Forestry	31.6	-	100	-	-	-	-	-	300 mill seedings (200,000 ha equiv)
2. Private Wasteland Planting by Small and Marginal Farmers	25.9	negative	100	-	-	2,583	0	-2,131	30,500
C. Planting on Community Wastelands									
1. Community Woodlots, Rainfed	20.1	8.8	35	33	32	5,723	301	-1,349	20,000
2. Community Woodlots, Irrigated	34.8	11.8	6	44	49	112,287	145	2,822	5,000
3. Community Tree Fodder Lots	12.5	8.3	18	41	41	3,767	430	-1,069	10,000
D. Planting on Government Wastelands									
1. Rehabilitation of Degraded Areas	15.7	14.3	11	-	89	6,215	590	1,305	30,400
2. Strip Plantations	5.9	-1.0	24	38	38	21,818	85	-11,604	15,000
3. Urban Fuelwood Plantations	17.4	13.0	14	-	86	112,287	157	5,149	2,500

State/Model /a	FRR of Model	FRR of FD	% of Benefits to			Total Cost to FD in nominal terms (over 30 yrs)	Returns to FD as % of Cost to FD	NPV to FD (at 12% Discount Rate)	Plantation Targets
			Villagers	Panchayat	Forest Dept.				
Column	% 1	% 2	% 3	% 4	% 5	Rs/ha 6	7	8	ha 9
RAJASTHAN									
A. Agroforestry									
1. Farm Forestry	23.5	-	100	-	-	-	-	-	120 mill seedlings (80,000 ha equiv)
3. Improved (Grafted Ber) Orchards	99.4	negative	100	-	-	125	0	-112	400,000 plants (4,000 ha equiv)
B. Tree Tenure for Poor and Landless									
2. Household Farm Forestry									
- per ha basis)	18.7	negative	100	-	-	2,276	0)	-2,071	7,500
- per participant basis)	15.0	negative	100	-	-	5,690	0)	-4,181	
C. Planting on Community Wastelands									
1. Community Woodlots	12.8	negative	27	73	-	4,807	0	-4228	5,000
D. Planting on Government Wastelands									
1. Rehabilitation of Degraded Forests	31.4	5.9	17	-	83	3,068	217	-957	20,000
2A Roadside Strip Plantations	6.3	0.8	12	33	55	32,125	109	-11,949	2,500
2B Railside Strip Plantations	3.7	-8.2	23	49	27	28,220	42	-11,587	1,000
2C Canalside Strip Plantations	7.7	4.4	9	19	72	32,125	159	-9,007	300
2D Flood Control and Tank Embankments	23.1	7.5	30	35	35	7,659	196	-969	500
HIMACHAL PRADESH									
A. Agroforestry									
1. Farm Forestry	33.8	-	100%	-	- x	-	-	-	53,000 ha equiv
2. Private Wasteland Plantation Group Farm Forestry	38.9	negative	100%	-	-	2,824	0	-2,483	13,000
B. Tree Tenure									
2. Group Farm Forestry Government Lands	35.3	1.2	96	-	4	4,225	143	-3,548	1,180 ha equiv
C. Community Wastelands									
1. Woodlots Self Help (Panchayat Managed)	35.3	1.2	1	95	4	4,225	70	-3,548	1,000
2. Woodlots (Dept.-Managed)	35.3	1.2	72	-	28	4,225	933	-1,124	40,000
D. Government Wasteland									
1. Rehabilitation of Degraded Areas	22.4	13.6	26	-	74	5,125	1,219	1,216	5,000

/a For complete schematic presentation of models, see Table 4.02, page 20.

3. Marketing A considerable proportion of the agroforestry produce beyond the producers' own immediate requirements will be marketed in the form of sawlogs, poles or fuelwood. Other products like lops and tops, fallen twigs, fodder leaves, grasses, fruit and minor forest products will be largely consumed by the concerned households or sold to the local market on an itinerant basis. Generally speaking, given the shortage of forest products and fuelwood in India and the multi-product nature of most trees, market saturation is not expected to be a problem. In isolated instances,a glut of poles may be realized, but these could always be converted to small timber or fuelwood. Where previous social forestry plantings are reaching maturity, modest marketing assistance for small growers is provided (as in Gujarat), and market information functions are incorporated into the extension function of forest department field staff.

The produce from tree tenure schemes for landless and poor households will belong to beneficiary participants in these schemes and be disposed in a fashion similar to farm forestry produce. In certain cases, the forest departments will auction a portion of the harvest to recover costs. The produce from community-managed wasteland plantations will be distributed more broadly, with free collection of fallen wood and minor forest products by local villagers (including innovative features such as free headloads to harvest laborers employed by the forest department in Gujarat). Panchayats generally prefer to sell their share of produce by local auction (a fairly well established process). However, forest department extension staff will seek innovative arrangements for more direct distribution of part of the produce to local households, the poorer of which are generally unlikely to be able to purchase their fuel and other fodder needs (see Section VI.D. and Annex V.). While promoting such direct distribution, however, there is a need to raise enough revenues from auctions to hold panchayat interest and recover departmental costs.

The same concerns hold for produce from department-managed wasteland plantations. Forest departments generally auction their harvest at rural and urban depots, invariably supplying sawmillers, timber merchants, the packing case industry and others who can afford to purchase their wood needs. Attempts to channel part of this produce to rural households include proposals for 1) free collection of fallen wood, grasses and minor forest products by local households, 2) free headloads to laborers recruited for harvesting, 3) allocation of up to 10 percent of harvest for free local distribution, 4) sales of part of the harvest at concessional rates of 20-80 percent of market price, and 5) providing fuelwood to village schools for use in preparing hot lunches for rural school children. These proposals have been put forward mainly in Gujarat, with variations in the other states.

4. Employment Generation: Project-financed tree planting activities will generate about 100 million days of work for unskilled labor. It is predominantly women who avail of labor opportunities in project nurseries. Women, too, constitute about 50 percent of the work force involved in digging pits and planting. Additionally, the 4,300 small nurseries will provide employment for approximately 9,000 household operators, not counting occasional nursery labor.

Direct incremental employment in the forest departments will be relatively small under the four state subprojects. About 9,600 new jobs will be created in social forestry operations, including 4,822 key positions (mainly field staff, see Table 3) and 4,780 other support and clerical jobs. Incremental employment has been kept to a minimum in the interest of not burdening state budgets particularly after the project period.

5. Recurrent Costs The bound set of project cost tables, "India National Social Forestry Project: Project Cost Tables, Financing Tables and Disbursement Tables," identify the recurrent cost components of the overall project as well as each state subproject. Recurrent costs include those expenditures incurred for staff salaries, staff travel allowances, building rent and maintenance, vehicle operation and maintenance, office-related and other expenditures. Table 16 below summarizes information drawn from the detailed cost tables.

In sum, recurrent costs account for 23 percent of overall project costs. Looking at the state subprojects, these range from a low of 7 percent in Gujarat where incremental staff financed under the project are few in number, to 34 percent in Uttar Pradesh where incremental staff financed under the project will be responsible for implementing the entire state social forestry program as envisioned at the time of appraisal. Recurrent costs account for 73 percent of the proposed budget for the central Social Forestry Support Office. This is reasonable given its predominant service and support orientation.

Roughly speaking, responsibility for financing these recurrent cost will fall equally on the GOI and states on one hand and on the combined donors on the other. Given the emphasis placed on afforestation activities by the government, no problems are anticipated over the mid- or long-term in locating the necessary budget support within the GOI or the states to meet recurrent cost requirements after the close of project activities. To facilitate GOI and state assumption of these recurrent costs, donor assistance for these items will be provided on a declining share basis over the course of the project.

Table 16: RECURRENT COST ANALYSIS

GOI/States[11]	Total Recurrent Cost[8] $000	Total Recurrent Costs as Percent of Total Costs	Percentage of Total Recurrent Cost Financed by AID[9]		IDA[10]
Gujarat Subproject	7,319.2	7	19	28	53
Himachal Pradesh Subproject	10,844.7	23	24	32	44
Rajasthan Subproject	6,699.1	21	25	30	45
Uttar Pradesh Subproject	45,531.6	34	15	27	57
Central Unit Subproject	3,687.0	73	18	28	55
Total Project	74,081.6	23	18	28	54

8/ Recurrent costs include expenditure on incremental staff salaries, staff travel allowances, building rent and maintenance, vehicle operation and maintenance, office-related and miscellaneous expenditures. Also included are provision for physical contingencies and cost escalation.

9/ Figures represent 30 percent of incremental staff salaries only.

10/ Figures represent 30 percent of incremental staff salaries, 62 percent of staff travel allowances, and 37 percent of vehicle operation and maintenance costs.

11/ Figures represent 40 percent of incremental staff salaries, 38 percent of staff travel allowances, 63 percent of vehicle operation and maintenance, 100 percent of building rent and maintenance, as well as 100 percent office expenditure and other miscellaneous costs.

D. Social Soundness Analysis Over the past five years, social forestry has grown significantly in terms of concept, budget and presence in rural India. This expansion has been accompanied by a growing interest in the social ramifications of social forestry and a growing corpus of related papers, analyses, studies and evaluations prepared by social scientists from India and elsewhere. Not surprisingly, the number and quality of these studies correlates closely with the ability to base analysis upon direct empirical experience. This growing body of work provided the background social analyses required for project design. For example, the initial social soundness analyses prepared for the AID-assisted projects in Madhya Pradesh and Maharashtra provide sound basic information regarding the sociocultural context of social forestry. They include general descriptions of the rural economy, social structure, local administrative and governing bodies, and the concerns and roles of rural women as they relate to social forestry activities. Perhaps more importantly, many recent studies based on actual implementation experience provide a wealth of information regarding the sociocultural feasibility, beneficiaries, degree and types of participation, and likely overall impact of social forestry activities generally and project-assisted interventions more specifically. These more recent studies range from a comprehensive evaluation of the Gujarat experience (commissioned by FAO) to a series of case studies in five villages where community woodlots have been established in Madhya Pradesh (commissioned by USAID/New Delhi).12/

Rather than simply restate what has already been said in these secondary sources, the social analysis specifically conducted as part of project design attempted to go a step or two further. Its primary purpose was to concentrate attention on what were perceived as the most critical social concerns confronting social forestry project designers and implementors. These are discussed in detail in Annex V.A. The next step was to ensure that these concerns were integrated into all other project analyses (particularly silvicultural, financial and organizational analyses) and reflected in the project elements themselves. A very helpful tool in this regard was a computer program developed and used over the course of project design. The program integrates assumptions regarding species mixes, yields, harvesting intervals and cycles and methods of harvesting foreseen for each social forestry model proposed by the various states. Then, based upon a set of prices and the proposed modes of product distribution (in-kind collection or distribution,

12/ Mention should also be made of the mid-term evaluation report of the AID-assisted project in Madhya Pradesh, IDA Project Supervision Reports, and other materials prepared by the Ford Foundation, the Center for Science and Environment, India Institute of Management (Ahmedabad), etc.

subsidized site sales, site auctions, depot auctions, etc.) it is possible to estimate the type and amount of product, as well as the share of overall benefits, likely to be captured by village households, panchayats, and the states (in the form of forest department cost recovery). The program and tables were used in an interactive fashion during discussions with state subproject designers and implementors. Tables generated by this program for each social forestry model proposed by the four states are included in a seperate bound set (one of this paper's primary supporting documents) entitled "Distribution Modes and Rates of Return for Alternative Social Forestry Models." The results are summarized in Table 15. In view of its simplicity and usefulness in project design, interactive use of the program is expected to play a role in future project monitoring and evaluation, particular in tracking the flow of benefits, and in redesign over the course of implementation.

The most critical social concern was that the project should incorporate features to help ensure that landless, marginal and small farm households gain access to social forestry programs and secure a measure of project benefits. These benefits are defined primarily as 1) seedlings, information, and (to a certain extent) land required for farm forestry, 2) day labor opportunities, and 3) grass, tree fodder, fuelwood or other forest products produced through community managed woodlots or plantings on wastelands managed more directly by the forest departments. However defined, it is clear that more direct links between benefits and poorer households are needed if equity concerns are to be addressed. Project design includes certain measures that will help ensure that these more direct links will be forged. These are described in Section II.C. above and Annex V.A.

A second concern of the social analysis was to see that project design incorporated specific measures to encourage panchayats and other local groups in assuming increased responsibilities for managing community woodlots. Again please refer to Section II.C. and Annex V.A. for more detailed discussion.

E. Administrative and Institutional Analyses USAID/New Delhi administration is discussed in Section V C. above. Project analyses regarding GOI and state administrative and institutional questions are three in number:

- a general description of state level organizational arrangements;
- an assessment of monitoring and evaluation capabilities and recommendations for their improvement; and
- a concept piece regarding the more direct involvement of private voluntary and non-governmental organizations in social forestry activities.

1. State Level Organization The four participating states will be responsible for implementing the state level subprojects. Within the states, forestry administration is the responsibility of a separate Department of Forests with a Secretary to the state government looking after forestry. The Department is headed by a Chief Conservator of Forests (CCF) or Principal CCF who belongs to the Indian Forest Service (IFS). He is assisted by one CCF and/or Additional CCFs and Conservators of Forests (CFs) for functional support, and for administration of field activities. The Circle or Region is generally the largest administrative unit, and it is in turn divided into Divisions, usually five or six, each under a Divisional Forest Officer (DFO) with the rank of Deputy Conservator of Forests (DCF). This DCF may be either IFS or State Forest Service Officer. The DCFs are assisted by other DCFs (state cadre) or Assistant Conservators of Forests (ACF) in managing the division and implementing development projects. Divisions normally consist of four to six ranges, each under a Range Forest Officer. The Range is further divided into four to six Rounds, each in the charge of a Forester. Foresters are assisted by several Forest Guards, each on a Beat.

The organization of forestry and social forestry varies considerably among states, usually as a result of the amount and distribution of state forest reserves to be found in the states. The organization for states participating in the proposed project is detailed in Annex VI.A. A brief description is given below of organizational arrangements for social forestry in each state.

Uttar Pradesh. A separate line organization for social forestry was set up under the first project, and will continue under this one. Its support functions (extension, research, monitoring and evaluation, training and planning) will be strengthened. As before, a CCF (Chief Conservator of Forests) will take charge of social forestry, under the supervision of the Principal CCF. The 49 districts covered under the project will now be grouped into ten (instead of the previous five) Circles, to facilitate administration. Field operations will now be structured along "development block" lines and staff will be added for better extension and operation of decentralized nurseries.

Rajasthan. As in Uttar Pradesh, a CCF will head up social forestry, under the supervision of a Principal CCF. In support of the CCF, there will be sections for Extension and Communications, Planning, Monitoring and Evaluation, and Woodlot Planning. Since there are almost no natural forests in the project area and most forestry and social forestry operations will be technically similar, the state will maintain the existing organization but will add social forestry staff under each Divisional Forest Officer (DFO). Field operations will be structured along block lines.

Gujarat. The separate line organization for social forestry set up under the first project will continue, with selective strengthening of functional support at headquarters. Responsibility for social forestry lies with a CCF, under the supervision of a Principal CCF. For functional support, there will be three sections covering 1) monitoring and evaluation, 2) research, training and communication, and 3) planning. At field level there will be five social forestry circles, an increase of one from the previous project. Special extension field staff will be added in each division who will focus on farm forestry and wood-saving devices promotion, formulation of agreements with villages, and extension.

Himachal Pradesh. Since a relatively high proportion of the state is already afforested (although degraded in some cases) and since there is already a well-established tradition of individual rights to forest produce, the state will maintain the existing organization but will add social forestry staff under each DFO. Functional support will be strengthened at headquarters. Two CCFs are managing social forestry, the CCF/Planning and Development in charge of general program direction and functional support and the CCF/Territorial looking after all field staff including those added under the project. They both answer directly to the Forest Secretary (there is no PCCF). It is recommended that the project agreement contain a special covenant to the effect that Himachal Pradesh will maintain a single line of command from the Circle Conservator down for field staff and that a Steering Committee headed by the Forest Secretary will meet every quarter to discuss and assign work priorities.

TABLE 17: KEY INCREMENTAL STAFF TO BE ADDED UNDER NSFP

A. State Level Subprojects

	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh
Chief Conservator of Forests		1		
Add'l. Chief Conservator	2		1	1
Conservator of Forests	9	1	2	1
Deputy Conservator of Forests	28	10	14	5
Asst. Conservator of Forests	88	6	9	41
Ranger Forest Officer	359	60	37	84
Deputy Ranger	343	22		79
Forester	1,329	137	22	
Social Forestry Worker (at Guard Level)	1,685	657	78	364
TOTAL	3,843	894	163	575

B. Central Social Forestry Support Office Subproject

	Headquarters
Additional IGF	1
Deputy IGF/M&E	4
Assistant IGF	5
Conservator	1
Deputy Conservator of Forests	1
Assistant Conservator of Forests	3
Sociologist	1
Chief Project Economist	1
Project Economist	1
Deputy Director Statistics	1
TOTAL	19

It is worth noting that some of the earlier concepts of the organization needed for social forestry require modification in light of experience. In many projects staffing arrangements have not been as anticipated. Some reductions in staff targets have been possible. For example, with greater dependence on using the existing agricultural extension services to supplement forest department field workers, fewer staff than supposed earlier are required to provide extension to individual households. Similarly, experience has shown that it is not necessary to set up a separate social forestry organization within the forest department in all states, although this may be the preferred route in some larger states where state forests are limited and there are large numbers of small farmers in intensively cultivated areas. Forest departments are having considerable success in transferring staff to social forestry activities as well as in modifying the traditional forestry administration to include social forestry. As a consequence, the proposed project provides for fewer incremental field staff and gives more emphasis to retraining of existing staff and broader training of new staff.

Some uncertainty remains, however, as to the best overall organization for implementing state social forestry activities. Examples are questions regarding the appropriate degree of separation between social forestry and traditional forestry activities and staff, and whether the most effective administrative division of field activities should be along the same divisional and block lines as other related rural development and agricultural extension organizations. To arrive at a rational arrangement now requires the synthesis of the experience of all states undertaking social forestry programs. While the extent that the center can influence state organization of such activities is somewhat limited, the Ministry of Environment and Forests is expected to review this issue and make appropriate recommendations.

Finally, mobility of field extension staff is important. In some states this has been a problem in the past. It is expected that policies governing these would be revised as necessary to ensure requisite mobility for field staff over the life of the project. This may be included as a special covenant if necessary. Gujarat and Himachal Pradesh have already established satisfactory arrangements, but Uttar Pradesh and Rajasthan may require some attention.

2. Monitoring and Evaluation. Well established systems of record keeping, financial reporting and field inspections have always been a feature of forest department activities in India. While these systems constitute a solid tradition of on-going monitoring, they have not been expanded and adapted to the new objectives and activities encompassed in social forestry. Furthermore, the capability to conduct various types of evaluation studies, particularly those involving farmers and rural institutions, has been largely nonexistent.

Recognition of the crucial need for effective monitoring and evaluation in projects as innovative and large-scale as social forestry led to the incorporation of monitoring and evaluation units in all on-going donor-assisted social forestry projects in India. The primary purpose of these units is to develop systematic methods for collecting and analyzing information useful to project management in increasing the effectiveness of project implementation. They are also intended to measure and evaluate the changes induced by the project to assist in on-going planning and policy formulation.

Operationalizing these units has proven to be more difficult than anticipated. Establishing and filling new positions has always been a time consuming endeavor in the context of most states' administrative processes. A more important constraint than recruiting staff, however, is the unfamiliarity with the demands of monitoring and evaluation and the lack of the relevant social science skills entailed among the forest staff entrusted with the job. This lack of familiarity tends to encourage the rapid turn-over of staff.

For these reasons, the GOI requested World Bank and FAO to provide assistance in developing practical guidelines for a system of monitoring and evaluation which could be used for social forestry projects throughout the country. The result is a draft publication entitled An Operational Guide to the Monitoring and Evaluation of Social Forestry in India based on a series of discussions and seminars with representatives from states with active social forestry programs. The Operational Guide has been distributed to the states for pilot implementation and evaluation and is being followed up by a World Bank/FAO/GOI review mission and a workshop

scheduled for late 1985. USAID/New Delhi will participate in the workshop.

The Operational Guide will serve as the basis for developing each state's monitoring and evaluation program. The Operational Guide provides suggested formats for essential monitoring information. The states are experiencing some difficulty in reconciling these proformas with their own individual reporting formats. Since each state's program components differ in small ways from other states, it is evident that the formats will have to be adapted to individual conditions. Nevertheless, it is important that overall headings remain consistent so that data aggregation by the GOI is both possible and meaningful. It has been recommended that an overall conformity on reporting formats be negotiated at the next workshop in order to allow for national aggregation and to assist the states to confine their data collection to the most relevant questions. As specified in the Operational Guide, the following monitoring tasks are required:

(a) the monitoring of seedling production and distribution through annual nursery reports;

(b) the monitoring of village woodlots through village woodlot records;

(c) the monitoring of strip plantations and rehabilitation of degraded forests through annually updated records;

(d) the monitoring of forestry produce prices through monthly observation in selected markets; and

(e) the production of a quarterly "All India" monitoring report.

Additionally, the Operational Guide has developed detailed questionnaire formats and guidelines for conducting the following evaluation studies:

(a) the on-going evaluation of farm forestry through periodic sample surveys;

(b) the on-going evaluation of village woodlots through periodic sample surveys;

(c) the on-going evaluation of strip plantations and rehabilitation of degraded forests through rapid reconnaissance;

(d) the estimation of standard unit weights through a one-time study; and

(e) other special evaluation studies.

Implementation of these monitoring and evaluation surveys and studies are likely to continue to suffer from a lack of social science skills in the forest departments. Under the project, the forest departments have agreed to establish posts for statisticians and sociologists or economists in the four states. In most cases agriculturalists will also be required as agroforestry increases in importance for both private and departmental tree planting. In addition to filling these posts with competent staff, it will be necessary for the various officers and technical personnel in the monitoring and evaluation units to receive training in questionnaire and survey design, sampling methods, interviewing methods, statistical analysis, data processing and microcomputer use, and qualitative research methods. An outline of these training needs is provided in Annex VI. B. Financial provision for such training has been made under the project.

Increasing the social science competence of monitoring and evaluation units cannot, however, obviate the need for some special evaluation studies to be contracted to outside institutions. In the interests of greater objectivity and enlisting specialized rural research skills not available in the forest departments, it will be important for special studies (i.e. improved stove and crematoria use and efficiency, social dynamics of community woodlot management, management and marketing of tassar silk, etc.) to be conducted by outside agencies, including research institutes, universities, and private firms. Monitoring and evaluation units will coordinate and manage these studies, including the negotiation of the terms of reference and periodic review of progress, in order to insure their relevance, timeliness and balanced presentation.

Improved data processing capability will also be required by each of the states if monitoring and evaluation is to be truly effective. Current hand tabulation methods are tedious and error prone, frequently delaying results and discouraging further analysis. The difficulties currently experienced can be alleviated by (a) carefully distinguishing 100 percent reporting and follow-up data requirements from information which can be collected on a sample basis and (b) installing microcomputer facilities and customized commercial software for data entry, storage, retrieval and analysis. As funds for the purchase of microcomputer systems have been included in each state's subproject, it is crucial that these systems be program, disk, and data-file compatible in order to avoid wasted duplication and allow for national level aggregation.

4. Private Voluntary and Other Non-Governmental Organizations

The Gandhian and similar traditions have given India a rich heritage and assortment of private voluntary organizations (PVOs). Some of these continue basic village-level work, concentrating on handlooms, sanitation, literacy or other primary needs of poor people. Others have moved into new issues, such as village

organization for social forestry or distribution of irrigation benefits. A few have evolved into high-tech organizations. Bharatiya Agro Industries Foundation (BAIF), for example, evolved from a traditional Gandhian village-level organization near Pune into a science-based rural development society that operates a major artificial insemination program in several states to improve livestock for dairy and power, a vaccine plant that ships animal health products throughout the tropical world, growing research and extension programs in agroforestry, and action programs in small-scale water development and wasteland rehabilitation.

Typically, groups like BAIF evolve from PVOs, with their stress on people giving services for little or no compensation, to more modern not-for-profit organizations that pay competitive salaries and offer career opportunities. With this evolution comes more concern with managerial and social skills and with long-term financial stability. In the process their ability to take on projects of a scale useful to governmental agencies in implementing social forestry programs also develops.

The roles that PVOs and the broader array of not-for-profit organizations (broadly termed NGOs) can play include:

(a) village-level organization of people to grow seedlings, plant and protect trees, harvest and distribute produce;

(b) cooperatives at primary production levels and various forward marketing and processing stages to increase value added and distribute it to primary producers;

(c) intermediaries to provide expertise and training in various technical, managerial, and social skills;

(d) intermediaries to facilitate and advocate the interests of villagers and their organizations with public agency officials and the legal system; and

(e) monitoring and/or evaluation of social forestry programs especially their equity concerns.

The GOI and most state forest departments are receptive in principle to increased use of PVOs and NGOs. However, translating this into specific actions has been difficult. Generally, when forest department field staff encounter PVOs and NGOs already at work in villages where social forestry operations are anticipated, the organizations usually facilitate the mobilization of people to grow seedlings, plant and protect trees. Also, in some states the departments have looked to certain selected NGOs to provide assistance on specialized technical matters. For example, the department in Uttar Pradesh has contracted with one such group for a

special study of the constraints to implementing social forestry activities in the poorer eastern districts of the state and is looking to another to assist in designing and disseminating improved stoves. Consequently, funds are provided under the project which can be tapped by the departments to enlist the assistance of a small number of NGOs/PVOs in the capacity of technical resource institutions. Although the departments may initially be reluctant, it is also expected that these funds will be used to permit NGOs/PVOs to play a larger role in certain aspects of the project through undertaking special evaluative studies (e.g. stove efficiencies, community woodlot case studies, etc.).

Over the past years there has been much discussion regarding the possibility of increased donor support for NGOs and PVOs who are willing to undertake direct field implementation of social forestry activities. What has emerged is the recognition of the need to locate or develop some form of intermediary agency capable of channeling donor funds to interested organizations and assisting the organizations in developing or acquiring the necessary technical skills.

The Prime Minister announced on January 5 his intention to establish a National Wastelands Development Board (NWDB). More recently, steps have been taken to constitute the NWDB and clarify its responsibilities. It is possible that the Board may be able to serve as such an intermediary agency capable of implementing an expanded NGO and PVO component. Given this, as well as the impression that the NWDB could play a significant role in meeting the objective and purposes of this project, USAID/New Delhi will closely follow the Board's progress over the next several months. Pending a better definition of the Board's responsibilities and authority, USAID/New Delhi would be interested in responding to a GOI request for AID to support the Board and its activities. This could take the form of an amendment of the project sometime during FY 86 or FY 87.

F. Environmental Analysis

The Initial Environmental Examination (IEE) submitted with the Project Identification Document recommended a Negative Determination.

PID Approval Cable: Mission Responses to
Issues and Questions

05 APR 85
FM SECSTATE WASHDC
TO AMEMBASSY NEW DELHI
UNCLAS STATE 103108

SUBJECT: NATIONAL SOCIAL FORESTRY PID REVIEW

REF: A) BLOOM/NACHTRIEB TELCON DATED 3/18/85
B) NEW DELHI 07510

The Project Committee met with World Bank representatives, LA Bureau staff with experience in program/sector lending and Mission consultant Tom Arndt, on March 20, 1985. Smaller, more formal APAC meeting was held March 29, 1985. AA/ASIA approved PID. The following comments are provided as guidance for PP design.

1. Sector goals: The PID describes weaknesses in the social forestry sector in policy analysis, institutional development and technology transfer. The PP should show how these three gaps will be dealt with by the project.

> Please refer to item 5 below as well as Sections I and II of the PP. Technology transfer will be dealt with primarily under the existing Agricultural Research Project and the proposed Forestry Research, Education and Training Project. The link between National Social Forestry Project and these two projects is described in Section I.D. of the PP.

The PID states clearly that the project is aimed at helping small farmers and landless households. The APAC strongly endorsed this orientation. PP should address both policy and institutional constraints to achieving this goal and how the project will address these obstacles.

> Please refer to Sections I. and II.C. of the PP as well as the Social Soundness Analysis given in Annex V.

3. The experience under past projects in terms of benefits to small farmers and the landless should be thoroughly discussed.

Please refer to Sections I. and II.C. of the PP as well as Annex V.

4. Specific intervention models should be analyzed in terms of their likely social impacts.

Analytical procedures used are summarized in Sections VI.C.2 and VI.D. and discussed in detail in Annex V. Detailed tabular analysis of the flow of benefits from each model proposed by each state may be found in a set of bound tables, Distribution, Modes and Rates of Return for Alternative Social Forestry Models.

5. The PP should define the policy agenda to be taken up both at the Central and state levels. The presentation should be by state, given the different levels of experience and development in social forestry.

There are a wide variety of social forestry matters presently governed by existing policies or operating procedures at the state and Central levels. These concern such matters as the ability of social forestry field extensionists to take advantage of motorcycle loan programs (to help ensure their field mobility), the number of administrative approvals required before a tree can be felled on private land, the ability to provide funds directly to village level panchayats for plantation management and responsibilities, recruiting procedures which may preclude the hiring of women as forest extensionists, the appropriate mix of state budget support for social forestry, traditional forestry and wildlife programs at the state level, seedling price policies, etc. The intention of USAID and the Bank is to help the GOI and the states identify specific policies which constrain the successful achievement of social forestry objectives and to develop reforms and modifications. It would not, however, be appropriate for the donors at this early stage unilaterally to identify specific policies by state which need change or to define the changes we feel are necessary. The more fruitful and appropriate long term course of action is to build the capability within the states and the Central to

take on this critical function themselves. The project will develop that capability primarily with the institution of project monitoring and evaluation capabilities within the states, the GOI and USAID/New Delhi to provide the input needed to identify and justify changes in existing policies.

6. The PP should set forth procedures for monitoring and reporting results of policy dialogue, institutional development and technology transfer.

A primary function of the central unit will be precisely to monitor and facilitate the flow of information regarding changes in policy, strengthening of institutions and development and adaptation of new technologies in social forestry throughout the participating states. These new developments will be systematically reported to the donors during the twice annual supervision missions conducted jointly by the World Bank and AID. Provided the supervision missions can avoid spending an undue amount of time discussing micro level outputs, the missions will concentrate primarily on monitoring and reporting at this higher level of concern. That is, rather than count the hectares planted and buildings completed, they will interact with counterparts on policy constraints and the development of alternative policy formulation.

7. A. Project versus program or sector loan: based on the proposal in PID and discussion per ref telcon, the project committee considered whether some non-project or sector mode of funding might be appropriate for this activity. The outline of the activities as contained in the PID, and amplified by World Bank staff who attended the meeting, would not appear to meet the criteria for non-project (or program) assistance as stated in Handbook 4. In brief, this mode of assistance is designed to address balance of payment problems, budgetary deficiencies and/or a critical shortage of external resources. Thus the committee focused on whether a sector loan/grant (which is considered to be project assistance) would be an appropriate analytic framework for the subject project. The agency history in this area is not extensive, and much of it goes way back to the early Latin America and Africa sector loans and grants. Committee members tapped into these and more recent projects to discuss what common elements would be contained in a sector approach. The major themes that appear in this approach are working at broad sectoral level problems or constraints and seeking policy changes to meet these constraints rather than discrete outputs. The

targets or outputs which the World Bank described in our meeting, have in their appraisal report as principal project objectives, and to a substantial extent are reflected in USAID PID would tend to focus the project away from the sectoral approach. Since we understand that AID's participation is essentially the same as the Bank's (and that our disbursements would be triggered by Bank disbursements per para 6.14 of reftel), it appeared to the committee to be more appropriate for traditional project funding. APAC is in sympathy with the Mission's very legitimate concern over limited ability to monitor outputs and, more importantly, desire to position AID to conduct policy dialogue against higher order objectives. The issue was posed during recent CDSS reviews and merits full Asia Bureau attention. ASIA/PD is working to locate potentially useful models from other areas (e.g., Ecuador's Social Forestry Project and Sri Lanka's Mahaweli Project). Copies of the PPs for these projects have been pouched to New Delhi and Arndt has handcarried others. In addition, we plan to provide special assistance to Mission as per discussions already underway with ASIA/PD and GC/ASIA for TDY in late summer-early fall, 1985. Results of this effort will be vetted through ASIA - AID/W channels, either as separate proposals or as part of project designs.

B. Monitoring and evaluation: As indicated above, we share with USAID concern re monitoring-management burdens, particularly in view of added complexities of lack of trained Indian Government personnel and possible need for assuming some responsibility for IBRD-financed elements. To degree a justified design approach can lessen output focus on micro-elements (e.g. hectares planted), the less onerous the monitoring burden would appear to be. In any event, we suggest that use of consultants or contractors, Indian or U.S., could assist in monitoring and implementation of project. One approach APAC would like to see considered as part of effort to monitor and assess project impact would be to seek agreement with GOI to select about 40 (10 per state) panchayats for intensive, continuous data collection and analysis over the life of the project. This sample would reflect a variety of environmental, social and economic conditions. The progress of each selected panchayat in implementing a Social Forestry program should be monitored each year. The Mission sponsored case studies in M.P. suggest the importance of this approach in determining social and economic impact of government forestry programs. The work should be an input to the central monitoring and evaluation cell of the central department of forests.

With respect to the discussion on project versus program or sector lending in paragraph 7.A and the discussion on monitoring and evaluation in paragraph 7.B. above, USAID's intent in raising the possibility of program or sector lending in the

first instance was precisely because of our concern that we not get bogged down with monitoring of micro outputs, as handle on the micro outputs as Bureau aptly put it in para 7.B. Rather, we wish to maintain project focus on the policy institutional the technological concerns that frame the fundamental objectives of the project. Doing so, however, requires, in our view, explicit relief from traditional AID requirements to review and approve individual transactions, procurement, plans and specifications and the like found in Handbooks 3, 11 and 14. Our concerns are twofold. First, we simply do not have the staff, either direct hire or, realistically speaking, through the local contract route, to have a handle on the micro outputs. Secondly, and more importantly, we genuinely believe concerns for such outputs would be misdirected and would divert both our and the host country's concerns away from the more fundamental issues. It is not important to us whether this activity is labeled project, program, sector or something else. What is important is that we not be taken to task for failing to count the trees, inspect each hectare planted, approve all barbed wire and plastic bag purchases and ensure that plumbing fixtures and other details of buildings constructed are in place and fully operational. With respect to the Bureau suggestion that we identify 40 panchayats for intensive monitoring, it may be an effective evaluation device to examine achievement of higher order objectives. It is not, however, the answer to the monitoring requirements imposed by Handbooks 3, 11 and 14 on traditional AID projects. The idea will be pursued over the course of implementation with our GOI and state level counterparts. With respect to the suggestion that monitoring capability be contracted for, this is simply not realistic. In order to do the traditional job adequately, the Mission would have to hire perhaps 1,000 individuals to conduct field monitoring. There is no way this number of people could be sufficiently trained, oriented, supervised and monitored for us to be confident of the quality or accuracy of their field findings. Contract monitoring is at best a way to augment mission capabilities on the margin, not a device to take on the bulk of the responsibility. Therefore, our intention under the project is to build the monitoring and reporting capacities of the

state forest departments themselves. The capability of the forest departments to count trees, check civil construction, etc. will always exceed the capacity of AID to do so and at a much lower cost and with a much higher degree of accuracy. Moreover, it is more in the interest of the host country project authorities to address such concerns than it is ours. Given the fivefold increase in social forestry activities now being considered by the Governent of India, it is imperative that state level capacities to plant the trees and to monitor the progress of their investment be built through this project.

8. We must also be absolutely clear with the World Bank as to priorities for this project. The PP and our agreements with the Bank should be framed to avoid potential problems, if our focus on equity and experimentation at some point slows disbursement of our funds and or the Bank's.

There is, of course, no perfect agreement between any two organizations or, for that matter, two human beings. However, we are fully satisfied with the very positive working relationship that has been established with the World Bank during the joint appraisal mission, and we are confident that this relationship will continue. Disagreements will inevitably arise. The important thing, however, is that we be in a position with the Bank to work them out cordially and productively. USAID has been advised that the Bank intends to retain an expatriate forester on the rolls of its New Delhi office who will bear principal responsibility for the project on the Bank side and who will be available to interact on a daily basis with USAID and host country project officials. The fundamental objectives of all these parties are the same for this project, and we are confident that minor variations can be accommodated or resolved.

9. The PP should make clear expectations with regard to India's ability to expand social forestry activities on the scale proposed from a personnel/management standpoint.

Detailed descriptions of organization and training arrangements proposed for each state were prepared as part of project design (see Annex VI.A.). Additionally, project personnel requirements are

reflected in the cost tables developed for each state (see National Social Forestry Project Detailed Cost, Financing and Disbursement Tables). In the course of preparing these analyses the abilities of the departments to meet these expectations was thoroughly examined. Briefly, although it will not be easy, both the Bank and USAID feel the plans of the states and the Center to increase and train their social forestry staff are realistic, achievable and sufficient to fulfill project objectives. It bears noting that the total number of these staff will be reduced by improving the linkage between the forest department extensionists and agricultural extension service T&V field staff. Additional management responsibilities are being devolved on private individuals, and other means of externalizing the personnel functions and cost of social forestry programs will be developed over the course of the project.

10. The paper should also provide a detailed plan, including an analysis of manpower needed, for AID implementation support/monitoring, including responsibility for World Bank - financed elements.

Refer to Section V. USAID's plan to hire two professional FSN foresters and to acquire the professional services of three long-term and several short-term expatriates is, in our view, sufficient to track the policy, institutional and technological objectives of the projects. To reiterate, however, if the Mission will be expected to review and approve contracts and the quality and quantity of micro outputs, this additional staff will be wholly inadequate.

11. The PP should also include a data collection, monitoring and evaluation plan. Prior to preparation of this plan the Mission should review Asia Bureau's guidelines for data collection, monitoring and evaluation.

Please refer to Sections II.2., VI,E.2. and Annex VI.B. The data collection, monitoring and evaluation plan for this project is essentially that described in An Operational Guide for Monitoring and Evaluation of Social Forestry Projects in India developed by the Government of India, states, IBRD, FAO and other concerned donors over the past two and

a half years. The guide provides a comprehensive approach specifically designed for social forestry and is consonant with the guidelines developed for such project activities by the Asia Bureau.

12. Reftel suggests AID will rely upon same data used by IBRD (i.e. GOI reports) to trigger disbursements, and that our disbursements will be conditional on those on the Bank. What plan does the Mission have to monitor on behalf of Bank and itself verification of GOI reports?

The USAID FSN and expatriate staff will routinely and regularly be in the field in all four states to inspect micro level outputs on a spot basis as well as to assess the higher order objectives of the project. As was done with the Gujarat Medium Irrigation Project, these inspections will cover the full range of project activities -- not just those financed by AID, but also those financed by the World Bank as well as those supported by the host country itself. Once again, however, these inspections will not be comprehensive but rather will only be on a spot check basis. Any findings will be reported both to the Bank and to the host country through the routine distribution of trip reports. It should be noted that almost all Bank projects have always focused on higher orders of objectives. Virtually no micro outputs are monitored by the Bank staff on any of its projects, other than whatever spot inspections are undertaken during supervision missions. In the case of the Gujarat Medium Irrigation Project, USAID monitoring was the major source of micro level data on the project, both for the Bank and for AID.

13. Application of lessons learned: Both the PID and World Bank reps indicate uneven success rate with types of approaches proposed for financing, e.g., community forestry and wasteland plantations. Care must be taken to identify problems, and insure that these are not repeated. The PP should describe lessons learned under the various approaches, and how the project design takes them into account.

Sections I and II describe how project design is based upon lessons drawn from previous and on going social forestry activities throughout India, including those assisted by AID in Madhya Pradesh and Maharashtra. Among the lessons learned are the following. First, farm forestry and seedling dis-

tribution has proven to be the most popular, least expensive and most effective of all the social forestry models developed to date. It will account for 70 percent of this project's activities. Secondly, special assistance will be brought to bear on operationalizing community management theories and techniques on village woodlots. We have learned that much must be done to adapt this discipline to field use. Thirdly, USAID grant assistance planned for research, monitoring, program management and technical support activities under previous social forestry projects has been largely untapped due to bureaucratic bottlenecks. Therefore, an innovation described in Section V.C. has been introduced through which AID can provide such assistance on an in-kind basis. Fourthly, given the importance for policy formulation and operationalization of the budget design process in India, it is intended that AID and World Bank representatives will hold annual consultations on budget formulation, project expenses and fund allocations with concerned state level authorities.

14. It was noted that social forestry in Gujarat and Uttar Pradesh, under World Bank aegis, has been relatively successful compared to other areas at least in planting trees. Their projects and our knowledge have not been evaluated on the basis of equity considerations or improved policy changes. PP should contain rationale for supporting additional activities in these two states.

As described in Sections I and II, while certain activities such as farm forestry have proceeded well in Uttar Pradesh and Gujarat, others, such as panchayat woodlots, are facing difficulty in all states, including U.P. and Gujarat. Further, five years of assistance has not proven to be enough to consolidate essential institutional and policy arrangements necessary to ensure the longer term viability of state social forestry programs. Finally, in the two states equity concerns, as noted in the PID cable, have taken a back seat to the simple need to grow trees. All three of these points are directly addressed by AID's objectives for the social forestry sector. USAID's relatively meager resources for project monitoring, implementation and evaluation far exceed those of the Bank's New Delhi office. We believe, therefore, that USAID can and should play a significant role in improving the social forestry programs merely through the day to day interaction the USAID staff is capable of undertaking with state project

authorities. We recognize that initially it may be difficult for USAID field staff to establish their interest and authority in these two states. However, this will be overcome in the course of implementation provided the staff are able to establish their own credentials and be perceived as assets in project implementation capable of supporting officials and activities in these two states as well as in Rajasthan and Himachal Pradesh.

15. Project should provide assistance to those states where situations indicate further assistance is required and AID input is particularly important. Also, not clear from PID precisely what model(s) have been developed under social forestry activities to date (ours and other donors') which would be tested and/or expanded under the NSF project.

Summary descriptions of the models are given in Section II.C.1. Additional details are provided in the individual state subproject preparation reports.

16. PP should also describe what policy/technical problems (e.g., improved extension, and intra-state technology transfer) will be addressed under this project. Description should be by state, as we assume each one is at different level of experience/development in social forestry.

Regarding policy problems, please refer to discussion under item 5 above. A general discussion of technical problems are found in Sections I through III of the PP as well as the accompanying annexes and individual state subproject preparation reports.

17. Private Sector Approach: Page 5 of the PID also states that state forest departments are discovering that private sources (e.g., state local organizations and community schools) can produce more seedlings at a lower cost than the state forestry departments. PP should provide for exploration of increased involvement of private sector, including PVO's, in forestry initiatives in both production and utilization.

The biggest involvement of the private sector in this project is reflected in the role played by private farm households. They will plant and be responsible for 80 percent of the trees under the farm forestry component. They will plant, manage,

harvest and sell or use the products much as they would any other private farm enterprise. In all four states, the development of small nurseries will involve contracting with private households to manage these nurseries under forest department supervision. Regarding increased involvement of private voluntary organizations and non governmental organizations, over the past five years the forest departments have initiated a number of social forest activities in villages where NGOs and PVOs have been working. The departments have found that these groups can greatly facilitate project implementation at the village level. In this regard there are small success stories to be found in all states where social forestry activities have been taken up on a broader scale. The forest departments are generally willing to tap some of the expertise which NGOs and PVOs possess, and in some states they have also played a modest role in the diffusion of improved species, project monitoring, etc. Funds will be provided under the project which can be used by the state social forestry departments to avail of this outside source of expertise. However, it has proven difficult for departments to provide direct budget support to NGOs and PVOs to pursue social forestry activities on their own. A major constraint in this regard is government regulations and forest department concerns about the accountability of state funds. A similar constraint stems from the Government of India's hesitancy to use bilateral and multilateral funds for NGOs and PVOs. The procedures and regulations governing the use of such funds greatly complicate the GOI's ability to engage in and disengage from contractual relationships. The sensitivity also arises from the fact that many NGOs and PVOs have political origins and motivations. During the course of project design, the Government of India announced its intention to establish a National Wasteland Development Board. It appears that one of the functions of this board will be to facilitate the involvement of parties other than the state departments in field implementation of social forestry activities. This is essential if the proposed fivefold increase in planting is to be realized. The National Wasteland Development Board will look at ways to involve

community schools, private foundations, the PVOs and NGOs more directly in social forestry activities. If, during project implementation, it transpires that support to the board would further project objectives, USAID will be prepared to discuss a suitable amendment to the project with the GOI.

18. Linkage with small industry development and rural energy systems (e.g. charcoal production) may offer opportunities for improved economic and employment impact.

The focus of National Social Forestry will continue to be on biomass and on harnessing private and community resources in its production and distribution. Although small industry development and exploration of rural energy systems is important, USAID believes that it is more appropriately the subject of a separate project.

19. Economic analysis: In view of move to associate social forestry with increased rural income, and mixed success with some proposed approaches, e.g., local panchayat-community management, PP economic analysis should provide clear rationale for levels of support related to expected economic returns.

A summary of the project economic analysis is given in Section VI.C.1. of the Project Paper. However, the economic analysis basically evaluated the project in terms of state subprojects and in terms of the overall project itself. The individual alternative social forestry models included in each state subproject were primarily analyzed in financial rather than economic terms. The results of this model-by-model financial analysis are also given in Section VI.C.2. and 5. The detailed analysis itself is to be found in the form of a set of bound tables entitled Distribution Modes and Rates of Return for Alternative Social Forestry Models on file with the state forest departments and donor offices. In sum, farm forestry is clearly the most cost effective way of getting trees into the ground and of involving private individuals and households. However, it benefits primarily those individuals who hold land. Therefore, although the rate of return for community wasteland programs is lower than for farm forestry, we believe that benefit to landless households will be provided

primarily through the higher cost tree tenure or community woodlot components. The rate of return from these components will be lower than for farm forestry. Nevertheless, they are included in the project because they hold potential for dealing with equity considerations held important by the GOI, the states, AID and IBRD.

20. PP should describe the recurrent cost requirements of the program overall and by state along with approaches to be tried for recovering at least a portion of government outlay.

Detailed state cost tables in the supporting document, National Social Forestry Project Detailed Cost, Financing and Disbursement Tables, identify specifically the recurrent cost recovery requirements of the state's and the GOI subprojects. Alternative procedures for recovering portions of government outlays were discussed over the course of project design. Basically we found that in all states policy for cost recovery for social forestry do not exist. Some models make no provision for cost recovery and others reflect a strong inclination of the forest departments generally to capture a significant portion of their costs for state coffers. Please see Sections VI.C.2 and 5 which summarize the design team's analysis of recurrent cost and cost recovery. Generally, cost recovery figures are one of the policy areas for greater elaboration and review over project implementation. Please see item 5 above. In this regard, one issue which has thoroughly discussed over the course of design relates to charging at least a nominal price for seedlings distributed for commercial production purposes. It is proposed that a maximum of 100 seedlings be given without cost to individual applicants. Beyond that number, charges will be as- sessed sufficient to cover all costs incurred by private sector participants (e.g. nursery owners and managers) and a reasonable (and ideally growing over time) portion of government costs.

21. Technical assistance: Past social forestry projects in India have not been successful in moving TA and operations research funds. PP should contain a TA and training plan approved in principle by the GOI with a discussions of how these funds will be moved.

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USAID's experience is that project training activities in Madhya Pradesh and Maharashtra have gone ahead more or less as planned. However, technical assistance funds have not been utilized because of difficulties faced in either pursuing host country contracting within the state or in getting Government of India clearance to proceed directly on behalf of the state. Based on this experience, the National Social Forestry Project will provide essential technical assistance support on an in-kind basis. This mechanism is described in Section V.C.

22. According to the PID, the proposed FY 86 Forestry Research, Education and Training (FRET) project will provide much of the technical input for the NSF project. The PP should flesh out plans for improving technology transfer in more specific terms than attributing the activity to FRET.

Refer to Section I.D. of the Project Paper.

23. Although FRET is still under design, the NSF PP should, to the extent possible, explain the proposed working linkages between the two.

Refer to Section I.D. of the Project Paper.

24. This should take into consideration a substantial time lag, perhaps up to 5 years, before FRET has technology to transfer. Where will technology come from in the interim? Consideration should also be given to use of the Asia and S and T Bureaus regional Forestry/ Fuelwood Research and Development Project to provide assistance in developing technical and applied research capability in the participating states as well as strengthening monitoring and evaluation functions.

Although the Asia Bureau and S&T projects are still in the planning nascent start-up stage, we expect that USAID can avail of their services provided the in-kind technical assistance mechanism described in Secton V.C. of the PP is approved and the Bureau projects prove responsive to Indian and USAID needs.

25. Role and authority of central unit: Since forestry in India is a state topic, the PP should discuss how a strengthened central planning/policy unit will be empowered to work effectively with all states.

Social forestry in India in fact is not a state topic but rather a "concurrent" topic which means that the state and Central government share certain responsibilities with the states, the two best known being the training of IFS officers and state forestry officers through the FRI&C system and the responsibility for forestry research. The Center, in fact, holds a number of other responsibilities as well including monitoring of foreign assisted and GOI centrally sponsored social forestry projects, clearances for technical consultants and international participants, etc. It bears noting that in January of this year forestry was upgraded from a mere division within the Central Ministry of Agriculture to a Ministry of Environment and Forestry, with its own Department of Forests and Wildlife headed by a Secretary. The Inspector General of Forests himself was upgraded to the position of Special Secretary. The concurrent development of a National Wasteland Development Board was described in item 17 above. All these changes indicate that a significant role is seen for the Central Government in shaping India's forestry program in the future. While primary design and implementation responsibility will remain with the state, there is no doubt that the Government of India will increase its capacity to assist states in carrying out this and corollary responsibilities such as monitoring and evaluation.

26. What does lack of GOI budget to support new central unit (as shown on Table II in PID) imply? Does the GOI really prefer to have a government entity wholly financed by foreign donors? PP should justify A.I.D. budget support and show phased plan for GOI assumptions of costs of operating the central unit by the end of the project.

The design of the Central Social Forestry Support Office has changed substantially over the course of project design, and the tentative tables included in the PID are no longer indicative. Please refer to Sections II.C.3 and the budget tables in Section III for a more current description of the Support Office and its financing.

27. PID/small and landless farmers: PP should describe plans for securing active GOI/Staff commitment to equitable participation in social forestry benefits for women, small and marginal farmers and landless households (which are most frequently women-headed) in social forestry activities.

The Government of India and the concerned states as well as USAID are all actively concerned with equity considerations i.e. involvement of small and marginal farmers in social forestry projects. Given the best information available to date (Sardar Patel Institute evaluation of Gujarat Social Forestry activities), it appears that "marginal, small and medium farmers" account for nearly three-fourths of the seedlings lifted for farm forestry. Furthermore, although systematic and comprehensive data are not available to support the observation, it appears that a large portion of the seedlings provided for farm forestry are taken by women. Although there is certainly room for improvement, it is clear that these groups are availing of social forestry projects. Project activities designed to further facilitate the flow of benefits to these groups are reflected in the design of the nursery activities, expanded extension activities, development of the tree tenure components specifically for landless households, and a commitment to improve the management of community and government wasteland plantations. For greater detail refer to Section II.C. of the PP and Annex V.

28. Also, as indicated in the recent Madhya Pradesh Social Forestry project evaluation and in the FY 86 CDSS WID statement, since women are important beneficiaries of social forestry, the PP should indicate: How landless and women will be included from the outset as specific project participants and direct as well as indirect beneficiaries.

Refer to Section II.C. of the PP as well as Annex V.

29. The precise efforts to be undertaken to find, train and engage female extension workers and other staff, including setting targets (or quotas, if necessary).

In Gujarat and Himachal Pradesh the intention is that women will be recruited as forest guards and trained to work with village women in the design and operation of village projects. Although no targets are set for women extensionists in the Madhya Pradesh Social Forestry Project, as a result of USAID discussions with project officials, approximtely 50 women extensionists have been added to the state roles. In Maharashtra, a number of women are being hired and successfully utilized as village motivators. Over the life of the project USAID will work with state officials in exploring opportunities for additional hiring and training of women extensionists in Madhya Pradesh. However, setting targets or quotas for employment of women, scheduled castes or scheduled tribes is a politically extremely sensitive issue throughout India and one unlikely to achieve project objectives.

30. Employment goals for landless households in forestry activities.

Refer to Sections II.C. and VI.4 of the PP.

31. Whether female-biased training modules and landless-oriented modules will be developed and introduced at the village level.

This is not presently planned although it will be considered during the course of project implementation.

32. How the project implementation will focus upon and ennance landless and female participation in such areas as nursery management, farm forestry, and "tree tenure" systems.

See Items 28 through 31 above.

33. The type of baseline and monitoring data which will be disaggregated by sex; income or income proxy; land tenure; ethnic/caste/other social groups; both for participation and for benefit incidence.

See Item 11 above.

34. Land Use Policy: PP should discuss issues for conversion of agricultural lands to forestry which has been a special concern in Gujarat.....

The PP itself says nothing regarding this issue. However, funds have been included in all state subprojects and in the GOI Central Social Forestry Support Office subproject for special policy studies regarding the conversion of agricultural lands, eucalyptus mono cropping, and other issues relevant to the state. At this time our best available data indicates that the conversion of agricultural lands to forestry in Gujarat accounts for a very small percentage of trees planted over the last five years. In fact, the bulk of the seedlings are being used for strip planting and planting near households and other areas unsuited for crops. At any rate, the area planted under the social forestry project is minor in comparison to the good agricultural land in Gujarat currently under tobacco.

35. ....And relationship of project to new Wasteland Development Board initiative of the Prime Minister.

See Item 17 above and Section VI.E.3 of the PP.

36. Local currency support: PP should analyze further chronic problems of inadequate budget provision by participating state governments and diversion of budgeted funds to other activities and how this will be addressed during implementation.

The ability to provide adequate budget support for social forestry varies from one state to the next. As part of routine project monitoring, AID and Bank staff will meet annually with state and center officials to discuss project expenditures and future budget provisions for project activities in each of the participating states.

37. There was no mention in the PID of the potential for involvement of Gray amendment individuals/organizations or small businesses in general. Under the early alert system, full consideration must be given during the project design stage to the use of such individuals and organizations; and, a discussion of potential involvement and the steps to be taken to further their involvement should be included in the PID and PP. The PP must, therefore, contain full discussion of how the Mission will assure Gray Amendment individuals and organizations as well as small businesses in general are given maximum consideration to participate in project implementation. This should include description of steps the Mission will take to pursue such involvement (set-aside, subcontract, etc.).

Contracting for expatriate technical assistance funded under the project will be done through direct AID contracting procedures. Thus, standard Federal Acquisition Regulations and AID Gray Amendment procedures will be followed as a matter of routine for all such contracting. Gray Amendment firms will be given full opportunity to compete and, where possible, set-asides will be provided for such firms and individuals. Any U.S. firm proposing provision of goods or services under this project will be required, under standard AID contracting procedures, to prepare a subcontracting plan for involvement of Gray Amendment firms.

LOGICAL FRAMEWORK MATRIX

Project Title: National Social Forestry Project

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
PROGRAM OR SECTOR GOAL: THE BROADER OBJECTIVE TO WHICH CONTRIBUTES: (A-1)	MEASURES OF GOAL ACHIEVEMENT (A-2)	(A-3)	ASSUMPTIONS FOR ACHIEVING GOAL TARGETS (A-5)
Raise incomes and employment among the rural poor by increasing production of small timber, fuelwood, fodder and forest products. Arrest erosion of natural environment caused by deforestation.	a) Decrease in real costs per unit of small timber, fuelwood, fodder and other forest products collected by target households for their own use. b) Increases in cash incomes of target households through production and sales of forest products. c) Increase in assets held by target households in terms of standing trees.	a) Household time utilization and income studies b) Market reports	a) That other development policies and activities of the GOI relevant to this area (e.g. family planning, livestock improvement, etc.) are effectively carried out.

Annex I.B.

PPOJECT PURPOSE (B-1)	CONDITIONS THAT WILL INDICATE PURPOSE HAS BEEN ACHIEVED-END OF PROJECT STATUS (B-2)	(B-3)	ASSUMPTIONS FOR ACHIEVING PURPOSE: (B-4)
a) Develop effective government and private sector capacities in the states of Uttar Pradesh, Rajasthan, Gujarat and Himachal Pradesh for carrying out alternative social forestry programs; and	a) Increase in the number of medium, small, and marginal farm households including tree culture in their agricultural activities b) Increase in the number of landless households holding "tree tenure" rights on government wastelands and/ or planting trees around households. c) Increase in the number of panchayats effectively protecting and distributing benefits from community plantations d) Usufruct benefits from rehabilitated government wastelands and degraded forests increased as a result of "social fencing" measures adopted by local villages	a) State monitoring and evaluation reports b) Periodic site visits by AID/ New Delhi staff c) Annual supervisions d) Project evaluations	a) That the returns (cash and in-kind) on growing trees as crops continue to offer an adequate return to households taking up social forestry activities. b) That special studies succeed in influencing key policy makers c) That there is continuity over the life of the project of state and central staff trained in monitoring and evaluation techniques. c) That monitoring and evaluation findings are treated seriously by social forestry project designers and management.
b) help build the capabilities of the four states and the Central government to evaluate the effectiveness of their different social forestry activities and develop a more rational mix of policies, government and private sector initiatives to meet India's long-term forestry needs on a sustained basis.	e) State forest departments modifying on-going social forestry models and implementation procedures based on field experience and monitoring and evaluation findings. f) Development and Distribution of improved guidelines/design criteria for subsequent (Eighth Plan) social forestry programs.		

PROJECT OUTPUTS (C-1)	MAGNITUDE OF OUTPUTS: (C-2) (C-3)	ASSUMPTIONS FOR ACHIEVING OUTPUTS: (C-4)
I. Alternative Tree Production Programs Testing and expansion of field level interventions	4 states	
a) Small nurseries established and seedlings distributed	900 million seedlings* (equal to approximately 600,000 hectares planted*)	a) Satisfactory monsoons are experienced over the project period.
b) Small and marginal farmers planting eroded portions of holdings	643,500 hectares rehabilitated* (approximately households involved*)	b) Household in-kind requirements for forest products remain high.
c) Tree tenure rights given landless households to plant on government land	25,000 hectares* (approximately panchayats involved*)	c) Market prices remain sufficiently high to provide incentive for commercial tree planting
d) Community managed woodlots established and effectively managed by panchayats.	95,000 hectares* (approximately panchayats involved*)	
e) Government wastelands and degraded forests rehabilitated to meet needs of nearby villages through exercise of "nistar" rights	67,000 hectares*	
f) R&D efforts on improved stoves and crematoria carried out	4 states	

* These quantititative outputs are considered means to larger institutional and structural ends. Although USAID will monitor their progress, primary emphasis will be directed to higher order outputs.

PROJECT OUTPUTS (C-1)	MAGNITUDE OF OUTPUTS: (C-2)	(C-3)	ASSUMPTIONS FOR ACHIEVING OUTPUTS: (C-4)
II. Institutional Development Development of state-level 1) organization and management, 2) research, extension and training, and 3) planning, monitoring and evaluation procedures	4 States		
a) International training supplied by U.S. institutions and specialists			a) That essential staff positions are sanctioned and manpower provided by central and state governments
b) Project imnplementors and designers observing social forestry activities undertaken in other states			b) That staff training programs are effectively implemented
c) State participation in centrally sponsored training programs designed to support critical but often neglected social forestry project needs			c) That suitable mechanisms are available for contracting support services from local resource institutions
d) Computer hardware, software development, and software training to faciltiate project monitoring and evaluation			d) That local resource institutions are interested in and capable of providing support services
e) Special studies and wood balance analyses conducted at state level			
f) Agricultural extension T&V field staff supplementing work of forest department specialists			
g) Women hired as social forestry extensionists			

PROJECT OUTPUTS (C-1)	MAGNITUDE OF OUTPUTS: (C-2)	(C-3)	ASSUMPTIONS FOR ACHIEVING OUTPUTS: (C-4)
III. Central Social Forestry Support office established within GOI Ministry of Environment and Forests	1 unit		
a) Regional backstopping offices established	3 offices	a) Annual supervisions	
b) Initial training of Support Office professionals	12 professionals	b) Project evaluations	
c) Test and institutionalization of special social forestry project monitoring and evaluation procedures designed specifically for India over the past 3 years by GOI, IBRD, AID and FAO experts	1 system		
d) Centrally sponsored operations research/training programs for state level staff carrying critical planning, monitoring and evaluation, and implementation respsonsibilities	15 programs		
e) Centrally sponsored studies and workshops regarding the development of subsector policy	10 studies and workshops		

PROJECT INPUTS (D-1)	MAGNITUDE OF INPUTS: (D-2) (US$ 000)	(D-3)	ASSUMPTIONS FOR ACHIEVING INPUTS: (D-4)
Funding for Project "Software" (AID grant financing of 50 percent)		Certified statements of expenditures	
a) Training and workshops	5,369	State, GOI, AID and IBRD records	N.A.
b) Technical assistance	267		
c) Special studies and evaluation	317		
d) Research operations and grants	82		
Funding for Alternative Tree Production Programs (AID loan financing of 30 percent)		Certified statements of expenditures	
e) Agroforestry and nursery models	65,746		N.A.
f) Tree Tenure models	16,825		
g) Community-mnaged models	62,644		
h) Government-manged models	65,478		
i) Fuelwood saving devices	721		
Funding for Incremental Staff (AID loan financing of 30 percent)		Certified statements of expenditures	
j) Salaries	43,040		
Funding for			
k) Civil Works	24,499	State, GOI and IBRD records	N.A.
l) Vehicles	8,899		
m) Staff travel allowances	8,722		
n) Vehicle operation & maintenance	5,934		
o) Furniture and Equipment	2,835		
p) Building rent & maintenance	7,350		
q) Office operations & misc.	7,037		

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COUNTRY CHECKLIST

Listed below are, first, statutory criteria applicable generally to FAA funds, and then criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. General Criteria for Country Eligibility

1. FAA Sec. 116. Can it be demonstrated that the contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights?	The Assistance will directly benefit the needy.
2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the United States unlawfully?	No.
3. FAA Sec. 620(b). If assistance is to a government has the Secretary of State determined that it is not controlled by the international Communist movement?	Yes.
4. FAA Sec. 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?	No.

5.FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?	No.
6.FAA Sec. 620(a), 620(f), 620D; Continuing Resolution Sec 511, 512, and 513; ISDCA of 1980 Secs.717 and 721. Is recipient country a Communist country?	No.
Will assistance be provided to Angola, Cambodia, Cuba, Laos or Vietnam? (Food and humanitarian assistance distributed directly to the people of Cambodia are expected).	No.
Will assistance be provided to Afghanistan or Mozambique without a waiver?	No.
Are funds for El Salvador to be used for planning for compensation, or for the purpose of compensation, for the confiscation, nationalization, acquisition or expropriation of any agricultural or banking enterprise, or property or stock thereof?	Not applicable in this case.
7.FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of or military aggression against the United States or any country receiving U.S. assistance or (b) the planning of such subversion or aggression?	AID is not aware of any such involvement.
8.FAA Sec. 620(j). Has the country permitted or failed to take adequate measures to prevent the damage or destruction, by mob action, of U.S. property?	No.
9.FAA Sec. 620(k). Does the program furnish assistance in excess of $100,000,000 for the construction of a productive enterprise, except for productive enterprises in Egypt that were described in the Congressional Presentation materials for FY 1977, FY 1980 or FY 1981?	No.

10. FAA Sec. 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason?	No.
11. FAA Sec. 620(m). Is the country an economically developed nation capable of sustaining its own defense burden and economic growth and, if so, does it meet any of the exceptions to FAA Section 620(m)?	Not applicable.
12. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec.5. If country has seized or imposed any penalty or sanction against any U.S. fishing activities in international waters:	The country has taken no such actions against U.S. fishing activities.
a. has any deduction required by the Fishermen's Protective Act been made?	
b. has complete denial of assistance been considered by AID Administrator?	
13. FAA Sec. 620(a); Continuing Resolution Sec.518.	
(a) Is the government of the recipient country in default for more than 6 months on interest or principal of any AID loan to the country?	No.
(b) Is counry in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds?	No.

14.FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget which is for military expenditures, the amount spent for the purchase of sophisticated weapons systems? (An affirmative answer may refer to the record of the annual "Taking Into Consideration" memo: "Yes as reported in annual report on implementation of Sec. 620(s)". This report is prepared at time of approval by the Administrator of the Operational Year Budget and can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur).	Yes. India spends a relatively small amount of its budget on Defense. Latest available figures are an estimated Rs. 76.9 ($6.4 billion equivalent) billion for Defense, or 15 percent of Rs. 513.0 ($43 billion) billion in total GOI expenditures in IFY 84-85.
15.FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?	Diplomatic relations have not been severed.
16.FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget?	India is not in arrears with its U.N. obligations.
17.FAA Sec. 620A; Continuing Resolution Sec. 521. Has the country granted sanctuary from prosecution to any individual group which has committed an act of international terrorism?	No.
18.FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA?	No.

19. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials or technology, without specified arrangements or safeguards? Has it detonated a nuclear device after August 3, 1977, although not a "nuclear weapon State" under the nonproliferation treaty?	India has received no such equipment, materials or technology without specified safeguards. Based on information from the State Department the answer to the second question is also no.

B. Funding Criteria for Country Eligibility

1. Development Assistance Country Criteria

a. FAA Sec. 102(b)(4). Have criteria been established and taken into account to assess commitment progress of country in effectively involving the poor in development, on such indexes as: (1) increase in agricultural productivity through small-farm labor intensive agriculture, (2) reduced infant mortality, (3) control of population growth, (4) equality of income distribution, (5) reduction of unemployment and (6) increased literacy?	Yes. India's Five Year Development Plan as revised (1985-90) is based on these criteria. The criteria are incorporated in the Country Development Strategy Statement.
b. FAA Sec. 104(d)(1). If appropriate, is this development (including Sahel) activity designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families in programs such as education in an out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development and assistance to urban poor?	Yes.

2. Economic Supportive Fund Country Criteria

This section not applicable.
Assistance is provided under the Development Assistance category.

PROJECT CHECKLIST

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Economic Support Fund.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP-TO-DATE? Yes.

HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT? Yes.

A. General Criteria for Project

1. Continuing Resolution Unnumbered: FAA Sec. 653(b); Sec. 634A. (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more that $1 million over that figure)?	(a) A Congressional Notification will be forwarded prior to the initial obligation of funds. (b) Yes.
2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000 will there be (a) engineering, financial and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	(a) Yes. (b) Yes.
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	Not applicable.
4. FAA Sec. 611(b); Continuing Resolution Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973?	Not applicable.

5.FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to effectively maintain and utilize the project?	Not Applicable.
6.FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not executed? Information and conclusion whether assistance will encourage regional development programs.	The project is supported jointly by AID and IBRD.
7.FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c)encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce and (f) strengthen free labor unions.	(a) Not applicable. (b) Yes, in establishing and maintaining nurseries and private and community plantations. (c) Not directly. (d) Not Applicable. (e) Yes, especially in regard to Forestry. (f) Not Applicable
8.FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	U.S. technical assistance will be provided under this project; Indo-U.S. collaboration will be encouraged.
9.FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.	The Government of India will finance between 30 and 35 percent of all costs.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and if so, what arrangements have been made for its release?	U.S. owned rupees are being used for various U.S. government agencies programs and administrative support. India will shortly be declared a "Near-Excess" country.
11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes.
12. Continuing Resolution Sec. 522. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity.	Not applicable. Agricultural products produced will be consumed in India.

B. Funding Criteria for Project

1. Development Assistance Project Criteria

a. FAA Sec. 102(b); 113; 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b)help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c)support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?	(a) These represent the entire intent of the project. (b) Not Applicable. (c) This project entirely supports Indian self-help in agricultural development and rural employment.. (d) A special focus of the project concerns the participation of women. They are the principal gatherers and users of fuelwood and prospective employees of nurseries. (e) Not Applicable.

b. FAA Sec. 103, 103A, 104, 105, 106, & 107. Is assistance being made available: (include only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)	
(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is designed to increase productivity and income of rural poor.	The project is specifically designed to increase rural incomes.
c. [107] is appropriate effort placed on use of appropriate technology?	Yes, especially regarding efficient use of forest produce and products.
d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed country)?	Yes, the recipient country will provide at least 25% of the costs of the program.
e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to the Congress been made and efforts for other financing, or is the recipient country "relatively least developed"?	Not applicable.
f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental and political processes essential to self-government.	The project addresses the need for increased wood production. Institutional development will be fostered insofar as the host country's implementing agencies will acquire a strengthened capacity to design, execute and maintain effective social forestry programs.

g.FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase or productive capacities and self-sustaining economic growth?	Yes, especially marginal land made productive by afforestation.
2. Development Assistance Project Criteria (Loans Only).	
a.FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan including reasonableness of repayment prospects.	This $78.1 million loan is well within India's capability to pay and given India's track record there is no reason to doubt that it will be paid.
b.FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?	Not applicable.
3. Project Criteria Solely for Economic Support Fund Support Fund	
This section not applicable.	

Annex I.D.

D.O.No.2 2)/AIL/84

H.C.Pant
Director (AC)
Tel.No.3012020.

भारत सरकार
वित्त मंत्रालय
आर्थिक कार्य विभाग
Government of India (Bharat Sarkar)
Ministry of Finance (Vitta Mantralaya)
Department of Economic Affairs (Arthik Karya Vibhag)

नई दिल्ली/New Delhi 21st June, 1985.

Dear Mr.Brown,

6/25/85
ACTION

PD

INFO:

D (A)

PRO

CO

RM

RF

This has reference to our recent discussions on the National Social Forestry Project. You have expressed an intention to provide initially $ 80 million for this project consisting of an loan of $ 77 million and a grant of $ 3 million. In terms of this understanding, I shall be grateful if you could kindly provide the first instalment of $ 16.4 million in loan and $ 2.2 million in grant under the US FY 1985 Programme.

2. In terms of the understanding reached, we would contribute or arrange to contribute to this project equivalent of $ 250 million, including costs ~~portion~~ on an "in kind basis". This would include an amount of $ 58 million to be provided in terms of the agreement for the first tranche.

Yours sincerely,

(H.C.Pant)

Mr.Richard M.Brown,
Director (Acting),
USAID,
New Delhi.

110

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523

ASSISTANT
ADMINISTRATOR

MAY 31 1985

JUL 15 RECD

ACTION MEMORANDUM TO THE ADMINISTRATOR

THRU: AA/PPC, Richard A. Derham

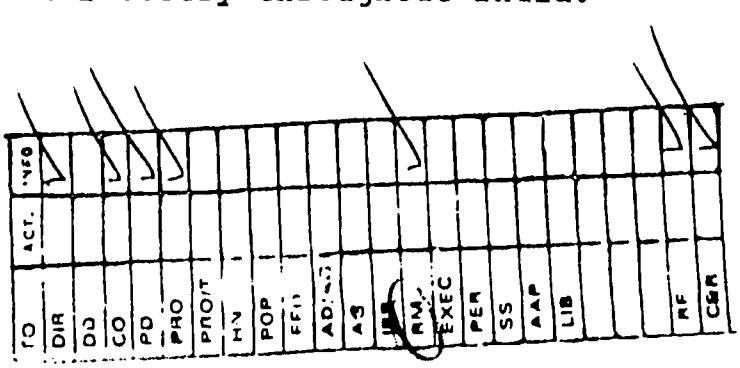
FROM: AA/ANE/ASIA, Charles W. Greenleaf, Jr. CWG

SUBJECT: India National Social Forestry Project (386-0495)

Problem: You are requested to authorize the National Social Forestry Project involving planned obligations of $77 million in loan funds and $6.5 million in grant funds from the Agriculture, Rural Development and Nutrition Account over a four year period beginning in FY 1985.

Background: India consumes wood and wood products, primarily in the form of firewood, fodder and construction materials, at roughly four times the rate at which it generates these resources. The result is ecological and environmental disaster and increasing hardship to the poor. Since taking office, Prime Minister Rajiv Gandhi has placed forestry and social forestry in a position of top priority in his development plans for India. He has directed his government to increase the rate of afforestation fivefold during the Seventh Five Year Plan. Recognizing that the job is far greater than the Government alone can handle, the Gandhi administration is placing heavy emphasis on social forestry to mobilize nongovernmental resources for this monumental task. Social forestry involves bringing individuals and communities -- their initiative, land and labor -- into forestry programs for their own benefit.

Project Description: The National Social Forestry Project combines the resources of A.I.D., the World Bank (IDA), the Government of India, and initially, four Indian states to begin to implement National Social Forestry on a broad, coordinated and integrated basis. Of total project costs of $333.5 million, A.I.D. will finance $83.5 million, IDA $165 million, and the GOI $85 million. The project supports the social forestry programs proposed by Himachal Pradesh, Rajasthan, Gujarat and Uttar Pradesh and introduces a national level policy making, monitoring and evaluation body to facilitate cross fertilization between state programs and rationalization of the policies and structure of social forestry throughout India.



Annex I.E.

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

ASSISTANT
ADMINISTRATOR

MAY 31 1985

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The project will finance a variety of social forestry program initiatives in the four states, including farm forestry, in which the land and labor of individuals is harnessed for their own benefit. Efforts will be continued to find ways of mobilizing communities and common lands, and of involving the landless through use of wastelands. Grant financing will be provided for technical expertise in both silvicultural and social concerns; funds will also be provided for training within India and abroad and for research and pilot demonstrations and experiments in community organization and mobilization.

Relationship to A.I.D. Policy

A. Institutional Development

Institutional development is a primary thrust of the project. The state forestry departments will be strengthened through the provision of project funds to expand staff, develop research capabilities and improve extension and training programs. At the central level, a new Social Forestry Support Office will be established and developed within the new Ministry of Environment and Forests.

B. Technology Transfer

The project will provide funds for improving research, extension and training in the four target states. There will be considerable direct transfer of technology to poorer households through improved field extension methodologies. The A.I.D. grant funds will also be used for consultants, workshops, seminars, studies and international training to bring about technology transfer. Finally, the Mission is developing with the GOI a complementary Forestry Research, Education and Training Project for FY 86 to further encourage technology transfer in this critical area.

C. Policy Dialogue

The intention of USAID and the Bank is to help the GOI and the states identify specific policies which constrain the successful achievement of Social Forestry objectives and to develop reforms and objectives. Nevertheless, there is the beginning of a policy agenda. Some of the macro-policy issues to be raised over the course of the project include:

1. The project reinforces a recent shift in GOI/State policy to devolve responsibility and resources for tree planting, protection and maintenance from government to private sector.

2. Over the course of project design, it was determined that the states have thought very little regarding cost recovery from their Social Forestry operations. The project begins to deal with this issue by requiring payment for seedlings.

D. Private Sector Participation

While A.I.D.'s first Social Forestry project in Madnya Pradesh emphasized community woodlots on public lands, this project continues and expands the orientation of the second Social Forestry project in Maharastra on tree planting and management by private farmers. This will include the provision of seedlings and extension service to private farmers who will plant 80% of the trees under the farm forestry component of the project. It will also provide seedlings and extension service for approximately 8-10,000 landless persons in these states who will each be allowed to use up to 2.5 hectares of wasteland to grow trees under an experimental tree tenure program. The farmers will own the trees they plant on this land and take full responsibility for managing and protecting them. In all four states, the development of small nurseries will involve contracting with private households or other private sector entities to manage these nurseries under forest department supervision.

Bureau Review of the Project The Asia Projects Advisory Committee (APAC) reviewed the project on May 14 and recommended approval. The Bureau review focussed on four issues:

1. Lessons Learned. The proposed project was to a large degree designed in response to lessons learned from previous IDA and USAID Social Forestry Projects in India. A number of special covenants has been developed by IDA and USAID to build on this experience. The major ones relate to local currency and staff support, the private sector planting schemes and payments for seedlings.

2. Equity. The proposed project has been designed to better meet the needs of the rural poor and to do so more efficiently than previous IDA and A.I.D. Social Forestry projects. During implementation, the Mission will need to be alert to opportunities to ensure that the project will more directly benefit the rural poor.

3. Reimbursement Procedures. Reimbursements will be made on the basis of certified statements of expenditures, supported by standard GOI and state audits and reports and the administrative monitoring and reporting of the central Social Forestry Support Office. Selective monitoring and verification of field activities will provide further support through "spot checks". This approach has been chosen because experience of both the World Bank and A.I.D. shows that the major constraint to successful implementation is most often inadequate allocation of funds and their diversion to other state level activities. If funds are provided as originally planned, the activities planned (i.e., the micro outputs), historically, occur satisfactorily. The project will also reimburse retroactively for activities initiated before the project agreement which conform to project requirements.

4. The Modality of Financing for Technical Support and Program Management. Previous A.I.D. projects in India in social forestry as well as in other sectors have experienced difficulty in committing and expending grant funds for technical assistance because of the way funds are made available in the India budgetary process and GOI objections to the relatively high cost of expatriate technicians. In order to address these problems, and to assure effective project management, this authorization includes $3.5 million which will not be included in the Project Agreement with the GOI. Rather, it will be obligated unilaterally by U.S.A.I.D./New Delhi for project technical assistance outside the approved GOI budget for long-term resident individuals to assist in managing and monitoring the project. Three fulltime professionals are planned to be contracted for substantive technical input and management. The GOI is fully aware of this planned allocation of funds and concurs in the procedure described.

FAA Section 612(b) Certification When the Development Assistance Program in India was reestablished in FY 1978, the Development Coordinating Committee on December 21, 1977, determined that project local costs could be dollar-financed rather than funded with U.S.-owned excess rupees. Consistent with this policy, the ABS for FY 86, which included the National Social Forestry Project, was reviewed and approved by A.I.D./W, thus confirming the use of dollars for local costs of the project. Pursuant to the provisions of Section FAA 612 (b), your signature on the attached authorization will also certify the need to disburse U.S. dollars in lieu of using U.S. owned excess rupees.

Bureau Clearances:

DAA/ANE/ASIA:EStaples_____
ANE/ASIA/PD:PBloom_____
ANE/ASIA/TR:RIchord_____
ANE/ASIA/TR:VFort _____
ANE/ASIA/PD/SA:PMatheson_____
GC/ASIA:HMorris_____
ANE/ASIA/BI:AMcDonald_____
ANE/DP:_____

1/6

PROJECT AUTHORIZATION

INDIA

National Social Forestry
Project No. 386-0495
A.I.D. Loan No. 386-T-240

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended (the "Act"), I hereby authorize the National Social Forestry Project (the "Project") for India (the "Cooperating Country") involving planned obligations of not to exceed Seventy Seven Million United States Dollars ($77,000,000) in Loan funds and Six Million Five Hundred Thousand United States Dollars ($6,500,000) in Grant funds over a four year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project. The planned life of the Project is six years from the date of initial obligation.

2. The Project is intended to raise incomes and employment among the rural poor by increasing production of small timber, fuelwood, fodder and other forest products in the four States of Uttar Pradesh, Rajasthan, Gujarat, and Himachal Pradesh. It constitutes part of a joint activity with the International Development Association (IDA) and the Cooperating Country. An important collateral goal is to arrest erosion of the natural environment caused by deforestation. To meet these objectives, the Project will: (a) develop effective government and private sector capacities in these States for carrying out alternative social forestry programs, and (b) help build the capabilities of the four States and the central government to evaluate the effectiveness of their different social forestry programs, and develop a more rational mix of policies and government and private sector initiatives to meet India's long term forestry needs.

3. The Project Agreement or other agreements which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms, covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

4. a. Interest Rate and Terms of Repayment

The Cooperating Country shall repay the Loan to A.I.D. in U.S. dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The Cooperating Country shall pay to A.I.D. in U.S. dollars interest from the date of first disbursement of the Loan at the rate of (a) two percent (2%) per annum during the first ten (10) years, and (b) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest thereon.

b. Source and Origin of Goods and Services

Goods and services (except for ocean shipping) financed by A.I.D. under the Project with Loan funds shall have their source and origin in the Cooperating Country and in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Goods and services, except for ocean shipping, financed by A.I.D. under the Project with Grant funds shall have their source and origin in the Cooperating Country or the United States, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. with Grant funds shall, except as A.I.D. may agree otherwise in writing, be financed only on flag vessels of the United States. Ocean shipping financed by A.I.D. with Loan funds shall, except as A.I.D. may agree otherwise in writing, be financed on flag vessels of the United States, other countries in Code 941, and the Cooperating Country.

c. Other

Except as A.I.D. may otherwise agree in writing:

(i) Disbursement of the A.I.D. assistance shall not commence until the IDA assistance agreement is effective;

(ii) The Cooperating Country shall covenant that both on the central and participating State levels, appropriate organizational and staffing arrangements are achieved to permit effective implementation of the Project;

(iii) The Cooperating Country shall covenant that the participating States shall furnish satisfactory information to A.I.D. with respect to private planting schemes on wasteland, tree tenure schemes, community managed wood lots and tree fodder plantations, and;

(iv) The Cooperating Country shall covenant that the participating States shall institute arrangements which ensure that farmers receive adequate free seedlings to maintain trees for their subsistence requirements and that during the course of the Project the States move towards a system of appropriate charges for additional seedlings. These arrangements, moreover, would apply to all seedling distributions in the States.

Signature /s/ M. Peter McPherson
M. Peter McPherson
Administrator

11 JUN 1985
Date

Clearances:	Date	Initial
Charles W. Greenleaf, AA/ANE		
Richard A. Derham, AA/PPC		
Howard M. Fry, GC		

GC/ANE/ASIA:HEMorris:hp:5/22/85:ext 26504Doc 0339g (PD 4338k)

INDIA

SOCIAL FORESTRY PROGRAM DURING SIXTH FIVE YEAR PLAN (1980-85)

A. PHYSICAL ACHIEVEMENTS 1/

	Centrally Sponsored Schemes					Donor-Assisted Schemes				State		Total 2/
	Rural Fuel Wood Program (RFP-Min. Ag.)	Drought Prone Areas Program (DPAP-Min RD) 3/	Small & Marginal Farmers (SMFP-Min Ag)	Natl Rural Employment Program NREP-MinRd 4/	Other Integrated Rural Dev't. (Min-Rd)	Worl Bank	ID	SIDA	CIDA	(Estimated) State Schemes 5/	Non-Plan	TOTAL
Andhra Pradesh	23,387	43,580	52,820	19,365	*	-	-	-	55,285	93,000	*	287,437
Assam	14,874	-	21,440	763	*	-	-	-	-	10,000	*	47,077
Bihar	25,335	24,648	93,920	22,864	*	-	-	-	-	56,000	*	222,767
Gujarat	13,891	14,092	34,880	15,776	*	274,280	-	-	-	105,000	*	457,919
Haryana	14,169	10,654	14,880	10,544	*	28,972	-	-	-	57,000	*	136,219
Himachal Pradesh	12,120	-	11,040	2,702	*	-	-	-	-	33,000	*	58,862
Jammu & Kashmir	1,000	102	12,000	2,207	*	16,887	-	-	-	23,000	*	55,196
Karnataka	17,272	14,823	28,000	49,083	*	49,669	-	-	-	53,000	*	211,847
Kerala	10,746	-	24,160	3,751	*	5,905	-	-	-	13,000	*	57,562
Madhya Pradesh	29,103	21,373	73,280	25,830	*	-	18,819	-	-	181,000	*	349,405
Maharashtra	6,019	28,836	47,630	4,751	*	-	18,333	-	-	135,000	*	240,569
Manipur	22,750	-	4,160	810	*	-	-	-	-	14,000	*	41,720
Meghalaya	33,910	-	3,840	453	*	-	-	-	-	5,000	*	43,203
Nagaland	7,719	-	3,360	-	*	-	-	-	-	10,000	*	21,079
Orissa	19,339	26,840	50,240	84,511	*	-	-	5,653	-	70,000	*	256,583
Punjab	12,006	-	18,880	5,577	*	-	-	-	-	15,000	*	51,463
Rajasthan	26,700	78,010	37,760	30,615	*	-	-	-	-	50,000	*	223,085
Sikkim	1,460	-	640	180	*	-	-	-	-	5,000	*	7,280
Tamil Nadu	26,820	19,492	60,480	15,563	*	-	-	52,288	-	132,000	*	306,643
Tripura	5,430	-	2,720	22,808	*	-	-	-	-	4,000	*	34,958
Uttar Pradesh	19,067	20,350	141,920	40,604	*	95,071	-	-	-	145,000	*	462,012
West Bengal	7,215	31,091	53,600	7,426	*	62,351	-	-	-	68,000	*	229,683
(UTs)	19,976	-	16,160	-	*	-	-	-	-	23,000	*	59,136
TOTAL 2/	370,308	333,891	807,810	366,183	*	533,135	37,152	57,941	55,285	1,300,000	*	3,861,705

1/ Data trees planted under farm forestry were converted to hectares by dividing number planted by 1500.
2/ Since "Other Integrated Rural Development" and "Non-Plan" figures were not available, Totals do not reflect full extent of social forestry; also see footnote 5/ below.
3/ DPAP: figures up to 1983/84.
4/ NREP: Figures from 1980-84, and up to June 1984.
5/ These are Plan figures, and GOI suggests that actual achievements may be much higher.

Annex II.A.

INDIA

SOCIAL FORESTRY PROGRAM DURING SIXTH FIVE YEAR PLAN (1980-85)

B. FINANCIAL POSITION 1/
(Rs. M)

	Centrally Sponsored Schemes					Donor-Assisted Schemes				State		Total 2/
	Rural Fuel Wood Program (RFP-Min. Ag.)	Drought Prone Areas Program (DPAP-Min RD) 3/	Small & Marginal Farmers (SMFP-Min Ag)	Natl Rural Employment Program NREP-MinRd 4/	Other Integrated Rural Dev't. (Min-Rd)	World Bank	USAID	SIDA	CIDA	(Estimated) State Schemes 5/	Non-Plan	TOTAL
Andhra Pradesh	63.673	40.545	16.350	*	*	-	-	-	56.508	50.0	*	227.076
Assam	44.667	-	6.7	*	*	-	-	-	-	15.0	*	66.367
Bihar	68.07	35.486	29.35	*	*	-	-	-	-	52.7	*	185.606
Gujarat	57.136	35.684	10.9	*	*	671.383	-	-	-	652.3	*	1,427.403
Haryana	49.9	27.3	4.5	*	*	114.62	-	-	-	92.9	*	289.22
Himachal Pradesh	45.1	-	3.45	*	*	-	-	-	-	75.0	*	123.55
Jammu & Kashmir	5.0	4.09	2.876	*	*	76.686	-	-	-	65.0	*	153.652
Karnataka	67.878	52.151	8.75	*	*	117.78	-	-	-	100.0	*	346.559
Kerala	38.425	-	7.375	*	*	88.75	-	-	-	19.8	*	154.35
Madhya Pradesh	177.017	76.322	22.95	*	*	-	217.287	-	-	235.5	*	729.076
Maharashtra	28.792	50.546	14.8	*	*	-	167.28	-	-	337.5	*	598.918
Manipur	99.223	-	1.3	*	*	-	-	-	-	19.3	*	119.823
Meghalaya	16.388	-	.75	*	*	-	-	-	-	13.0	*	30.138
Nagaland	275.39	-	1.05	*	*	-	-	-	-	6.5	*	282.94
Orissa	48.306	27.065	15.7	*	*	-	-	18.468	-	50.0	*	159.539
Punjab	39.372	-	5.9	*	*	-	-	-	-	53.5	*	98.772
Rajasthan	75.843	33.625	11.8	*	*	-	-	-	-	117.8	*	239.068
Sikkim	6.89	-	.2	*	*	-	-	-	-	15.0	*	22.09
Tamil Nadu	61.75	27.879	14.875	*	*	-	-	292.988	-	420.0	*	817.492
Tripura	9.457	-	.85	*	*	-	-	-	-	10.0	*	20.307
Uttar Pradesh	57.457	45.524	44.075	*	*	528.394	-	-	-	487.5	*	1,162.95
West Bengal	18.891	64.992	16.75	*	*	162.71	-	-	-	93.8	*	357.143
(UTs)	36.725	-	10.05	*	*	-	-	-	-	36.7	*	83.475
				*								
TOTAL 2/	1,391.35	521.209	251.301	*	*	1,760.323	384.567	311.456	56.508	3,018.8	*	7,695.514

1/ Since final figures were not yet available by compilation of this table, the figures include an estimate of expenditures in last 6 months.

2/ Since "Other Integrated Rural Development" and "Non-Plan" figures were not available, Totals do not reflect full extent of social forestry; also see footnote 5/ below.

3/ DPAP: figures up to 1983/84.

4/ NREP: Figures from 1980-84, and up to June 1984.

5/ These are Plan figures, and GOI suggests that actual achievements may be much higher.

Progress of IBRD-Assisted Social Forestry Projects in Uttar Pradesh and Gujarat

Uttar Pradesh Social Forestry (Cr. 925-IN, US$23.0.M, June 21, 1979)

This was the Bank's first social forestry project in India. It called for the establishment of 8,000 ha of village woodlots, 27,000 ha of strip plantations along roads, canals and railways, rehabilitation of 13,600 ha of degraded government owned forest and the provision of seedlings for 4,000 ha of farm forestry. The project was completed on schedule and the credit closed December 31, 1984. A Project Completion Report is being prepared and will be available later in 1985.

In terms of physical targets, the project has generally exceeded the overall targets set at appraisal, about 60,000 ha of plantations achieved on government and community wastelands (i.e. not counting farm forestry) compared to about 49,000 ha proposed for the five-year period of the project. Survival rates on various plantation schemes are satisfactory. The farm forestry component has proved the most surprising, however, with the response of farmers to planting trees on their own lands far exceeding expectations. Compared with the original goal of 8 M seedlings, over 500 M (equivalent to 349,000 ha)[1/] have been distributed. To handle both farm forestry and departmental plantation seedling requirements, a total of 1,037 new nurseries were established.

Despite these substantial overall achievements, the project fell short in several areas. Implementation of the civil works program, designed to support field activities, was neglected in favor of staff being diverted to expanding seedling production. There was also a shortfall in procurement of vehicles needed to improve staff mobility. The self-help village woodlots component lagged, with 136 ha established against a target of 3080 ha, since poor villagers proved unwilling to contribute their labor as expected in exchange for rather limited potential benefits which would flow to a group sharing the produce from a small woodlot (about 2 ha.) after many years' protection and maintenance. As project implementation progressed, several other deficiencies have become apparent. The project did not cover effectively the eastern part of the state, where the smaller farms and landless poor are concentrated, as the social forestry organization lacked relevant know-how and resources to deal with the sociological and technical problems associated with densely cultivated areas and very small farms. The State has been slow to decide on the management system to be applied and on the mode

1/ Equivalent ha figured by dividing number of seedlings by 1500.

of distribution of the produce from departmental plantations, although many are reaching maturity. The Uttar Pradesh extension services for social forestry are weak, with neither development of an effective developmental extension organization. The latter, however, is shortly to be reorganized and strengthened with IDA assistance. In addition, monitoring and evaluation capability and research activities have made a slow start and need strengthening. The Government of Uttar Pradesh (GOUP) recognizes these problems and they would be addressed in the proposed second phase project. Finally, the dissemination fuel-efficient stoves seems to have been done more effectively by voluntary groups and service organizations than under the auspices of the Forest Department, as had been envisioned at project appraisal.

Gujarat Community Forestry Project (Cr. 961-IN, US$37.0 M, April 24, 1980)

The project calls for the establishment of 37,440 ha of village woodlots, 30,000 ha of reafforestation on government- owned degraded forests, 1,000 ha of privately owned and heavily eroded lands, establishment of 37,000 ha of strip plantations along roads, canals and railways, and the provision of 30 M seedlings to farmers to plant on 20,000 ha of privately-owned land. The physical planting targets for the project have been completed ahead of schedule, with only the self-help village woodlot component falling somewhat below original targets with about 6,000 ha of the 92000 ha. targetted having been planted to date. The credit is likely to be fully disbursed by the end of June 1985, six months before the original closing date. While the primary objective of the project was to increase fuelwood supplies in rural areas, due to prevailing high prices of wood, most of the wood produced on private holdings has gone for commercial, non-fuelwood purposes. Nevertheless given the acute shortage of wood in the state, the project has contributed to relieving the pressure on existing forests and, therefore, indirectly, has helped fuelwood supply, particularly for the rural poor. About 20% of Gujarat farmers and a substantial number of landless laborers are now self-sufficient in fuelwood. Furthermore, the majority of farmers benefitting from the farm forestry component are small and marginal (under 4 ha) who have planted three-fourths of the seedlings distributed under farm forestry, the rest going to larger farmers. Gujarat has successfully introduced low-cost seedling production and distribution methods such as basketing and direct seeding. It has also been the most successful among states with Bank-financed projects in introducing fuel saving stoves and crematoria, having exceeded the targets of 10,000 stoves and 1000 crematoria for distribution by 10% already. Private and voluntary groups have made important contributions to dissemination of these devices. Recognizing the problems associated with village woodlot

development, the State has introduced two innovative schemes to benefit the landless, Social Security Plantations and Malki Plantations. Under the former, landless tribal farmers are settled in groups of ten families on denuded government forest land as full-time employees of the forest department (FD). Under the Malki scheme, the FD plants trees on half of the land (maximum 1 ha per farmer) for those who have settled on encroached and eroded, formerly protected forest land. At harvest, costs of plantation establishment and subsistence allowances are to be recovered by the Department, leaving the net profit to the farmer. Progress on research has been unsatisfactory in terms of producing relevant findings based on good research methdology. Civil works, and vehicle and equipment procurement are substantially behind appraisal schedule, and about 15% of staff positions (especially of Guards and Rangers) remain unfilled. But these lags have not caused serious problems in overall project performance.

Summary Description and Cost Tables of NSFP Subprojects in Uttar Pradesh, Rajasthan, Gujarat and Himachal Pradesh

UTTAR PRADESH

PROJECT DESCRIPTION

A. Plantation Program

1.02 The plantation program would have the following phasing, with farm forestry equivalent hectares derived by dividing the number of seedlings distributed by 1500.

Table 1.01: PHASING OF THE PLANTATION PROGRAM

Plantation Category	85/86- Year 1	86/87- Year 2	87/88- Year 3	88/89- Year 4	89/90- Year 5	Total
A. Agroforestry-Farm Forestry (seedling distribution)	21,333 20,677-Year 0	22,000	22,667	23,333	24,000	134,000
B. Tree Tenure-Poor and Landless						
-Road and railside Strip Plantations	140 100-year 0	250	260	370	90	1,210
-Household/Group Farm Forestry, Unirrigated Blocks:	1,000	2,000	4,000	4,000	0	11,000
Irrigated Arjun:	200 200-year 0	200	200	200	0	1,000
C. Community Woodlots	4,000 5,000-year 0	3,000	1,000	1,000	0	14,000
D. Departmental Plantations Road & Railside	240 250-year 0	130	120	0	0	740
TOTAL PLANTATIONS	16,913 26,217-year 0	27,580	28,247	28,903	24,090	161,950

The above represents the best estimate of a balanced program, based on previous experience with social forestry. Targets may be reallocated, in light of experience during implementation, after discussions between GOUP and the donors. In any event, plantation targets would be reassessed during the midterm review, to be conducted after completion of the third year's planting.

1.03 Assurances were given at negotiations that GOUP would inform IDA about any major developments concerning social forestry programs carried out by the forest department in order to enable IDA to evaluate the impact, if any, such developments might have on project-financed activities. IDA and USAID would wish to be satisfied that staff and other resources to carry out additional programs would be sufficient, taking into account the organizational norms established at appraisal.

Farm Forestry

1.04 Farm forestry would comprise by far the largest part of the program, (about 135,000 ha out of 162,000 ha). It yields high and direct benefits to farmers and requires lower outlay by Forest Department than other plantation models. The Forest Department's only direct costs for farm forestry would be seedling production (para. 1.13 under "nurseries"). This project provides for a larger, more decentralized network of small nurseries than the previous project in U.P., with the aim of providing farmers with better access to seedlings and advice. The project would strengthen extension (para. 1.15) in order to reach a larger percentage of farmers than before and to provide them with better technical recommendations. Special effort would be made to achieve better coverage of the densely cultivated eastern part of the tate.

1.05 Uttar Pradesh has been selling seedlings for farm forestry distribution at the price of 20 paise each and would increase the price to 25 paise in full year 3, and 30 paise in years 4 and 5, or approximately the full direct cost. The effects of pricing on seedling uptake would be studied, and results applied with a view to full cost recovery in all farm forestry programs regardless of their source of funding. During the earlier project, about 200 million seedlings were provided free through the Small and Marginal Farmers Scheme and this scheme is expected to continue during the Seventh Five Year Plan.

Tree Tenure for Poor and Landless

1.06 Road and Railside Strip Plantations (1210 ha, US$2 M).1/This component provides for much greater local participation that the strip plantations established during the previous project. Under this project the landless poor would establish and care for designated strips, and would possess tree tenure. All roads, whether owned by Government or by local bodies, would be eligible for this model. Priority would be given to strips which can support a number of rows of trees and have no previous tree cover.

1.07 Beneficiaries would be selected in consultation with village bodies. Each beneficiary would sign an agreement with the Forest Department (and with a local organization, if that organization owns the land at that site) setting out respective responsibilities as well as distribution of benefits. All wood produced would go to the beneficiary, although 50% of the income from fruits produced would go to the Forest Department. For four years, the beneficiary would be paid monthly wages of Rs 250. Forest Department would supply seedlings and a handpump free of charge, although maintenance of the handpump would be the beneficiary's responsibility. In some cases, the beneficiary could also operate one of the Forest Department small nurseries and derive additional income from that activity. Forest Department would provide training of beneficiaries to manage the strips (and nurseries, when situated there).

1.08 Household/Group Farm Forestry: Unirrigated Blocks (11,000 ha, US$8.3 M). Government or Gaon samaj 2/ lands would be earmarked for plantation by individual poor and landless beneficiaries on unirrigated blocks. Beneficiaries would be designated after consultation with village bodies.

1.09 Household/Group Farm Forestry: Irrigated Arjun (1,000 ha, US$1.5M). At appraisal, GOUP had proposed plantation of 10,000 ha. of irrigated land to arjun to produce tassar (silk thread) since this scheme was successful on a small scale under the previous project. Widespread production of tassar would strain the Forest Department because of the close supervision and high costs entailed; moreover, no indepth study has been done to ascertain the marketability of tassar. Therefore, arjun plantations would be limited to 1,000 ha and a few districts, where Departmental efforts could be focussed. Each plot would cover about 10 ha. The project would also provide for a detailed study of the viability of tassar production and marketing, and identification of appropriate institutions to sponsor such a scheme. The viability of the scheme would be reviewed at midterm.

1/ Dollar figures in the text of this Annex refer to base cost (1985 prices) prior to addition of physical contingencies and allowance for inflation.

2/ "Goan Samaj" refers to village level administrative divisions, of which there are 74,102 in the State.

1.10 Forest Department would provide a tubewell on each beneficiary plot, and would supply a diesel pump and hand operated reeling machines. Besides providing basic training for beneficiaries, Forest Department would closely supervise operation of the tassar plots.

Community Woodlots (Rainfed) - (14,000 ha, US$12.1 M)

1.11 Areas under goan samaj or in degraded goan samaj forest lands would be available for plantations for fuelwood, small timber and fodder, and raw material for cottage industries. Communities would sign an agreement with Forest Department in advance of plantation establishment denoting respective responsibilities and claims to produce/benefits. The guiding principle would be to transfer responsibility for plantation management to the community.

Departmental Roadside and Railside Strip Plantations (740 ha, US$1.3 M)

1.12 The State would set aside 600 ha of roadside and 140 ha of railside strip sites for departmental plantation. Sites would be wide enough to support several rows of trees so that, in spite of leaving the row adjacent to the road for aesthetic purposes, other rows would be harvested for fuel and poles. In advance of plantation establishment, the Forest Department would draw up a plan for distribution of product/benefits (after cost recovery) to adjacent residents.

B. Nurseries (US$24 M)

1.13 The project would provide for at least two small (family or school operated) nurseries in each of the 800 blocks covered under the project. Originally, another large departmental nursery per block was proposed, but it was agreed at appraisal that smaller and more numerous nurseries were preferable since they would improve farmer access to seedlings and serve as natural points for extension.

C. Institutional Support

1.14 Organization and Management (US$40.5 M). Based on experience in the previous U.P. Social Forestry project, this project would further strenghthen the state organization for social forestry. A key element in this strategy would be the addition of incremental staff, 3,171 in key professional positions related to field operation. Under the previous project, the Forest Department had difficulty in reaching small farmers, especially those in the densely cultivated, poorer eastern region of the state. Much of this difficulty stemmed from staff constraints, which would be eased by this project. Closely related to broadening of field operations would be: (a) construction of housing for about 1,000 field staff posted in less accessible areas; and

(b) provision of about 850 vehicles to enhance staff mobility, and revision of vehicle regulations to expedite their provision and operation. U.P. had originally proposed establishing an Institute to handle support activities such as extension and training, but it was decided at appraisal to strengthen the existing organization.

1.15 Extension (US$4.8 M). Another reason for U.P. to staff solidly the field level is that the T&V system of agricultural extension has not yet been introduced, and will take some time to become established. Until then, the Forest Department must rely largely on its own resources for making farmer contacts. The Department will, however, establish an agreement with the agricultural extension service for it to assume greater responsibility for forestry extension as its capacity to do so improves. In addition to field contacts, the Department will conduct a variety of other extension activities such as media publicity, publication of brochures and posters, and sponsorship of farmer camps. The state would also construct a Forest Awareness Center in each district and provide each with a publicity van.

1.16 Training (US$7.6 M) See Annex VI.A. for details.

1.17 Planning (US$0.3 M). The project would provide modest strengthening of planning, particularly planning for distribution of produce/benefits for the various plantation models, and assessment of marketing potential.

1.18 Monitoring and Evaluation (US$0.5 M). In addition to strengthening of staff (including 8 professional positions), the project would provide a micro-computer and software for data collection. training of M&E staff.

D. Research (US$0.5 M)

1.19 Research is already well developed in U.P. and compares favorably with social forestry research elsewhere in India. About 55 additional staff would be provided to broaden field research and resources would be added for better work on agroforestry and improved seed. Special studies would be included, for instance the evaluation of tassar production and marketing, to be conducted by the time of the midterm review (para 1.09)

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Financing Plan by Summary Accounts
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION		US AGENCY FOR INTERNATIONAL DEVELOPMENT		GOVERNMENT OF INDIA		Total				
	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.	Local (Excl. Taxes)	Duties & Taxes
I. INVESTMENT COSTS											
A. CIVIL WORKS	8,040.4	50.0	-	-	8,040.4	50.0	16,080.7	12.0	754.0	15,326.7	
B. VEHICLES	1,149.5	19.1	-	-	4,861.8	80.9	6,011.3	4.5	1,149.5	3,058.4	1,803.4
C. EQUIPMENT	56.9	9.5	-	-	544.4	90.5	601.2	0.4	56.9	424.1	120.2
D. FURNITURE	-	-	-	-	186.7	100.0	186.7	0.1	-	168.1	18.7
E. TRAINING											
1. STAFF TRAINING DOMESTIC	1,121.6	50.0	1,121.6	50.0	0.0	0.0	2,243.1	1.7	-	2,243.1	-
2. STAFF TRAINING INTERNATIONAL	82.3	50.0	82.3	50.0	0.0	0.0	164.5	0.1	147.2	17.3	-
3. FARMER TRAINING AND EXTENSION	302.5	50.0	302.5	50.0	0.0	0.0	605.1	0.5	-	605.1	-
Sub-Total TRAINING	1,506.4	50.0	1,506.4	50.0	0.0	0.0	3,012.7	2.2	147.2	2,865.5	-
F. SPECIAL STUDIES AND EVALUATION	26.1	50.0	26.1	50.0	0.0	0.0	52.1	0.0	-	52.1	-
G. PLANTATION											
1. NURSERY DEVELOPMENT	21,423.8	60.0	10,711.9	30.0	3,570.6	10.0	35,706.4	26.6	335.1	35,371.3	-
2. TREE TENURE PLANTING	7,883.6	60.0	3,941.8	30.0	1,313.9	10.0	13,139.4	9.8	122.9	13,016.5	-
3. COMMUNITY FOREST	7,519.6	60.0	3,759.8	30.0	1,253.3	10.0	12,532.7	9.3	118.4	12,414.3	-
4. WASTELAND PLANTATION	864.2	60.0	432.1	30.0	144.0	10.0	1,440.3	1.1	13.6	1,426.7	-
Sub-Total PLANTATION	37,691.3	60.0	18,845.6	30.0	6,281.9	10.0	62,818.8	46.8	590.1	62,228.7	-
H. FUELWOOD SAVING DEVICES	3.2	60.0	1.6	30.0	0.5	10.0	5.4	0.0	-	5.4	-
Total INVESTMENT COSTS	48,473.7	54.6	20,379.7	23.0	19,915.7	22.4	88,769.0	66.1	2,697.7	84,129.0	1,942.3
II. RECURRENT COSTS											
A. STAFF SALARIES	6,997.3	28.3	6,997.3	28.3	10,695.0	43.3	24,689.7	18.4	-	24,689.7	-
B. STAFF TRAVEL ALLOWANCE	4,117.7	61.0	-	-	2,632.0	39.0	6,749.8	5.0	-	6,749.8	-
C. BUILDING RENT AND MAINTENANCE	-	-	-	-	6,300.3	100.0	6,300.3	4.7	295.6	5,374.6	630.0
D. VEHICLE OPERATION AND MAINTENANCE	1,381.3	34.2	-	-	2,653.0	65.8	4,034.3	3.0	378.8	3,655.6	-
E. OFFICE AND OTHER EXPENDITURE	-	-	-	-	3,757.5	100.0	3,757.5	2.8	-	3,757.5	-
Total RECURRENT COSTS	12,496.3	27.4	6,997.3	15.4	26,037.9	57.2	45,531.6	33.9	674.4	44,227.1	630.0
Total Disbursement	60,970.0	45.4	27,377.0	20.4	45,953.6	34.2	134,300.6	100.0	3,372.1	128,356.2	2,572.3

May 20, 1985 20:41

RAJASTHAN

PROJECT DESCRIPTION

A. Plantation Program

1.02 The plantation program would have the following phasing, with farm forestry equivalent hectares derived by dividing the number of seedlings distributed by 1500 (except for improved ber orchards which uses 100 seedlings per hectare).

Table 1.01: PHASING OF THE PLANTATION PROGRAM

Plantation Category	85/86- Year 1	86/87- Year 2	87/88- Year 3	88/89- Year 4	89/90- Year 5	Total
A.-Agroforestry-Farm Forestry (seedling distribution)	1,667	16,667	20,000	20,000	21,666	80,000
-Improved (Ber) Orchards	800	900	1,000	1,300	-	4,000
B.-Tree Tenure Household Farm Forestry	500	1,500	2,500	3,000	-	7,500
C. Community Woodlots	1,000	1,000	1,500	1,500	-	5,000
D. Departmental -Rehabilitation/ Reforestation	4,000	5,000	5,000	6,000	-	20,000
-Roadside	400	500	600	700	-	2,500
	300-year 0					
-Canal side	60	70	80	90	-	300
-Railside	200	200	300	300	-	1,000

-Flood control	100	100	100	100	-	500
	100-year 0					
TOTALS 400-year 0	8,727	25,937	31,080	32,990	21,666	120,800

The above represents the best estimate of a balanced program based on previous experience with social forestry. Targets may be reallocated in light of experience during implementation, after discussion between GOR and the donors. In any case, plantation targets would be reassessed during the midterm review to be conducted after completion of the third year's planting.

1.03 Assurances were given at negotiations that GOR would inform IDA about any major developments concerning social forestry programs carried out by the forest department, in order to enable IDA to evaluate the impact, if any, such developments might have on project-financed activities. IDA and USAID would wish to be satisfied that staff and other resources to carry out additional programs would be sufficient, taking into account the organizational norms established at appraisal.

Agroforestry

1.04 Farm Forestry (80,000 ha). Farm forestry would account for two thirds of project plantation in the state. The only direct cost to the Forest Department is production of seedlings, as noted in para 1.12 under "Nurseries"). In planting on farm boundaries and bunds, around homesteads and on wastelands, farmers would generally select trees yielding fuelwood, small timber, fodder and fruits. Extension would be strengthened (para 1.14) in order to broaden farm forestry benefits, and to provide timely and improved advice.

1.05 The Forest Department has been supplying seedlings free of cost for farm forestry, although it now proposes limiting the number of free seedlings to 1000 per family by year 3, and 500 by year 5. For seedlings above the free limit, it would charge 5 paise per seedling in year 3, 10 in year 4 and 15 in year 5. The effects of pricing on seedling uptake would be studied by the midterm review, and the results applied with a view to full cost recovery in all farm forestry programs. Seedling pricing and distribution policies would be evaluated again during the Project's midterm review. GOR has given assurances that it would apply the seedling distribution and pricing policies agreed for the project at that time to all seedling distribution schemes, irrespective of source of funding.

1.06 Improved Orchards (4000 ha, US$0.2 M). Forest Department would graft the fruit (ber) yielding species of Zizyphus mauritania with other varieties, and would then distribute the plants to farmers. Farmers could begin selling

the fruit after the third year of plantation, and could also derive income from leaf fodder and lops for fuel. Forest Department estimates production of some 8,000 tons of fruit per year.

Tree Ownership for Poor and Landless (US$2.6 M)

1.07 Household Farm Forestry (7,500 ha) would give poor and landless persons tree tenure rights for trees planted on government wastelands unsuitable for agriculture and located near village. This would be done under the Rajasthan Land Revenue Rules, 1983, where land allotments are made for 25 years and may be extended. Individuals would plant around 0.5 ha a year, i.e., up to 2.5 ha over the five year project period. They would receive a cash incentive of Rs. 600 per year for each 0.5 ha planted, to compensate for labor foregone. Ideally, individuals in the same area would be grouped together, to facilitate collective participation and protection. Institutions might also apply for tree tenure rights. A copy of the lease-allotment rules already governing the above arrangements is in Project File B5. 4/

Plantations on Community Land (US$1.9 M)

1.08 Community Woodlots (5,000), established on panchayat land, would emphasize production of fuel, fodder, and small timber, with intercropping of fodder grasses. The Forest Department is already using munga grass and rutanjot and would experiment with castor or fodder-producing species as well. Forest Department would guide plantation establishment by the panchayats, intervening if necessary to ensure proper technical work. Over the course of the project, panchayats would take over plantation management. On condition that the panchayat would use some of the money to replant trees felled, 100% of the revenues from those trees would accrue to the panchayat.

Departmental Plantations

1.09 Rehabilitation of Degraded Forests (20,000 ha, US$2.7 M) would aim at production of cheap fuelwood for the community; 70% would be distributed, and the remainder sold. Forest Department would select sites as close to villages as possible, to foster local involvement and facilitate the distribution of benefits. Fast-growing species such as Prosopis juliflora would be raised. Fallen wood, fruits, seeds and other by products would be collected by villagers free of charges.

1.10 Strip Plantations (4300 ha, US$4.3 M) would be established along roads, canals and railway tracks, and on flood control and tank embankments. Forest Department would select strips wide enough that the most visible row could be kept for aesthetic purposes while the other rows could incorporate fast rotation trees to be felled periodically. Protection would be necessary

4/ Copies of the Project Files referred to in this Annex are available at IBRD, USAID/India, the GOI Ministry of Environment and Forests, and the forest departments of the participating states.

in many places, but the use of barbed wire is being discouraged in favor of other means such as live fencing (surrounding bunds sown with thorny species a year in advance), trenches, or stone walls (Udaipur area). Trenches would be dug for protection purposes along railway strips. As for benefits, all fuelwood would be distributed to adjacent villagers, equally to all households; lop and top would be collected free; and Forest Department would sell small timber poles. Although this plantation model is more expensive than the others, it is justified because of its environment benefits and promotional effects.

1.11 Fuelwood-Saving Devices would be promoted, based on the experience in Gujarat where improved crematoria have been used successfully to cut the requirement for fuelwood. Non-governmental and voluntary organizations which could help in their dissemination would be identified.

B. Nurseries (US$5.0 M)

1.12 The state originally proposed to establish 50 nurseries, each producing around 600,000 seedlings, or about one nursery per block, counting both existing (territorial) and new (social forestry) nurseries. Since these nurseries are aimed largely at farm forestry, it was decided during appraisal to increase the number of nurseries, perhaps to as many as 1,000, depending on overall finance available, cutting down their size so as to produce about 40,000 seedlings per nursery. This network of small more widely dispersed nurseries would provide better access to farmers and would proliferate focal points for extension by Forest Department. The cost of seedling production would also be reduced in some cases, through basketting of fingerlings and provision of seed mini-kits to farmers.

C. Institutional Support

1.13 Organization and Management (US$5.9 M) support would include addition of incremental staff, including 900 field staff. Project File C3, Item 2 describes organizational arrangements. About 850 motorcycles and bicycles, plus other vehicles, would provide field staff with requisite mobility; GOR will decide whether to furnish these vehicles directly or provide loans for their purchase. Travel allowances, especially those relating to rangers and foresters have recently been revised. The housing provided for 170 field staff located in remote areas should enhance contact at the local level. One important feature of the new organization would be the improved capacity for plantation management planning, including preparing detailed plans for the disposition of benefits, to be developed by the Planning, Evaluation and Monitoring (PEM) office.

1.14 Extension (US$0.8 M) would rely heavily on linkages with agricultural extension for transmitting social forestry recommendations to farmers. GOR

has already issued a Government Order to that effect, formally establishing the linkage between agricultural extension and forestry extension. As noted in Annex VI.A., however, the Forest Department would still have primary responsibility for social forestry extension. Besides field contacts, it would make use of media, publications and meetings. Also, 16 Van Chetna Kendras ("Awareness Centers") would be established, or nearly one per district in the project area.

1.15 Training (US$0.6 M) arrangements are detailed in Annex VI.A., Two new social forestry training facilities and their accompanying residences would be constructed under the project.

1.16 Monitoring and Evaluation (US$0.8 M) is also discussed in Annex VI.B. . The Planning, Evaluation and Monitoring (PEM) staff would work out of existing regional offices, thus saving on civil works and other office expenses. A microcomputer would be provided for data analysis, with training in its use also supplied under the project.

1.17 Research (US$0.2 M) The research program would include seed improvement, optimum polypot size, tissue culture, species improvement, pest control, and intercropping. Methods for reducing fencing costs and improving fodder production would be explored. The Forest Department would also expand its research on agroforestry and related recommendations for farmers. Further details on research are given in Annex III.C.

Rajasthan Subproject

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Financing Plan by Summary Accounts
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION		US AGENCY FOR INTERNATIONAL DEVELOPMENT		GOVERNMENT OF INDIA		Total		For. Exch.	Local (Excl Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%			
I. INVESTMENT COSTS											
A. CIVIL WORKS	771.0	50.0	-	-	771.0	50.0	1,542.1	4.7	73.0	1,469.1	-
B. VEHICLES	251.9	19.3	-	-	1,095.5	80.7	1,357.3	4.2	201.9	688.3	407.2
C. EQUIPMENT	36.6	9.5	-	-	346.3	90.5	382.8	1.2	36.6	269.7	76.6
D. FURNITURE	-	-	-	-	102.6	100.0	102.6	0.3	-	92.3	10.3
E. TRAINING											
1. STAFF TRAINING DOMESTIC	92.5	50.0	92.5	50.0	0.0	0.0	185.1	0.6	-	185.1	-
2. STAFF TRAINING INTERNATIONAL	53.1	50.0	53.1	50.0	0.0	0.0	106.3	0.3	95.0	11.3	-
Sub-Total TRAINING	145.7	50.0	145.7	50.0	0.0	0.0	291.4	0.9	95.0	196.4	-
F. TECHNICAL ASSISTANCE	2.8	50.0	2.8	50.0	0.0	0.0	5.6	0.0	-	5.6	-
G. SPECIAL STUDIES AND EVALUATION	14.1	50.0	14.1	50.0	-	-	28.2	0.1		28.2	
H. RESEARCH OPERATION AND GRANTS TO SAUS	28.2	50.0	28.2	50.0	0.0	0.0	56.3	0.2	-	56.3	-
I. PLANTATION											
1. NURSERY DEVELOPMENT	3,845.6	60.0	1,922.8	30.0	640.9	10.0	6,409.3	19.6	60.1	6,349.2	-
2. FARM FORESTRY	32.9	60.0	16.4	30.0	5.5	10.0	54.8	0.2	0.5	54.3	-
3. TREE TENURE PLANTING	2,211.3	60.0	1,105.7	30.0	368.6	10.0	3,685.5	11.3	34.3	3,651.3	-
4. COMMUNITY FOREST	1,512.2	60.0	756.1	30.0	252.0	10.0	2,520.3	7.7	23.5	2,496.8	-
5. WASTELAND PLANTATION	5,655.5	60.0	2,827.8	30.0	942.6	10.0	9,425.9	28.9	88.1	9,337.8	-
Sub-Total PLANTATION	13,257.5	60.0	6,628.8	30.0	2,209.6	10.0	22,095.9	67.7	206.6	21,889.3	-
J. FUELWOOD SAVING DEVICES	56.8	60.0	28.4	30.0	9.5	10.0	94.7	0.3	-	94.7	-
Total INVESTMENT COSTS	14,574.6	56.1	6,847.9	26.4	4,534.4	17.5	25,957.0	79.5	673.0	24,790.0	494.0
II. RECURRENT COSTS											
A. STAFF SALARIES	1,691.3	29.5	1,691.3	29.5	2,353.1	41.0	5,735.8	17.6	-	5,735.8	-
B. STAFF TRAVEL ALLOWANCE	154.2	62.5	-	-	92.5	37.5	246.7	0.8	-	246.7	-
C. BUILDING RENT AND MAINTENANCE	-	-	-	-	48.3	100.0	48.3	0.1	2.3	41.2	4.8
D. VEHICLE OPERATION AND MAINTENANCE	157.3	39.0	-	-	246.0	61.0	403.3	1.2	37.9	365.4	-
E. OFFICE AND OTHER EXPENDITURE	-	-	-	-	265.1	100.0	265.1	0.8	-	265.1	-
Total RECURRENT COSTS	2,002.8	29.9	1,691.3	25.2	3,005.1	44.9	6,699.1	20.5	40.2	6,654.1	4.8
Total Disbursement	16,577.4	50.8	8,539.2	26.1	7,539.5	23.1	32,656.1	100.0	713.1	31,444.1	498.9

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GUJARAT STATE

PROJECT DESCRIPTION

A. Plantation Program

1.02 The plantation program would have the following phasing, with farm forestry equivalent hectares derived by dividing the number of seedlings by 1500.

Table 1.01: PHASING OF THE PLANTATION PROGRAM

Plantation Category	85/86- Year 1	86/87- Year 2	87/88- Year 3	88/89- Year 4	89/90- Year 5	Total
A. Agroforestry						
-Farm Forestry	40,000	40,000	40,000	40,000	40,000	200,000
-Private Wasteland Planting	5,600	6,100	7,100	7,100		30,500
	4,600-year 0					
B. Tree Tenure Schemes (none)						
C. Community Plantations						
-Community Woodlots, Rainfed	4,000	4,000	4,000	4,000	-	20,000
	4,000-year 0					
-Community Woodlots, Irrigated	1,000	1,000	1,000	1,000	-	5,000
	1,000-year 0					
-Community Tree Fodder Lots	1,500	2,500	2,500	2,500	-	10,000
	1,000-year 0					

D. Departmental Plantations						
-Rehabilitation/ Degraded Area	5,700 5,200-year 0	6,500	6,500	6,500	-	30,400
-Strip Plantations	3,000 3,000-year 0	3,000	3,000	3,000	-	15,000
-Urban Fuelwood Plantations	400 400-year 0	500	600	600	-	2,500
TOTALS 19,200-year 0	61,200	63,600	64,700	64,700	40,000	313,400

The above represents the best estimate of a balanced program based on previous experience with social forestry; however, these targets may be changed in light of experience during project implementation, after discussions between GOG and the donors. In any case, plantation targets would be reassessed during the midterm review, to be conducted after completion of the third year's planting.

1.03 Assurances were given at negotiations that GOG would inform IDA about any major developments concerning social forestry programs carried out by the forest department, in order to enable IDA to evaluate the impact, if any, such developments might have on project-financed activities. IDA and USAID would wish to be satisfied that staff and other resources to carry out additional programs would be sufficient, taking into account the organizational norms established at appraisal.

Agroforestry

1.04 Farm Forestry (200,000 ha) would represent nearly two thirds of plantation under the project, with distribution of some 200 million seedlings fully prepared in the nurseries, and another 100 million dharu seedling fingerlings basketted and given to farmers to raise to a larger seedling size. The only direct costs of this model, listed in para 1.14, would be for nursery seedling production. Gujarat has succeeded in reaching a percentage of small and marginal farmers which is proportional to their representation in the farm population. However, the total number of farmers receiving seedlings in Gujarat is still relatively small. This project would further strengthen extension which should enable the program to reach more beneficiaries.

1.05 The Forest Department has been supplying seedlings for farm forestry within a free limit of 3500 which would be reduced to 1000 in year 1 of the project, to 800 in year 2, 600 in year 3, 400 in year 4, and 200 in year 5.

In addition, the state would raise the present charge of 5 paise per seedling to 10 paise in years 3 and 4 and 20 paise in year 5. The effects of pricing on seedling uptake would be studied by the time of the midterm review, and the results applied to the formulation of the pricing and free seedling distribution policy, with the aim of achieving full cost recovery in all farm forestry programs.

1.06 Private Wasteland Planting (30,500 ha, US$5.4 M) would represent an expansion statewide of the "Malki Lands" model of the previous project, whereby Forest Department assists farmers in planting areas of their land which are seriously eroded or in danger of erosion. Special attempts would be made to include scheduled caste and tribal farmers and to explore new agroforestry and intercropping models which would bring earlier returns (e.g. intercropping with herbaceous fodder). While the state had originally proposed providing an incentive for five years for the farmer, to compensate for labor foregone elsewhere, it was agreed that since the only substantial labor input occurs during the first two years, the Rs. 250 per year incentive payment should go the farmer for those years only (provided that survival is not less than 60%). Besides the usual benefits flowing to the farmer from such plantation, environmental improvement also constitutes an important benefit in this model.

Community Plantations

1.07 Community Woodlots, Rainfed (20,000 ha, US$11 M) would be raised on village waste and grazing lands, after Forest Department reaches a written agreement with the community ensuring popular support and outlining the respective responsibilities and benefits involved. Woodlots would be larger under this model than during the previous project, which would help raise the benefits for individuals and reduce the per hectare costs of protection. About 20% of the produce would be sold at concessional rates, with the remainder sold at market prices and the proceeds divided between Forest Department (for cost recovery) and the community.

1.08 Community Woodlots, Irrigated (5000 ha, US$10 M) would be established for fast growth and high production, and hence high benefits, where village irrigation facilities are available. A limit of 4 ha per village would be imposed.

1.09 Community Tree Fodder Lots (10,000 ha, US$2.8 M) component is designed to help meet the growing shortage of fodder and to provide villagers with special benefit because of the high price now carried by this product. Grass would be harvested several times each year, and leaf fodder would also be collected at specified intervals. Although the Forest Department had originally proposed also to produce fodder on its land, that component was

dropped because of its lesser value as "social" forestry and because dairy cooperatives or other agencies seem better suited to such a task.

Departmental Plantations

1.10 Rehabilitation of Degraded Area (30,400 ha, US$15.7 M) would be conducted in denuded and degraded forest lands, favoring sites nearer settlements to facilitate participation and distribution of benefits. Government wastelands and ravines might also be selected for reforestation, especially when substantial environmental benefits would accrue. At appraisal, stress was laid on plantation of fuelwood in this model, to help increase supplies of fuelwood available to the poor.

1.11 Strip Plantations (15,000 ha, US$20.7 M) would be established where sufficient width of strip exists that all but the most prominent (aesthetic) row could be harvested on fast rotation for wood production. Most strips along major highways and canals were included in the previous project. This project's plantation would concentrate on district and village roads and minor canals. Of the sites, 85% would be along roads, 10% along railway tracks, and 5% on canal banks. Fuelwood and timber would constitute major products, to be distributed to adjacent residents on terms agreed by Forest Department and villages before plantation establishment.

1.12 Urban Fuelwood Plantations (2,500 ha, US$4.7 M) would be located in areas where the demand for fuelwood is high in nearby towns and cities, mainly in the Panam Command areas. This represents an effort by the Forest Department to ensure that fuelwood is being produced for these areas, since wood grown by individuals and communities might also be sold by them for commercial purposes (e.g., poles and small timber).

1.13 Fuel-saving devices were successfully promoted under the previous project. Forest Department would install another 10,000 stoves and 1,000 crematoria as part of its continuing effort to help solve the fuelwood shortage by more efficient fuelwood use.

B. Nurseries (US$4 M)

1.14 Gujarat has lead the way in India in establishing small "kissan" (farmer operated) and school operated nurseries. The project would help establish over 2,500 more such nurseries.

C. Institutional Support

1.15 Organization and Management (US$7.9 M) improvements would involve relatively few incremental staff, including 163 professional positions mainly for expanded extension activities. Annex VI.A. explains how the

organization would be strengthened. An important element, added during appraisal, would be the provision of vehicles to improve mobility of field staff, including nearly 500 motorcycles. In addition, housing for 460 staff serving in remote areas would be constructed.

1.16 Extension (US$0.2 M) strengthening has already begun with linkage over the past year between forestry extension and the Training and Visit System of agricultural extension in the state. This would be continued and Forest Department would also broaden extension in other areas. Of particular interest is an attempt to involve schools more actively through forestry curricula, nursery operation, and establishment of school plantations. Under this project, social forestry field staff would be split between plantation and extension work, to give more focus to the latter; this would entail addition of some new staff. Social workers would be hired to help supervise the field extension staff.

1.17 Training (US$0.6 M) assistance would include, inter alia, basic training for newly recruited staff and addition of a DCF-level instructor at Rajpipla. The training strategy is described in Annex VI.A.

1.18 Planning (US$0.1 M) improvements would include appointment of a conservator-level officer for planning, information reporting (M&E) and project formulation, and strengthening of that office. Among key responsibilities of the planning staff would be formulation of plantation management plans on how plantation produce (or the proceeds from its sale) would be distributed. These plans would apply to the plantations established during the previous project and now reaching harvestable age, as well as to the project plantations. This office would also formulate future social forestry projects.

1.19 Monitoring and Evaluation (US$0.4 M) support would build on capacity already established and would help computerize the existing information system. The state has already made a good start by surveying farmers in two districts, but additional resources are required for improved state-wide coverage.

1.20 Research (US$0.3 M) In addition to research work already in progress, work would be introduced on optimal soil working techniques, species trials under difficult agro-climatic conditions, agroforestry approaches and pollarding and lopping regimes, and fertilizer applications. The project would provide new equipment and technical assistance, among other things. The proposed Research Advisory Council would help to formulate the research program and evaluate results. Further details are given in Annex III.C.

Gujarat Subproject

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Financing Plan by Summary Accounts
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION		US AGENCY FOR INTERNATIONAL DEVELOPMENT		GOVERNMENT OF INDIA		Total		For. Exch.	Local (Excl Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%			
I. INVESTMENT COSTS											
A. CIVIL WORKS	1,551.5	50.0	-	-	1,551.5	50.0	3,103.1	2.9	146.0	2,957.1	-
B. VEHICLES	71.4	19.2	-	-	300.0	80.8	371.4	0.3	71.4	188.6	111.4
C. EQUIPMENT	34.3	9.5	-	-	326.1	90.5	360.4	0.3	34.3	254.0	72.1
D. FURNITURE	-	-	-	-	61.6	100.0	61.6	0.1	-	55.4	6.2
E. TRAINING											
1. STAFF TRAINING DOMESTIC	268.1	50.0	268.1	50.0	0.0	0.0	536.2	0.5	-	536.2	-
2. STAFF TRAINING INTERNATIONAL	57.3	50.0	57.3	50.0	0.0	0.0	114.6	0.1	102.4	12.1	-
3. FARMER TRAINING AND EXTENSION	28.2	50.0	28.2	50.0	0.0	0.0	56.3	0.1	-	56.3	-
Sub-Total TRAINING	353.5	50.0	353.5	50.0	0.0	0.0	707.1	0.7	102.4	604.6	-
F. TECHNICAL ASSISTANCE	97.0	50.0	97.0	50.0	-	-	194.1	0.2	-	194.1	-
G. SPECIAL STUDIES AND EVALUATION	4.9	50.0	4.9	50.0	-	-	9.9	0.0	-	9.9	-
H. PLANTATION											
1. NURSERY DEVELOPMENT	2,902.1	60.0	1,451.1	30.0	483.7	10.0	4,836.8	4.5	45.7	4,791.2	-
2. FARM FORESTRY	4,278.2	60.0	2,139.1	30.0	713.0	10.0	7,130.4	6.6	66.8	7,063.7	-
3. COMMUNITY FOREST	18,492.3	60.0	9,246.1	30.0	3,082.0	10.0	30,820.5	28.5	288.9	30,531.6	-
4. WASTELAND PLANTATION	31,538.1	60.0	15,769.0	30.0	5,256.3	10.0	52,563.4	48.7	493.1	52,070.3	-
Sub-Total PLANTATION	57,210.7	60.0	28,605.4	30.0	9,535.1	10.0	95,351.2	88.3	894.4	94,456.8	-
I. FUELWOOD SAVING DEVICES	338.1	60.0	169.0	30.0	56.3	10.0	563.5	0.5	-	563.5	-
Total INVESTMENT COSTS	59,661.5	59.2	29,229.9	29.0	11,830.7	11.7	100,722.1	93.2	1,248.5	99,283.9	189.6
II. RECURRENT COSTS											
A. STAFF SALARIES	1,422.5	31.6	1,422.5	31.6	1,660.1	36.8	4,505.2	4.2	-	4,505.2	-
B. STAFF TRAVEL ALLOWANCE	300.3	66.5	-	-	151.5	33.5	451.8	0.4	-	451.8	-
C. BUILDING RENT AND MAINTENANCE	-	-	-	-	326.3	100.0	326.3	0.3	15.3	278.4	32.6
D. VEHICLE OPERATION AND MAINTENANCE	304.0	45.9	-	-	357.9	54.1	661.9	0.6	62.4	599.6	-
E. OFFICE AND OTHER EXPENDITURE	-	-	-	-	1,373.9	100.0	1,373.9	1.3	-	1,373.9	-
Total RECURRENT COSTS	2,026.8	27.7	1,422.5	19.4	3,869.8	52.9	7,319.2	6.8	77.7	7,208.9	32.6
Total Disbursement	61,688.4	57.1	30,652.4	28.4	15,700.4	14.5	108,041.2	100.0	1,326.2	106,492.8	222.3

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HIMACHAL PRADESH

PROJECT DESCRIPTION

A. Plantation Program

1.02 The plantation program would have the following phasing, with farm forestry equivalent hectares derived by dividing the number of seedlings distributed by 1500.

Table 1.01: PHASING OF THE PLANTATION PROGRAM

Plantation Category	85/86- Year 1	86/87- Year 2	87/88- Year 3	88/89- Year 4	89/90- Year 5	Total
A. Agroforestry						
--Farm Forestry	8,000	9,300	10,400	12,000	13,300	53,000
--Private Wasteland Planting	2,350	2,600	2,850	3,100	-	13,000
	2100-year 0					
B. Tree Tenure-Poor and Landless						
--Group Farm Forestry	60	113	200	200	260	833
C. Community Plantations						
--Community Woodlots Self help	100	150	200	250	300	1,000
--Community Woodlots Rainfed	7,250	8,000	8,750	9,250	-	40,000
	6,750-year 0					
D. Departmental Plantations						
--Rehabilitation	750	750	1,250	1,250	-	5,000
	750-year 0					
TOTAL 9,600 - year 0	18,510	21,163	23,650	26,050	13,860	112,833

The above represents the best estimate of a balanced program, given previous experience with social forestry. Targets may be reallocated in light of

experience during implementation, after discussion between GOHP and the donors. In any case, plantation targets would be reassessed during the midterm review, to be conducted after completion of the third year's planting.

1.03 Assurances were given at negotiations that GOHP would inform IDA about any major developments concerning social forestry programs carried out by the forest department in order to enable IDA to evaluate the impact, if any, such developments might have on project-financed activities. IDA and USAID would wish to be satisfied that staff and other resources to carry out additional programs would be sufficient, taking into account the organizational norms established at appraisal.

Agro-Forestry

1.04 Farm Forestry (53,000 ha) would constitute a lower percentage of the total state plantation program than in the other NSFP states, because holdings are relatively small and may already have a number of trees (although often long rotation ones). Moreover, seedling distribution has lacked the large promotional efforts made to date in other NSFP states and will take time to expand. The only direct cost attached to farm forestry relates to seedling production, described in para 1.12.

1.05 The HP Forest Department has been selling seedlings for farm forestry at a price of 10 paise each, and will raise the charge to 15 paise in years 3 and 4, and 20 paise in year 5. The effects of pricing on seedling uptake would be studied by the midterm review, and the results applied with a view to achieving full cost recovery in all farm forestry programs. Some free seedlings have been distributed under various centrally sponsored schemes with social forestry components and this may be continued under programs for small and marginal farmers.

1.06 Private Wasteland Planting (13,000 ha, US$ 2.0 million) provided for under statute Ft. 60-36/38(m) of Himachal Pradesh Government, would be taken up on the following conditions: (a) highly eroded or erodable land, as defined by existing FD criteria, (b) 5 or more hectares included for each site, and (c) no one farmer having over 2 ha per site. GOHP would explore ways to reduce costs for this component, particularly the cost of barbed wire fencing. Individuals planting the land would collect grasses, leafy fodder and fuelwood. After Forest Department recovers its costs from sale of produce, the remaining procedes would go to those owning the land.

Tree Tenure for Poor and Landless

1.07 Group Farm Forestry on Government Land (833 ha, US$0.1 M) would involve plantation of 1.25 million seedlings, a fivefold increase over the

original proposal in order to permit a thorough trial of this innovative component. The test would concentrate on 3-5 districts, but targets could expand. All secondary products would go to the individuals working the land; they would also take all procedes from sale of final harvesting after the Forest Department recovers its costs.

Community Plantation (US$13.0 million)

1.08 Self-help Community Woodlots (1,000 ha) would entail establishment of trees by the community itself, thereby reducing costs to the Forest Department, and raising the net benefits to the community after the Forest Department recovers its costs. While panchayats have participated in management of plantations in the past, this component would introduce a more active community role. The project supports the idea of reviving the HP Forest Societies, which were created to take an active role in forestry but have lapsed because of inattention in recent years.

1.09 Rainfed Community Woodlots (40,000 ha) would follow the existing GOHP guidelines for distribution of produce and tree by-products to local communities to meet bonafide needs (as defined in the State Panchayat Act). Species mix would favor shorter rotation trees and ones which yield other products (e.g. leaf fodder) in order to provide earlier returns than in previous years. In this and the following component, conifer and broadleaf branch fuelwood, leaf fodder and grass would be collected free by residents in the area. Timber Distribution (TD) rights for all panchayat residents would be provided from stemwood.

Departmental Plantations

1.10 Rehabilitation of Degraded Forests (5,000 ha, US$ 1.6 million) would be done in selected areas contiguous with a larger community forest plantation area, where the two could be treated as a single unit. The reasons for this are that degraded sites should be located near communities and that these sites involve types of GOHP land where the distributional guidelines for this social forestry project cannot be met. When not distributed directly, produce would be sold at concessional prices to adjacent communities, after Forest Department recovers its plantation costs.

1.11 Fuelsaving Devices (7,500) would be installed to help promote more efficient use of fuelwood and would make use of the successful experience from the Dhauladhar Project. Women extension workers, hired under the project, would help convince users to accept improved stoves.

B. Nurseries (US$ 7.0 million)

1.12 Originally the state proposed establishing large departmental nurseries, but during appraisal the state agreed to expand the number of small nurseries to the extent possible, in order to facilitate better access by farmers to seedlings and extension, particularly since the hilly terrain of the state makes transport over distances costly and time consuming and tends to raise seedling mortality rates. All nurseries near villages would be stocked with some faster growing species, e.g., poplar, albizia and fodder producing trees. High priority would be given to nursery trials for reducing costs, improving technical aspects, etc.

C. Institutional Support

1.13 Organization and Management (US$10.4 million) strengthening would entail provision of incremental staff, including some 575 professional positions primarily focussed on such "extension" work as farm forestry promotion and formulation of agreements with villages, construction of housing for 250 field staff posted in remote areas and 175 motorcycles plus other vehicles for field staff. Annex VI.A. explains changes to made in the organizational structure in the state. Under NSFP, GOHP undertook to maintain a single line of command over field staff below the conservator level. The monitoring and evaluation system would be established as soon as possible according to the GOI/IDA/FAO guidelines.

1.14 Extension (US$ 0.4 million) would depend largely on Forest Department resources at first, since of T&V agricultural extension has not yet been established in the state. For this reason, the social forestry extension would receive special strengthening under NSFP. However, agricultural extension authorities have indicated their willingness to collaborate with Forest Department on social forestry extension once the new agricultural extension system is established.

1.15 Training (US$ 0.9 million) support would allow the Forest Department to expand its inservice training as a key training component. The training situation and strategy is detailed in Annex VI.A.

1.16 Monitoring and Evaluation (US$ 1.3 million) would to be strengthened consistent with the guidelines agreed by GOI and IDA. The project would provide, inter alia, technical assistance on M&E methodology, field investigators and supervisors, a micro-computer, and civil works. Priority would be given to a survey of farm forestry.

1.17 Research (US$ 0.5 million) The project would provide selective support to applied trials on subjects such as seed improvement, nursery methodology, species and provenance trials and growth and production studies of plantation models. Civil works would support expanded field research. Although somewhat broader research activities within the Forest Department were originally proposed, it later agreed that existing institutions such as the one at Solan should take on additional research, for which they are already well equipped. Further details on research are given in Annex III.C.

Himachal Pradesh Subproject

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Financing Plan by Summary Accounts
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION		US AGENCY FOR INTERNATIONAL DEVELOPMENT		GOVERNMENT OF INDIA		Total		For. Exch.	local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%			
I. INVESTMENT COSTS											
A. CIVIL WORKS	1,789.7	50.0	-	-	1,789.7	50.0	3,579.3	7.5	168.3	3,411.0	
B. VEHICLES	198.0	19.1	-	-	836.0	80.9	1,034.0	2.2	198.0	525.8	310.2
C. EQUIPMENT	74.1	9.5	-	-	709.8	90.5	783.9	1.6	74.1	553.0	156.8
D. FURNITURE	-	-	-	-	43.3	100.0	43.3	0.1	-	39.0	4.3
E. TRAINING											
1. STAFF TRAINING DOMESTIC	330.5	50.0	330.5	50.0	0.0	0.0	661.0	1.4	-	661.0	-
2. STAFF TRAINING INTERNATIONAL	62.8	50.0	62.8	50.0	0.0	0.0	125.6	0.3	112.2	13.4	-
3. CENTRALLY - SPONSORED WORKSHOPS	3.9	50.0	3.9	50.0	0.0	0.0	7.9	0.0	-	7.9	-
Sub-Total TRAINING	397.2	50.0	397.2	50.0	0.0	0.0	794.4	1.7	112.2	682.2	-
F. TECHNICAL ASSISTANCE	2.8	50.0	2.8	50.0	0.0	0.0	5.6	0.0	-	5.6	-
G. SPECIAL STUDIES AND EVALUATION	74.0	50.0	74.0	50.0	0.0	0.0	148.0	0.3	-	148.0	-
H. RESEARCH OPERATION AND GRANTS TO SAUS	12.9	50.0	12.9	50.0	-	-	25.8	0.1	-	25.8	-
I. PLANTATION											
1. NURSERY DEVELOPMENT	5,398.5	60.0	2,699.3	30.0	899.8	10.0	8,997.5	18.8	84.5	8,913.0	-
2. FARM FORESTRY	1,566.4	60.0	783.2	30.0	261.1	10.0	2,610.6	5.5	24.4	2,586.2	-
3. COMMUNITY FOREST	10,062.2	60.0	5,031.1	30.0	1,677.0	10.0	16,770.3	35.1	157.3	16,613.0	-
4. WASTELAND PLANTATION	1,229.0	60.0	614.5	30.0	204.8	10.0	2,048.3	4.3	19.2	2,029.1	-
Sub-Total PLANTATION	18,256.1	60.0	9,128.0	30.0	3,042.7	10.0	30,426.8	63.7	285.5	30,141.3	-
J. FUELWOOD SAVING DEVICES	34.2	60.0	17.1	30.0	5.7	10.0	57.0	0.1	-	57.0	-
Total INVESTMENT COSTS	20,839.0	56.5	9,632.1	26.1	6,427.1	17.4	36,898.3	77.3	838.1	35,588.8	471.3
II. RECURRENT COSTS											
A. STAFF SALARIES	2,637.0	32.5	2,637.0	32.5	2,835.0	35.0	8,109.0	17.0	-	8,109.0	-
B. STAFF TRAVEL ALLOWANCE	558.8	68.4	-	-	258.4	31.6	817.2	1.7	-	817.2	-
C. BUILDING RENT AND MAINTENANCE	-	-	-	-	113.6	100.0	113.6	0.2	5.3	97.0	11.4
D. VEHICLE OPERATION AND MAINTENANCE	265.0	37.9	-	-	435.1	62.1	700.1	1.5	65.8	634.3	-
E. OFFICE AND OTHER EXPENDITURE	-	-	-	-	1,104.8	100.0	1,104.8	2.3	-	1,104.8	-
Total RECURRENT COSTS	3,460.8	31.9	2,637.0	24.3	4,746.9	43.8	10,844.7	22.7	71.1	10,762.3	11.4
Total Disbursement	24,299.8	50.9	12,269.1	25.7	11,174.1	23.4	47,743.0	100.0	909.2	46,351.1	482.7

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Summary Description and Cost Table of NSFP
GOI Subproject (Social Forestry Support Office)

I. Background

A. Physical Achievements

1. The earliest initiatives in India in social forestry came from the states. The Government of India (GOI) has supported these initiatives and stepped up its own efforts during the Fifth Plan period (1974/75-1978/79) by guiding external assistance to the states and recommending steps for development of state social forestry operations (e.g., creation of separate social forestry wings). Annex II.A summarizes the physical achievements under the Sixth Plan (1980/81-1984/85) for centrally-sponsored schemes, donor-assisted schemes and state-sponsored schemes. Together, they have accounted for a total of nearly four million hectares of social forestry plantation under the Sixth Five-Year Plan.

2. GOI's Twenty Point Program put heavy emphasis on social forestry, as does the new Ten Point Program, and the states have increased their social forestry activities, under both plan and non-plan budgets. A GOI survey of several majoes shows that the percentage of social forestry expenditure out of all fores expenditure accounted for 8%, 28% and 51% for the Fourth through Sixth Five-year Plans, respectively. As shown in Annex II.A. state-sponsored social forestry schemes have amounted to at least 1.3 M ha during the Sixth Plan.

3. By the 1979/80 Annual Plan and Sixth Five-Year Plan, several centrally-sponsored schemes featured social forestry components, the most prominent being the Rural Fuelwood Program (RFP), Drought Prone Areas Program (DPAP), Small and Marginal Farmers Program, National Rural Employment Program (NREP), Rural Landless Guarantee Employment Program (RLGEP), Desert Development Program, and River Valley Program. Annex II.A shows the physical achievements of these schemes, which total nearly 2 million hectares for the Sixth Plan period, not counting some schemes for which information was not available.

4. Until the end of 1984, the centrally-sponsored schemes were administered by the Ministry of Agriculture, the Ministry of Rural

Development and the Ministry of Energy. The decisions as to who would implement social forestry and what kind of plantations would be established under centrally sponsored schemes were normally made at the district or block level. The Forest Department has been called upon to implement about 80% of these centrally-sponsored social forestry components (in addition to its state and donor-assisted social forestry activities) because of its obvious advantages in technical expertise, support services, nurseries and other resources.

5. Donor-assisted schemes are coordinated by the Inspector General of Forests (IGF) in Government of India (GOI). As of May, 1985, there were thirteen state-based social forestry projects financed by donor agencies including the International Development Association (IDA), United States Agency for International Development (USAID), Swedish International Development Association (SIDA), Canadian International Development Association (CIDA) and the Overseas Development Association (ODA). In addition, GOI has been helping states to prepare six projects for donor assistance. Table 3 shows progress under these projects up to 1984/85. Table 1 shows that physical achievements of these projects total some 680,000 ha during the Sixth Plan.

6. The targets for social forestry plantation during the Seventh Plan period (1985/86-1989/90) may be quintupled over those of the Sixth Plan.

B. Financial Commitments

7. The funds allocated for social forestry have risen sharply over the past three Plan periods, from Rs 71 million in the Fourth Plan to 525 million in the Fifth Plan and to over Rs 7,695 million in the Sixth Plan. Expenditures during the Sixth Plan on social forestry under centrally-sponsored schemes, donor-assisted schemes and state schemes are shown in Annex II.A.

8. In centrally-sponsored schemes, GOI normally provides half of the financial support and the state the other half. In donor-assisted schemes, the state generally receives 70% of the foreign assistance (in addition to any other GOI cost sharing) and GOI keeps the remainder. In state-sponsored activities, the state finances the entire scheme.

9. While strip plantations and rehabilitation of degraded forests use to have a more prominent place in social forestry programs, farm forestry and other schemes involving community participation have acquired greater importance in recent years. In IDA-assisted projects, the proportion

targetted for farm forestry has risen from 10% in early projects to as much as 80% in recent ones.

C. GOI Technical Support for Social Forestry

10. Under centrally-sponsored schemes, the GOI department/division involved issues guidelines to states as to general levels and types of targets and implementation criteria (e.g., components which are eligible for funding and identification of beneficiaries of employment or distribution of product). The states submit reports to GOI reporting progress and state and GOI officials meet, generally in Delhi, to review progress.

11. IGF staff has maintained a close and growing involvement in the preparation, supervision, and monitoring and evaluation of donor-assisted projects. Recently, monitoring and evaluation assistance has extended beyond donor projects to all social forestry programs. The Chief Project Economist in the IGF's office has spent the majority of his time helping formulate preparation reports for each project proposed for donor assistance, and has also accompanied the appraisal teams on some field tours in addition to working with them in Delhi. The Deputy IGF/Monitoring and Evaluation (DIGF/M&E) has spent over half of his time monitoring progress of state projects and helping the states to implement the M&E Guidelines 1/ (through field visits, organization of workshops, informal discussions, etc.). The DIGF/M&E also works with donor review missions visiting the country and normally accompanies them during part of their field visits to the states. Such supervision of projects consumes a large past of his time. In addition, the Chief Project Economist and DIGF/M&E have provided such other support for social forestry as clearance of requests for international courses and study tours and mounting of workshops and interstate conferences. They are also called on to assist in various other tasks unrelated to social forestry, for instance, establishment of a fire fighting project.

12. The principal GOI organizations dealing with social forestry schemes have been the office of the Inspector General of Forests, the Ministry of Rural Development (Drought Prone Areas Programs, Rural Landless Guarantee Employment Program, National Rural Employment Program) and

1/ R. H. Slade and R. Noronha with contributions from J. G. Campbell, P. Guhathakurta, and B. Tepping, "An Operational Guide to the Monitoring and Evaluation of Social Forestry in India," Working Draft, June 1984.

the Department of Non-conventional Energy Services in the Ministry of Energy. In late 1984, a new Ministry of Environment and Forests was established directly under the Prime Minister and the IGF was promoted to Secretary of Forests as head of the department dealing with social forestry and other central forest activities. A newly created National Wasteland Development Board will also be associated with social forestry activities. Since the Ministry of Environment and Forests has only recently been established, its internal organization is still being formulated.

D. GOI Social Forestry Organization

13. In anticipation of the National Social Forestry Project, the IGF proposed establishing a central unit to support social forestry. GOI approved the plan for a Project Formulation Cell, but action on a proposed project Monitoring and Evaluation Cell was delayed. By the end of 1984, GOI had sanctioned 19 staff positions, which would make up a new Project Formulation Cell, headed by the Chief Project Economist. As of May 1985, eight of these positions had been filled and candidates had been identified for another two other positions. The central Social Forestry Support Office has taken on greater significance with the creation of the Ministry of Environment and Forests and with the realization that plantation targets for social forestry would increase even more than originally planned due to the new Prime Minister's interest in social forestry.

II. PROPOSED ORGANIZATIONAL STRENGTHENING

A. Justification

14. Although both the scope and financing for centrally-sponsored as well as donor-assisted social forestry schemes grew considerably during recent years, the staff and resources allocated in central government for social forestry support have remained virtually constant (except for lower level professional and clerical staffing in the Project Formulation Cell). Thus, central government support to individual states and schemes has been spread increasingly thin.

15. While the states have generally made good progress in achieving their quantitative targets for plantation establishment and seedling distribution, several shortcomings in their social forestry programs are generally apparent. To date only a relatively small proportion of farmers

has been reached, especially among smaller and poorer farmers. It has proven difficult to find ways of involving the landless or ensuring their access to fuelwood and other basic wood requirements. Low survival rates, poor choice of species and insufficient extension in much farm forestry have resulted in reduced benefits for farmers. Forest departments have had only limited success in involving local panchayats/communities in community woodlots. While primary responsibility for improving program quality lies with the states, the Social Forestry Support Office should play a substantive role in supporting state level social forestry activities, as indicated below.

16. First, the Social Forestry Support Office would continue its work on project formulation and monitoring guidance and would participate increasingly in the supervision of state social forestry project. As part of this, it would collect statistics and information, including data on the level of planting under social forestry schemes in each of the states; it would develop a standard reporting format to collect these data from the states. It could also compile comparative survey information, for instance, on the effects of different seedling price policies on seedling uptake and promotion of private nurseries.

17. Second, the Social Forestry Support Office would facilitate cross-fertilization of experience among states. While states may have discussions or occasionally visit one another, only a central organization could provide a broad forum for regular and systematic exchanges, whether technical, organizational or functional in nature. For example, through the Support Office states could share information on silvicultural models, methods for facilitating local involvement in woodlots and other models, use of mass media, public relations and other communications approaches, techniques for contracting with NGOs and research organizations, promotion of woodstoves and other energy conserving technology, special schemes for marginal farmers and the landless, and deployment of women in staff roles.

18. Third, there are certain special studies on social forestry which the center can best do, e.g., to complement the wood balance studies by states. The Support Office would not only compile data from individual states but also would analyze interstate flows of wood and how activities in one state affect supply and demand in neighboring states. Special studies could be done on topics of national significance, such as the effects of fast growing species on agricultural production.

19. Fourth, because of economies of scale, the center is better equipped to handle certain interstate activities. For example, states need intensive training for their instructors in social forestry and it would be uneconomic for each state to train a few instructors, while the Support Office could organize social forestry training for trainers and

benefit from the trainers interchange. Other central support could include technical assistance in areas such as selection and use of software, farm forestry extension and planning/programing/budgeting for social forestry.

20. Fifth, the Support Office could provide technical, organizational, and economic assistance to the small Northeastern States and other areas where it is difficult to channel foreign assistance.

21. Sixth, the Support Office could help states to develop formats for operational documents, e.g., plantation site management plans or legal agreements between forest departments and local organizations on sharing of responsibilities or benefits.

B. Proposed Organization of Social Forestry Support Office

22. To provide the kind of support described above, the Social Forestry Support Office will be expanded and reorganized. A second Additional IGF would undertake direct supervision of the Social Forestry Support Office. The current AIGF would be responsible for other forestry activities. The offices of the Chief Project Economist and Deputy IGF/Monitoring and Evaluation would be strengthened, with a Training Coordinator (at the Conservator of Forests level) added to the latter office.

23. Five zonal offices would be formed, each headed by a Chief Conservator of Forests (General) to be assisted by a Conservator of Forests and two Deputy Conservators of Forests. Each zonal office would arrange technical assistance and training for the states in its region, would collect data on plantation activities, and would conduct special studies of a regional nature.

24. The states would help direct Social Forestry Support Office activities. The Office would enlist participation of state officials in planning its program of studies, technical assistance and training. Seminars with state representatives would analyze experience in social forestry and suggest new directions.

25. Training and technical assistance would be a major role of the Support Office. The Annex "Suggested Training and Technical Assistance Activities" lists a variety of such activities. Under the guidance of the Training Coordinator, the Social Forestry Support Office would provide or facilitate training and technical assistance. The Indian Institute for Forest Management could take a lead in more formal courses for higher

level staff. Other organizations such as the India Institute of Management could be called on for special assistance.

26. Training support would include: (a) identification of training needs; (b) identification of domestic and international training opportunities; (c) setting up of international study tours and domestic courses; (d) processing of nominations; (e) identification of trainers, guest lecturers and subject matter advisers; (f) assistance in development of curricula and course materials. As for technical assistance, the Support Office would provide assistance from its own staff and through its own technical assistance budget; in addition it would help identify suitable candidates for states to hire with their own funds. The project would encourage the use of retired forestry staff and deputation of other experienced staff to the Support Office for 2-3 year tours.

GOI Subproject
(Social Forestry Support Office)

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Financing Plan By Disbursement Category
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION		US AGENCY FOR INTERNATIONAL DEVELOPMENT		GOVERNMENT OF INDIA		Total		For. Exch.	local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%			
A. CIVIL WORKS	96.8	50.0	-	-	96.8	50.0	193.6	3.9	9.2	184.4	-
B. VEHICLES	24.1	19.4	-	-	100.3	80.6	124.5	2.5	24.1	63.0	37.3
C. EQUIPMENT	26.6	9.6	-	-	249.6	90.4	276.2	5.5	26.6	194.4	55.2
D. FURNITURE	-	-	-	-	35.7	100.0	35.7	0.7	-	32.1	3.6
E. TRAINING											
1. STAFF TRAINING DOMESTIC	169.0	50.0	169.0	50.0	-	-	338.1	6.7	-	338.1	-
2. CENTRALLY - SPONSORED WORKSHOPS	112.7	50.0	112.7	50.0	0.0	0.0	225.4	4.5	-	225.4	-
Sub-Total TRAINING	281.7	50.0	281.7	50.0	0.0	0.0	563.5	11.2	-	563.5	
F. TECHNICAL ASSISTANCE	31.0	50.0	31.0	50.0	0.0	0.0	62.0	1.2	-	62.0	-
G. SPECIAL STUDIES AND EVALUATION	39.4	50.0	39.4	50.0	0.0	0.0	78.9	1.6	-	78.9	-
H. PLANTATION											
I. STAFF SALARIES	647.3	32.4	647.3	32.4	705.3	35.3	1,999.8	39.8	-	1,999.8	-
J. STAFF TRAVEL ALLOWANCE	308.2	67.6	-	-	147.9	32.4	456.0	9.1	-	456.0	-
K. BUILDING RENT AND MAINTENANCE	-	-	-	-	561.5	100.0	561.5	11.2	26.4	479.0	56.1
L. VEHICLE OPERATION AND MAINTENANCE	64.4	48.0	-	-	69.9	52.0	134.4	2.7	12.7	121.7	-
M. OFFICE AND OTHER EXPENDITURE	-	-	-	-	535.3	100.0	535.3	10.7	-	535.3	-
Total Disbursement	1,519.6	30.3	999.4	19.9	2,502.3	49.8	5,021.3	100.0	99.0	4,770.0	152.3

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GOI Subproject
(Social Forestry Support Office)

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Financing Plan By Disbursement Category
(US$ '000)

	INTERNATIONAL DEVELOPMENT ASSOCIATION		US AGENCY FOR INTERNATIONAL DEVELOPMENT		GOVERNMENT OF INDIA		Total		For Exch.	Local (Excl Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%			
A CIVIL WORKS	96.8	50.0	-	-	96.8	50.0	193.6	3.9	9.2	184.4	-
B VEHICLES	24.1	19.4	-	-	100.3	80.6	124.5	2.5	24.1	63.0	37.3
C. EQUIPMENT	26.6	9.6	-	-	249.6	90.4	276.2	5.5	26.6	194.4	55.2
D FURNITURE	-	-	-	-	35.7	100.0	35.7	0.7	-	32.1	3.6
E TRAINING											
1 STAFF TRAINING DOMESTIC	169.0	50.0	169.0	50.0	-	-	338.1	6.7	-	338.1	-
2 CENTRALLY - SPONSORED WORKSHOPS	112.7	50.0	112.7	50.0	0.0	0.0	225.4	4.5	-	225.4	-
Sub-total TRAINING	281.7	50.0	281.7	50.0	0.0	0.0	563.5	11.2	-	563.5	
F. TECHNICAL ASSISTANCE	31.0	50.0	31.0	50.0	0.0	0.0	62.0	1.2	-	62.0	-
G. SPECIAL STUDIES AND EVALUATION	39.4	50.0	39.4	50.0	0.0	0.0	78.9	1.6	-	78.9	-
H. PLANTATION											
I STAFF SALARIES	647.3	32.4	647.3	32.4	705.3	35.3	1,999.8	39.8	-	1,999.8	-
J STAFF TRAVEL ALLOWANCE	308.2	67.6	-	-	147.9	32.4	456.0	9.1		456.0	
K BUILDING RENT AND MAINTENANCE	-	-	-	-	561.5	100.0	561.5	11.2	26.4	479.0	56.1
L. VEHICLE OPERATION AND MAINTENANCE	64.4	48.0	-	-	69.9	52.0	134.4	2.7	12.7	121.7	-
M OFFICE AND OTHER EXPENDITURE	-	-	-	-	535.3	100.0	535.3	10.7	-	535.3	-
Total Disbursement	1,519.6	30.3	999.4	19.9	2,502.3	49.8	5,021.3	100.0	99.0	4,770.0	152.3

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TECHNICAL SUPPORT AND PROGRAM MANAGEMENT FACILITY PROGRAM BY CALENDAR YEARS

	1985 (Months/No.)	1/ $ '000	1986 (Months/No.)	$ '000	1987 (Months/No.)	$ '000	1988 (Months/No.)	$ '000	1989 (Months/No.)	$ '000	1990 (Months/No.)	$ '000
I. Long Term Expatriate Tech. Support 2/												
A. M&E Systems Implementation			(9)	135	(12)	180	(12)	180	(12)	180	(3)	45
B. Community Management			(9)	135	(12)	180	(12)	180	(12)	180	(3)	45
C. Forestry Research, Educ. & Trng.	(3)	45	(12)	180	(12)	180	(12)	180	(12)	180	(3)	45
Subtotals		45		450		540		540		540		135
II. Long Term Expatriate Tech. Support 2/												
A. M&E Systems Implementation	(2)	28	(2)	28	(2)	28	(2)	28				
B. Community Management			(1)	14	(1)	14	(1)	14	(1)	14		
C. Wood Balance Analysis			(2)	28	(2)	28						
D. Mid-Term Project Review			(2)	28	(2)	28						
E. Contingency			(2)	28	(2)	28	(2)	28	(2)	28		
Subtotals		28		126		126		70		42		
III. Short-Term Local Tech. Support 3/												
A. M&E Systems Implementation			(4)	4	(2)	2	(2)	2				
B. M&E Computerization Design	(2)	2	(2)	2								
C. Community Management			(4)	4	(4)	4	(4)	4	(4)	4		
D. Wood Balance Analysis					(2)	2	(2)	2	(2)	2		
E. NGO/PVO Design & Imp.			(7)	7	(6)	6	(6)	6	(4)	4		
F. Contingency												
Subtotals		2		17		14		14		10		
IV. Special Activities												
A. Workshops & Seminars			(1)	15	(2)	30	(2)	30	(3)	45	(3)	
B. Contract Analytical Studies			(1)	10	(2)	10	(2)	10	(2)	10	(3)	
C. International Participants			(3)	21	(3)	21	(3)	21	(3)	21	(3)	
D. Other				10		10		10		10		
Subtotal				56		71		71		71		
TOTAL BASE COSTS 4/		75		649		751		695		663		135
PRICE ESCALATION		0		45		109		156		206		54
TOTAL COST		75		694		860		851		869		189

BRAND TOTAL 3,538,000 say 3,500,000

1. 1985 Base year prices.
2. Yearly and monthly costs based upon AID/W New Delhi unit cost guidelines for U.S. Technical Assistance. Average cost long-term per year $ 180,000. Average cost short-term per month $14,000.
3. Estimated cost per month of $1000.
4. Provision for price escalation based upon 7% rate of inflation.

Annex II.E.

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

PROJECT PAPER

INDIA

NATIONAL SOCIAL FORESTRY PROJECT

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NATIONAL SOCIAL FORESTRY PROJECT PAPER

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MANAGEMENT AND CHOICE OF SPECIES IN SOCIAL FORESTRY

1. The Objectives of Tree Planting

At the micro-planning level - that is, the farm village or panchayat woodlot - it is important to examine the "owner's" objectives for tree planting, which may not always coincide exactly with the overall project objectives. Having set these objectives, the environmental benefits, and the timing of receipt of benefits, a simple plan of operations can be prepared.

2. Working Plans

The plan of operations should be an extremely simplified traditional forestry working plan. Its elements, in addition to information on planting site and management objectives, are:

- physical operations, cost and timing
- plantation design
- choice of species for site, products, growth rate and method of re-establishment
- type of planting stock, source, timing
- cutting cycle or harvesting intervals
- intermediate off-take, between harvests
- method of harvesting or pattern of cutting
- identification of who does the harvesting and obtains the benefits
- marketing outlets, points of sale
- method of regeneration or re-establishment.

These are considered in more detail below.

3. Physical Operations, Costs and Timing

These should take the form of an annual plan of operations, particularly important where management is to be handed over as quickly as possible to a panchayat or village. Timing is important, and conflicts between crop and tree requirements for labor may be serious in farm forestry. Cost estimates are especially important for village woodlots and larger farmers.

Choice of Species

Species must, of course, be suited to the planting site. They are then selected on the basis of:

- products
- growth rate
- cost of establishment/re-establishment

Products

The most profitable product in social forestry is usually poles, for which local markets are well developed. The prices commanded are among the highest obtainable per cubic meter, and with fast growing species such as Eucalyptus or Casuarina may produce a saleable product in five years or less.

Small timber commands a higher price per cubic meter than either fuel or pulpwood, but requires a longer rotation - 15 years or more. Most species will produce small timber.

Pulpwood is often not traded and is the lowest priced wood product. Fallen twigs and leaves, and lop and top after felling (about 10% of total volume) are in demand by the poorest, or by the workers harvesting the trees.

4. Plantation Design and Management

The plantation design should take account of:

- site type or soil quality
- positions of boundaries, buildings, rivers, rocky outcrops, etc.
- harvesting pattern.

This design should be drawn up well in advance so that the desired species can be located or ordered. Intimate mixtures of species are very difficult to manage, and in general trees should be planted in small blocks. On boundaries single lines of trees would be preferred, unless a windbreak was needed.

The management of plantations in traditional forestry usually prescribes harvesting at the time of maximum mean annual increment (m^3 per ha per year) of volume. This would be relevant where biomass offtake were the prime objective. Spacing is crucial, as closely spaced plantation often give a higher yield than those more widely spaced but the timing of felling is critical. In social forestry the production of woody biomass may not be the primary objective.

Therefore yields of grass, leaves, seed pots twigs, etc. may be equally important. Moreover these products are often produced earlier in the cycle than wood is, with corresponding beneficial effects on discounted cash flow.

5. Type of Planting Stock

The commonest method of raising planting stock is in a polythene tube filled with soil mixture. Generally this enables the plant to be removed from the nursery to the planting site with minimum of disturbance to the root system. The disadvantage is that large quantities of soil have to be transported and collected afresh each year. The cost of potted stock of this kind is high; in India 0.25 to over 1.0 rupees per plant.

In many parts of India polythene bags (tubes sealed at the bottom) are used to make filling with soil easier and to ensure the maximum robustness for transport. This has the disadvantage of producing constricted or coiled roots which often cause problems in the field many years after planting. Open tubes should be the aim, to avoid such problems. To reduce costs several developments are used and recommended where feasible:

(a) Direct sowing in the field - Proposis, Acacia, some Eucalyptus, etc.

(b) Supply of germinated seedlings to farmers before transplanting - the 'basket' method. Farmers can transplant into tubes themselves, or raise plants in beds for planting nearby as bare-rooted, cheaper, stock. This is ideal where distance to the planting site is small as on most farms.

(c) Supply of seed direct to farmers for germination and transplanting as in (b) above.

6. Cutting Cycle or Harvesting Intervals

The timing of operations planned at the outset is often critical, but early harvesting, including thinnings, is preferable from the point of view of cash flow. Where trees are to be cut and coppiced care is needed to ensure that a maximum of stumps survive at each cutting. This care includes

skill in cutting, height of stump, time of year and protection from browsing animals.

7. Intermediate Offtake

In the social forestry context where fodder and fuel are scarce but not purchased by large sections of the community, important yields from fallen twigs and harvested grass may be obtained and collected free of charge or at nominal trees. The inclusion of fruit, food or fodder trees in a design can either boost cash incomes or be similarly allowed as a free good, depending on the status of the planting.

8. Method and Pattern of Harvesting

Where fuel, poles or wood generally is the main product, the normal plantation system of thinning followed by clear cutting can be varied by using a two storied forest ("coppice with standards") where small material is obtained regularly by coppicing and large trees are retained for timber. In thinning, a choice often exists between a simple geometric operation (e.g. cutting alternate diagonal lines of trees) and a more eclectic system in which the most saleable trees are taken as soon as they reach the required quality or size.

9. Who does the Harvesting? Who benefits?

Small farmers will generally harvest their own trees for their own use, or when they have a found a buyer; a larger farmer will probably have to employ labor to prepare his produce, or allow the buyer or contractor to cut the trees under his control. In a village woodlot it would be desirable to provide paid labor for the preparation of trees for sale rather than to allow "foreign" contractors in. The benefits from farm or group farm forestry will of course go to the proprietors, but where subsidies have been paid to the grower, the question of cost recovery arises. This has seldom been claimed for tree seedlings even where tens of thousands have been supplied, but is easier to enforce where the planters are small, poor, or have limited land tenure.

In village or panchayat woodlots much discussion over equitable distribution has generally led to the conclusion that equal free shares to all households is the most likely successful formula. Sales of produce would also be made to recover costs where the Forest Department had incurred these for established. In general, however, the sooner the proprietors take over the management and costs of their own woodlots, the better, thus avoiding problems of cost - recovery.

10. Marketing Outlets and Points of Sale

Markets are highly variable for different types of produce in rural areas, where fuelwood is often regarded as a "free" good, whose value is the labor of the women and children who collect it. Fodder and fruits are often in the same category, and sales for the small farmer or landless labor are usually to the local market on a very small scale. Increased quantities of forest products may disrupt these local markets, and scattered small quantities of produce are difficult to collect and sell. From social forestry plantations new markets may have to be sought and new sales procedures developed to ensure a fair price to the (small) producer. Forest Department Sales points have much in their favor, and if an industrial buyer can be found who will provide a reliable outlet this could also benefit the small grower. Cooperative movements are unlikely to arise or be very successful for the small producer however, and Forest Department help is likely to be needed for some time.

11. Method of Regeneration and Re-establishment

Trees that copprice may be expected to do so (with a loss of perhaps 20% at each cutting) for 3-5 rotations. This is one of the cheapest methods and it may be expected to continue with most species for 30 years or so. Species which seed themselves naturally (such as Prosopis) may be an alternative to coppicing but special care and protection may be necessary to ensure success. Species which need to be replanted after felling are generally unsuitable for short rotation production because of the continued expense of raising and planting seedlings. They are however, suitable for small timber production (Acacia nilotica for instance). All methods of re-establishment should form part of farmer's training programs.

INDIA

NATIONAL SOCIAL FORESTRY PROJECT

Species Information

(a) Fuel, Timber and Fodder Species

	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh
Acacia catechu (s)	-	-	X	⊗
A. nilotica/arabica (s)	⊗	⊗	⊗	⊗
A. tortilis (s)	-	⊗	⊗	-
A. auriculiformis	X		-	
Alnus sp. (s)	-	-	-	X
Ailanthus excelsa	-	-	X	-
Albizzia lebbek	X	X	X	X
Albizzia stipulata	-	-	-	⊗
Azadirachta indica	X	X	-	-
Bauhinia sp.	-	-	-	X
Casuarina equisetifolia	-	-	X	-
Cassia siamea	-	X	-	-
Ceiba pentandra (Semul)	-	-	-	X
Dalbergia Sissoo	⊗	⊗	⊗	⊗
Eucalyptus tereticornis (hybrid) 1/	⊗	⊗	⊗	⊗
Grewia oppositifolia	-	-	-	X
Leucaena leucocephala (s)	X	X	X	-
Prosopis juliflora/Chilensis (s)	⊗	⊗	⊗	-
P. cineraria (s)	-	X	X	-
Quercus incana, Q. semicarpifolia, Q. dilatata 2/	-	-	-	X
Tectona grandis	-	-	X	-
Bambusa spp.	-	X	X	X
Dendrocalmus strictus	X	X	X	-
Pinus roxburghii	-	-	-	⊗
Pinus wallichiana				
Populus ciliata	-	-	-	X
Robinia pseudacacia	-	-	-	⊗
Shorea robusta	-	-	-	X
Terminalia belerica	X	-	-	X
Terminalia arjuna	X	-	-	-
Toona ciliata	-	-	-	X

⊗ = Most commonly used species
s = Trees commonly direct sown
1/ Small quantities of other Eucalyptus may also be used.
2/ In addition, of high altitudes in H.P., spruces, firs, deodar, birch, horse-chestnut, walnut, cherry, willow and maple may be used.

(b) Fruit Trees

	Uttar Pradesh	Rajasthan	Gujarat	Himachal Pradesh
Anacardium occidentale (cashew)	-	-	X	-
Annona squamosa	-	-	X	-
Artocarpus heterophyllus	X	-	-	-
Cordia trichotoma	-	X	X	-
Emblica officinalis	-	-	X	X
Feronia elephantum	-	-	X	-
Madhuca indica	-	-	X	-
Mangifera indica (mango)	X	X	X	⊗
Psidium guyava (guava)	-	-	X	X
Moringa oleifera	X	-	X	-
Morus alba. (mulberry)	-	-	X	X
Porgamia pinnata	X	-	-	-
Pithecolobium dulce	-	X	X	-
Sesbania sp.	X	X	X	-
Syzygium cuminii	-	-	X	-
Tamarindus indica (Tamarind)	X	X	X	-
Zizyphus mauritania (Ber)	⊗	X	⊗	x

RECOMMENDED STATE RESEARCH ACTIVITIES

UTTAR PRADESH

During Phase I of the project all research both for traditional and social forestry was undertaken by the State Silviculturist, based on the well-staffed and long-established Forest Research Laboratory at Kanpur.

The need for research in Phase II is focused on tree growing on farmlands, seed source identification, seed collection and handling, nursery practice, optimizing productivity and reducing costs. The program is essentially directed towards adaptive field research, much of it on farms. The Project will also use research results from the National Agricultural Research Project (ICAR Institutes and Agricultural Universities), from FRI Dehra Dun, and will maintain close contact with the National Botanical Research Institute, Lucknow and the Grassland Institute at Jhansi. Comprehensive research proposals were submitted to the Centre for inclusion in the forthcoming program on Forest Research Education & Training (FRET), and are therefore not included in the program of the Phase II Social Forestry Project.

The research responsibilities of different groups of organizations of relevance to the Project may be summarized as follows:

ICAR/NARP Agric Universities

On-farm and on station research on agroforestry, competition effects, physiological and nutritional studies. Physiology of coppicing, pollarding and coppicing, some breeding work, farm budget analyses.

FRET/FRI/State Silviculturists

Comprehensive species introduction trials, selection and progeny testing, breeding of trees for use in farm, village and departmental forestry. Detailed yield studies of different species under different management systems including trees in free growth, partial harvesting by coppicing, pollarding, etc., and non-wood products.

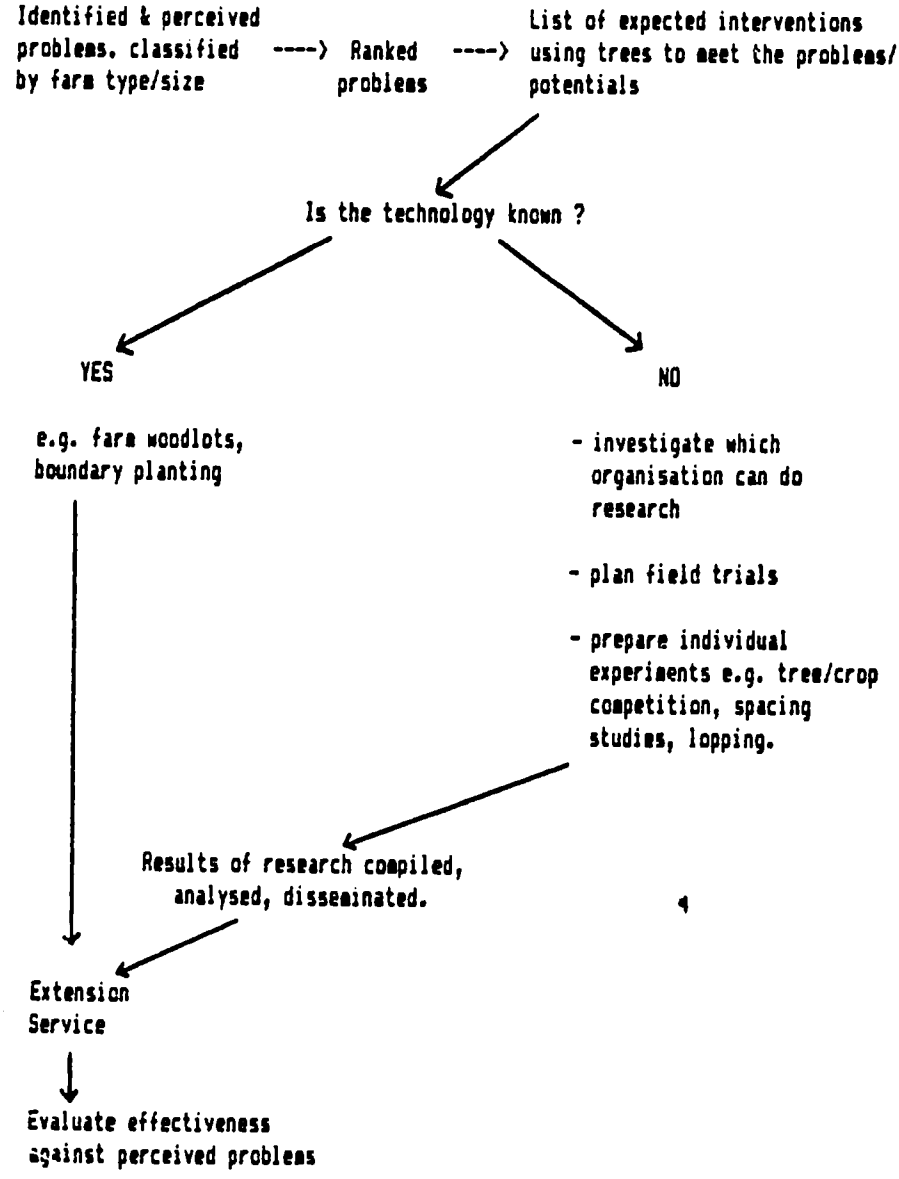
Research within the Project - Adaptive Trials for Management

Seed and nursery research. Observational trials on agroforestry. Yields of different models, including irrigated areas. Diagnosis and design for agroforestry (see below).

The basic division outlined above will allow the staff proposed for the Project to concentrate on areas of interest which have a direct and immediate application on project implementation. A more detailed outline of the work proposed is given below.

Diagnosis and Design

This system, developed by by ICRAF, Nairobi, for identifying interventions using agroforestry technology for meeting the perceived needs of farmers, is particularly well suited to extension and research planning. A team of officers should be introduced to the system to be adapted to the farm forestry model. The output of such surveys is as follows:



One/two officers should attend a course run by ICRAF covering this methodology either at the Nairobi, Kenya, headquarters or one of the courses to be run in India or elsewhere.

Recommended Topics for Investigation

The specific areas of research and investigation proposed under the Project are:

1. Development of five new seed centers at Bareilly, Mathura, Lucknow, Varanasi and Jhansi. Each would be under the control of a Range Officer with appropriate field staff, and be attached to existing forestry or agricultural research stations. Each would be equipped with a simple seed store, dry and rat-proof, and office where registration of seed sources and collections would be done. Identification of superior parent trees and all collections would be done through these Centers, but control of seed distribution would remain with the State Silviculturist. A record would be kept of all seed sources used by the Project.

2. Nursery research would be concentrated at a major nursery near Project headquarters and would concentrate on the development of cost effective propagation methods, including the following:

   (a) Emphasis on tubes rather than closed pots to enable proper root pruning to be done, and trials of smaller sizes to reduce the amount of soil carried as far as possible.

   (b) The establishment of simple guidelines especially for smaller nurseries, in relation to watering regimes.

   (c) Development of vegetative propagation methods for all species widely used in social forestry.

3. Observations would be made of the experience and views of farmers on tree spacing, tree mixtures, and effects of boundary trees on yields. Some simple trials incorporating spacing and manipulation of trees on farms would also be done, with advice from IDRAF if needed.

The above program would be expanded depending on progress with FRET and how it meets the other identified research needs of:

- planting density studies
- intercropping
- species and provenance trials
- silvicultural methodology for new species
- protection against man and animals
- pests and diseases
- harvesting and marketing.

RAJASTHAN

The need for research in the Project is focussed on tree growing on farmlands, seed source identification, seed collection and handling, nursery practice, optimizing productivity and reducing costs. The program is essentially directed towards adaptive field research, much of it on farms. The Project will also use research results from the National Agricultural Research (ICAR Institues and Agricultural Universities), from FRI Dehra Dun, and from the Forestry Research Education Training Project (FRET) now under preparation.

The research responsibilities of each of relevance to the Project may be summarized as follows.

ICAR/NARP/Agric Universities

On farm and on station research on agroforestry, competition effects, physiological and nutritional studies. Physiology of coppicing, pollarding and coppicing, some breeding work, farm budget analyses.

FRET/FRI/State Silviculturists

Comprehensive species introduction trials, selection and progeny testing, breeding of trees for use in farm, village and departmental forestry. Detailed yield studies of different species under different management systems including trees in free growth, partial harvesting by coppicing, pollarding, etc., and non-wood products.

Research within the Project - Adaptive Trials for Management

Seed and nursery research. Observational trials on agroforestry. Yields of different models, including irrigated areas. Diagnosis and design for agroforestry.

The basic division outlined above will allow the staff proposed for the Project to concentrate on areas of interest which have a direct and immediate application on project implementation. A more detailed outline of the work proposed is given below.

Recommended Topics for Investigation

The following are based on identified problems to date, on points where substantial improvements in efficiency can be expected, or on items in the silvicultural models which appear to be particularly costly.

1. Seed collection, storage, treatment and germination.

   Seed collection, storage and supply is currently dealt with efficiently in the state, and no further facilities are required. Trials on treatments and germination tests would be carried out in the central nursery in Jaipur. The existing register of seed stands in the state - certified seed collection areas - would be expanded to take account of species widely used in social forestry. Records would be kept of the source of all seed used.

2. Genetic improvement of germplasm.

   Identification and registration of superior seed trees and stands in the state. Creation of seed and stands in the state. Creation of seed stands of important species/provenances for social forestry.

3. Observations in farmer's fields of competition effects between trees and crops. Layout of simple on-farm trials to demonstrate and evaluate such effects (advice available from ICRAF).

4. Production studies in all plantation models. These would mainly confirm the yields predicted in the project, but would also cover trees in free growth (as in strip plantations and agroforestry) and some specially designed on-farm spacing trials (advice from ICRAF). Mean and current annual increment studies would be included.

5. Simple studies and demonstrations on coppicing, pollarding and lopping of fodder and fuel producing trees (advice from ICRAF).

6. Where farmers choose to grow fast-growing woodlots on high productivity sites, observations on optimal treatments (irrigation, fertilizers) would be carried out.

7. Fencing is the major item of expenditure in most strip models and would be studied:

   (a) to improve efficiency of operations.

   (b) to develop efficient methodologies for of live fencing.

   (c) to evaluate the actual reduction in survival and yield an unfenced plantations.

8. Pitting is another major expense. Studies would be made on the effects of pit size on growth and survival of important species.

9. Nursery trials would be conducted on different sizes of polythene tubes/bags, and attempts made to improve survival through genuine root pruning of plants in tubes, not bags. Further trials would be made on the 'basket' system for supplying cheap seedlings for farmers to raise themselves and on direct sowing. Simple trials of vegetative propagation for widespread application in small nurseries would also be made.

10. Simple trials of new provenances of species already widely used e.g. Prosopis species from America.

11. Collection of cost and price data for specific farm forestry models for economic analysis.

12. Diagnosis and Design (see above).

Subjects which would be subcontracted to the Agricultural Universities include:

Nutrient balances under different tree crops

Complex intercropping studies

Evaluation of insecticides on termite control

Economics of stall feeding of livestock using fodder from social forestry plantations

Farm budget analyses

Subjects which would be studied by FRET/FRI/State Silviculturist of relevance to the Project include:

Genetic improvement
Progeny trials
Introduction of new species
Detailed studies on tree/forest growth and yield
Fertilizer response of trees on different sites.

The personnel for the activities in the Project would be increased as follows.

One Liaison Officer for facilitating information transfer between the State Level Forest Research Committee, the Agricultural University, the Project research staff, and the farmers and other non-departmental tree planters.

Two Research Officers to concentrate on production studies and seed work. These could be recruited direct, on deputation from the Department of Agriculture, or from within the Forest Department as appropriate.

GUJARAT

The need for research in the Project is focused on tree growing on farmlands, seed source identification, seed collection and handling, nursery practice, optimizing productivity and reducing costs. The program is essentially directed towards adaptive field research, much of it on farms. The Project will also use research results from the National Agricultural Research Project (ICAR Institutes and Agricultural Universities), from FRI Dehra Dun, and from the Forestry Research Education Training Project (FRET) now under preparation.

The research responsibilities of each of relevance to the Project may be summarized as follows:

ICAR/NARP/Agric Universities

On-farm and on station research on agroforestry, competition effects, physiological and nutritional studies. Physiology of coppicing, pollarding and coppicing, some breeding work, farm budget analyses.

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Research within the Project - Adaptive Trials for Management

Seed and nursery research. Observational trials on agroforestry. Yields of different models, including irrigated areas. Diagnosis and design for agroforestry (see below).

The basic division outlined above will allow the staff proposed for the Project to concentrate on areas of interest which have a direct and immediate application on project implementation. A more detailed outline of the work proposed is given below.

Recommended Topics for Investigation

No changes in staff are proposed, and the following activites would be undertaken.

1. Certification of seed sources and surveillance of seed quality would continue to be improved. Bulk seed collections for most planting programs would continue to be made under the control of District Forest Officers, and seed purchased outside the State would continue to be acquired by the Silviculturist. However, a record would be kept of the source of all seed used. Advantage would also be taken of some of the improved seed sources developed by advanced farmers which would be evaluated in simple on-farm trials against standard seed sources.

   Some new seed-handling equipment is proposed.

2. The effects of different types and intensities of soil working on tree growth and survival, in collaboration with Gujarat Agricultural University (GAU) soil moisture balance and temperature would be studied.

3. Some further species trials for difficult sites, e.g. saline and waterlogged areas would be done in collaboration with FRI, and also further examination of nitrogen fixing trees in agroforestry.

4. In collaboration with GAU studies on Shelterbelt design would be carried out.

5. Pollarding, lopping and coppicing studies would be carried out, mainly through observations on existing trees planted during Phase I but also on-farm and on-station as appropriate.

6. Observations would be made of the experience and views of leading farmers on: tree spacing, tree mixtures, crop interactions, effects of boundary trees on yields. Some simple competition studies would also be set up with advice from ICRAF if necessary.

7. Farm budget analyses would be done on the impact of tree growing on small farms in collaboration with GAU.

8. The quantities of inorganic fertilizers used in nearly all the models is extremely high, and in some cases above the levels expected in agriculture. Experimental evidence for these applications and formulations is extremely scanty, and there has been a tendency to follow 'leading' farmers. It is vital that a full range of fertilizers and levels is used in compact designs to evaluate

response and to estimate costs and benefits in relation to survival, growth rate and yield. These would be mostly on-farm.

9. Pitting and trenching studies. Management studies of different pit sizes and depths would be done in relation to labor requirements, survival and growth rates. These would be mostly in departmental plantations, and would cover volumes from 20-350 liters.

10. Regular studies would be made of actual yield from farm and departmental plantations to confirm estimates for all modes. The actual planting designs used would be carefully recorded. In particular it is necessary to study the effect of survival on yield. After a plantation closes canopy the number of stems has little effect on biomass production through much on the number of individual poles produced.

11. Nursery studies to streamline production and reduce costs would be continued, emphasizing tubes rather than pots, and large farmers raising their own planting stock.

HIMACHAL PRADESH

Within the scope of the Social Forestry Project, support would be given to increasing the capacity of the State for operational problem solving and trials. There would be four groups concerned:

(a) Existing field staff, who would continue their current activities.

(b) The State silviculturist and staff who would be assisted by a small increase of staff and resources.

(c) The State Agricultural University at Solan.

(d) Increased research capability under the Forest Research Education and Training Project (FRET) for which GOHP has made a substantial proposal. 1/

Staffing

It is proposed that the staff under (b) above be augmented by the addition of 1 DCF, 3 Range Officers, 8 Foresters/Deputy Rangers and ancillary personnel. The Foresters would be stationed near Circle/District Headquarters, associated with seed handling activities and nurseries as described below.

Priority Topics for Attention

Growth and yield studies

Verification of yield estimates in the longer term (b).

1/ "Forestry Education Research and Training Project for Seventh Five Year Plan (1985-90)", Department of Forest Planning and Conservation, Simla, HP. (undated) p. 36.

Seed and Tree Improvement

Seed stand identification, seed collection, seed storage and distribution (a, b).
Seed certification (b, c)
Seed testing (c)
Plus tree selection and registration (a, b, c)
Species and provenance trials (b, c)

Plantation Operations

Nursery improvement (a, b)
Propagation studies (b, c,)
Field plantation methodology (b)

These would be carried out by the different groups as indicated, but close collaboration and direction would be needed to ensure that all work is directed towards the immediate problems identified by the project. The topics are further described below.

1. Growth and yield studies. Priority 1

Little reliable information exists in the actual sustainable yields that can be expected from each plantation model in the project. The procedure suggested is firstly a survey of existing areas of each model in the State, and their ages. Permanent sample plots would then be laid downing a very simple way by selecting an area (a compartment) which is bounded by permanent features such as fences, ravines, walls, etc. A register would be kept with the following information:

Model type and description
Area in hectares
Age (approximate)
Number of stems of each species at start and end of each year
Monthly records of removals by weight of:

branchwood
leaf fodder
grass
dead and dying trees and trimmings

Weight can be measured by headload, or in the case of stemwood by volume measurement.

At least two plots of different ages in each model should be established, and records should commence immediately and be continuous.

2. Seed and tree improvement — Priority 2

Seed stand identification, seed collection, storage and seed distribution.

The identification and recording of seed stands of commercial conifers has been well begun in the State under the 'Certification of Forest Reproductive Material' Scheme which has been approved by GOI. (See "Certification of Forest Reproductive Material in India", Department of Forestry, HP, Krishi Vishva Vidyalaya, P.O. Dachghat, Solan, HP Undated. p. 7.

"Record of seed production areas selected in Himachal Pradesh under Seed Collection storage and certification scheme", Department of Forest Farming and Environmental Conservation, Simla, HP, 1983 p. 4).

The seed unit which carried out this work is already staffed and stationed at Solan, in association with the AU, and under the guidance of the Indo-Danish project on seed procurement. For the present project, interest is mainly centered upon broadleaved trees, which often do not occur in large forests, and it is therefore proposed that eight social and agroforestry (SAF) seed centers be set up, based in each case on an important nursery, equipped with a seed storage shed, and under the direct control of a forest guard. These forest guards would require short-term on-the-job training at Solan.

The eight centers would be: Chamba, Palampur, Nichar, Mandi, Kullu, Bilaspur, Nahan and Keylang. The Guards would be responsible for organizing seed collections, storage and dispatch under the instructions of the Conservator of Forests. The certificate would be based on seed collection areas identified firstly by the field staff and confirmed by the DCF.

(Priority 2)

Seed testing would be carried out at Solan by the seed unit and university staff.

(Priority 2)

The selection of plus trees - superior mother trees for seed collection and eventual tree breeding - is important for long-term improvement of productivity in social forestry. The whole question of forest genetics is too complex to be undertaken by the present project, but the foundations could be laid for future work through the application of simple seed procedures. Indeed, much 'genetics' work done in India is producing no benefit for field operations because of deficient field sampling. The following is proposed:

(i) Instructions to all field staff to search for superior trees of named species, and to record these in their reports.

(ii) Inspection by range officers who have been given guidelines for acceptance or rejection in a plus tree register.

(iii) Final selection by geneticists from the Agriculture University, and the compilation of a State-wide plus tree register.

Species and provenance trials (Priority 3)

There is adequate knowledge in the State about species choice to make a real impact in Social Forestry, but some improvements could be expected from further investigation of species and seed sources, especially of exotic species. Specifically, the following would be of interest:

Eucalyptus grandis	-	Southern provenances
E. teheticornis	-	" "
E. camaldulensis	-	" "

Trials would not be extensive. On advice from international centers with knowledge of the species (including Dehra Dun) a limited number of provenances would be chosen, say not more than 4 of each species, and trials of 30 trees of each provenance laid down at each of 3 sites within the current planting areas. Such small areas would be maintained by the field staff and assessed by the State staff with the help of the University if needed.

3. Plantation operations

An examination of estimated costs of nursery and plantation work indicates three major areas of heavy expenditure: the costs involved in the use of polythene bags in nurseries; the cost of fencing plantations; and the cost of ground preparation including pitting.

These three items would form the most immediate program.

Nursery work (Priority 1)

This would be done by the State research staff, in collaboration with the Indo-German research project, and following on the findings of the Indo-New Zealand nursery project. Specifically the following would be tested, in simple non-replicated trials:

- the use of polythene tubes rather than bags.
- the use of smaller tubes.
- further trials of bare-rooted planting.
- further trials of care of plants in transport.

Fencing (Priority 1)

The use of 'social' fencing, of the sort that exists between adjacent farmers, needs urgent study. In operational planting zones, several plantation areas should be selected for planting without wire fencing. Instead a small trench, preferably with planting of thorny or other distinctive plants should be used. Survival should be monitored in comparison with other zones, but otherwise the experimental areas should not be treated differently, e.g. illegal grazing animals should be turned out if detected.

Ground preparation studies (Priority 2)

The current norms of pitting are effective and reasonably cheap, but on a field scale simple trials e.g. rows of trees planted using pits, notches, crowbar holes, etc.

Plant propagation studies (Priority 3)

The handling and raising of different species is well known, but important ways of reducing establishment costs include rooting cuttings and direct sowing. As part of field operations the project staff should attempt to fill gaps in knowledge for major SAF species regarding the feasibility of farmers establishing their own planting using these methods.

Spacing/silvopastoral studies (Priority 1)

An important issue is the desirability of different types and quantities of fodder, e.g. grass in perpetuity? leaf fodder vs. fuelwood. Some simple spacing trials, e.g.

2 x 2	)	
3 x 3	)	
4 x 4	)	meters
5 x 5	)	
6 x 6	)	

on plots of about 0.1 ha would enable some comparisons of production by different components to be made.

IMPROVED STOVES AND CREMATORIA

Dr. J. Gabriel Campbell

1.0 Background

1.01 The rationale for including improved wood burning stoves and crematoria in the NSFP is based on the cost effectiveness of reducing demand for fuelwood -- especially among the poor non-market collectors -- through introducing more efficient consumption technologies. At present there is considerable worldwide controversy over the amount of fuelwood actually saved through these programs. Earlier claims of 50% savings in actual field considerations have been discredited based on more realistic appraisals of actual usage rates and types and sources of fuel used in poor rural conditions. Not all stoves distributed are used; those that are used may not displace continued usage of traditional stoves for certain purposes; and not all fuel consumed consists of fuelwood from public sources.

1.02 Nonetheless, considerable evidence is available from Nepal and Gujarat that improved stoves and crematoria do increase efficiency of consumption by an average of 20%-30% or more in field conditions. After adjusting these figures for percentage of non-use and the varying degrees of use for different purposed, realistic estimates of 10%-20% fuelwood savings for improved stoves (and possibly higher for improved crematoria) can be expected. Given the low cost of these technologies, this percentage is usually more than sufficient to pay back the direct cost of the improved stoves and crematoria within six months of installation. Data from Nepal also suggest that the greatest savings accrue to the poorest smaller families who have greater incentives to reduce consumption and less economies of scale with their traditional stoves. Furthermore, the USAID/Futures Group computer simulational model shows more substantial improvements in overall wood balance through increased efficiency (reduced demand by individual) than through increased supply.

1.03 Recent evidence (particularly from the East-West Center) also indicated that health benefits from reduced smoke (both through improved efficiency and/or chimneys) are far greater than previously thought. Some traditional cooking environments have been measured to be the equivalent of smoking 20 packs of cigarettes a day.

1.04 Previous Forest Department experiences with improved stoves and crematoria have been mixed. U.P. had a component of improved stoves under the Bank's earlier social forestry project. However, the State FD showed no interest in the program and never installed more that two stoves. Initially, no stoves or crematoria were proposed for NSFP funding (the latter in order to avoid charges of sectarian bias against communities which bury their dead), but during appraisal, the State consented to providing some funds for an action/research project to be undertaken by an outside agency.

1.05 In contrast, Gujarat installed 10,000 improved magan stoves during the last two years of the previous project as well as 1,000 improved crematoria. Although no survey on the numbers and degree of use has yet been undertaken, the FD maintains a high degree of interest and has been appointed as agents ("the nodal department") for implementing the National Project on Demonstration of Improved Chulhas (see later section). The FD has proposed a further 10,000 stoves and 1,000 crematoria for NSFP.

1.06 Rajasthan has had no experience with stoves or crematoria to date. Under NSFP the FD proposes to construct 160 crematoria (one in each block) using the Gujarat model and agreed during appraisal to fund an action/research project on improved stoves.

1.07 H.P. Forest Department, by way of the Indo-German Dhauladhar project, has been involved with the installation of over 3,000 stoves designed by the project. Based on this successful experiences, the Dhauladhar Chulha has been selected as one of the acceptable all-India designs and the FD will assist other agencies in the training of extension and construction workers. The FD proposed to continue their own involvement with improved stoves and to initiate the construction of improved crematoria under NSFP.

2.0 National Project:

2.01 As the Government of India has recently announced a massive program for improved stoves under the "National Project on Demonstration of Improved Chulhas", the need for larger scale support through NSFP has diminished. This large scale program being launched by the Department of Non-Conventional Energy Sources (DNE), Ministry of Energy plans to introduce 75% of their target through State Government agencies and 25% through voluntary agencies. Their proposed targets are as follows:

Targets	83-84	84-85	85-90
1. Training Courses	1,000	4,000	50,000
2. Smokeless Villages	1,000	4,000	50,000
3. Improved Stoves	103,000	400,000	5,000,000

The total budget for 1983-1984 is estimated at Rs 70 million.

2.02 The 375,000 stoves to be distributed through the State Governments would be implemented by different "Nodal Agencies". In most states, these will be the Rural Development Department, but in the case of Gujarat, the FD has been selected as the implementing agency and in H.P. the FD would help provide the training in the Dhauladhar model. A number of fixed (constructed in the kitchen) and portable models (about 15-20) have already been approved by laboratory efficiency testing carried out by the Indian Institute of Technology, Delhi and the Central Power Research Institute, Bangalore. More "approved" models will be added as additional tests are carried out.

2.03 Although the bulk of activities involving improved stoves will not be carried out under this project, there is concern that no concurrent means for monitoring and evaluating the stoves in field conditions has been proposed. Although the DNE has stated that choice of models will rest with the beneficiaries, in practice it is likely that the implementing agencies will have to make their own prior choices. There is thus still a potential role for FDs and other agencies in developing systems for evaluating field efficiency and social acceptability of various technologies and distribution systems.

3.0 Issues for NSFP:

3.01 The advantages of FD participation in improved stove and crematoria programs are several fold. Reducing consumption is a natural complement to increasing fuelwood supply. By distributing improved stoves and crematoria the FD delivers an immediately perceived good to individual households and communities and can dramatically improve their relationship with the people and the quality of their extension work. In addition, the FD has considerable experience with operations of this scale which involved large logistical operations carried out extensively throughout the state.

3.02 The disadvantages of FD participation, except perhaps in the case of Gujarat, are also many. To date, most FDs have little or no familiarity with the technologies involved and evinced minimal interest. Fuelwood savings

technologies require a whole new set of skills and organizational delivery systems if they are to be effective. Thus, any major program would add a considerable work burden outside of the central forestry (tree-growing and harvesting) sector, and at this juncture would compete with the new National Project.

3.03 For these reasons, relatively small components for improved stoves and crematoria have been included in NSFP with the emphasis being placed on action/research projects. These would allow the FDs to keep in touch with developments in the field and ensure that additional methods are tried and monitored.

3.04 Considerable worldwide experience has shown that technical designs have to be integrated with social acceptability to women stove users in actual field conditions if improved stove programs are to be successful. The development and testing of stove models should be an interactive, iterative process involving both the laboratory and the field. To date, such a process has not been followed as systematically as is necessary. In carrying out their improved stove/cremation components, it is recommended that the following sequence be pursued.

3.05 Outline of Improved Stove Action/Research Project:

(a) Formulation of Objectives

(b) Needs Identification Survey (currently used stoves, fuels, types of users, etc.

(c) Establishment of Design Criteria

(d) Stove Design Evaluation/Modification

(e) Preliminary Field Testing to Determine Performance and Acceptability

(f) Modification of Design and Extensive Field Testing

(g) Evaluation Surveys of Installed Stoves

(h) Development of Production and Extension

3.06 It is likely that additional iteration of this sequence is required. The process of developing suitable and acceptable stoves and extension services -- particularly ones which can be absorbed by the private sector -- is continuous. No one model of stove is or can be acceptable to all users in

rural India. Program implementers are referred to the FAO Manual on Improved Woodfuel Burning Stoves currently being finalized and the attached extract from the manual entitled "What Information Do Managers Need to Know to Implement a Programme?"

What Information Do Managers Need to Know to Implement a Programme? 1/

3.1 Introduction

Experience has show that programme managers and community organisations will have to examine/discuss in detail a range of questions if the many technical, social and economic constraints to the dissemination of stoves are to be overcome (an outline of the factors that affect both adoption and patterns of usage are outlined in Appendix 1). These questions are usually explored at specific times during the implementation. A pilot programme can be divided into 4 main phases:

(a) the initial survey and planning phase;

(b) the initial field testing phase;

(c) the expanded phase of the field testing of the stoves; and

(d) the development and testing of extension strategies.

3.2 Initial Planning and Survey Phase

At the beginning of the programme the following questions are often explored by those programmes using an action research or a systems approach.

(i) What type of new stove(s) do people need?

- how may the arrangement of the kitchen, type of fuels used, cooking practice, type of stoves used, and social and cultural rules related to cooking and use of the kitchen influence the choice of technology?

1/ From Draft FAO Manual on Improved Woodfuel Burning Stoves M&E, S. Joseph, et. al. (including T. N. Bhattarai, Shanahan, Steward, J.G. Campbell, etc.) Chapter 3.

- which features would people like to see improved, and how are their priorities for improvement ranked?

- are there systematic variations in the views expressed by different groups of people?

The answers to these questions will help to determine whether the objectives of the implementing agency correspond to those of potential adopters; and if not, how they should be modified.

(ii) What is the performance level of existing stoves?

- how long does it take to perform certain tasks?

- how much fuel is required, and what type of fuel?

- does performance vary from one period of time to another?

- are there systematic variations in use pattern and performance between different groups of people?

The answers to these questions will provide a baseline against which the performance of new stoves can be assessed, and hence a more precise means of determining whether needs are being satisfied.

(iii) What factors other than stove design are likely to influence adoption of an improved stove?

- is reducing fuel consumption and levels of pollution or improving the kitchen environment a high priority for a section of the community?

- how do users perceive financial and non-financial costs, and costs and benefits of stove use; will financial costs be incurred for non-financial benefits?

- who within the household takes decisions about the adoption of new innovations and how will that person or persons regard a new stove?

- what types of household are and are not able to take a lead in the community in adopting innovations?

- does the previous experience of extension activities in other fields give any indication of how different types of stove programme might fare?

- what level of cooking time or fuel reduction is required to make adoption of the stove a real possibility?

- what price are people likely to pay for an improved stove?

The answers to these questions, in combination with i and ii above will help to establish design criteria. They will also indicate broadly what type of extension strategy might be employed. Taken together questions i-iii provide an indication of likely overall demand and of how specific needs might be addressed.

(iv) What type of stove can be produced?

- what materials for stove fabrication are locally available?

- do the necessary skills for fabrication exist and if not how could they be acquired?

- what types of possible production enterprise are already in existence and what assistance and incentives would be required for them to enter into new forms of production?

In combination with questions on demand, these factors will help to determine the scale on which a programme could operate, and to influence other aspects of the dissemination strategy adopted.

This list of questions might need to be extended in certain instances. Where a specific target group has been selected than baseline procedures for identifying members would need to be devised. Similarly, if health or participatory objectives were important pre-project baseline data would once again need to be collected.

3.3 Initial and Expanded Field Testing Phase

Once designs have been developed and laboratory tested they will be placed in a limited number of houses. Initially stoves will be placed into less than 100 households and the design modified until the desired performance is achieved and the stoves appea. to be acceptable to the limited number of people. A more representative group are then chosen and up to 500

stoves are introduced. During this field testing phase the monitoring will have to answer the following questions.

(i) Who is using the stove, how often, for what cooking and heating functions, and why?

(ii) Do the patterns of usage change over time?

(iii) What is the initial performance of the stove (as compared with the existing stoves) and how does it change with time? Performance is defined in terms of relative fuel consumption, time required to cook a given mean, levels of smoke and carbon monoxide emission, lifetime, and east of ignition and operation.

(iv) What design improvement would make the stove more acceptable?

(v) What design improvements would make the stove more acceptable?

(vi) What is the required repair and maintenance schedule and how much time are users spending in this activity?

(vii) Are there any indications that the introduction of the stove is resulting in changes in cooking practice, attitude to health and hygiene or participation in other community activities?

3.4 Development and Testing of Extension Strategy

Before undertaking the extension programme, it will be necessary to develop a plan for the production and distribution of the stoves. This plan may have been partially developed after the initial survey has been analysed but a more concrete plan will emerge out of the analysis of results of the first phase.

The plan should spell out targets in two major areas:

(a) Supply

- number of people to be trained how to build, distribute, sell and and install the stoves.

- number of production units to be created and number of stoves to be produced.

- number of follow-up visits and other services to be provided to the producers, and users of the stove.

- number of organisations that will be involved in the extension effort.

- number of distribution outlets.

(b) Demand

- the type and quantity of promotion/marketing effort

- replacement and maintenance requirements.

- the number of stoves to be installed.

- target users.

- adoption and usage rates.

- expected average cooking time, fuel consumption, and level of pollution per task per stove to be attained.

Monitoring of this phase of the pilot programme provided answers to three types of question:

(i) have targets for production and distribution been attained?

(ii) if not, why not, and what forms of remedial action are appropriate?

(iii) what has been the impact of the introduction of new stoves?

All proceed from a careful recording of the inputs of project time and money used. The first two questions are very closely interlinked and will be explored together.

A.1 Targets and remedial action

1. Supply Side

- the number of producers trained and the number of stoves fabricated per producer need to be compared with targets; and where performance is unsatisfactory, the availability of material, the financial incentives to producers, the level of management or production skills need to be re-assessed.

A.2 Demand Side

This involves two inter-related aspects: rates of adoption and use and performance characteristics.

(i) Rates of Adoption

- does the initial rate of adoption come up to expectations?

- do people continue to use the stove for an extended period of time?

- are the intended beneficiary group adopting the stove or is it a more privileged group?

When these criteria are not being met i.e., the answer to one or more questions is "no" then re-assessment of the process by which awareness is created for the new technology, the degree of follow-up, and of the influence of other factors affecting adoption should be undertaken. Where specific target groups are not being reached, the extension strategy and the design should similarly be re-assessed.

(ii) Use and performance characteristics. It is important to ask the same questions as in the initial field trials.

When patterns of performance depart from initial plans stove re-design or changes in training and extension practices need to be undertaken.

When remedial action is taken, either on he supply or on the demand side, the effectiveness of that action may in turn be monitored by taking the pre-existing situation as a baseline. (E.g., if a new extension procedure is devised to increase awareness, its effectiveness could subsequently be assessed by comparing similar communities where the new stove had not been previously introduced).

B. Impact

Monitoring of impact and programme efficiency involves combining data on performance and acceptability to establish overall fuel and time savings; the financial savings with which these are associated; and the relationship between each of these things and the inputs of project time and resources.

In certain instances it may also involve assessing changes in health status, in the extent to which people participate in the development process, and in the expertise of extension organisations.

An attempt may also be made to trace through second order impacts on such things as fuel prices or deforestation, although this will only be possible where the influence of other factors external to the project itself can be determined. This exercise is probably therefore best left until a final evaluation is undertaken.

NATIONAL SOCIAL FORESTRY PROJECT-GUJARAT

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
COSTS																				
I. OVERHEAD COST																				
INVESTMENT COST /a	5219	16490	14477	14077	13760	6438	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	7267	8495	9490	9806	9847	100	100	100	100	100	100	100	100	100	-	-	-	-	-
OTHER RECURRENT COST /c	-	5010	5167	5354	5428	5477	257	257	257	257	257	257	257	257	257	-	-	-	-	-
SUBTOTAL	5219	28767	28139	28929	29002	21782	365	365	365	365	365	365	365	365	365	-	-	-	-	-
II. FARM FORESTRY PRODUCERS COST																				
ECONOMIC COST TO PRODUCERS	44520	54600	63000	64680	64360	23520	13440	5040	3360	1680	-	-	-	-	-	-	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST																				
PRIVATE WASTELAND PLANTING	1626	4960	7082	8045	10615	9453	6083	5330	5330	5330	5330	5330	5330	5330	5330	5330	5330	5330	5330	5330
COMMUNITY WOODLOTS IRRIGATED	2475	9486	13305	16815	20056	17721	10930	7171	3001	700	700	700	700	700	700	700	700	700	700	700
COMMUNITY WOODLOTS RAINFED	3458	11866	14134	15464	15719	12566	5239	2450	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
COMMUNITY TREE FODDER LOTS	462	1740	3173	4499	5485	4900	2899	2214	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
REHABILITATED DEGRADED FORESTS	6443	18429	19487	23963	26755	19466	15616	6120	2284	851	851	851	851	851	851	851	851	851	851	851
STRIP PLANTATION	7959	23783	28004	30366	30944	23562	8316	4473	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
URBAN FUELWOOD PLANTATION	990	3762	5597	7942	10328	9448	6220	4232	2211	350	350	350	350	350	350	350	350	350	350	350
SUBTOTAL	23412	65153	90782	106094	119927	97316	55212	32197	20021	13626	13626	13626	13626	13626	13626	13626	13626	13626	13626	13626
TOTAL PROJECT COST	73151	148520	181921	201703	213289	142618	69017	37602	23746	15671	13991	13991	13991	13991	13991	13626	13626	13626	13626	13626
BENEFITS																				
I. FARM FORESTRY BENEFITS																				
ECONOMIC RETURNS FROM FARM FORESTRY	-	-	-	-	76800	76800	76800	276480	276480	276480	276480	276480	76800	76800	76800	276480	276480	276480	276480	276480
II. PLANTATION BENEFITS																				
PRIVATE WASTELAND PLANTING	-	74	163	261	389	521	540	563	38500	44826	51037	59379	62731	4942	25518	30592	34724	36960	37398	6898
COMMUNITY WOODLOTS RAINFED	-	64	120	480	864	1248	1560	1888	42480	43984	45488	44992	49152	10632	33504	35416	35904	34872	34560	8712
COMMUNITY WOODLOTS IRRIGATED	-	-	-	80	200	56056	57000	57120	57200	38320	35472	54480	55904	55904	54824	38740	50740	49444	50740	50740
COMMUNITY TREE FODDER LOTS	-	160	480	1000	1880	2880	3616	4256	4736	5056	5216	5360	5480	5560	5600	5600	5600	5600	5600	5600
REHABILITATED DEGRADED FORESTS	-	125	262	418	5753	11565	17996	24421	33817	34630	91015	96512	109026	105746	104495	35745	40168	35846	36438	34343
STRIP PLANTATION DEPARTMENT MANAGED	-	24	48	288	528	768	984	1200	24780	25240	25740	26220	26964	3840	14508	14582	14604	14118	13896	2982
URBAN FUELWOOD PLANTATION	-	-	-	-	176	12044	12582	15774	19044	19546	15162	14376	18641	21877	21284	12956	12024	13852	16944	16896
SUBTOTAL	-	446	1001	2646	9790	85102	94285	105221	220561	233022	209131	303847	327897	207901	263643	184532	195764	190692	195576	128192
III. FUEL SAVING DEVICE BENEFITS																				
CHULAS	-	528	1056	1584	2112	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640
CREMATORIA	-	53	106	158	211	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264
SUBTOTAL	-	581	1162	1742	2323	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904
TOTAL BENEFITS	-	1027	2242	4349	88913	164806	173989	384605	499945	512406	568515	583231	407601	287605	343347	464036	475148	470076	474960	407576
NET BENEFIT																				
GUJARAT NET BENEFIT	-73151	-147493	-179678	-197354	-124376	22188	104972	347003	476199	496735	554324	569240	393610	273614	329356	450409	461522	456450	461334	393949

SUMMARY OF COST-BENEFIT AND SENSITIVITY ANALYSES

TOTAL PROJECT COST-BENEFIT AND SENSITIVITY ANALYSIS

RS 000

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
COSTS																							
GUJARAT COSTS	73151	148520	181921	201763	215289	142618	69017	37682	23746	15671	13991	13991	13991	13991	13991	13426	13426	13426	13426	13426	13426	13426	13426
HIMACHAL PRADESH COSTS	12480	69187	81397	90880	99724	87941	19285	12240	7080	5629	4982	4282	4282	4282	4282	3791	3791	3791	3791	3791	3791	3791	
RAJASTHAN COSTS	1639	34290	68777	69954	78768	75997	21664	16177	11142	9979	9139	8229	8229	8229	8229	7028	7028	7028	7028	7028	7028	7028	702
UTTAR PRADESH COSTS	60950	134024	217044	230495	244834	232596	44213	32766	24695	23743	22763	21755	21755	21755	21755	3913	3913	3913	3913	3913	3913	3913	3913
TOTAL PROJECT COSTS	148220	386021	541138	592952	640615	538252	154180	98765	66591	55022	50875	48257	48257	48257	48257	28358	28358	28358	28358	28358	28358	28358	28354
BENEFITS																							
GUJARAT BENEFITS	-	1027	2242	4349	88913	164806	173989	384685	499945	512466	568515	583231	607681	287685	343347	444034	475140	470976	474960	467576	385280	385784	329532
HIMACHAL PRADESH BENEFITS	-	924	7663	15806	24870	33701	43562	44956	70216	203499	338043	531349	724512	899433	897464	928191	935846	947086	959063	949329	998190	1014371	1077068
RAJASTHAN BENEFITS	-	11	74	157	2089	8240	31314	41573	51182	105421	93647	117005	138868	106695	117413	97505	88257	104563	118254	121395	100406	58736	90691
UTTAR PRADESH BENEFITS	-	-	1298	2597	128495	172278	182218	438859	458201	595542	456615	473721	490826	213692	345038	445886	458886	471804	485886	421886	405650	202592	207534
TOTAL PROJECT BENEFITS	-	1963	11277	22909	244367	379232	431082	909993	1079544	1416868	1476820	1705306	1761807	1501425	1703262	1915330	1958057	1993470	2038022	2120186	1889525	1573486	1695275
NET BENEFITS																							
NET BENEFITS TOTAL PROJECT	-148220	-384058	-529861	-569144	-396248	-159021	276902	811207	1012953	1361846	1425945	1657049	1713550	1453168	1655005	1907179	1929699	1965112	2009664	2091747	1861167	1545127	1666867

INDIA

NATIONAL SOCIAL FORESTRY

TOTAL PROJECT COST-BENEFIT AND SENSITIVITY ANALYSIS

RS 000

	24	25	26	27	28	29	30	31
COSTS								
GUJARAT COSTS	13426	13426	13426	13426	13426	13426	13426	13426
HIMACHAL PRADESH COSTS	3791	3791	3791	3791	3791	3791	3791	3791
RAJASTHAN COSTS	7028	7028	7028	7028	7028	7028	7028	7028
UTTAR PRADESH COSTS	3913	3913	3913	3913	3913	3913	3913	3913
TOTAL PROJECT COSTS	28358	28358	28358	28358	28358	28358	28358	28358
BENEFITS								
GUJARAT BENEFITS	520104	541816	410570	444344	473306	287434	200896	242913
HIMACHAL PRADESH BENEFITS	1148659	1219467	1216410	1270750	1330802	1401462	1472287	2034241
RAJASTHAN BENEFITS	104389	123013	146631	109788	114553	121147	51419	28157
UTTAR PRADESH BENEFITS	468877	597419	464242	476162	488882	499922	219922	143618
TOTAL PROJECT BENEFITS	2242031	2481716	2251841	2329964	2411742	2309967	1940525	2340929
NET BENEFITS								
NET BENEFITS TOTAL PROJECT	2213673	2453357	2223503	2300706	2383384	2281608	1912167	2320571

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Internal Rates of Return of Net Streams

NBENTOT	26.9%

SWITCHING VALUES AT 12%

STREAM	APPRAISAL VALUE	SWITCHING VALUE	PERCENTAGE CHANGE
BTOTPROJ	6,244,056.73	2,001,965.62	-44.7%
CTOTPROJ	2,001,965.62	6,244,056.73	200.8%

NPV @ 12% = 4,182,091.1
IRR = 26.9%

SENSITIVITY TESTS

TEST CASES	TEST CASE VARIATIONS		PRESENT VALUE AT DCC OF 12.00%	NPV AS A % OF PRESENT COSTS AT DCC OF 12.00%	INTERNAL RATE OF RETURN
BASE CASE			4182091.1	200.9%	26.9%
TEST CASE 1	BTOTPROJ	LAG 1 YEARS	3518942.2	168.6%	23.5%
TEST CASE 2	BTOTPROJ	DOWN 20%	2929279.0	140.7%	23.3%
TEST CASE 3	CTOTPROJ	UP 20%	3765690.0	150.7%	23.9%
TEST CASE 4	CTOTPROJ BTOTPROJ	UP 20% DOWN 20%	2512086.6	100.6%	20.6%

NATIONAL SOCIAL FORESTRY PROJECT-GUJARAT

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	21	22	23	24	25	26	27	28	29	30	31
COSTS											
I. OVERHEAD COST											
INVESTMENT COST /a	-	-	-	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	-	-	-	-	-	-	-	-	-	-
OTHER RECURRENT COST /c	-	-	-	-	-	-	-	-	-	-	-
SUBTOTAL	-	-	-	-	-	-	-	-	-	-	-
II. FARM FORESTRY PRODUCERS COST											
ECONOMIC COST TO PRODUCERS	-	-	-	-	-	-	-	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST											
PUBLIC WASTELAND PLANTING	5330	5330	5330	5330	5330	5330	5330	5330	5330	5330	5330
COMMUNITY WOODLOTS IRRIGATED	700	700	700	700	700	700	700	700	700	700	700
COMMUNITY WOODLOTS RAINFED	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
COMMUNITY TREE FODDER LOTS	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
REHABILITATED DEGRADED FORESTS	851	851	851	851	851	851	851	851	851	851	851
STRIP PLANTATION	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
URBAN FUELWOOD PLANTATION	350	350	350	350	350	350	350	350	350	350	350
SUBTOTAL	13626	13626	13626	13626	13626	13626	13626	13626	13626	13626	13626
TOTAL PROJECT COST	13626	13626	13626	13626	13626	13626	13626	13626	13626	13626	13626
BENEFITS											
I. FARM FORESTRY BENEFITS											
ECONOMIC RETURNS FROM FARM FORESTRY	76800	76800	76800	276480	276480	276480	276480	276480	76800	-	-
II. PLANTATION BENEFITS											
PRIVATE WASTELAND PLANTING	28642	27193	29516	34333	38313	5456	23657	28365	34257	32968	35428
COMMUNITY WOODLOTS RAINFED	32696	33312	34792	36272	38532	15676	37040	37040	37904	39184	37888
COMMUNITY WOODLOTS IRRIGATED	49444	50740	50740	49444	50740	50740	49364	50540	50380	48924	2592
COMMUNITY TREE FODDER LOTS	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	21600
REHABILITATED DEGRADED FORESTS	84980	84013	91354	91658	96234	25990	36612	36537	40921	35672	77662
STRIP PLANTATION DEPARTMENT MANAGED	11922	12216	12834	13476	14418	5856	19488	19488	19812	19512	99256
URBAN FUELWOOD PLANTATION	12372	13088	15792	17940	18576	11856	11220	14352	16848	16212	3664
SUBTOTAL	225576	226082	240828	248722	262432	131194	184980	192922	207732	197992	240089
III. FUEL SAVING DEVICE BENEFITS											
CHULAS	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640
CREMATORIA	264	264	264	264	264	264	264	264	264	264	264
SUBTOTAL	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904	2904
TOTAL BENEFITS	305280	305786	320532	528106	541816	410578	464364	472306	287436	200896	242913
NET BENEFIT											
GUJARAT NET BENEFIT	291653	292160	306906	514480	528190	396952	450738	458679	273810	187270	229287

/a INCLUDES FUEL SAVING DEVICES.
/b STAFF SALARIES AND ALLOWANCES ATTRIBUTED TO NSFP BEING 100% OF TOTAL STAFF SALARIES AND ALLOWANCES IN YEARS 1 TO 6 AND 100% OF EXTENSION STAFF SALARIES AND ALLOWANCES IN YEARS 7 TO 10.
/c OTHER RECURRENT COSTS ATTRIBUTED TO NSFP BEING 100% OF TOTAL OTHER RECURRENT COSTS IN YEARS 1 TO 6 AND 100% OF EXTENSION OTHER RECURRENT COSTS IN YEARS 7 TO 10.

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NATIONAL SOCIAL FORESTRY PROJECT-GUJARAT

Economic Cost and Benefit Streams

Internal Rates of Return of Net Streams

NBENG	26.00%

SWITCHING VALUES AT 12%

STREAM	APPRAISAL VALUE	SWITCHING VALUE	PERCENTAGE CHANGE
BTOTG	1,781,670.21	729,417.47	-59.06%
CTOTG	729,417.47	1,781,670.21	144.26%

NPV @ 12% = 1,052,252.7
IRR = 26%

SENSITIVITY TESTS

TEST CASES	TEST CASE VARIATIONS		PRESENT VALUE AT OCC OF 12.00%	NPV AS A % OF PRESENT COSTS AT OCC OF 12.00%	INTERNAL RATE OF RETURN
BASE CASE			1052252.7	144.3%	26.0%
TEST CASE 1	BTOTG	LAG 1 YEARS	861359.5	118.1%	22.3%
TEST CASE 2	BTOTG	DOWN 20%	695918.7	95.4%	22.0%
TEST CASE 3	CTOTG	UP 20%	906369.2	103.5%	22.7%
TEST CASE 4	CTOTG BTOTG	UP 20% DOWN 20%	550035.2	62.8%	19.0%

NATIONAL SOCIAL FORESTRY PROJECT-HIMACHAL PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COSTS														
I. OVERHEAD COST														
INVESTMENT COST /a	4410.000	18871.000	21018.000	20608.000	21953.000	14785.000	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	16994.000	16238.000	16357.000	16461.000	16354.000	391.000	391.000	391.000	391.000	391.000	391.000	391.000	391.000
OTHER RECURRENT COST /c	-	2264.000	2615.000	2876.000	3211.000	3565.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
SUBTOTAL	4410.000	37229.000	39871.000	39841.000	41627.000	34904.000	491.000	491.000	491.000	491.000	491.000	491.000	491.000	491.000
II. FARM FORESTRY PRODUCERS COST														
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-	11130.000	15505.000	19080.000	22925.000	26040.000	8820.000	5180.000	1890.000	630.000	700.000	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST														
PRIVATE WASTELAND PLANTING	896.700	2938.350	3768.450	4419.650	5319.300	4500.650	1902.600	1456.000	992.600	819.000	819.000	819.000	819.000	819.000
GROUP FARM FORESTRY	85.909	292.091	526.909	693.636	836.818	647.818	217.636	138.091	94.818	74.455	74.455	74.455	74.455	74.455
COMMUNITY WOODLOTS-SELF HELP	-	94.500	274.050	418.950	567.700	718.350	539.000	183.050	116.909	79.000	63.000	63.000	63.000	63.000
COMMUNITY WOODLOTS-RAINFED	6378.750	15781.500	19278.000	22459.500	25061.750	17850.000	6462.750	4240.250	3038.000	2520.000	2520.000	2520.000	2520.000	2520.000
REHABILITATED DEGRADED FORESTS	708.750	1701.000	2173.500	2887.500	3386.250	2380.000	852.250	551.250	385.000	315.000	315.000	315.000	315.000	315.000
SUBTOTAL	8070.109	20827.641	26020.909	31079.236	35171.818	26097.018	9974.236	6568.641	4627.318	3808.235	3791.455	3791.455	3791.455	3791.455
TOTAL PROJECT COST	12480.109	69186.641	81396.909	90800.236	99723.818	87041.018	19285.236	12239.641	7008.318	5629.235	4982.455	4282.455	4282.455	4282.455
BENEFITS														
I. FARM FORESTRY BENEFITS														
ECONOMIC RETURNS FROM FARM FORESTRY	-	-	-	-	-	-	-	-	-	105600.000	228800.000	369600.000	528000.000	704000.000
II. PLANTATION BENEFITS														
PRIVATE WASTELAND PLANTING	-	-	1260.000	2770.800	4443.600	6278.400	8275.200	8424.000	11515.200	14974.400	18852.000	22683.600	26839.200	26387.600
GROUP FARM FORESTRY	-	-	54.545	173.455	356.727	549.818	797.455	836.727	1130.909	1719.273	2606.618	3480.382	4635.345	4975.200
COMMUNITY WOODLOTS-SELF HELP	-	-	-	60.000	160.800	297.000	468.600	675.600	708.000	1031.600	1517.000	2169.400	2966.400	3917.760
COMMUNITY WOODLOTS-RAINFED	-	-	4050.000	9129.000	14712.000	20826.000	27321.000	28320.000	50163.000	73424.000	99868.000	127216.200	156121.600	154983.600
REHABILITATED DEGRADED FORESTS	-	-	450.000	900.000	1500.000	2250.000	3000.000	3000.000	3000.000	2850.000	2700.000	2550.000	2250.000	1850.000
SUBTOTAL	-	-	5814.545	13033.255	21173.127	30201.218	39862.255	41256.327	66517.109	94199.273	125544.618	158049.582	192812.545	191734.160
NET BENEFIT														
TOTAL FUELWOOD SAVING DEVICES-BENEFITS	-	924.180	1848.360	2772.540	3696.720	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300
TOTAL BENEFITS	-	924.180	7662.905	15805.795	24869.847	33900.518	43561.555	44955.627	70216.409	203498.573	358043.318	531349.162	724511.845	899433.460
NET BENEFIT														
HIMACHAL PRADESH NET BENEFIT	-12480.109	-68262.461	-73734.004	-74994.442	-74853.971	-53140.500	24276.318	32715.986	63208.091	197869.318	353060.864	527066.707	720229.391	895151.305

NATIONAL SOCIAL FORESTRY PROJECT-HIMACHAL PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	15	16	17	18	19	20	21	22	23	24	25	26	27
COSTS													
I. OVERHEAD COST													
INVESTMENT COST /a	-	-	-	-	-	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	391.000	-	-	-	-	-	-	-	-	-	-	-	-
OTHER RECURRENT COST /c	100.000	-	-	-	-	-	-	-	-	-	-	-	-
SUBTOTAL	491.000	-	-	-	-	-	-	-	-	-	-	-	-
II. FARM FORESTRY PRODUCERS COST													
ECONOMIC COST TO PRODUCERS	-	-	-	-	-	-	-	-	-	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST													
PRIVATE WASTELAND PLANTING	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000
GROUP FARM FORESTRY	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455
COMMUNITY WOODLOTS-SELF HELP (PANCHAYAT-MANAGED)	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000
COMMUNITY WOODLOTS-RAINFED (DEPT.-MANAGED)	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000
REHABILITATED DEGRADED FORESTS	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000
SUBTOTAL	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455
TOTAL PROJECT COST	4282.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455
BENEFITS													
I. FARM FORESTRY BENEFITS													
ECONOMIC RETURNS FROM FARM FORESTRY	704000.000	704000.000	704000.000	704000.000	704000.000	704000.000	704000.000	718400.000	773600.000	837600.000	918400.000	992000.000	1056000.000
II. PLANTATION BENEFITS													
PRIVATE WASTELAND PLANTING	25892.000	28716.000	29932.400	31244.800	32653.200	34157.600	37267.920	37715.320	38116.720	38472.120	38781.520	29076.560	29194.760
GROUP FARM FORESTRY	4559.855	4793.309	5154.255	5569.964	5734.255	6012.727	6473.745	7103.855	7089.382	7587.634	5184.382	4838.227	4950.764
COMMUNITY WOODLOTS-SELF HELP	3890.960	3856.800	4133.600	4362.240	4621.000	4909.880	5228.880	5132.560	5459.000	5765.320	6051.520	6317.600	4123.120
COMMUNITY WOODLOTS-RAINFED	153722.000	174606.000	180356.200	187249.600	194594.800	201549.800	225469.800	226420.400	229083.200	231284.200	231430.000	168398.600	168852.000
REHABILITATED DEGRADED FORESTS	1700.000	8520.000	8570.000	10960.000	13700.000	14200.000	16050.000	15900.000	20100.000	24250.000	24300.000	12880.000	11930.000
SUBTOTAL	189764.815	220492.109	228146.455	239386.604	251303.255	261630.007	290490.345	292272.135	299748.302	307359.276	305367.622	220711.087	219050.644
NET BENEFIT													
TOTAL FUELWOOD SAVING DEVICES-BENEFITS	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300
TOTAL BENEFITS	897464.115	928191.409	935845.755	947085.904	959002.555	969329.307	998189.645	1014371.435	1077047.602	1148658.576	1219466.922	1216410.387	1278749.944
NET BENEFIT													
HIMACHAL PRADESH NET BENEFIT	893181.660	924399.955	932054.300	943294.449	955211.100	965537.853	994398.191	1010579.980	1073276.147	1144867.122	1215675.467	1212618.933	1274958.489

NATIONAL SOCIAL FORESTRY PROJECT-HIMACHAL PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	28	29	30	31
COSTS				
I. OVERHEAD COST				
INVESTMENT COST /a	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	-	-	-
OTHER RECURRENT COST /c	-	-	-	-
SUBTOTAL	-	-	-	-
II. FARM FORESTRY PRODUCERS COST				
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST				
PRIVATE WASTELAND PLANTING	819.000	819.000	819.000	819.000
AGROF FARM FORESTRY	74.455	74.455	74.455	74.455
COMMUNITY WOODLOTS-SELF HELP	63.000	63.000	63.000	63.000
COMMUNITY WOODLOTS-RAINFED	2520.000	2520.000	2520.000	2520.000
REHABILITATED DEGRADED FORESTS	315.000	315.000	315.000	315.000
SUBTOTAL	3791.455	3791.455	3791.455	3791.455
TOTAL PROJECT COST	3791.455	3791.455	3791.455	3791.455
BENEFITS				
I. FARM FORESTRY BENEFITS				
ECONOMIC RETURNS FROM FARM FORESTRY	1108800.000	1170400.000	1240800.000	2472000.000
II. PLANTATION BENEFITS				
PRIVATE WASTELAND PLANTING	29309.960	29422.160	29531.360	46196.000
AGROF FARM FORESTRY	5060.800	5053.600	5161.236	6452.291
COMMUNITY WOODLOTS-SELF HELP	4183.640	4242.840	4300.720	4357.280
COMMUNITY WOODLOTS-RAINFED	169680.000	170344.200	170744.800	289496.000
REHABILITATED DEGRADED FORESTS	15140.000	18300.000	18050.000	12040.000
SUBTOTAL	223382.400	227362.800	227788.116	358541.571
NET BENEFIT				
TOTAL FUELWOOD SAVING DEVICES-BENEFITS	3699.300	3699.300	3699.300	3699.300
TOTAL BENEFITS	1335881.700	1401462.100	1472287.416	2834240.871
NET BENEFIT				
HIMACHAL PRADESH NET BENEFIT	1332010.245	1397670.645	1468495.962	2830449.416

Internal Rates of Return of Net Streams

NSEHP	34.09%

SWITCHING VALUES AT 12%

STREAM	APPRAISAL VALUE	SWITCHING VALUE	PERCENTAGE CHANGE
BTOTHP	2,321,170.93	310,632.87	-86.62%
CTOTHP	310,632.87	2,321,170.93	647.24%

NPV @ 12% = 2,010,538.1
IRR = 34.1%

SENSITIVITY TESTS

TEST CASES	TEST CASE VARIATIONS		PRESENT VALUE AT OCC OF 12.00%	NPV AS A % OF PRESENT COSTS AT OCC OF 12.00%	INTERNAL RATE OF RETURN
BASE CASE			2010538.1	647.2%	34.1%
TEST CASE 1	BTOTHP	LAG 1 YEARS	1761841.2	567.2%	30.3%
TEST CASE 2	BTOTHP	BENN 20%	1546383.9	497.8%	30.9%
TEST CASE 3	CTOTHP	UP 20%	1940411.5	522.7%	31.3%
TEST CASE 4	CTOTHP BTOTHP	UP 20% BENN 20%	1484177.3	390.2%	28.4%

/a INCLUDES FUEL SAVING DEVICES.
/b STAFF SALARIES AND ALLOWANCES ATTRIBUTED TO NSFP BEING 100% OF TOTAL STAFF SALARIES AND ALLOWANCES IN YEARS 1 TO 6 AND 100% OF EXTENSION STAFF SALARIES AND ALLOWANCES IN YEARS 7 TO 10.
/c OTHER RECURRENT COSTS ATTRIBUTED TO NSFP BEING 100% OF TOTAL OTHER RECURRENT COSTS IN YEARS 1 TO 6 AND 100% OF EXTENSION OTHER RECURRENT COSTS IN YEARS 7 TO 10.

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NATIONAL SOCIAL FORESTRY PROJECT-HIMACHAL PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COSTS														
I. OVERHEAD COST														
INVESTMENT COST /a	4410.000	18871.000	21018.000	20608.000	21953.000	14785.000	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	16994.000	16238.000	16357.000	16461.000	16354.000	391.000	391.000	391.000	391.000	391.000	391.000	391.000	391.000
OTHER RECURRENT COST /c	-	2264.000	2615.000	2876.000	3211.000	3565.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
SUBTOTAL	4410.000	37229.000	39871.000	39841.000	41627.000	34904.000	491.000	491.000	491.000	491.000	491.000	491.000	491.000	491.000
II. FARM FORESTRY PRODUCERS COST														
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-	11130.000	15505.000	19080.000	22925.000	26040.000	8820.000	5180.000	1890.000	630.000	700.000	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST														
PRIVATE WASTELAND PLANTING	896.700	2938.350	3768.450	4419.650	5319.300	4500.650	1902.600	1456.000	992.600	819.000	819.000	819.000	819.000	819.000
GROUP FARM FORESTRY	85.909	292.091	526.909	693.636	836.818	647.818	217.636	138.091	94.818	74.455	74.455	74.455	74.455	74.455
COMMUNITY WOODLOTS-SELF HELP	-	94.500	274.050	418.950	567.700	718.350	539.000	183.050	116.909	79.000	63.000	63.000	63.000	63.000
COMMUNITY WOODLOTS-RAINFED	6378.750	15781.500	19278.000	22459.500	25061.750	17850.000	6462.750	4240.250	3038.000	2520.000	2520.000	2520.000	2520.000	2520.000
REHABILITATED DEGRADED FORESTS	708.750	1701.000	2173.500	2887.500	3386.250	2380.000	852.250	551.250	385.000	315.000	315.000	315.000	315.000	315.000
SUBTOTAL	8070.109	20827.641	26020.909	31079.236	35171.818	26097.018	9974.236	6568.641	4627.318	3808.235	3791.455	3791.455	3791.455	3791.455
TOTAL PROJECT COST	12480.109	69186.641	81396.909	90800.236	99723.818	87041.018	19285.236	12239.641	7008.318	5629.235	4982.455	4282.455	4282.455	4282.455
BENEFITS														
I. FARM FORESTRY BENEFITS														
ECONOMIC RETURNS FROM FARM FORESTRY	-	-	-	-	-	-	-	-	-	105600.000	228800.000	369600.000	528000.000	704000.000
II. PLANTATION BENEFITS														
PRIVATE WASTELAND PLANTING	-	-	1260.000	2770.800	4443.600	6278.400	8275.200	8424.000	11515.200	14974.400	18852.000	22683.600	26839.200	26387.600
GROUP FARM FORESTRY	-	-	54.545	173.455	356.727	549.818	797.455	836.727	1130.909	1719.273	2606.618	3480.382	4635.345	4975.200
COMMUNITY WOODLOTS-SELF HELP	-	-	-	60.000	160.800	297.000	468.600	675.600	708.000	1031.600	1517.000	2169.400	2966.400	3917.760
COMMUNITY WOODLOTS-RAINFED	-	-	4050.000	9129.000	14712.000	20826.000	27321.000	28320.000	50163.000	73424.000	99868.000	127216.200	156121.600	154983.600
REHABILITATED DEGRADED FORESTS	-	-	450.000	900.000	1500.000	2250.000	3000.000	3000.000	3000.000	2850.000	2700.000	2550.000	2250.000	1850.000
SUBTOTAL	-	-	5814.545	13033.255	21173.127	30201.218	39862.255	41256.327	66517.109	94199.273	125544.618	158049.582	192812.545	191734.160
NET BENEFIT														
TOTAL FUELWOOD SAVING DEVICES-BENEFITS	-	924.180	1848.360	2772.540	3696.720	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300
TOTAL BENEFITS	-	924.180	7662.905	15805.795	24869.847	33900.518	43561.555	44955.627	70216.409	203498.573	358043.318	531349.162	724511.845	899433.460
NET BENEFIT														
HIMACHAL PRADESH NET BENEFIT	-12480.109	-68262.461	-73734.004	-74994.442	-74853.971	-53140.500	24276.318	32715.986	63208.091	197869.318	353060.864	527066.707	720229.391	895151.305

NATIONAL SOCIAL FORESTRY PROJECT-HIMACHAL PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	15	16	17	18	19	20	21	22	23	24	25	26	27
COSTS													
I. OVERHEAD COST													
INVESTMENT COST /a	-	-	-	-	-	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	391.000	-	-	-	-	-	-	-	-	-	-	-	-
OTHER RECURRENT COST /c	100.000	-	-	-	-	-	-	-	-	-	-	-	-
SUBTOTAL	491.000	-	-	-	-	-	-	-	-	-	-	-	-
II. FARM FORESTRY PRODUCERS COST													
ECONOMIC COST TO PRODUCERS	-	-	-	-	-	-	-	-	-	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST													
PRIVATE WASTELAND PLANTING	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000	819.000
GROUP FARM FORESTRY	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455	74.455
COMMUNITY WOODLOTS-SELF HELP (PANCHAYAT-MANAGED)	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000
COMMUNITY WOODLOTS-RAINFED (DEPT.-MANAGED)	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000	2520.000
REHABILITATED DEGRADED FORESTS	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000	315.000
SUBTOTAL	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455
TOTAL PROJECT COST	4282.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455	3791.455
BENEFITS													
I. FARM FORESTRY BENEFITS													
ECONOMIC RETURNS FROM FARM FORESTRY	704000.000	704000.000	704000.000	704000.000	704000.000	704000.000	704000.000	718400.000	773600.000	837600.000	918400.000	992000.000	1056000.000
II. PLANTATION BENEFITS													
PRIVATE WASTELAND PLANTING	25892.000	28716.000	29932.400	31244.800	32653.200	34157.600	37267.920	37715.320	38116.720	38472.120	38781.520	29076.560	29194.760
GROUP FARM FORESTRY	4559.855	4793.309	5154.255	5569.964	5734.255	6012.727	6473.745	7103.855	7089.382	7587.634	5184.382	4838.227	4950.764
COMMUNITY WOODLOTS-SELF HELP	3890.960	3856.800	4133.600	4362.240	4621.000	4909.880	5228.880	5132.560	5459.000	5765.320	6051.520	6317.600	4123.120
COMMUNITY WOODLOTS-RAINFED	153722.000	174606.000	180356.200	187249.600	194594.800	201549.800	225469.800	226420.400	229083.200	231284.200	231430.000	168398.600	168852.000
REHABILITATED DEGRADED FORESTS	1700.000	8520.000	8570.000	10960.000	13700.000	14200.000	16050.000	15900.000	20100.000	24250.000	24300.000	12880.000	11930.000
SUBTOTAL	189764.815	220492.109	228146.455	239386.604	251303.255	261630.007	290490.345	292272.135	299748.302	307359.276	305367.622	220711.087	219050.644
NET BENEFIT													
TOTAL FUELWOOD SAVING DEVICES-BENEFITS	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300	3699.300
TOTAL BENEFITS	897464.115	928191.409	935845.755	947085.904	959002.555	969329.307	998189.645	1014371.435	1077047.602	1148658.576	1219466.922	1216410.387	1278749.944
NET BENEFIT													
HIMACHAL PRADESH NET BENEFIT	893181.660	924399.955	932054.300	943294.449	955211.100	965537.853	994398.191	1010579.980	1073276.147	1144867.122	1215675.467	1212618.933	1274958.489

NATIONAL SOCIAL FORESTRY PROJECT-HIMACHAL PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	28	29	30	31
COSTS				
I. OVERHEAD COST				
INVESTMENT COST /a	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	-	-	-
OTHER RECURRENT COST /c	-	-	-	-
SUBTOTAL	-	-	-	-
II. FARM FORESTRY PRODUCERS COST				
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST				
PRIVATE WASTELAND PLANTING	819.000	819.000	819.000	819.000
AGROF FARM FORESTRY	74.455	74.455	74.455	74.455
COMMUNITY WOODLOTS-SELF HELP	63.000	63.000	63.000	63.000
COMMUNITY WOODLOTS-RAINFED	2520.000	2520.000	2520.000	2520.000
REHABILITATED DEGRADED FORESTS	315.000	315.000	315.000	315.000
SUBTOTAL	3791.455	3791.455	3791.455	3791.455
TOTAL PROJECT COST	3791.455	3791.455	3791.455	3791.455
BENEFITS				
I. FARM FORESTRY BENEFITS				
ECONOMIC RETURNS FROM FARM FORESTRY	1108800.000	1170400.000	1240800.000	2472000.000
II. PLANTATION BENEFITS				
PRIVATE WASTELAND PLANTING	29309.960	29422.160	29531.360	46196.000
AGROF FARM FORESTRY	5060.800	5053.600	5161.236	6452.291
COMMUNITY WOODLOTS-SELF HELP	4183.640	4242.840	4300.720	4357.280
COMMUNITY WOODLOTS-RAINFED	169680.000	170344.200	170744.800	289496.000
REHABILITATED DEGRADED FORESTS	15140.000	18300.000	18050.000	12040.000
SUBTOTAL	223382.400	227362.800	227788.116	358541.571
NET BENEFIT				
TOTAL FUELWOOD SAVING DEVICES-BENEFITS	3699.300	3699.300	3699.300	3699.300
TOTAL BENEFITS	1335881.700	1401462.100	1472287.416	2834240.871
NET BENEFIT				
HIMACHAL PRADESH NET BENEFIT	1332010.245	1397670.645	1468495.962	2830449.416

Internal Rates of Return of Net Streams

NSEHP	34.09%

SWITCHING VALUES AT 12%

STREAM	APPRAISAL VALUE	SWITCHING VALUE	PERCENTAGE CHANGE
BTOTHP	2,321,170.93	310,632.87	-86.62%
CTOTHP	310,632.87	2,321,170.93	647.24%

NPV @ 12% = 2,010,538.1
IRR = 34.1%

SENSITIVITY TESTS

TEST CASES	TEST CASE VARIATIONS		PRESENT VALUE AT OCC OF 12.00%	NPV AS A % OF PRESENT COSTS AT OCC OF 12.00%	INTERNAL RATE OF RETURN
BASE CASE			2010538.1	647.2%	34.1%
TEST CASE 1	BTOTHP	LAG 1 YEARS	1761841.2	567.2%	30.3%
TEST CASE 2	BTOTHP	BENN 20%	1546383.9	497.8%	30.9%
TEST CASE 3	CTOTHP	UP 20%	1940411.5	522.7%	31.3%
TEST CASE 4	CTOTHP BTOTHP	UP 20% BENN 20%	1484177.3	390.2%	28.4%

/a INCLUDES FUEL SAVING DEVICES.
/b STAFF SALARIES AND ALLOWANCES ATTRIBUTED TO NSFP BEING 100% OF TOTAL STAFF SALARIES AND ALLOWANCES IN YEARS 1 TO 6 AND 100% OF EXTENSION STAFF SALARIES AND ALLOWANCES IN YEARS 7 TO 10.
/c OTHER RECURRENT COSTS ATTRIBUTED TO NSFP BEING 100% OF TOTAL OTHER RECURRENT COSTS IN YEARS 1 TO 6 AND 100% OF EXTENSION OTHER RECURRENT COSTS IN YEARS 7 TO 10.

April 10, 1985 17:26

NATIONAL SOCIAL FORESTRY PROJECT-RAJASTHAN

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COSTS														
I. OVERHEAD COST														
INVESTMENT COST /a	368.000	21927.000	18054.000	11978.000	11171.000	6861.000	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	4396.000	9614.000	11632.000	13056.000	14683.000	934.000	934.000	934.000	934.000	934.000	934.000	934.000	934.000
OTHER RECURRENT COST /c	-	551.000	868.000	1187.000	1323.000	1451.000	267.000	267.000	267.000	267.000	267.000	267.000	267.000	267.000
SUBTOTAL	368.000	26874.000	28536.000	24797.000	25550.000	22995.000	1201.000	1201.000	1201.000	1201.000	1201.000	1201.000	1201.000	1201.000
II. FARM FORESTRY PRODUCERS COST														
ECONOMIC COST TO PRODUCERS-IMPROVED (DRAFTED) ORCHARDS	-	700.000	700.000	875.000	1138.000	-	-	-	-	-	-	-	-	-
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-	1835.000	18970.000	26810.000	30870.000	34125.000	11270.000	6930.000	2590.000	1750.000	910.000	-	-	-
SUBTOTAL	-	2535.000	19738.000	27685.000	32008.000	34125.000	11270.000	6930.000	2590.000	1750.000	910.000	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST														
HOUSEHOLD FARM FORESTRY	-	143.500	1867.150	2643.900	4110.050	3967.930	246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750
COMMUNITY WOODLOTS	-	648.900	2725.100	3339.250	4517.450	3794.000	854.700	577.500	525.000	525.000	525.000	525.000	525.000	525.000
REHABILITATED DEGRADED FORESTS	-	747.600	3978.100	5418.200	6984.100	7642.600	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000
ROADSIDE STRIP PLANTATION	1251.390	2894.000	4127.130	5414.000	6706.630	4597.740	2168.600	1540.700	1023.000	700.000	700.000	700.000	700.000	700.000
CANALSIDE STRIP PLANTATION	-	230.270	537.163	701.148	862.393	596.778	385.480	253.470	222.600	222.600	222.600	222.600	222.600	222.600
RAILSIDE STRIP PLANTATION	-	218.540	978.880	1401.470	2040.640	2065.490	1250.480	1074.300	980.000	980.000	980.000	980.000	980.000	980.000
FLOOD CONTROL AND TANK EMBANKMENT	19.250	101.710	136.710	157.710	178.710	180.460	119.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000
TOTAL PROJECT COST	1638.640	34290.100	60777.823	69053.928	78767.923	75997.868	21664.260	16177.170	11142.000	9978.600	9138.600	8228.600	8228.600	8228.600
BENEFITS														
I. FARM FORESTRY BENEFITS														
ECONOMIC RETURNS FROM IMPROVED (DRAFTED) ORCHARDS	-	-	-	-	-	1331.200	2828.800	4492.800	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000
ECONOMIC RETURNS FROM FARM FORESTRY	-	-	-	-	-	2000.000	20000.000	24000.000	29600.000	82000.000	69200.000	87200.000	96800.000	24000.000
SUBTOTAL	-	-	-	-	-	3331.200	22828.800	28492.800	36256.000	88656.000	75856.000	93856.000	103456.000	30656.000
II. PLANTATION BENEFITS														
HOUSEHOLD FARM FORESTRY	-	-	6.000	24.000	154.000	430.000	1706.000	3334.000	4674.000	5130.000	5130.000	5130.000	8498.000	15174.000
COMMUNITY WOODLOTS	-	-	8.000	16.000	28.000	40.000	192.000	344.000	572.000	880.000	880.000	960.000	4624.000	6704.000
REHABILITATED DEGRADED FOREST LANDS	-	-	32.000	72.000	1040.000	4048.000	4208.000	8880.000	8880.000	8880.000	8880.000	8880.000	8880.000	25040.000
ROADSIDE STRIP PLANTATION	-	2.400	5.680	9.600	14.400	80.680	161.400	262.400	383.600	1379.400	1464.200	3899.400	7438.000	9983.600
CANALSIDE STRIP PLANTATION	-	-	0.480	1.040	1.680	2.400	14.520	28.660	44.820	63.000	804.120	927.640	1301.720	1456.800
RAILSIDE STRIP PLANTATION	-	-	1.600	3.200	5.680	8.000	74.400	140.800	240.400	340.000	340.000	340.000	1684.000	1624.000
FLOOD CONTROL AND TANK EMBANKMENT	-	0.800	1.600	2.400	3.200	45.200	86.400	127.600	168.800	210.000	210.000	1050.000	1012.000	974.000
SUBTOTAL	-	3.200	55.280	128.240	2046.880	4874.280	8442.720	13037.460	14883.620	16722.400	17748.320	23187.040	35369.720	69956.400
III. FUEL SAVING DEVICE BENEFITS														
CREMATORIA	-	7.920	18.480	29.040	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240
TOTAL BENEFITS	-	11.120	73.760	157.280	2089.120	8247.640	31313.760	41572.500	51181.860	105420.640	93646.560	117085.280	138867.960	100694.640
NET BENEFIT														
RAJASTHAN NET BENEFIT	-1638.640	-34278.980	-60703.263	-68896.678	-76678.803	-67749.428	9649.500	25395.330	40039.860	95442.040	84507.960	108776.680	130639.360	92466.040

NATIONAL SOCIAL FORESTRY PROJECT-RAJASTHAN

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

		15	16	17	18	19	20	21	22	23	24	25	26	27	28
COSTS															
I. OVERHEAD COST															
INVESTMENT COST /a		-	-	-	-	-	-	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	934.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OTHER RECURRENT COST /c	267.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUBTOTAL	1201.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
II. FARM FORESTRY PRODUCERS COST															
ECONOMIC COST TO PRODUCERS-IMPROVED (GRAFTED) ORCHARDS		-	-	-	-	-	-	-	-	-	-	-	-	-	-
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS		-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUBTOTAL		-	-	-	-	-	-	-	-	-	-	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST															
HOUSEHOLD FARM FORESTRY		246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750	246.750
COMMUNITY WOODLOTS		525.000	525.000	525.000	525.000	525.000	525.000	525.000	525.000	525.000	525.000	525.000	525.000	525.000	525.000
REHABILITATED DEGRADED FORESTS		4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000	4396.000
ROADSIDE STRIP PLANTATION		700.000	700.000	700.000	700.000	700.000	700.000	700.000	700.000	700.000	700.000	700.000	700.000	700.000	700.000
CANALSIDE STRIP PLANTATION		222.600	222.600	222.600	222.600	222.600	222.600	222.600	222.600	222.600	222.600	222.600	222.600	222.600	222.600
RAILSIDE STRIP PLANTATION		980.000	980.000	980.000	980.000	980.000	980.000	980.000	980.000	980.000	980.000	980.000	980.000	980.000	980.000
FLOOD CONTROL AND TANK EMBANKMENT		105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000
TOTAL PROJECT COST		8228.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600	7027.600
BENEFITS															
I. FARM FORESTRY BENEFITS															
ECONOMIC RETURNS FROM IMPROVED (GRAFTED) ORCHARDS		6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000	6656.000
ECONOMIC RETURNS FROM FARM FORESTRY		26000.000	2800.000	25600.000	80000.000	91200.000	93200.000	74800.000	20000.000	24000.000	24000.000	31600.000	58000.000	87200.000	91200.000
SUBTOTAL		32656.000	8656.000	32256.000	86656.000	97856.000	99856.000	81456.000	26656.000	30656.000	30656.000	38256.000	64656.000	93856.000	97856.000
II. PLANTATION BENEFITS															
HOUSEHOLD FARM FORESTRY		21730.000	24798.000	4290.000	4470.000	4770.000	5130.000	5130.000	5130.000	8498.000	15174.000	21730.000	24798.000	4290.000	4470.000
COMMUNITY WOODLOTS		9616.000	9436.000	3072.000	3192.000	4348.000	4528.000	1600.000	1600.000	7184.000	6984.000	9616.000	9436.000	1120.000	1240.000
REHABILITATED DEGRADED FOREST LANDS		41600.000	41600.000	48160.000	8800.000	8800.000	8800.000	8800.000	8800.000	23040.000	41600.000	41600.000	48160.000	8800.000	8800.000
ROADSIDE STRIP PLANTATION		8221.800	9487.600	219.000	1014.400	1353.200	1799.000	1945.800	4133.000	5741.200	6998.000	8221.800	10854.000	974.200	1248.000
CANALSIDE STRIP PLANTATION		374.900	483.140	22.200	34.100	442.100	779.800	882.200	984.600	313.560	345.120	374.900	483.140	389.800	483.060
RAILSIDE STRIP PLANTATION		2236.000	2146.000	100.000	160.000	250.000	340.000	340.000	340.000	1684.000	1624.000	2236.000	2146.000	100.000	160.000
FLOOD CONTROL AND TANK EMBANKMENT		934.000	936.000	96.000	134.000	172.000	210.000	210.000	1050.000	1012.000	974.000	936.000	936.000	96.000	134.000
SUBTOTAL		84714.700	88806.740	55959.200	17804.500	20335.300	21496.800	18907.000	24037.600	59392.760	73691.120	84714.700	95933.140	15899.000	16835.060
III. FUEL SAVING DEVICE BENEFITS															
CREMATORIA		42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240	42.240
TOTAL BENEFITS		117413.020	97504.980	88257.440	104502.740	118233.540	121395.040	100406.240	50735.840	90091.000	104389.360	123013.020	160631.380	109798.320	114933.300
NET BENEFIT															
RAJASTHAN NET BENEFIT		109184.420	90477.380	81229.840	97475.140	111225.940	114367.440	93378.640	43708.240	82663.000	97361.760	115985.420	153663.780	102760.720	107525.780

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NATIONAL SOCIAL FORESTRY PROJECT-RAJASTHAN

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	29	30	31
COSTS			
I. OVERHEAD COST			
INVESTMENT COST /a	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	-	-
OTHER RECURRENT COST /c	-	-	-
SUBTOTAL	-	-	-
II. FARM FORESTRY PRODUCERS COST			
ECONOMIC COST TO PRODUCERS-IMPROVED (DRAFTED) BROWNS	-	-	-
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-	-	-
SUBTOTAL	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST			
HOUSEHOLD FARM FORESTRY	246.720	246.720	246.720
COMMUNITY WOODLOTS	525.000	525.000	525.000
REHABILITATED DEGRADED FORESTS	4396.000	4396.000	4396.000
ROADSIDE STRIP PLANTATION	700.000	700.000	700.000
CANALSIDE STRIP PLANTATION	222.600	222.600	222.600
RAILSIDE STRIP PLANTATION	980.000	980.000	980.000
FLOOD CONTROL AND TANK EMBANKMENT	185.000	185.000	185.000
TOTAL PROJECT COST	7027.600	7027.600	7027.600
BENEFITS			
I. FARM FORESTRY BENEFITS			
ECONOMIC RETURNS FROM IMPROVED (DRAFTED) BROWNS	6656.000	6656.000	6656.000
ECONOMIC RETURNS FROM FARM FORESTRY	96800.000	26000.000	
SUBTOTAL	103456.000	32656.000	6656.000
II. PLANTATION BENEFITS			
HOUSEHOLD FARM FORESTRY	4770.000	5130.000	5130.000
COMMUNITY WOODLOTS	1420.000	1680.000	1680.000
REHABILITATED DEGRADED FOREST LANDS	8800.000	8800.000	8800.000
ROADSIDE STRIP PLANTATION	1538.000	1846.600	4475.000
CANALSIDE STRIP PLANTATION	697.940	794.520	43.000
RAILSIDE STRIP PLANTATION	250.000	340.000	340.000
FLOOD CONTROL AND TANK EMBANKMENT	172.000	210.000	1050.000
SUBTOTAL	17648.740	18721.120	21438.000
III. FUEL SAVING DEVICE BENEFITS			
CREMATORIA	42.240	42.240	42.240
TOTAL BENEFITS	121146.980	51419.360	28136.640
NET BENEFIT			
RAJASTHAN NET BENEFIT	114119.380	44391.760	21129.040

Internal Rates of Return of Net Streams

NBENR	16.6%

SWITCHING VALUES AT 10%

STREAM	APPRAISAL VALUE	SWITCHING VALUE	PERCENTAGE CHANGE
BTOTR	457,407.88	267,206.93	-41.58%
CTOTR	267,206.93	457,407.88	71.18%

NPV @ 10% = 190,201
IRR = 16.6%

SENSITIVITY TESTS

TEST CASES	TEST CASE VARIATIONS		PRESENT VALUE AT OCC OF 10.00%	NPV AS A % OF PRESENT COSTS AT OCC OF 10.00%	INTERNAL RATE OF RETURN
BASE CASE			190201.0	71.2%	16.6%
TEST CASE 1	BTOTR	LAG 1 YEARS	148618.4	55.6%	14.8%
TEST CASE 2	BTOTR	DOWN 20%	98719.4	36.9%	13.7%
TEST CASE 3	CTOTR	UP 20%	136759.6	42.7%	14.3%
TEST CASE 4	CTOTR UP 20% BTOTR DOWN 20%		45278.0	14.1%	11.5%

/a INCLUDES INVESTMENT COSTS OF FUEL SAVING DEVICES.
/b STAFF SALARIES AND ALLOWANCES ATTRIBUTED TO NSFP BEING 100% OF TOTAL STAFF SALARIES AND ALLOWANCES IN YEARS 1 TO 6 AND 100% OF EXTENSION STAFF SALARIES AND ALLOWANCES IN YEARS 7 TO 15.
/c OTHER RECURRENT COSTS ATTRIBUTED TO NSFP BEING 100% OF TOTAL OTHER RECURRENT COSTS IN YEARS 1 TO 6 AND 100% OF EXTENSION OTHER RECURRENT COSTS IN YEARS 7 TO 15.

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NATIONAL SOCIAL FORESTRY PROJECT-UTTAR PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
COSTS															
I. OVERHEAD COST															
INVESTMENT COST /a	19355.00	55731.00	105997.00	97873.00	84187.00	72341.00	-	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	19882.00	38749.00	51860.00	71956.00	79459.00	5096.00	5096.00	5096.00	5096.00	5096.00	5096.00	5096.00	5096.00	5096.00
OTHER RECURRENT COST /c	-	3110.00	5341.00	7989.00	15190.00	21131.00	12746.00	12746.00	12746.00	12746.00	12746.00	12746.00	12746.00	12746.00	12746.00
SUBTOTAL	19355.00	78723.00	150087.00	157722.00	171333.00	172931.00	17842.00	17842.00	17842.00	17842.00	17842.00	17842.00	17842.00	17842.00	17842.00
II. FARM FORESTRY PRODUCERS COST															
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	23002.00	28932.00	34282.00	36120.00	38066.00	40040.00	13720.00	7896.00	2940.00	1988.00	1008.00	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST															
ROADSIDE STRIP DEN. MANAGED	744.10	985.60	1915.90	2283.40	3227.70	1376.90	866.60	462.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00
RAILSIDE STRIP DEN. MANAGED	293.16	473.97	652.82	825.02	1036.84	470.75	289.66	168.61	43.40	43.40	43.40	43.40	43.40	43.40	43.40
GROUP FARM FORESTRY	-	2933.00	7112.00	15288.00	19488.00	10468.00	7252.00	3556.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00
COMMUNITY WOODLOTS RAINFED	14665.00	17962.00	19163.00	14147.00	10647.00	5582.00	3388.00	2464.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00
ARJUN PLANTATIONS	1036.00	1596.00	1946.00	2128.00	2156.00	1148.00	616.00	294.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
ROADSIDE STRIP DEPT. MANAGED	1488.20	1971.20	1599.50	1610.00	707.70	368.20	196.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00
RAILSIDE STRIP DEPT. MANAGED	366.45	427.56	425.74	371.35	172.13	91.21	42.98	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
SUBTOTAL	18592.91	26349.33	32754.96	36652.77	37435.37	19625.06	12651.24	7028.21	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00
TOTAL PROJECT COST	60949.91	134024.33	217043.96	230494.77	246834.37	232596.06	44213.24	32766.21	24695.00	23743.00	22763.00	21755.00	21755.00	21755.00	21755.00
BENEFITS															
I. FARM FORESTRY BENEFITS															
ECONOMIC RETURNS FROM FARM FORESTRY	-	-	-	-	124000.00	128000.00	132000.00	384000.00	396000.00	532000.00	400000.00	412000.00	424000.00	140000.00	268000.00
II. PLANTATION BENEFITS															
ROADSIDE STRIP DEN. MANAGED	-	-	24.00	48.00	96.00	1024.00	1080.00	1944.00	1912.00	2760.00	936.00	992.00	1912.00	2024.00	3888.00
RAILSIDE STRIP DEN. MANAGED	-	-	9.60	21.60	36.00	318.40	403.20	465.60	527.20	654.40	340.00	439.20	544.00	655.20	845.60
GROUP FARM FORESTRY	-	-	-	240.00	720.00	1680.00	12060.00	21408.00	40080.00	39760.00	1760.00	10864.00	20592.00	40048.00	42544.00
COMMUNITY WOODLOTS RAINFED	-	-	1200.00	2160.00	2880.00	36720.00	29040.00	22800.00	9120.00	9040.00	38960.00	34736.00	29888.00	17072.00	17696.00
ARJUN PLANTATIONS	-	-	4.80	9.60	614.40	2265.60	4467.20	7044.00	9460.80	11257.60	12456.00	12456.00	12456.00	12456.00	12456.00
ROADSIDE STRIP DEPT. MANAGED	-	-	48.00	96.00	120.00	1904.00	1872.00	960.00	944.00	48.00	1776.00	1888.00	1136.00	1192.00	384.00
RAILSIDE STRIP DEPT. MANAGED	-	-	12.00	21.60	20.80	345.60	295.20	225.60	156.80	22.40	384.40	345.60	298.40	244.80	112.00
SUBTOTAL	-	-	1298.40	2596.80	4495.20	44277.60	58217.60	54839.20	62200.80	63542.40	56615.20	61720.80	66826.40	73692.00	77937.60
TOTAL BENEFITS	-	-	1298.40	2596.80	128495.20	172277.60	182217.60	438839.20	458200.80	595542.40	456615.20	473720.80	490826.40	213692.00	345937.60
NET BENEFIT															
UTTAR PRADESH NET BENEFIT	-60949.91	-134024.33	-215745.56	-227897.97	-118339.17	-60318.46	138004.36	406092.99	433505.80	571799.40	433852.20	451965.80	469071.40	191937.00	323282.60

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NATIONAL SOCIAL FORESTRY PROJECT-UTTAR PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
COSTS															
I. OVERHEAD COST															
INVESTMENT COST /a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STAFF SALARIES AND ALLOWANCES /b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OTHER RECURRENT COST /c	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUBTOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
II. FARM FORESTRY PRODUCERS COST															
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST															
ROADSIDE STRIP DEN. MANAGED	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00	126.00
RAILSIDE STRIP DEN. MANAGED	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40
GROUP FARM FORESTRY	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00	1540.00
COMMUNITY WOODLOTS RAINFED	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00
ARJUN PLANTATIONS	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
ROADSIDE STRIP DEPT. MANAGED	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00
RAILSIDE STRIP DEPT. MANAGED	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
SUBTOTAL	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00
TOTAL PROJECT COST	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00	3913.00
BENEFITS															
I. FARM FORESTRY BENEFITS															
ECONOMIC RETURNS FROM FARM FORESTRY	376000.00	388000.00	400000.00	412000.00	540000.00	416000.00	132000.00	136000.00	388000.00	524000.00	392000.00	404000.00	416000.00	428000.00	144000.00
II. PLANTATION BENEFITS															
ROADSIDE STRIP DEN. MANAGED	1320.00	1320.00	2064.00	2064.00	2808.00	1248.00	1284.00	1992.00	2024.00	2748.00	1372.00	1372.00	2024.00	2024.00	2676.00
RAILSIDE STRIP DEN. MANAGED	513.60	580.00	646.40	712.80	845.60	513.60	586.40	660.80	736.80	880.80	563.20	629.60	696.00	762.40	895.20
GROUP FARM FORESTRY	8624.00	16344.00	24064.00	39504.00	39504.00	8624.00	15744.00	22960.00	37392.00	37776.00	9680.00	16320.00	22960.00	36240.00	36240.00
COMMUNITY WOODLOTS RAINFED	44576.00	37856.00	31136.00	17696.00	17696.00	44576.00	38336.00	32000.00	18848.00	18944.00	45920.00	39200.00	32480.00	19040.00	19040.00
ARJUN PLANTATIONS	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00	12456.00
ROADSIDE STRIP DEPT. MANAGED	1872.00	1872.00	1128.00	1128.00	384.00	1768.00	1800.00	1140.00	1156.00	480.00	1784.00	1784.00	1132.00	1132.00	480.00
RAILSIDE STRIP DEPT. MANAGED	444.00	377.60	311.20	244.80	112.00	444.00	385.60	325.60	264.00	134.40	466.40	400.00	333.60	267.20	134.40
SUBTOTAL	69805.60	70805.60	71805.60	73805.60	73805.60	69649.60	70592.00	71534.40	72876.80	73419.20	72241.60	72161.60	72081.60	71921.60	71921.60
TOTAL BENEFITS	445805.60	458805.60	471805.60	485805.60	621805.60	485649.60	202592.00	207534.40	460876.80	597419.20	464241.60	476161.60	488081.60	499921.60	215921.60
NET BENEFIT															
UTTAR PRADESH NET BENEFIT	441892.60	454892.60	467892.60	481892.60	617892.60	481736.60	198679.00	203621.40	456963.80	593506.20	460328.60	472248.60	484168.60	496008.60	212008.60

INDIA

NATIONAL SOCIAL FORESTRY PROJECT-UTTAR PRADESH

COST-BENEFIT BASE CASE ANALYSIS AND SENSITIVITY TEST

RS 000

	31
COSTS	
I. OVERHEAD COST	
INVESTMENT COST /a	-
STAFF SALARIES AND ALLOWANCES /b	-
OTHER RECURRENT COST /c	-
SUBTOTAL	-
II. FARM FORESTRY PRODUCERS COST	
ECONOMIC COST TO PRODUCERS-AGRO FORESTRY AND FARM WOODLOTS	-
III. PLANTATION INVESTMENT AND MAINTENANCE COST	
ROADSIDE STRIP DEN. MANAGED	126.00
RAILSIDE STRIP DEN. MANAGED	43.00
GROUP FARM FORESTRY	1540.00
COMMUNITY WOODLOTS RAINFED	1960.00
ARJUN PLANTATIONS	140.00
ROADSIDE STRIP DEPT. MANAGED	84.00
RAILSIDE STRIP DEPT. MANAGED	19.60
SUBTOTAL	3913.00
TOTAL PROJECT COST	3913.00
BENEFITS	
I. FARM FORESTRY BENEFITS	
ECONOMIC RETURNS FROM FARM FORESTRY	
II. PLANTATION BENEFITS	
ROADSIDE STRIP DEN. MANAGED	2460.00
RAILSIDE STRIP DEN. MANAGED	1160.00
GROUP FARM FORESTRY	9680.00
COMMUNITY WOODLOTS RAINFED	113120.00
ARJUN PLANTATIONS	12000.00
ROADSIDE STRIP DEPT. MANAGED	3960.00
RAILSIDE STRIP DEPT. MANAGED	1222.40
SUBTOTAL	143618.40
TOTAL BENEFITS	143618.40
NET BENEFIT	
UTTAR PRADESH NET BENEFIT	139705.40

Internal Rates of Return of Net Streams

NBENP	24.9%

SWITCHING VALUES AT 12%

STREAM	APPRAISAL VALUE	SWITCHING VALUE	PERCENTAGE CHANGE
BTOTUP	1:813:125.88	880:443.58	-35.8%
CTOTUP	88C:443.58	1:813:125.88	126.3%

NPV @ 12% = 1:012:682.3
IRR = 25%

SENSITIVITY TESTS

TEST CASES	TEST CASE VARIATIONS		PRESENT VALUE AT OCC OF 12.00%	NPV AS A % OF PRESENT COSTS AT OCC OF 12.00%	INTERNAL RATE OF RETURN
BASE CASE			1012682.3	126.3%	25.0%
TEST CASE 1	BTOTUP	LAG 1 YEARS	818418.8	102.2%	21.4%
TEST CASE 2	BTOTUP	DOWN 20%	650857.1	81.2%	20.9%
TEST CASE 3	CTOTUP	UP 20%	852593.6	88.8%	21.6%
TEST CASE 4	CTOTUP BTOTUP	UP 20% DOWN 20%	409968.4	51.0%	17.9%

/a INCLUDES INVESTMENT COSTS OF FUEL SAVING DEVICES.
/b STAFF SALARIES AND ALLOWANCES ATTRIBUTED TO NSFP BEING 100% OF TOTAL STAFF SALARIES AND ALLOWANCES IN YEARS 1 TO 6 AND 60% OF EXTENSION STAFF SALARIES AND ALLOWANCES IN YEARS 7 TO 10.
/c OTHER RECURRENT COSTS ATTRIBUTED TO NSFP BEING 100% OF TOTAL OTHER RECURRENT COSTS IN YEARS 1 TO 6 AND 100% OF EXTENSION OTHER RECURRENT COSTS IN YEARS 7 TO 10.

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NOTES ON FINANCIAL AND ECONOMIC ANALYSES

(A) Foreign Inflation Rates

Calendar Year 1/ (Jan-Dec)		Indian Fiscal Year (April/March) = Project Year (to be used in COSTAB)
1985	5%	1985/86 = $(\frac{9}{12} * 5) + (\frac{3}{12} * 7.5) = 3.75 + 1.88 = 5.6\%$
1986	7.5%	1986/87 = $(\frac{9}{12} * 7.5) + (\frac{3}{12} * 8) = 5.62 + 2 = 7.6\%$
1987	8%	1987/88 = $(\frac{9}{12} * 8) + (\frac{3}{12} * 8) = 6 + 2 = 8\%$
1988	8%	1988/89 = $(\frac{9}{12} * 8) + (\frac{3}{12} * 8) = 6 + 2 = 8\%$
1989	8%	1989/90 = $(\frac{9}{12} * 8) + (\frac{3}{12} * 8) = 6 + 2 = 8\%$
1990	8%	

Source: 1/ Memo from Nottidge (Schreiber/Brown) to ASPAB staff of February 14, 1985. "Foreign Inflation Rates for Project Work"--based on M.U.V.

(B) Local Inflation - India 2/

1984/85	= 8.5%
1985/86	= 8.5%
1986/87	= 8.5%
1987/88	= 8.5%
1988/89	= 8.5%
1989/90	= 8.5%

Source: 2/ Memo from Robless (ASAIN) of October 5, 1984 to be applied to all projects having Decision Meetings after October 30, 1984. The next memo in the series dated March 7, 1985 has different rates which are to be applied "to all projects having Decision Meetings after March 29 1985." Mr. Felipe Moraes (32264) confirmed that these rates were for Indian fiscal year (April/March).

(C) Inflation Rates Applied in COSTAB

In the cost tables, the project years are from year 0 (1984/85), year 1 (1985/ 86), etc., hence the local inflation rates should be entered as = 0, 5.6, 7.6, 8 for 3, and the foreign inflation rates should be entered as = 0, 8.5 for 5. This is because no inflation is included for year 0 costs; However, base costs are adjusted by LCA (Local Cost Adjustment) and FCA Foreign Cost Adjustment) to reflect inflation that occurs between appraisal Oct. 1984) and negotiations (April 1985). These are calculated for the last 2 months of 1984 and the first 4 months of 1985 as follows:

LCA = (0.085 * 6/12) = 0.0425
FCA = (-0.028 * 2/12) + (0.05 * 4/12) = 0.012

(D) Inflation Weights

COSTAB subsequently produces local and foreign inflation "weights" for calculation of price contingencies. These weights can also be used to deflate 'current' values to obtain constant 'begin year' values. These inflation weights are calculated as follows:

For 1st Year = 1/2 of 1st (project year's) inflation rates
For 2nd Year = Full 1st year's * 1/2 of 2nd year's
For 3rd Year = Full 1st year's * 2nd year's * 1/2 of 3rd year's

The formula for LIW (Local Inflation Weights) is based on LI (Local Inflation Rate) as follows:

$$LIW(1) = [LI(1)/2 + 1];$$

$$LIW(2, etc) = [Previous\ LI + Current\ LI)/2 + 1\} * Previous\ LIW$$

The formula for FIW (Foreign Inflation Weights) is as above, substituting FI for LI and FIW for LIW.

I. Conversion Factors used in "Produce Economic Values"

(i) COSTS

1. Standard Conversion Factor = 0.8

2. Wages/Shadow Wage Rate = 0.70 of unskilled wage rates

e.g. Gujarat

Rs 13 (peak agric wage which applies to about 25% of planting activities for social forestry)

Rs 8 (off peak wages for 75% of social forestry planting and maintenance activities)

Weighted average = Rs (13 x 0.25) + (8 x 0.75)

= Rs 9.25 / Rs 13

SWR = 70%

* Conversion factor for unskilled labour

= 70% x SCF of 0.8 = 0.56

3. Other Specific Conversion Factors

a. Investment Costs) See II
b. Operating Costs) below

(ii) OUTPUTS

4. All plantation outputs valued at economic price

= financial * SCF of 0.8

5. (a) Benefits from Improved Chulas

Saves 25-50% (take 33%) of wood used.

(1 headload) 40 kg wood lasts 3 days, for average family of 6 persons.

Therefore, 365 days (1 year) requires $40 \times \frac{365}{3}$

= 4870 kg
= 4.8 tons
approx. = 5 tons
approx. = 6 1/2 tons in HP (addit. heating needs)

Annual fuelwood savings (33%) in lowlands = 5 ton * 0.33 (UP/Raj/Guj)

= 1.65 m ton per chula per year

in highlands = 6.5 * 0.33 (HP)

= 2.15 ton per chula per year

Phase Benefits by cumulative no. of chulas * fuelwood savings/chula/yr * (fuelwood economic price = financial price * 0.8 SCF)

(b) Benefits from Improved Crematoria

Wood consumption reduced by 40% (from 400 to 240 kg/cremation) and time saved (1 1/2 hrs against the usual 3 hrs).

Av. village where crematoria installed = 2,000 people

Hindu pop = 80%

Mortality 15 per thousand per year = 24 Hindus/village/year

Wood saved = 160 kg per crematoria

Wood saved per unit = 160 kg x 24 times/year
= 3840 kg = 3.84 tons/year

Phase benefits by
No. of crematoria x fuelwood savings/crematoria/year
* (fuelwood econ price = financial price x 0.8 SCF)

II. Specific Conversion Factors for Costs Categories 1/

Investment Costs	FE %	Local Costs: Duties/ Tax %	Transport Material Projects %	Unskilled Labor (1/2 : 1/2) %	Skilled Labor	Total % Finan	Total % Econ	CF
1. Civil Works - Financial	5	5	45	45	0 1/	100		
Conversion 2/	*1	*0	*0.8	*0.56 3/	*1			
Economic	5	0	36	25	0		66	.66
2. Vehicles - Financial	20	30	20	0	30	100		
Economic	20	0	16	0	30		66	.66
3. Equipment - Financial	10	20	30	0	40	100		
Economic	10	0	24	0	40		74	.74
4. Furniture - Financial	0	10	30	10	50	100		
Economic	0	0	24	6	50		80	.80
5. Training-Domestic/Farmers - Finan.	0	0	15	20	65	100		
- Econ.	0	0	12	11	65		88	.88
-Domestic/Staff - Finan.	0	0	15	0	85	100		
- Econ.	0	0	12	0	85		97	.97
6. Training-International - Finan.	90	0	10	0	0	100		
- Econ.	90	0	8	0	0		98	.98
7. Workshops-Local - Financial	0	0	15	0	85	100		
- Economic	0	0	12	0	85		97	.97
8a. Technical Assistance								
- Local - Financial	0	0	15	0	85	100		
Economic	0	0	12	0	85		97	.97
8b. Technical Assistance								
- Foreign - Financial	100	0	0	0	0	100		
Economic	100	0	0	0	0		100	1.0
9. Special Studies-Local - Finan.	0	0	15	0	85	100		
- Econ.	0	0	12	0	85		97	.97
10. Research - Financial	10	20	10	0	60	100		
- Economic	10	0	8	0	60		78	.78
11. Plantations - Financial	1	1	61	36	0	100		
Economic	1	0	49	20	0		70	.70
12. Stoves (Gujarat Finan. Rs 100)								
- Financial	0	0	50	50	0 4/	100		
- Economic	0	0	40	28	0 4/		68	.68
13. Crematoria - Financial	0	0	50	50	0 4/	100		
(Gujarat Rs 4000) - Economic	0	0	37	63	0 4/		79	.79
Operating Costs								
1. Staff Salaries - Financial	0	0	0	0	100	100		
- Economic	0	0	0	0	100		100	1.0
2. Staff T.A. - Financial	0	0	90 5/	0	10 6/	100		
- Economic	0	0	72	0	10		82	.82
3. Bldg. Maintenance - Financial	5	10	30	0	55	100		
- Economic	5	0	24	0	55		84	.84
4. Vehicle Operating - Financial	10	10	50	0	30	100		
- Economic	10	0	40	0	30		80	.80
5. Office Operating - Financial	0	0	80	0	20	100		
- Economic	0	0	64	0	20		84	.84

1/ Supervision has been included under Staff Costs.

2/ Conversion Factors applied to all items.

3/ Shadow wage rate = 70% of financial wages * SCF of 0.8 = conversion factor of 0.56.

4/ Supervision by FD Extension Staff.

5/ Including subsistence (food and lodging).

6/ Driver's pay.

Summary of Financial and Economic Prices

	Unit	Financial Prices (Rs)				Conversion	Economic Prices (Rs)			
		UP	Rajasthan	Gujarat	HP	Factor	UP	Rajasthan	Gujarat	HP
Fuelwood	mt	500	200	200	-	0.8	400	160	160	-
-conifer	mt	-	-	-	300	0.8	-	-	-	240
-broadleaf	mt	-	-	-	400	0.8	-	-	-	320
Poles	no	25	14	13	-	0.8	20	11.2	10.4	-
Small timber	cu m	1500	400	-	-	0.8	1200	320	-	-
Bamboo	no	-	-	3	-	0.8	-	-	2.4	-
Leaf fodder	mt	-	-	50	150	0.8	-	-	40	120
Grass	mt	100	50	50	250	0.8	80	40	40	200
Dry fodder grass	mt	-	-	100	-	0.8	-	-	80	-
Stemwood	cu m	-	-	-	400	0.8	-	-	-	320
Edible flower	mt	2000	-	-	-	0.8	1600	-	-	-
Fruit	mt	1000	1000	1000	-	0.8	800	800	800	-
Ber fruit	mt	-	-	1500	-	0.8	-	-	1200	-
Neem seeds	mt	-	-	1000	-	0.8	-	-	800	-
Bidi leaves	mt	-	-	1000	-	0.8	-	-	800	-
Seed pods	mt	-	250	-	-	0.8	-	200	-	-
Fallen wood/lops	mt	-	200	-	-	0.8	-	160	-	-
Oilseeds	mt	1000	-	-	-	0.8	800	-	-	-
Cocoons	('000 nos)	250	-	-	-	0.8	200	-	-	-
Unskilled labour	mandays	9	9	13	10					
(Shadow wage rate)		6.3	6.3	9.1	7.0	0.8	5.0	5.0	7.3	5.6
Stoves	each	-	-	100	75	0.68	-	-	68	51
Crematoria	each	-	5000	4000	5000	0.8	-	4000	3200	4000

Summary of Plantation Investment and Maintenance Costs for 4 States in Rs - From Year 0

State / Plantation Models	Rajasthan	Uttar Pradesh	Himachal Pradesh	Gujarat
A. Agroforestry				
A.1 Farm Forestry	265,60,50,10,	265,60,50,10,	331,75,62,12,	398,90,75,16,
A.2 Private Wasteland	-	-	614,1325,315, 310,170,90	505,928,400, 250
A.3 Improved (Ber) Orchards	FD: 0,125,0, Total: 0,325, 200	-	-	-
B. Tree Tenure (Gov't Land Benefit - Managed				
B.1A Road	-	10627,3453, 2660,1800,200	-	-
B.1B Rail	-	10470,3840, 2810,1870,200	-	-
B.2 HH Farm Forestry/ Group Farm Forestry	FD: 410,1819, 47,0 Total: 410, 4300,90, 50	4190,1780, 1520,920,200	1350,1885,450, 280,170,90	-
B.3 Arjun	-	9350,4428, 2288,1090,200	-	-
C. Community Wasteland				
C.1 Community Woodlot, Rainfed	927,2966,414, 200,150	4190,1780, 1520,920,200	1350,1885,450, 280,170,90	1235,2717,1096, 475,100
C.2 Community Woodlot, Irrigated	-	-	-	3535,9902,5570, 5014,4630,200 (repeated)
C.3 Community Tree Fodder Lots	-	-	-	666,1505,640, 365,300
D. Government Wastelands				
D.1 Rehabilitation Degraded Areas	267,1087,314, 50	-	1350,1885,450, 280,170,90	1770,2127,883, 335,40
D.2A Road	5959,5636, 1940,1550, 1660,400	10630,3450, 2660,1800,200	-	-
D.2B Rail	1561,5431, 2238,1850, 1400	10470,3840, 2880,1870,200	-	-
D.2C Canal	5959,5636, 1940,1550, 1060	-	-	-
D.2D Tank	275,1178,500, 300,300	-	-	-
(D.2 Strips)	-	-	-	3790,7470,2008, 1125,275
D.3 Urban Fuelwood Plantations (Irrigated)	-	-	-	3535,9902,5570, 5014,4630,200 (repeated)

NOTE: 1. Units are Rs/ha except for A.1 Farm Forestry (per 250 trees).
2. Recurrent costs are underlined.

Distribution Modes - Plantation Outputs Accruing to FD, Panchayats and Individuals by % of Products

Plantation Models	Rajasthan			Gujarat			Uttar Pradesh			Himachal Pradesh		
	% to FD	Panchayat	Individuals	FD 1/	Panchayat	Individuals	FD	Panchayat	Individuals	FD 2/	Panchayat	Individuals
A. Agroforestry												
A.1 Farm Forestry	-	-	100%	-	-	100%	-	-	100%	-	-	100%
A.2 Private Wasteland	-	-	100%	-	-	100% FW, FL, BA, GR, LF	-	-	-	-	-	100% FW, LF, GR, SW
A.3 Improved (Ber) Orchards	-	-	100%	-	-	-	-	-	-	-	-	-
B. Tree Tenure (Gov't Land Benefit - Managed												
B.1A Road	-	-	-	-	-	-	50% ST, FR, FL	-	100% FW, EF, GR, 50% ST, FR, FL	-	-	-
B.1B Rail	-	-	-	-	-	-	50% ST, FR, FL	-	100% FW, EF, GR, 50% ST, FR, OS	-	-	-
B.2 [illegible] Farm Forestry/ Group Farm Forestry	-	-	100%	-	-	-	50% ST, FR, FL	-	100% FW, EF, GR, FL 50% ST, FR, OS	25% RS	-	75% RS 100% FW, LF, GR, SW
B.3 Arjun	-	-	100%	-	-	-	-	-	-	-	-	-
C. Community Wasteland												
C.1 Community Woodlot, Rainfed	-	100% FW	100% FR, SP, FW, LF	45% FW, 55% FL, BA	45% FW, FL, BA, 55% SP	10% FW, 50% SP, 100% FR, GR, LF	50% ST, FR, FL	50% ST, FR, FL	100% FW, EF, GR	25% RS	100% FWB, LF, GR, SW 75% RS	75% RS 100% FW, LF, GR, SW
C.2 Community Woodlot, Irrigated	-	-	-	45% FW, 55% FL, BA	45% FW, FL, BA	10% FW, 100% LF	-	-	-	100% SW	-	100% FWC, FWB, LF, GR
C.3 Community Tree Fodder Lots	-	-	-	45% FW, 50% GR	45% FW, 50% GR	10% FW, 100% LF	-	-	-	-	-	-
D. Government Wastelands												
D.1 Rehabilitation Degraded Areas	30% FW	-	70% FW, 100% SP, GR, FA, LF	90% FW, 100% BA	-	10% FW, 100% GR, LF, BD	-	-	-	100% SW	-	100% GR
D.2A Road	100% FL, ST	100% FW	100% SP, GR, FA, LF	-	-	-	100% ST, FR, FL	-	100% FW, EF, GR	-	-	-
D.2B Rail	100% ST	100% FW	100% SP, GR, FA, LF	-	-	-	100% ST, FR, OS	-	100% FW, EF, GR	-	-	-
D.2C Canal	100% FL, ST	100% FW	100% SP, GR, FA, LF	-	-	-	-	-	-	-	-	-
D.2D Tank	100% FL, ST	100% FW	100% SP, GR, FA, LF	-	-	-	-	-	-	-	-	-
(D.2 Strips)	-	-	-	45% FW, 55% FL, BA	45% FW, FL, BA, 50% SP	10% FW, 50% SP, 100% GR, LF, BD	-	-	-	-	-	-
D.3 Urban Fuelwood Plantations (Irrigated)	-	-	-	90% FW, 100% BA, LF	-	10% FW	-	-	-	-	-	-

Codes Used: FW = Fuelwood; PL = Poles; ST = Small Timber; FR = Fruit; SP = Fruit Seed Pod; GR = Grass; FA = Fallen Wood; LF = Lops; BA = Bamboo; BF = Ber Fruit; LF = Leaf Fodder; NS = Neem Seeds; BD = Bidi Leaves; EF = Edible Flowers; SW = Stemwood; FWC = Fuelwood (Conifer); FWB = Fuelwood (Broadleaf); RS = Residual Stemwood

Footnote: 1/ Gujarat - a large part of the produce retained by FD is sold at concessional rates to locals (e.g. 20% or (80% of market price)—see plantation cash flows for details.
2/ Himachal Pradesh - Part of produce retained by FD is sold at concessional prices of 10% of market prices - see Plantation Cash Flows for details.

IMPROVED MARKET FUNCTION AS A SOCIAL FORESTRY PROJECT

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New Delhi
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1. Summary

Social forestry represents ideal projects in many ways for the alleviation of rural poverty in India. Most of the land resources that are used currently produce little or nothing of value because they are quite degraded. The new economic surpluses that are produced can be biased toward the poor if benefit distribution is considered before project initiation rather than at the time of product harvest. Improved market function may have a role to play in both producing more surpluses from social forestry projects and ensuring distribution toward the poor. Refinement of tree and fodder tenurial rights, assignment of these rights to poor people, and cooperatives based on social forestry produce are examples of mechanism to make markets function better and to favor the poor. Performance-based reimbursement schemes are a mechanism that can mimic the best qualities of market price signals. Such improvements lead to social forestry projects that are sensible bankable investments, and to a socially self-sustaining forestry beyond the time of substantial donor inputs. That strategic goals should receive more attention in current project appraisals.

2. Market Function

When economists speak of market function, by and large they are concerned with how well a market operates in terms of ideal economic efficiency defined from a social perspective. The ideal is that for a given cost or price the maximum amount of a product or service is transferred between willing buyers and sellers. Various frictions in a market system, such as limited competition, high transportation costs, poor price information, and so forth are the causes of imperfections that lead to less than idealized efficiency. Unfortunately, even the ideal assumes whatever real income distribution that exists. And changes that make rich people richer and poor people no worse off are equally acceptable to changes that make poor people better off and the rich no worse off (see wood balances annex in project files for remarks on equity criteria that go beyond the welfare

economics view of improvements in market function). The rest of this paper deals with market function from the narrow economist's view, but with some remarks on means to bias functional results toward the poor.

3. Tenure and Market Function

Uncertainty inhibits producers and consumers alike, and consequently markets with a great deal of uncertainty do not function well in terms of the ideal. In agriculture, for example, reducing price uncertainty but keeping the expected price at the same level virtually always results in a positive supply response. Uncertainty is created for individuals and groups participating in social forestry projects because the tenurial or property rights are not clear. As a consequence, it is not certain that investments made will result in benefits that accrue to the investor. This uncertainty even affects the interest of villagers in making the investment in protecting a social forestry crop that they perceive will largely accrue to either the rich or the forestry department. If tenurial rights are uncertain, it precludes banks from making credit available for tree growing, and few individuals would be willing to invest their own funds or labor in an enterprise where there is little chance of reaping the benefits.

4. Probably the biggest single change that is needed to make markets function better for social forestry is to have clear tenure rights to the produce and what sort of obligations must be made to insure those rights. To change the nature of tenures on various products of public and common-land social forest projects will not be easy. Many of the existing rights date back hundreds of years, and many reflect the hierarchial nature of rural Indian society. In other words, a simple privatization program would create as many problems as it would solve. Nonetheless, it will not be possible for social forestry to be successful on a mass scale if the policy issues involved in tenurial rights are not addressed and resolved over the coming five years or so.

5. Performance-based Disbursements and Market Function

The essential ideal in the perfect market model is that prices and related signals direct rational behavior toward economic efficiency as defined from a social perspective. It is simply Adam Smith's "invisible hand" in more modern terms. Recognizing that the world of markets often are far from perfect and that government has a variety of roles to play, including redistribution of economic surpluses toward the poor, reliance on market-like signals can be useful. It is in this sense that performance-based disbursements are best understood and designed.

6. The essential idea is to define the desired results and disburse funds against those results. The desired results can be of three kinds:

input allocations, outputs obtained or process used. Inputs are the easiest to measure and also occur at an early date, so there is much pressure for sake of expediency and because of cash-flow needs to use input measures for disbursement of funds. Except by act of faith, however, input measures do not certify performance, and in essence are nothing different than expenditure-based reimbursement systems.

7. Output measures are the result-oriented ideal that performance-based disbursements suggests. The difficulty is that the critical outputs in social forestry are 3 to 10 years after a project begins -- plantations which are alive and producing high annual growth rates and harvest yields of desired products. Intermediate results, such as live seedlings and survival percentages in plantations after the first dry season, are useful proxies for the desired results, but they are not the final performance desired. Some thought to longer periods for final project payouts and closure would be necessary if a true performance-based disbursement system is to be made effective. The rules of the World Bank, USAID and other donors may preclude such systems.

8. Process can be used for performance-based disbursement if it is clearly recognized what is being accomplished. Processes, like physical and financial inputs, are means to the desired ends or results. Specification of means is not generally desired in a result-oriented management system, even if there is ample evidence that a particular process works better than another. Requirements to use a particular process -- such as management plans, village participation or tree and fodder tenure -- can be justified on two grounds. First, performance in the sense of final results usually is difficult if not impossible to use for disbursement. Consequently, a sort of "second-best" approach is to disburse against implementation of an effective recipe for success. Live seedlings, healthy one-year plantations, management plans, village participation, etc. may be the elements of a proven recipe. Some honesty in application of this disbursement approach is needed, however, to distinguish between proven recipes vis-a-vis hope, idealogy or assumption.

9. Second, the reasons for doing a social forestry project can be as much social development as economic development. In this case, process requirements may be the key performance criteria, and there is less concern with actual physical and economic results. This approach probably is only appropriate if equity considerations have been defined carefully before a project begins in a physical sense (see wood balance annex in project document for more comments). A focus on process will, as a consequence, require removal of the physical targets that currently dominate most forest departments. It is difficult enough to get professional foresters and their technical assistants to take up process-oriented social forestry schemes, but virtually impossible if they perceive their performance as being judged in conventional result terms. Although the reasoning is intuitive at this

point, process-oriented social forestry schemes probably should be conceived in longer time frames than current donor-assisted projects in India. A five-year first phase which focus on learning followed by 5 to 10 year second phase which is more results oriented might be more realistic.

10. Banking and Bankable Projects

Development of linkages to banks and rural credit is a critical step in rebuilding India's forest resources and transferring the benefit flows of these resources to poor people. Consequently, more attention should be paid to design of bankable projects and the use of rural credit funds (some Rs 300 crore annually at present with a large jump expected in the Seventh Plan). If donor and state funds could be used in part as guarantees to reduce the uncertainty of loans in a new investment venture for India -- growing trees as crop plants rather than "hunt and gather" exploitation of natural forest -- the impact of proposed social forestry investments could be multiplied several fold. This is another case of making markets function better to achieve social aims.

11. Marketing Defined as Transformation

Marketing is popularly viewed as advertising and the other activities undertaken to encourage consumers to purchase a particular product. A more useful way to think about marketing, however, is the transforming of a basic product into a good or service that is more useful to the ultimate consumer. Marketing in this sense is more like basic production, which is the transformation of inputs, such as land, labor and capital, into desired outputs such as fodder, fuelwood and small timbers. One marketing transformation would be the transport of these products of social forestry to villages or towns. Another would be the bundling of the products into desired quantities for household use. Grading small timbers by size, straightness, length, species and other quality characteristics that determine end use is a transformation that makes the products more valuable to the consumer and, of course, to the producer.

12. The Amul or National Dairy Development Board model of milk marketing is based on forward processing and marketing from the cooperative member's cow through to liquid milk and various more valuable products (e.g., yoghurt, its cream, infant formula, etc.). This use of vertical and horizontal integration by a cooperative, which is common enough in the corporate sector worldwide, has enabled the rural owner of the primary production unit -- cows -- to capture the value added that formerly went to various intermediate organizations.

13. The Amul view of rural management and marketing has much to recommend it for social forestry. Log sorting yards, perhaps also including fuelwood

and fodder, pole treatment plants, small sawmills and wholesale and retail marketing functions conceivably could be done on a cooperative basis just like milk. At some future date, successful cooperatives might consider moving into production and marketing activities that have economies of scale, such as veneer and plywood or pulp and paper manufacture. The particular cooperative structure, including how broad or narrow to define the cooperative's roles for a village or similar group of local producers, needs to be developed on a case by case basis. The basic model, however, is one where poor and rich can participate on equal basis. The success of the model, especially from the viewpoint of the poor, is much more likely if the marketing transformations lead to substantial value added rather than marginal gains. The Institute of Rural Management, Anand (IRMA), is initiating research on this set of marketing problems.

14. Possibilities with Minor Forest Products

The so-called "minor" or non-timber forest products of India have more value than timber, according to several studies in recent years. These products vary from tandu leaves for bidi cigarettes to medicinal plants to tassar silk to oilseeds. Each of these product areas may have substantial potential for domestication of production and a forward marketing scheme to capture value added for the primary producers. A major special study with IIM-Ahmedabad (Professor Tirath Gupta has written a book on this subject) in collaboration with IRMA could be quite useful as a Centre-sponsored project.

15. Tasar Silk as an Illustration

The rehabilitation of usar lands using arjuna plants for the production of tasar silk cocoons, such as proposed by the U.P. Forest Department, illustrates the potential of production and marketing schemes based on social forestry. Tasar silk is a close substitute in some markets for mulberry silk, and it is a specialty product in its own right. Until recently it was generally thought that the highly skilled weavers were the scarce resource in the system, but recent analysis demonstrates that supplies of quality cocoons are the fixed factor. It would appear that an integrated production and marketing scheme to support to 5 to 10 looms with cocoons could provide employment for 50 to 100 people growing arjuna, caterpillars, spinning threads and weaving at wages of at least Rs 700 per month. This would represent a substantial improvement over normal rural wages in the Bihar context of the analysis. The shape of the demand curve and the long-term determinants of demand shifts are not well enough understood to predict that 10,000 families could be profitably settled, as the U.P. proposal suggests, but it makes further exploration worthwhile. The payoffs to vertical integration and cooperative organization suggest also that the social organizational aspects of the U.P. proposal are much more critical than further refinement of the technical assets of arjuna and caterpillar culture.

16. Market Function and the Long-Term Strategy of Social Forestry Projects

Free markets for social forestry inputs and outputs are not the only means of assisting the rural poor, and in some cases the results will be biased against the poor. But with careful institutional design and some deliberate shifting of assets toward the poor (e.g., tree and fodder tenure), free markets can yield better results than either administrative mechanisms guided by state forest departments or local political decisions made by the village leadership or panchayats. One of the strategic choices faced by the Centre and state governments is the degree to which free markets can contribute to the desired results from social forestry. The donor community can help insure that a strategic thought process occurs and that the decisions that follow are not driven simply by ideology. A critical reason for consideration of market function at this junction is that the donor support for social forestry will not be a perpetual financial input. Now is the time to move social forestry toward a socially self-sustaining system as well as biological sustained yields.

SOCIAL IMPACT AND BENEFIT DISTRIBUTION

1.0 BACKGROUND

1.01 Recent experience with previous social forestry projects in India has revealed a number of trends somewhat counter to original expectations regarding motives for tree planting, community and forest department (FD) management of woodlots, distribution of benefits from social forestry, and overall impact of project activities. In a number of instances, the very success of social forestry activities as measured by the achievement of physical targets, has engendered controversy and provoked considerable popular debate. While a few of the issues raised have been technical (e.g. the effect of planting eucalyptus on groundwater), most of them have concerned the socioeconomic impact of some social forestry activities.

1.02 The almost complete lack of solid evaluation data, due to the slow implementation of monitoring and evaluation systems, makes a direct assessment of likely socioeconomic effects in general and the criticisms in particular extremely difficult. In fact, one of the most important tasks to be implemented in NSFP will be the operationalization of an effective monitoring and evaluation system which will provide the data upon which a number of empirical issues in social forestry can be realistically assessed. Until such data is available, the appraisal of NSFP has had to base itself on the field reporting and supervisions and evaluations that have been conducted to date. From these and evidence accumulated elsewhere in the world, a number of preliminary conclusions have emerged.

1.03 Perhaps the most important of these conclusions is that different types of social forestry project activities serve different objectives. The failure to clearly distinguish the differing hierarchy of objectives that are likely to be achieved by different activities has frequently led to confusions and misplaced criticisms.

1.04 For example, the main socioeconomic criticism levelled against previous farm forestry activities is that they are failing to meet their stated primary objective of increasing the supply of fuelwood to the poor. In the short run, this criticism is likely true. The vast majority of trees planted by farmers is intended for sale to the construction pole and pulpwood market. On the other hand, farm forestry has turned out to be the most efficient method for increasing overall wood supply in the face of acute scarcity, and is, in general, an environmentally beneficial method of increasing farmer's

incomes through the introduction of a valuable cash crop suitable for marginal (as well as high quality) crop lands. Had these been the stated objectives, the program would be an unqualified success and many of the criticisms invalid.

1.05 In order to realistically analyze the social impact and benefit distribution of the proposed NSFP activities, the following procedures have been employed for appraisal. In each State, each of the separate types of field activities were analyzed with respect to previous experience, intended objectives, and likely impact. For each plantation model, estimates of the likely distribution of benefits from each product harvested were integrated into the computer analysis of economic and financial costs and benefits. This analysis then served as a basis for sharpening the understanding of the objectives of each subproject and were used in final discussion with the States. It is noteworthy that in a number of cases, the analysis revealed a considerably different picture of the degree of FD cost recovery and distribution to the intended beneficiaries than initially supposed -- at times allowing further adjustments in the model to be incorporated during appraisal.

1.06 Following the same procedure, this analysis will proceed separately for each type of field activity. These types have been categorized according to form of management and control (de facto ownership) of land as follows:

Table 1: TYPES OF SOCIAL FORESTRY INSTITUTES

Form of Management	Control of Land		
	Private	Community /a	Forest Department
Individual Household	Farm Forestry	Tree Tenure	Tree Tenure
Joint Community/FD		Community Woodlots	Community Woodlots
Forest Department (FD	/b	Community Woodlots /c	Wasteland Plantations on Government Lands

/a Includes lands controlled by the Revenue Department.
/b Himachal Pradesh has proposed one group farm forestry model that would involve FD management of private lands.
/c While not intended, it is possible that some States will follow previous practices and in effect take over full management of community woodlots planted on panchayat lands.

2.0 FARM FORESTRY

2.01 Definition. Farm forestry refers to those sets of activities that are designed to provide support to farmers for planting trees on their own lands. It includes the distribution and/or sale of seedlings from nearby nurseries, the provision of additional physical and financial inputs for small and marginal farmers, and the extension services designed to support this effort. In some States, it also includes assistance in marketing.

2.02 Previous Experience. Experience with previous social forestry projects has shown that the driving force behind the success of most farm forestry to date has been the market demand for poles, pulpwood, and to a lesser extent, fuelwood. This demand, coupled with a variety of perceived specific advantages to individual farmers in planting some of their land to trees (ease of management, productive use of marginal lands, increased fodder availability, etc.) has increased the uptake of farm forestry far beyond original expectations.

2.03 Experience has also shown that despite widespread fuelwood scarcity, trees are rarely planted for purposes of meeting the planter's own requirements for fuel. Increased income, either through the sale of marketable tree products or indirectly through the sale of by-products (milk from use of tree fodder) or the avoidance of cash outlays for poles and small timber is usually the prime motice for planting trees. However, pulpwood can be prized as a valuable secondary product made available through lopped branches, twigs and leaves, and deadwood.

2.04 Given this socio-economic environment, farm forestry is most usefully understood from an agricultural perspective broken down by size of farm. As a market oriented enterprise of medium and large farmers, farm forestry should be evaluated in terms of a long rotation cashcrop with downstream benefits in forest product processing, employment, and the overall increase in wood availability. As a cashcrop the issues of governmental subsidies and marketing arrangements and vulnerabilities deserve increasing attention, as is reflected in NSFP's concern with wood balance studies, and encouragement of special market studies.

2.05 As an integral component of on-farm land-use, farm forestry must also be evaluated from the perspective of agroforestry. Even larger farmers frequently intercrop grains during the first two year of pole plantations. However, it is particularly with respect to the small and marginal farmers that the complementarities and competition with food production entailed in tree planting become more crucial. To the extent that the species selected and sites planted enhance overall farm production in order to better meet subsistence requirements for food, fodder, wood, and income, farm

agroforestry has the potential for meeting the objective of improving the standard of living of the large majority of smallholders. The environmental benefits to soil fertility which are possible in agroforestry systems on both large and small holdings are also of considerable importance in examining the impact of this program.

2.06 Evidence on the ability of smallholders to participate in farm forestry to date has been mixed, although reliable conclusions will have to await the results of the evaluation surveys. The extent to which the availability of free seedlings improves smallholder participation or survival rates is still unknown, although this is an empirical question which can be answered by the proposed surveys. Similarly, while some States claim that large percentages of their seedlings are being planted by small and marginal farmers, others are of the opinion that substantial subsidies and support are required to induce this group of farmers into tree planting given the long wait for returns and the immediate subsistence requirements of this group. Again, the degree to which subsidies are required to induce smallholder participation in tree growing is an empirical question which can be settled on the basis of on-going evaluation survey data.

2.07 Evidence available from Nepal does confirm the likely hypothesis that smallholder participation is related to the proximity of the nursery and the availability of seedlings of desired species. Nearby nurseries not only reduce the cost of transport, but serve as a natural extension device and reminder to the availability of seedlings as farm planting material. Familiar multipurpose species which yield high value products within a relatively short period (fruit, fodder, poles, fiber, etc.) appear to be in high demand. However, it must also be recognized that many farmers are attracted to fast-growing exotic species as a means of increasing their productivity (as occurred with grains in the green revolution) and that these exotics serve to stimulate greater tree growing than would be likely otherwise.

2.08 Model Objectives. The objectives being served by farm forestry differ somewhat according to the type of farmer and kind of planting undertaken by the household.

2.09 When fuelwood/timber species seedlings in excess of 500 or 1,000 are taken by farmers, the farmer's main motivation is usually to increase household income by growing poles or pulpwood for the market -- although there may be additional motives related to reducing labor requirements, etc. These seedlings, frequently taken by medium and larger farmers, are usually planted in blocks and may displace other cash or food crops on irrigated or unirrigated land in addition to being planted on more marginal agricultural sites. The principal objectives being served by this type of cash crop farm forestry activity are:

- increase in farm household incomes, and

- increase in overall wood supply for industries and urban needs.

2.10 Farm households that take smaller numbers of fodder and multipurpose seedlings, are usually more interested in the indirect income benefits that accrue from better milk production, cheaper poles and small timber for farmstead construction needs, fuelwood, and the like. In this model, the trees are usually planted along field boundaries, scattered patches of unused land, and homestead areas. Although some sales are likely to take place, the primary objectives served by this form of subsistence agroforestry are:

- increase in rural self-sufficiency in tree products, and

- reduction of soil loss and improvement in sustained agricultural productivity.

2.11 It should be recognized, however, that these two categories overlap its practice. Indeed, the various smallholder support activities proposed by Gujarat and H.P. are intended to provide a means for smallholders to participate in the income benefits of larger scale farm forestry activities by providing subsidies to see them through the initial years of tree growth. And while not its principal objectives, larger scale farm forestry does serve to increase the rural self-sufficiency and reduce soil loss for the participating household. However, larger scale farm forestry does not appear to serve the fuelwood needs of the rural poor, and cannot be justified on this basis.

2.12 Distribution of Benefits. In farm forestry, all the direct benefits are received by the participating farmers. To the extent that the products produced are sold, they are likely to be purchased by commercial industries (construction contractors, pulpmills, furniture manufacturers, etc.) and middle income urban consumers (for poles and fuelwood). Table 2 lists each State's proposed program with the percentage tentatively estimated that will be sold in the market.

Table 2: FARM FORESTRY BENEFIT DISTRIBUTION

Model	State	Target	% To Farmer	% To FD	Est. % To Be Sold
Seedling Distr.	GUJ.	300 m	100%	-	80% /a
" "	U.P.	260 m	100%	-	80%
" "	RAJ.	120 m	100%	-	70%
" "	H.P.	80 m	100%	-	15%
Smallholder Support pvt. land	GUJ.	30,500 h	100%	-	90%
" "	H.P.	13,000 h	100%	-	35%
Grafted Ber Trees	RAJ.	0.4 m	100%	-	90%

2.13 The estimated percentages to be sold, developed in consultation with State forestry officials, reflects the degree to which the two sets of objectives listed above are likely to be met. As shown by the table, H.P. is much less market oriented due in part to the relative abundance of forests in the State, the lack of urban markets, the slower growth of market species such as Eucalyptus, and State regulations on harvesting which specify that trees can only be cut every ten years as designated by the FD. In H.P., fodder trees have also played a more important role traditionally, and are more sought after in present circumstances.

2.14 Nurseries. Gujarat makes use of an extensive network of small farmer and school contract nurseries for the production of a substantial amount of seedlings. This form of production appears to provide substantial benefits both to the participating farmers and schools as well as to the wider public by providing seedlings close to farmsteads and serving as a natural extension center. U.P. has indicated its intent to pursue a similar course during the project period, and the other States have been encouraged to follow suit.

2.15 Private nurseries currently exist in each of the States for the sale of high value fruit seedlings, but have not developed to supply the multipurpose species proposed under NSFP. It is unlikely that private nurseries can develop so long as seedlings are supplied free of cost or at subsidized rates by the government.

2.16 Contractual Arrangements. Aside from the requirement that large orders of seedlings be reserved in advance, the States do not impose any contractual arrangements on the regular seedling distribution/farm forestry programs. However, in the cases of Gujarat and H.P. small farmer subsidy programs, implicit agreements are reached with the participating farmers according to the terms and conditions set by the governing regulations. Under these agreements, the States provide material and financial incentives for farmers to grow and protect tree seedlings, from which the farmers receive all of the final benefits. In Gujarat, contracts are also drawn up for the lease of land and purchase of seedlings from small farmer and school nurseries.

2.17 Key Issues. There are a number of important outstanding issues in farm forestry which will require improved monitoring and critical attention during project implementation. Once better idea is available, it is very probable that some of the existing policies will need major revision by the time of the mid-term review of the project.

2.18 One of the major issues is the question of free seedling distribution policy. At the time of appraisal the following policies were planned by each State for the project period.

Table 3: SEEDLING DISTRIBUTION POLICY

State	No. Given Free	Cost for Additional
Gujarat	1,000	Rs 0.05
U.P.	100	Rs 0.20
Rajasthan	1,000	Rs 0.25
Himachal Pradesh	0	Rs 0.10

2.19 The arguments put forward for providing a large number of seedlings for free are based on convictions that free seedlings provide the most efficient way to encourage the planting of large numbers of seedlings by the largest number of farmers, including smaller farmers, in the shortest period of time. The arguments expressed against a policy of distributing a large number of free seedlings point out that this policy primarily results in large subsidies to the richer farmers who take the largest number of seedlings. In addition, the fears that free seedlings may result in overproduction of commercial trees or -- from the opposite perspective -- neglect and wastage of seedlings taken are also expressed.

2.20 The questions involved are empirical. Is seedling survival lower when they are obtained for free or highly subsidized rates? Do more small farmers take seedlings if they are provided free? What percentage of seedlings are being taken for rural farm self-sufficiency, and what percentage are grown for sale to the market? Are farmers able to obtain the quantities and species they desire? The differing policies presently followed by each of the four States provides an ideal basis for empiricially examining the results of these policies through the farm forestry evaluation survey and resolving these differences on the basis of the facts.

2.21 A closely related issue concerns the degree to which it is ultimately sought to develop private nurseries. So long as the FD continues to subsidize seedling prices, it is extremely doubtful that private nurseries can be encouraged except under contract from the FD itself. Once again, the underlying question revolves around the extent to which tree farming is treated as a cash crop deserving of government supports, or as a crucial element in sustaining the long term viability of the subsistence farming systems.

2.22 The same question underlies the issue of the degree of subsidy to be provided to induce smallholders to plant trees on their marginal lands. If selected farmers are receiving substantial incentives to plant and protect tree seedlings, will not this serve as a disincentive to other farmers to establish more self-sustainable systems? On the other hand, if subsidies are not provided, will only the larger farmers be able to participate in cashcrop farm forestry. To what extent can viable agroforestry models be developed that will yield sufficient overall benefit to encourage smallholders to continue with farm forestry on their own? These issues will also require close monitoring and possibly major adjustments in program strategies as the project is implemented.

2.23 The emergence of farm forestry as a major cash crop encouraged by government subsidies poses a number of further issues. On the one hand, there is no question that is the most efficient means for the government to greatly increase the supply of scarce wood products for commercial and urban needs. However, evidence from Gujarat confirms that much of this kind of farm forestry does displace other cash and food crops and that there is a substantial reduction in on-farm labor employment. There are also indications that the pole market for which much of the current trees are being grown will be saturated, with a consequent lowering in prices and return to the farmer in the next five years. While treecrops are flexible enough to create and be used by other markets, the degree to which treecrops are desirable vis-a-vis the crops being replaced needs to be directly examined in the context of an overall policy framework. If, indeed, the present level of encouragement is desired, then current legislation restricting the harvesting of many tree species either by ten year cycle (as in H.P.) or by permit from

the forest department (as in all other States), should be critically reviewed for the extent to which these policies inhibit farmers -- particularly small farmers with less easy access to the bureaucracy -- from increasing their farm forestry activities.

2.24 With regard to small-scale agroforestry, another set of issues will require careful attention. To what extent is research addressing the needs for developing and evaluating new models of tree-crop systems? To what extent is the extension service providing information on these models? To what extent is the FD providing the species and supporting inputs that will be required to introduce these systems on a wide scale? These questions will need increasing attention if the considerable promise of integrated forestry and agriculture are to be widely adopted during the project period.

3.0 TREE TENURE

3.01 Definition. Tree tenure programs refer to a relatively new set of social forestry activities in which selected landless and small farmer participants will be provided tenure rights over trees they plant and tend on community or government land designated for the purpose. The FD provides material inputs and wages for the initial establishment and maintenance of the plantation, and generally seeks to recover some of its costs at the time of harvesting the major products. The selected beneficiary either lives on or near the plantation, harvests the intermediate products, and protects the plantation under a form of leasehold which restricts him fro alternate uses of the land.

3.02 Except in the instance of strip plantations in U.P., the programs proposed for NSFP funding have been targeted for group action on marginal lands. It is proposed that contiguous areas will be divided between a small group of beneficiaries to facilitate FD support and protection of the area from grazing.

3.03 Previous Experience. There is little previous experience with this type of activity in the three States which have proposed this program, although both Gujarat and Rajasthan have had similar activities on a small scale with tribal populations. The best known example of this kind of program is reported from the West Bengal project, where initial results have been encouraging. In Gujarat and Rajasthan, previous schemes allotted up to 15 hectares per household, which is now considered excessive and conducive to considerable resentment from families not selected for participation. However, these pilot efforts have convinced the FD that the program is viable and that there will not be difficulties in recruiting interested households.

3.05 Objectives. The primary objectives likely to be served by this program are to:

- provide the means for landless and small farmers to increase their incomes through social forestry, and

- increase the supply of wood products for urban and commercial markets through the plantation of available government lands.

Secondary effects should include environmental improvement of degraded grazing areas and demonstration of the costs and benefits of "privatizing" the commons through leasehold arrangements.

3.06 Benefit Distribution. The proposed distribution of benefits are presented in Table 4 along with the estimated percentage to be sold.

Table 4: TREE TENURE BENEFIT DISTRIBUTION

Model	State	Target	% To Benefic.	% To FD	Est.% To Be Sold
Tree Tenure /a	U.P.	12,210 h	85%	15%	90%
" "	RAJ.	7,500 h	100%	-	90%
" "	H.P.	1,137 h	98%	2%	40%

/a Includes 900 h on roadside strips, 310 h on railsides, and 11,000 h in block plantations.

3.07 It is estimated that most of the products, except in the case of H.P., will be sold with the bulk of the benefits going to the selected beneficiary. Only in the case of U.P. is the FD planning to recover substantial portions of its initial costs. The fodder, fuel, and fruit products not sold will be likely be consumed by the participating household. Although small amounts of theft may occur, it is not anticipated that any of the benefits from this program -- beyond shade in strip plantations -- will extend beyond the selected beneficiaries.

3.08 Contractual Arrangements. The contractual arrangements between the FD and beneficiary differ somewhat by State and have not been completely finalized. As a rule, the regulations under which these programs will be undertaken specify that the FD will supply the physical inputs (seedlings, fencing materials, etc.) and some financial remuneration and that the participant will be responsible for the labor and plantation maintenance required. Intermixing of agricultural crops is not permitted, although the

beneficiary is allowed to collect annual yields of grass and minor forest products entirely for his own use. There will be a need to review the precise clauses included in these agreements and the methods included for resolving disputes as the project is implemented.

3.09 Key Issues for Implementation. The potential for tree tenure programs to provide direct benefits to poor participants is its most attractive feature. In order for this objective to be met in practice, perhaps the most important issue concerns the selection of the beneficiaries. U.P. and Gujarat have expressed their intention to have these beneficiaries jointly selected by the Panchayats from the list of households below the poverty line maintained by each Panchayat. Since limited prior experience suggests that demand will be high, the potential for selection to be based on personal patronage or financial considerations may be high. Public selection of beneficiaries through group discussion and/or use of lottery systems may help to reduce this problem. However, it will be essential that the selection process is closely monitored and adjustments made if required.

3.10 The methods developed for contract enforcement and dispute settlement may also need to be closely watched. As the program rests on a dual tenure in which the FD will own the land and the beneficiary have primary ownership of the production, a viable partnership must be maintained. On the one hand, there is the danger that the FD asserts its tenure rights so strongly that the program becomes no more than the employment of a permanent laborer on a plantation site. On the other hand, there is the risk that the beneficiary attempts to assume land tenure rights and eventually obtains land registration and converts the area into agriculture holdings. To guard against these dangers, specific procedures for safeguarding mutual rights and enforcing contract provisions will need to be developed.

3.11 There may in fact be considerable agroforestry potential within these tree tenure programs which would allow the FD to reduce its level of financial subsidy while still providing a means for landless households to sustain their livelihood. So long as the tenurial problems mentioned above can be overcome, these potentials deserve pilot exploration. Along the same lines, various credit arrangements could be explored as an alternative to cost recovery at harvest.

3.12 The kinds of working plans adopted will also be exceedingly important to the success of this program. While it is likely that many participants will be interested in raising commercially viable plantations which will bring in cash income, others may well be more interested in fodder plantations to support livestock development. Similarly, it is not unlikely that most participants will prefer harvesting systems which will bring in annual incomes rather than working plans based on relatively long rotations in which all the trees are cut in the same year. It is therefore recommended that the

agreements signed with the participants also include the species and working plan and that they be genuinely allowed to participate in the decision making entailed.

3.13 Perhaps the biggest potential negative effects of this program is the withdrawal of common resources from other poor members of the community who previously relied on the area to meet part of their needs for fodder and fuel. It is therefore recommended that the Monitoring and Evaluation Units undertake a special study to examine the extent to which other poor members of the community are being deprived of products or previously held rights to the land. This issue will be particularly important where the tree tenure is launched on lands -- whether Panchayat, Revenue, or Forest -- which had a de facto community status prior to the implementation of the program.

4.0 COMMUNITY WOODLOTS

4.01 Definition. Community woodlots are generally understood as plantations established on community land (Panchayat or Revenue Department) with community participation in order to meet community needs. In fact, there is considerable variation in practice in each of the four States. The woodlots may be established on FD land, and the degree of participation or joint management has varied considerably in the past. In addition, each State has varying policies on cost recovery just as panchayats conceive of the woodlots differently: some viewing them mainly as a source of cash income for community projects and others seeing them as a source for actual wood products.

4.02 Previous Experience. Experience with community village woodlots, in India with the community exclusively defined as the local Panchayat, has been mixed. On the one hand, the past concept of "self-help" woodlots in which the Panchayats take over the financial and managerial burden of establishing and maintaining the woodlot with FD material and technical support, has not proved popular. Few Panchayats have come forward to take up the program in most States (although Gujarat has achieved reasonable success in meeting their targets), and most FDs have not been enthusiastic about the program.

4.03 On the other hand, Panchayat woodlots established by FDs entirely at their own expense and effort after the Panchayat has handed over these lands to them have also not proved entirely satisfactory. Contrary to expectations, few Panchayats have shown much interest in having the woodlots returned to their control and management. Based on the limited data available, it also appears that in the eyes of most community residents, the woodlots are viewed as Government plantations in which they have not played any significant decision-making role.

4.04 To date, every few woodlots have been harvested for products other than grass. It is therefore premature to evaluate the distribution policies

likely to take place. However, given present circumstances, many fear that instead of biasing benefits towards th poor, the panchayats are likely to bias them towards the controlling elite. So far, the main benefits experienced by the poor, and the women who are unable to leave their village area, are the considerable employment opportunities provided.

4.05 A number of factors have been tentatively identified to account for the difficulties experienced in developing a viable community woodlot model. Village factionalism, the politicized nature of Panchayats, FD conservatism, lack of extension, the hierarchical nature of society, lack of Panchayat finances and manpower are all reasons given for the limited success achieved in either establishing community woodlots or handing over departmental ones with successful distribution system.

4.06 It is not possible to assess the relative importance of these various factors without more field study than has been conducted so far. However, it is possible that past woodlot models have suffered from lack of collaborative action. In most woodlots established to date, key agreements regarding the mode of management and benefit distribution have been postponed until plantations are considered established and ready for harvest. It can be argued that this deferment of the critical issues as well as the overly exclusive distinction between woodlots to be raised and managed entirely by the community and entirely by the FD has prevented viable Panchayat-FD joint management systems from developing.

4.07 The failure to structure community woodlots as joint ventures with publically agreed terms from the outset has thus resulted in the postponement of key decisions regarding working plans and harvesting. Traditional models for silvicultural systems designed for the working of large tracts for commercial purposes have not yet given way to jointly negotiated systems of woodlot management designed to meet the community's needs for fodder and fuelwood on an annual basis. Overly ideal systems of product disposal which would skew benefits to the poor have been proposed which are far more progressive than attempted in other sectors of resource development such as irrigation, agricultural inputs, etc.

4.08 Recognition of these deficiencies provides the basis for attempting their solution in NSFP. While little can be done about such enduring features of the cultural landscape as the hierarchical distribution of status, wealth, and power and the traditions of factional alliances within Panchayats, it should be possible to restructure the process, form, and goals of community woodlots to more realistically try to deal with this difficult social environment. After all, it must be recalled that most of the lands upon which village woodlots are established are common grazing and twig collection lands to which village members usually consider all residents as having pre-existing rights, and which cannot be alienated to private control

without severe community resistance. (The case of H.P. in which existing rights to community forests and grazing lands is enshrined in complex land settlements which provide proportionally greater rights according to landholdings will be dealt with separately in the next section.)

4.09 NSFP is attempting to provide a more workable basis for community woodlots through various means which are designed to ensure more genuine mutual participation by both the local community and the FD. During appraisal assurances were received from each State that all community woodlots would be joint-ventures from the outset. Agreements with the Panchayats -- or where possible, more viable communities of users groups -- would be required from the outset in which the major issues regarding establishment, management, species selection, harvesting regimes, and product distribution would be publically agreed upon at the time of establishment. Since these community woodlot management plans (or operational plans) will require developing new silvicultural models based on social and economic considerations as much as technical ones, assurances were also received that each State will provide high level social forestry management plan officers to guide and monitor this effort. Equal distribution of benefits between all household will be set as a more realistic goal than skewing benefits towards the underprivileged beyond society's capability.

4.10 Objectives. The primary objectives expected to be served by the community woodlot program include the following:

- Increase the productivity of degraded community grazing lands to provide the community with additional sources of fodder, fuelwood, poles and income for community projects.

- Provide employment for the poor and neighborhood women.

- Strengthen the capability for collective community management of common resources.

In addition, this program should serve to improve environmental conditions in the community and serve as a demonstration of the value of tree planting and grazing control.

4.11 Models and Distribution of Benefits. Table 5 lists the various models proposed for financing under this program together with estimates of the distribution of benefits among the various groups involved.

Table 5: COMMUNITY FORESTS BENEFIT DISTRIBUTION

Model	State	Target	% To Users	% To Panch.	% To FD	Est.% To Be Sold
Village Woodlot	GUJ.	20,000 h	35%	33%	32%	65%
" "	U.P.	14,000 h	64%	18%	36%	36%
" "	RAJ.	5,000 h	27%	73%	-	73%
" "	H.P.	1,000 h	56%	32%	2%	55%
Irrigated lot	GUJ.	5,000 h	6%	44%	49%	94%
Strip plantations	GUJ.	15,000 h	24%	38%	38%	76%
Road Strips	RAJ.	2,500 h	12%	33%	55%	88%
Canal Strips	"	300 h	9%	19%	72%	91%
Rail Strip	"	1,000 h	23%	49%	27%	77%
Embankments	"	500 h	29%	35%	35%	71%
Fodderlots	GUJ.	10,000 h	18%	41%	41%	82%

4.12 In this table, "percent to users" represents those products, primarily fodder grass and branch fuelwood which will be equitably collected or distributed to all members of the community in kind. The percentages accruing to the panchayats and FDs will in all probability be sold, with the income being retained by each of these institutions as cost recovery and profit. As can be seen, the modes of distribution are highly variable, with U.P. retaining the least funds for the FD and Gujarat the most. To a certain extent these variations reflect policies on benefit sharing, however they are also a function of the kinds of plantation models proposed since some species produce more collectible produce such as tree fodder and branchwood and others are more biased towards saleable poles and small timber.

4.13 This broad categorization of benefit distribution necessarily disguises considerable variation between and within the States. FD sales includes: subsidized sales at site to scheduled castes and tribes with limits, market price sales at site with or without limits per household, auctions and contract to the highest bidder, sales at depots at either subsidized or market prices, subsidized sales to schools to provide fuel for lunch programs, etc. While each of these modes of distribution will undoubtedly have effects on the market which will be of considerable importance to the future of commercial farm forestry, they are not -- with the exception of

highly subsidized sales to low castes and tribals -- likely to have much effect on the local communities' access to the products. Similarly, since the poor cannot purchase fuelwood, even at subsidized prices, unless they can resell it at a profit, it does not have an effect on this sector of the population.

4.14 Actual distribution of community woodlot products to community members cannot be predicted with assurance. While there is every likelihood that if a policy of equal distribution per participating household is publically adopted it can succeed, this will require continuing close monitoring as the woodlots mature.

4.15 Contract Arrangements. As noted above, the jointly developed agreement, or management plan, is the foundation upon which attempts to develop viable community woodlots is based. The format for these plans has been requested from each State prior to negotiation based on the guidelines prepared during the Appraisal Mission and appended to this report as the "Community Forest Management Plan". The plan will consist of a simple proforma in which both the local community (in most cases, the Panchayat) and the FD agree on: the specific objectives of plantation, the sites, the plantation treatment, the harvesting schedule plan, product distribution, protection and maintenance, enforcement, and the method of maintaining accounts.

4.16 Experience elsewhere suggests the process used in devising and updating the plan is as important as its contents. It is crucial that the contents are jointly negotiated in a public forum and do not just involve a rubber stamp of approval by the Panchayat chairman of plans already conceived and written by the Forest Department. It will thus be an important part of the new Social Forestry Management Planning Officer's job to issue guidelines and prepare options which are intelligible to the local community and can be used as a basis for arriving at a jointly-negotiated agreement.

4.17 Key Issues for Implementation. The biggest risk facing this program is that effective community-FD joint management systems will prove difficult to develop under current conditions. It will therefore be extremely important to conduct the on-going evaluation surveys of community woodlots proposed under the monitoring and evaluation system and such other special studies as may prove necessary to closely monitor implementation and isolate problems. The understandable tendency for FDs to distrust the ability of local communities to manage this kind of resource may lead to a continuation of present systems in which the FD essentially manages the woodlot on their own, and prevents local system from developing. On the other hand, local communities' unfamiliarity with community forest management may also lead them to be reluctant to take risks and make the mistakes upon which learning is based.

4.18 The role of community extension will necessarily be important to the success of this endeavor. To the extent that social forestry Rangers and Guards serving as extension agents can develop the skills necessary to facilitate community organization -- skills which have not been taught in the past -- the task of establishing community woodlots with viable joint management will likely be more successful. It will thus be important to monitor the kinds of interactions which take place between extension agents and the local communities to enable curriculums to be modified and job descriptions changed as required.

4.19 The actual distribution of benefits among community members will also require close monitoring. What systems of distribution are actually employed by the Panchayats? What systems are most suitable for different products? To what extent is equal distribution by households a viable goal in the context of Indian villages? To what use are the cash incomes received by Panchayats put? Who participate in these decisions and who are the prime beneficiaries? Are systems of auctioning and contracting reasonably fair? In the case of H.P., where rightholders have shares according to their landholdings, has it been possible to institute systems which provide for equal distribution to resident households without these rights? These questions will need to be addressed as the project gains experience with this important component.

4.20 The flip side of this issue concerns the distribution of costs and the possibility of establishing community woodlots on the basis of user groups. Are the people who previously used the area established as a community woodlot the primary beneficiaries of the new investment? If not, it may be more feasible to set up collective action on the basis of the primary user group. This group could be identified jointly by the Panchayat and the FD and designated as the beneficiaries for certain annual products such as grass and tree fodder. By electing a committee out of this group, experience in Nepal and elsewhere in India with irrigation systems has shown that the level of interest and commitment may be considerably increased.

4.21 Finally, close attention will have to be paid to the appropriateness of the treatment and harvesting plans to the needs of the community. Providing large amounts of fuelwood to members of the community on a five-yea cycle does little to take care of annual needs. On the other hand, some woodlots are too small to be harvested more frequently given the large number of households being served. A variety of innovative and responsive silvicultural systems will need to be developed on the basis of on-going experience in the field.

5.0 WASTELAND PLANTATIONS FOR COMMUNITY NEEDS

5.01 Definition. This category of social forestry activities includes a variety of plantation activities on government lands executed by the Forest Department. The lands include strips adjoining roadways, railways, and canals as well as degraded forests areas of the various classes: Demarcated, Protected, Reserve, and Unclassed -- although there was considerable discussion during appraisal regarding the extent to which Reserve Forest lands can be appropriately used. To the extent that these plantations incorporate the local community in regular and planned product distribution and involve them in the decision making, this kind of activity has been considered a component of social forestry. However, some States have also included plantation programs which, though not involving the local community, are intended to meet other social needs such as the shortage of urban fuelwood.

5.02 Previous Experience. Schemes for strip plantations and block plantations on government land -- frequently called rehabilitation of degraded forests -- have been undertaken by all four States during previous years. Since few, if any, have been harvested for wood products it is premature to evaluate their social impact. It is evident, however, that beyond serving as demonstrations and sources of grass for fodder, local communities have not been involved in these activities so far.

5.03 The success of strip plantations, particularly those along roadsides, in engendering appreciation for the environmental benefits of trees (especially shade and aesthetic improvement) has created a climate of opinion within which it is now difficult for the FD to harvest these trees for fuelwood and poles. While some States have indicated their intention of cutting back rows in wide strips, others are hesistant to risk jeopardizing the good will of the vocal environmentalists and State residents by cutting these highly visible "green tunnels".

5.04 If and when these plantations are cut, the form of the produce and the degree to which they provide fuelwood for the poor, will be a function of the species originally planted. Eucalyptus and similar pole/timber trees will go primarily to the commercial markets. Acacias, Prosopis, and similar thorn trees will serve the urban and small town fuelwood markets. In addition, these thorn species are the only ones already providing fuelwood to the poor through the tolerated pilferage of small branches which readily regenerate. It is thus apparent that such species, which have in many cases demonstrated the best total biomass yields in field conditions, are far more suited to meeting the fuelwood needs of both urban needs and the poor collectors.

5.05 Objectives. The primary objectives likely to be served by the set of activities proposed under NSFP are listed below:

- increase the supply of fuelwood and other forest products for adjoining local communities and nearby urban centers through increasing the productivity of currently unmanaged government lands,

- provide a resource from which poor collectors of fuelwood will be able to obtain twigs and branches, and

- provide environmental benefits in the form of shade on strip plantations and the rehabilitation of degraded sites.

The degree to which these objectives are likely to be met will differ widely by individual subproject and State as is illustrated below.

5.06 Distribution of Benefits. The distribution of benefits among the various groups involved is estimated in Table 6.

Table 6: WASTELAND PLANTATION BENEFIT DISTRIBUTION

Model	State	Target	% To Users	% To FD	Est.% To Be Sold
Rehabilitation of Degraded Forests	GUJ.	20,000 h	11%	89%	89%
" "	RAJ.	20,000 h	83%	17%	17%
" "	H.P.	5,000 h	26%	74%	74%
Community Forest	H.P.	40,000 h	72%	28%	28%
Road Strips	U.P.	600 h	52%	48%	48%
Rail Strips	U.P.	140 h	70%	30%	30%
Urban Fuelwood	GUJ.	2,500 h	14%	86%	86%

5.07 As this table indicates, distribution of benefits varies considerably between models. In Rajasthan, H.P. and U.P., it is planned that most of the produce will be made available to the local community through collection or distribution. In contrast, most of the produce from these plantations in Gujarat is destined to be sold by the Forest Department through various depots or used in the school lunch program.

5.08 In this table, the "users" refer to all members of the local community granted access to deadwood collection and headloads at the time of harvest. However, since much of the collection involves the time consuming collection of twigs and the cutting of thorn tree branches as well as the retrieval of headloads by laborers during harvest, there is an inbuilt bias towards poor collectors in those plantations where the States have planned to give access to the local community. In addition, most of the States tolerate pilferage of small branches by the poor which provides those people living in proximity to these resources with fallback fuel supplies.

5.09 Contractual Arrangements. The appraisal mission has urged that the States involve the local communities to the extent possible in the planning and management of these wasteland, degraded forest, and strip plantations. Ideally, this would take the form of written management plan agreements along the same lines as specified for community woodlots. However, it is not clear to what extent this is likely to be enacted as most States perceive this activity to fall within the domain of the Forest Department with, at the most, the permission of the local panchayat head obtained prior to planting. In the case of H.P., the FD is of the opinion that existing rights to products based on the rightholder system (where timber rights are provided according to the amount of land revenue paid) more than ensure that the local community will receive its share of the produce -- although they recognize that these rights are biased in the favor of the larger farmers and will eventually need to be modified.

5.10 Key Issues for Implementation. Most of the key issues already identified for community woodlots also apply to this set of plantation activities. Primarily they are concerned with monitoring the actual distribution of benefits and the degree to which the poor are obtaining their fuelwood requirements from this source.

5.11 The most important factor affecting the success of this component will be the type of working plan adopted to manage the areas planted. The choice of species used (i.e. fuelwood or pole species, coppicing or non-coppicing, thorny or not thorny) will have far reaching impact on the degree to which these plantations are able to meet the needs of the rural community, and especially the poor, for fuelwood and fodder. Similarly, the harvesting cycle (annual coupes or long-term rotation) will be crucial for determining whether the on-going needs of the community are being met on a regular basis. The method of harvesting (block rotation, coppice with standards, pruning, singling, selective cutting, etc.) and the agents of harvesting (local people, contractors, local laborers) will also have considerable influence on the receipt of benefits by the rural poor.

5.12 Thus, as with the community woodlots, much will rest with the ability of the social forestry management planning officer and the monitoring and

evaluation unit in closely monitoring existing arrangements, identifying problems, and suggesting alternative solutions. This set of activities has the potential for meeting much of the fuelwood requirements of the poor and urban areas and developing into a form of community forestry which sustains the local production. However, it also has the potential of becoming undistinguishable from traditional territorial forestry geared to meet commercial needs. To foster the former, continuing close attention will need to be paid during the actual process of implementation.

6.0 SUMMARY OF MAJOR SOCIAL ISSUES

6.01 Underlying the discussion of the likely social effects and key issues for implementation addressed in the previous sections with regard to specific proposed social forestry activities are a number of larger social and managerial issues. Since these factors are not amenable to direct change through the implementation of the project, they do not warrant thorough analysis in the context of the NSFP project appraisal beyond the references already made in the previous discussion. Indeed, they represent a subject so vast, complicated and little understood they are properly the subject of separate analytic studies. However, it may be useful to briefly identify some of these factors in summary form as they relate to NSFP.

6.02 Perhaps the most important factor affecting all aspects of social forestry projects is the social hetereogenity of Indian society. Not only are there a large number of tradition social groupings identified by language, religion, caste and tribal affiliations, but there are a number of partially cross-cutting social grouping based on wealth, occupation, education, residence, and organizational position. Individuals are not only defined -- with greater or lesser mobility between groups -- by these characteristics, but usually there are more or less explicit systems of ranking which place individuals in hierarchical systems which vastly differential access to resources. These systems function to maintain inequalities in wealth, status, and patterns of human interaction, although recent research indicates greater flexibilities in the systems than was previously assumed.

6.03 In terms of the NSFP, these systems tend to work against effective collective action at the community level as well as effective two way communication between foresters and villagers and lower ranking foresters and their superiors.

6.04 However, more democratic and egalitarian norms have frequently found expression in Indian cultural history and are currently enshrined in the constitution and stated objectives of society. These norms are encoded in much of the legislation and bureacratic procedures explicitly developed to promote equitable development and undermine hierarchical systems. While their enforcement is a constant challenge, there is no question that the

tenets are partially accepted by much of society and that they serve as a mitigating force countering hierarchical tendencies.

6.05 It is these widespread egalitarian norms which are invoked in attempting to successfully implement social forestry programs calling for equitable community management, special support for smallholders, increased access of the poor to public resources, and improved two-way communication throughout the program. While past experience has shown that it is a mistake to be overly ambitious and by-pass the more powerful members of rural communities, widespread examples also demonstrate that systems which provide equal benefits for all can work.

6.06 The key issues involved in strengthening this effort revolve around: land and tree tenure systems, legislative supports and constraints, marketing systems, grazing systems, and the silvicultural management systems introduced.

6.07 Land and tree tenure systems have generally proved to be much more complicated and, frequently, ambiguous than they appear on paper. While land settlements and legislation has theoretically divided land into exclusive categories such as private holdings, panchayat revenue lands, undemarcated forests, etc., de facto usage often confounds these divisions. Private lands will become communal grazing lands during fallow periods; public lands are often encroached by private individuals for agricultural purposes. Similarly, forest product tenures often follow a complicated set of customary rules in which certain forms of products are accessible to all, while others are limited, and still others are subject to tolerated or illegally paid for theft.

6.08 Similarly, legislation with regard to cutting, transporting, and harvesting trees and tree products can present a complicated, and to the poor villager, frequently confusing picture. Certain species are barred from cutting by the Government of India Tree Conservation Act implemented in each State. However, limited numbers of these species may be harvested for private use in some States so long as they are not transported or marketed. Some species, particularly those also found in natural forests, can only be harvesting during predetermined years with FD permission in order to control illegal felling of government resources and overcutting of private trees.

6.09 Within this context, perhaps the single most important issue relates to grazing systems. Customary and legislative traditions generally support open access grazing in most village grazing lands and forest areas that have not been newly planted. Migratory pastoralists are a major population using community and government grazing lands in Rajasthan, Gujarat, and H.P. The complex systems which currently serve to indirectly control -- or perhaps more importantly, preclude control -- of grazing are perhaps the single

biggest obstacle to instituting sustainable regeneration of the country's natural and manmade forest resources. Currently they are inadequately understood, but are dealt with on a case by case basis in NSFP by closing plantation areas to grazing until the trees are well established. The costs and benefits of this action to specific members of the community as well as means for establishing more productive grazing patterns in forest lands remain an outstanding issue.

6.10 The effectiveness with which NSFP deals with these social issues will depend on the degree to which they are successfully incorporated into jointly negotiated management plans. It is for this reason that the project has placed considerable emphasis on the need to institute a high level Social Forestry Management Planning Officer to constantly guide and monitor this effort. The job description for this officer is attached to this report.

6.11 Within the field, the crucial task of developing these management plans and working with the local communities to help them organize themselves for community management, will fall on the forest extension agent. Since this will require a whole new set of skills, considerable emphasis has been placed on developing new curricula and providing for practical field training. Needless to say, such reorientation and training is required at all levels of the Forest Department.

6.12 Finally, it must be reemphasized that the success of the project will depend on its ability to foster rural peoples own efforts to grow and manage the trees that they need for subsistence and improved incomes. In order to keep track of this effort and continue to identify the way in which the social ossies discussed above affect project implementation, it will be crucial to ensure that the newly instituted monitoring and evaluation systems are vigorously introduced and used.

Annex V.B.

SUGGESTED GUIDELINES FOR COMMUNITY FOREST MANAGEMENT PLAN

Prior to establishing a community forest plantation, a simple community forest management plan will be jointly drawn up by the Forest Department and the local community in the form of resolution (i.e. the Panchayat or if established, the Forest Department Committee or Cooperative Forest Society). This resolution will be approved by the people of the community and the Forest Department, and will contain the signatures of the Panchayat Community Chairman when established and/or the D.F.O. The resolution will form the basis for drawing up the annual Plan of Operations, copies of which will be given to the Community representatives and posted in conspicuous places. Ordinarily the plan will be reviewed by all parties concerned every five years. However, a review for possible revision can be initiated by the D.F.O. for silvicultural reasons if any substantial change in the condition or estimated growth of the forest (e.g. fire) is found.

The plan will consist of a simple proforma containing the following information:

1. General: location, date, etc.

2. Specific Objectives of Plantation: (e.g. sustained grass production with fuelwood, balanced fodder and fuelwood with sufficient timber for bonafide local needs, income to community with whatever intermediate grass, fuelwood products can be made available).

3. Sites: sites identified for plantation with area and phasing.

4. Plantation Plan/Treatments: species, spacing, estimated periods of closure for establishment.

5. Harvesting schedule plan:

6. Product Distribution: type of products anticipated, method of distribution (whether free or priced, priorities by village/tika if any, period of collection or harvesting within year, harvesting/collection authorities, etc.)

7. Protection and Maintenance: The method of protection (e.g. fence, sakha, local community, forest guard), responsibilities of community and forest department for protection and maintenance.

8. Enforcement: Authority for fining various offences (e.g. minor offences by community and major by department).

9. Operations: Record of annual operations carried out (could be separate journal).

10. Map:

11. Income/Accounts: Name of account in which income deposited (i.e. Community Forest Development Fund), account signatories (e.g. Chairman Committee and DFO), auditors and system under which income discussed (i.e. Community Forest Committee).

SOCIAL FORESTRY MANAGEMENT PLANNING OFFICER

JOB DESCRIPTION

Background

Trees are usually planted under social forestry programs with multiple short-term objectives and increased private and community roles in management. This new mix of objectives and new mode of management requires new forms of forest management that adapt silvicultural possibilities for socio-economic realities.

Issues regarding distribution of benefits and marketing are now required to be an integral part of working plans from the outset. In addition, forest management planning now has a crucial extension role to play in fostering widespread collaboration from farmers and local communities.

As community and farm woodlots have even now reached the stage for harvesting, and lessons from field experience are available, the need for establishing the capability for such planning is immediate.

Responsibilities

1. Develop and continue to revise guideline for tree/forest management suitable for different silvicultural and socio-economic conditions for:

- community woodlots
- farm forestry (including tree tenure models)
- departmental fuelwood plantations and rehabilitation of degraded forests
- strip plantations

Optional silvicultural and distributional alternatives should be developed for each model to allow farmers and communities to choose and adopt plants to their circumstances in collaboration with FD implementing staff.

2. Monitor actual field experience with various silvicultural and socio-economic models in order to identify the most successful management methods, in collaboration with on-going project monitoring and evaluation.

3. Obtain results from on-going relevant material research and agroforestry trials and disseminate to field staff and extension personnel in the form of regular technical circulars.

In carrying out the above responsibilities, particular attention should be paid to methods of managing products such as fuelwood, tree fodder, and minor forest produce in order to meet the annual nature of people's requirements. Distribution models should be based on the principle of equity between all households in the panchayat, community, or user's group involved.

STATE LEVEL ORGANIZATION AND TRAINING

Organization and Training, Uttar Pradesh State

State Organization

1. Administratively the State is divided into 12 civil divisions, which are further divided into 57 districts for state administration, planning, and implementation of development programs. The 111,988 villages of the State are organized into 887 Community Development Blocks, 8791 nyaya panchayats, and 74,102 gaon sabhas.

Current Organization in Forestry

2. Uttar Pradesh is divided into fifteen forestry regions, five classified as Social Forestry Regions, and the others as Territorial Regions. Geographical distinctions between social and territorial forestry areas are generally made on the basis of the reserved afforested hilly areas in the North, East and Southwest for territorial, versus the remaining area (Indo-Gangetic Plain) stretching from West to East for social forestry.

3. The State has a separate forest ministry headed by the Secretary of Forest. A Principal Chief Conservator of Forests heads the Forest Department itself, assisted by three Chief Conservators of Forests (one for Hills, one for Planning and the other for Social Forestry), and three Additional Chief Conservators of Forest (one for Wildlife, one for Kumaon and one for Darhwal). Organizational Chart 1-a shows the current organization. Support functions including training, research and survey, utilization and extension currently fall directly under the Principal Chief Conservator, and are made available to the Chief Conservators, and Additional Chief Conservators as necessary.

4. The social forestry field staff presently consists of one Deputy Conservator of Forests or Assistant Conservator of Forests (DCF or ACF) in charge of each of the 29 divisions (covering 49 districts) under social forestry. In the 800 blocks included within these districts, approximately one Ranger heads every five to six blocks (see Table 1-b). Almost every two blocks have a Forester or Deputy Ranger (promoted forester), and one Forest Extension Worker assigned to it. There is approximately one departmental nursery under social forestry for each block. This level of field staff has managed to achieve or exceed nearly all of the quantitative goals, but there has been a problem in quality of field work -- e.g., poorer than necessary survival rates and relatively small percentage of farmers (especially smaller ones) reached.

5. During 1980-1985, the World Bank has financed phase one of a Social Forestry project in the state, with a credit worth $23.0 million, or 51% of project costs. But this accounts for only one part of social forestry, because there are also several centrally sponsored schemes and the state scheme, which under the Sixth Five-Year Plan (1980/81-1984/85)

have achieved 367,000 or almost 80% of total social forestry plantation, as shown in Table 2-a. Total social forestry expenditure in the State during this period amounted to a total of over Rs 1,160 million. The centrally sponsored schemes run out of the Ministry of Rural Development have been operated at the district level by District Development Committees, where the Forest Department DCF or ACF is represented; it is there that decisions are made as to what kind of social forestry plantations will be done, where, and by whom. The Forest Department estimates that it implements about 80% of the centrally sponsored schemes.

Proposed Organization

6. The Preparation Report by Uttar Pradesh (Project File, Annex 6) suggested that the block be made the main unit for social forestry, consistent with organization of other state activities including rural development. The Bank strongly endorsed this idea, especially since it would facilitate coordination with the Training and Visit System of agricultural extension. The original proposal in the Preparation report called for one Ranger, one Deputy Ranger, 2 Foresters and 5 Forest Extension Workers per block; however this was deemed to be an excessive increase in staffing (boosting the number of Foresters/Deputy Rangers from 435 to 3186, and Forest Extension Workers from 427 to 3941). It was agreed that some staffing increases were needed, though, especially since the Bank was strongly recommending an increase in the number of small, decentralized social forestry nurseries. The Preparation Report also recommended reconstituting the forestry regions so that they would be coterminus with the civil divisions, which the appraisal mission condoned. (see Organizational Chart 1-c).

7. Based on the above, the block level organizational norm agreed for field staff (see Organizational Chart 1-b) was: a) One Ranger, supported by two trained Foresters (one of whom could be promoted to Deputy Ranger); b) three Forest Extension Workers (FEW), with one each in charge of the large departmental nursery, the establishment and maintenance of departmental plantations, and direct supervision of the small nurseries. Local forest watchers would be appointed from and by the local community and hired on a daily wage basis. It was agreed that the staffing situation would be reconsidered during the Midterm Review, with necessary adjustments made at that time.

8. Forestry extension would continue to be primarily a Social Forestry responsibility with all field staff participating in extension activities. The nurseries, in particular the small decentralized ones, would be focal points for extension. But in addition the possibility of coordinating with agricultural extension was discussed. Social Forestry officials and Bank staff met with Rural Development officials to discuss the upcoming institution of the Training and Visit (T&V) System in the state, and how its Village Extension Workers could help in carrying

forestry recommendations to farmers and in bringing feedback from farmers on social forestry progress. Social Forestry Rangers would act as Forestry Subject Matter Specialists, attending monthly planning meetings to help formulate recommendations, and assisting in fortnightly training of Village Extension Workers. Rural Development officials were reluctant to make any firm commitments since agricultural extension was itself just being appraised (by another Bank mission), but the project will require follow up on coordination with agricultural extension in coming months, either in the form of a Government order, or an exchange of letters between the two Departments. Finally, the mission stressed that changes in vehicle loan and transportation allowance policies were essential, so that staff can obtain and use the vehicles necessary for field work mobility.

9. As for headquarters organization, the preparation report had suggested creation of a Social Forestry Institute which would include the following functional offices, each headed by a Conservator of Forests: Planning; Monitoring and Evaluation; Training; Research; Extension; and Marketing and Rural Industries. The appraisal mission noted that the rationale for forming such a semi-autonomous entity (basically to facilitate contracting) did not justify the institutional changes involved, especially since the changes could cause distortions. For instance, monitoring and evaluation should be a separate operation, not lumped together with extension, etc.; all the other functions should be integrally related to field work, not distanced by operating out of a separate entity. Therefore, the idea of the Institute financed by the Project was ruled out.

Non-Governmental and Voluntary Organizations

10. The Forest Department is now using Giri Institute, G.B. Pant Institute of social services at Allahabad University and the State Research Planning Institute to assist in completing special studies. NGOs, PVOs, schools and institutes could similarly be useful in groundwork to support community management of woodlots and nursery development; design and testing of self-help woodlot turnover arrangements; assistance in development of cooperative marketing arrangements for forest products; development and dissemination of extension materials; and work on improved chulhas and other wood conservation methods.

Training

11. The Social Forestry Wing has already initiated the establishment of additional training facilities, on the grounds that the existing schools are not adequate to train staff for social forestry (see Table 1). Presently, one Ranger college, four Forester training schools, and five Guard (FEW) training schools exist, for social forestry, although the Ranger College also trains for territorial staff. Schools currently under

construction or in tents include one Ranger college, three Forester training schools, and five Guard/FEW training schools, but all are currently operating (albeit below capacity in some cases).

12. A large number of the existing staff in social forestry lack training at their professional level. Regarding Foresters, half of the 50% promoted from Guard level have no Forester training (although they did undergo Guard training); similarly, many existing Guards (FEW) have yet to take Guard training. Above that, there are Guard level staff who have been appointed from among Forest Department wage labor, and there are all the direct recruit Guards and Foresters who lack any training or experience in forestry and will need basic training. The Forest Department recognizes the considerable workload involved in training this many staff, and so has put priority for training in the following descending order: direct recruits; appointees from labor; promotions from within the Department; and existing untrained staff. As another way to facilitate faster training, it has reduced the Guard training syllabus from six to four months, and the Forester syllabus from eleven to six months. The Bank has stressed that any reductions in curricula must ensure that trainees will still reach a skill level commensurate with their jobs, and that they must still be competitive professionally with any colleagues who have received more months of training. This may mean supplementing the basic training if necessary.

13. Inservice training would show an important role in supplementing and updating the skills of existing staff. Key in-services courses would include:

(a) Extension and communications, as mentioned above with faculty members drawn for the Forest Department as well as institutes such as the Gram Sewak Training Center (Mashobra) and Extension Education Institute (Nilokheri, Haryana Social Forestry Project);

(b) Training of Trainees, to be conducted at places such as the Extension Education Institute (Nilokheri) and/or Anand (Gujarat), and to include curricula in both teaching methods and most recent developments in social forestry;

(c) Training of Rangers to act as Forestry Subject Matter Specialists in agricultural extension, once the Training and Visit System is introduced;

(d) Orientation courses of senior staff, and for DCF/ACF level field supervisors; training would range through technical models for social forestry, species selection, formulation of agreements with panchayats/villages, distribution of benefits, etc; these would be 3-5 day intensive sessions, and might draw on practicioners, or instructors outside the State;

(e) Study tours, domestic and international; it was agreed that visits to other States with social forestry programs should be stepped up, in particular States with similar agro-climatic conditions or components ACFs and DCFs would be sent to domestic University courses, such as the new six months diploma course in social forestry at Dehra Dun. Other courses could be identified for staff, such as the upcoming ICRAF course on agro forestry to be provided through ICAR. On the international side, the project would provide for visits to other countries with relevant social forestry programs. International study opportunities could include courses such as: the social forestry summer course at Oxford, which includes project preparation, management and accounting, social forestry approaches, and research, the project planning courses at Bradford and the University of East Anglia; and the four months research course at Oxford.

(f) Monitoring and evaluation courses on both methodology and use of micro-computers; any new director of M&E for social forestry should receive such training; and

(g) Training for new nursery staff in extension techniques and recommendations for farmers (besides technical skills).

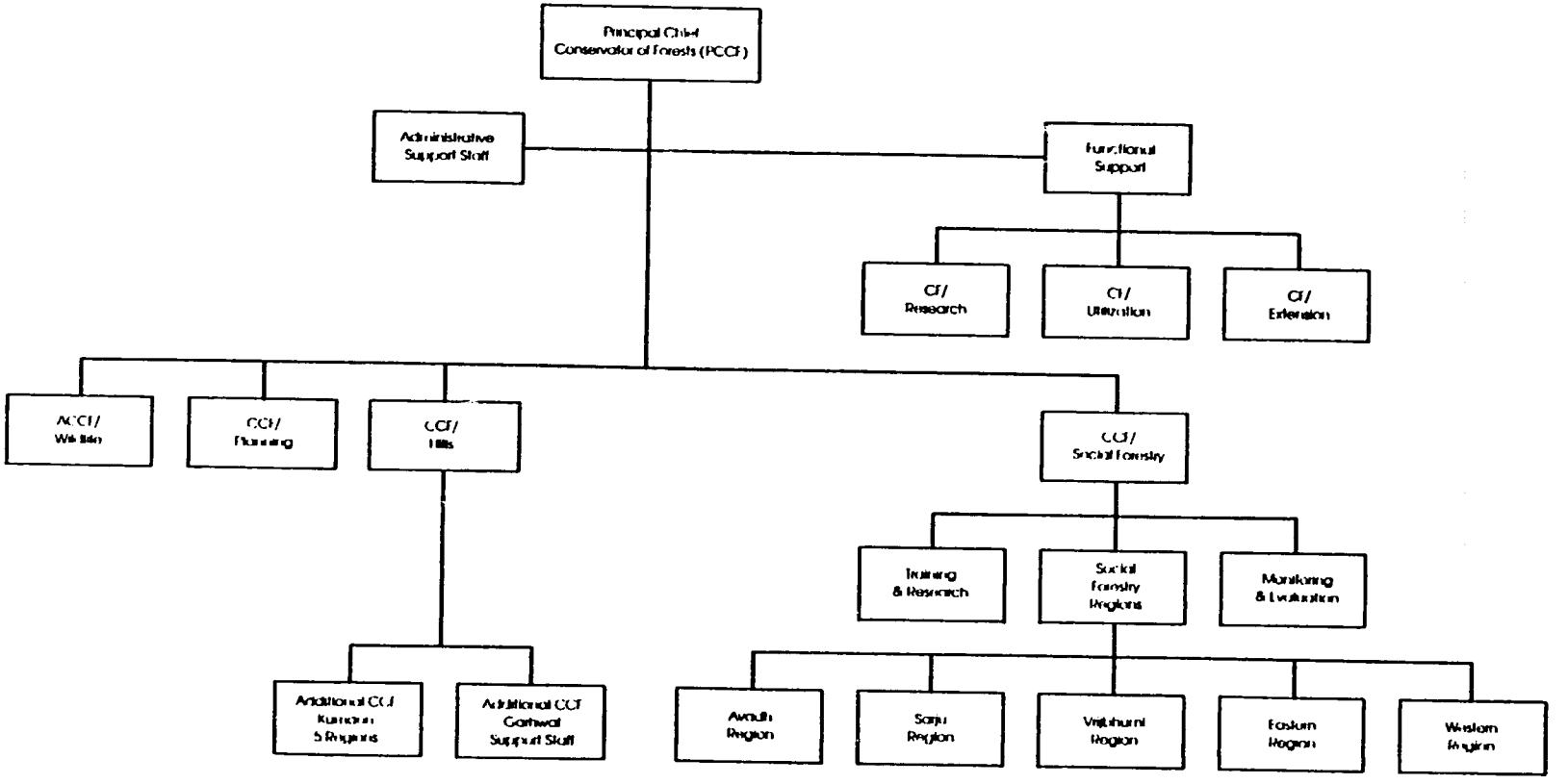
14. Besides the above inservice courses for staff the Department would provide training camps for farmers, voluntary groups, forest societies, etc., of a average of three days duration.

Table 1

TRAINING FACILITIES IN UTTAR PRADESH

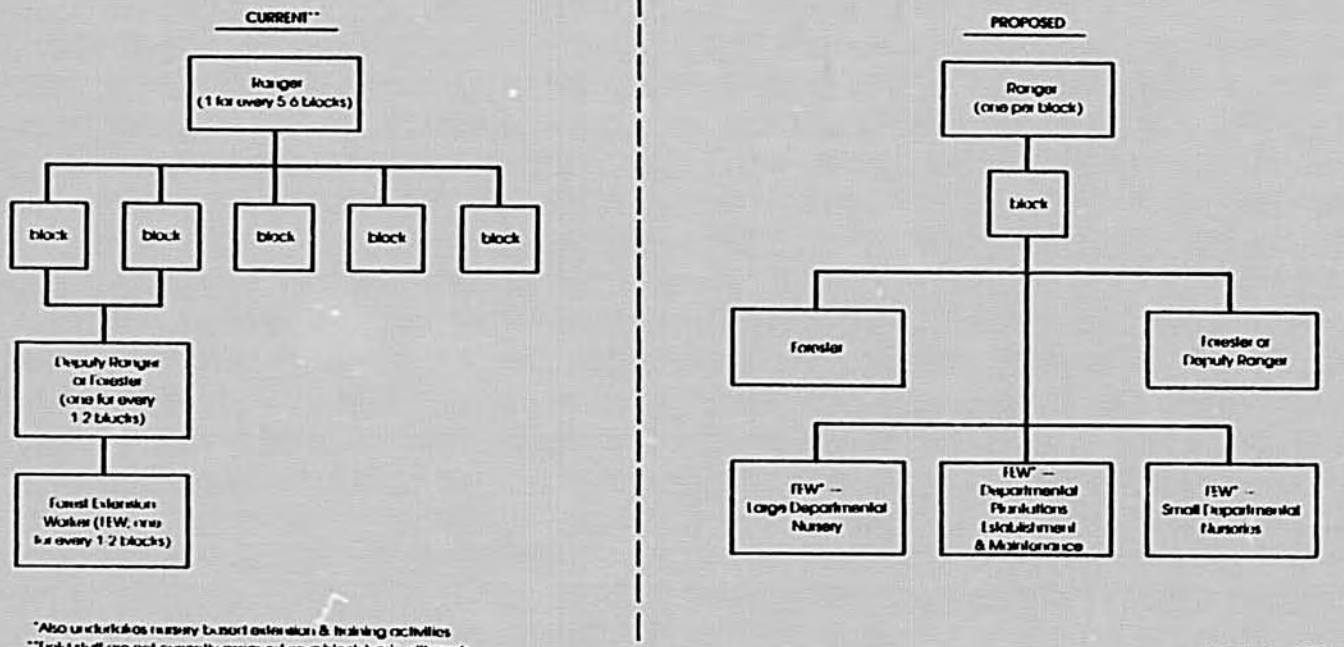
Level of Trainee	Location/Name of Center	Social - S or Territorial - T	Civil Works Position	Duration of Trg. (month)	Capacity Trainees Per Year
1- Rangers	State Forest Ranger College, Haldwani	T	Complete	12	70
2- Rangers	Social Forestry College, Lucknow	S	Proposed	12	100
1- Foresters	Forest Training School, Haldwain (hills)	T	Complete	11	30
2- Foresters	Kanpur (plains)	S	Complete	11	30
3- Foresters	Agra	S	In tents	6	40
4- Foresters	Bareilly	S	In tents	6	40
5- Foresters	Pratapgarh	S	In tents	6	40
1- Guards/ FEW	Almora	T	Complete	9	30
2- Guards/ FEW	Gorkhpur	T	Complete	9	30
4- Guards/ FEW	Mirzapur	T	Complete	9	30
5- Guards/ FEW	Azamgarh	S	50% done	6	40
6- Guards/ FEW	Agra	S	50% done	6	40
7- Guards/ FEW	Meerut	S	In tents	4	60
8- Guards/ FEW	Pratapgarh	S	In tents	4	60
9- Guards/ FEW	Kanpur	S	In tents	4	60

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Current Forest Department Organization
Uttar Pradesh State
Organizational Chart



World Bank - 27212

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Block Level
Organizational Norms for Field Staff
Uttar Pradesh State
Organizational Chart



*Also undertakes nursery based extension & training activities
**Field staff are not currently assigned on a block basis, although they will be in the proposed organization

World Bank - 27199

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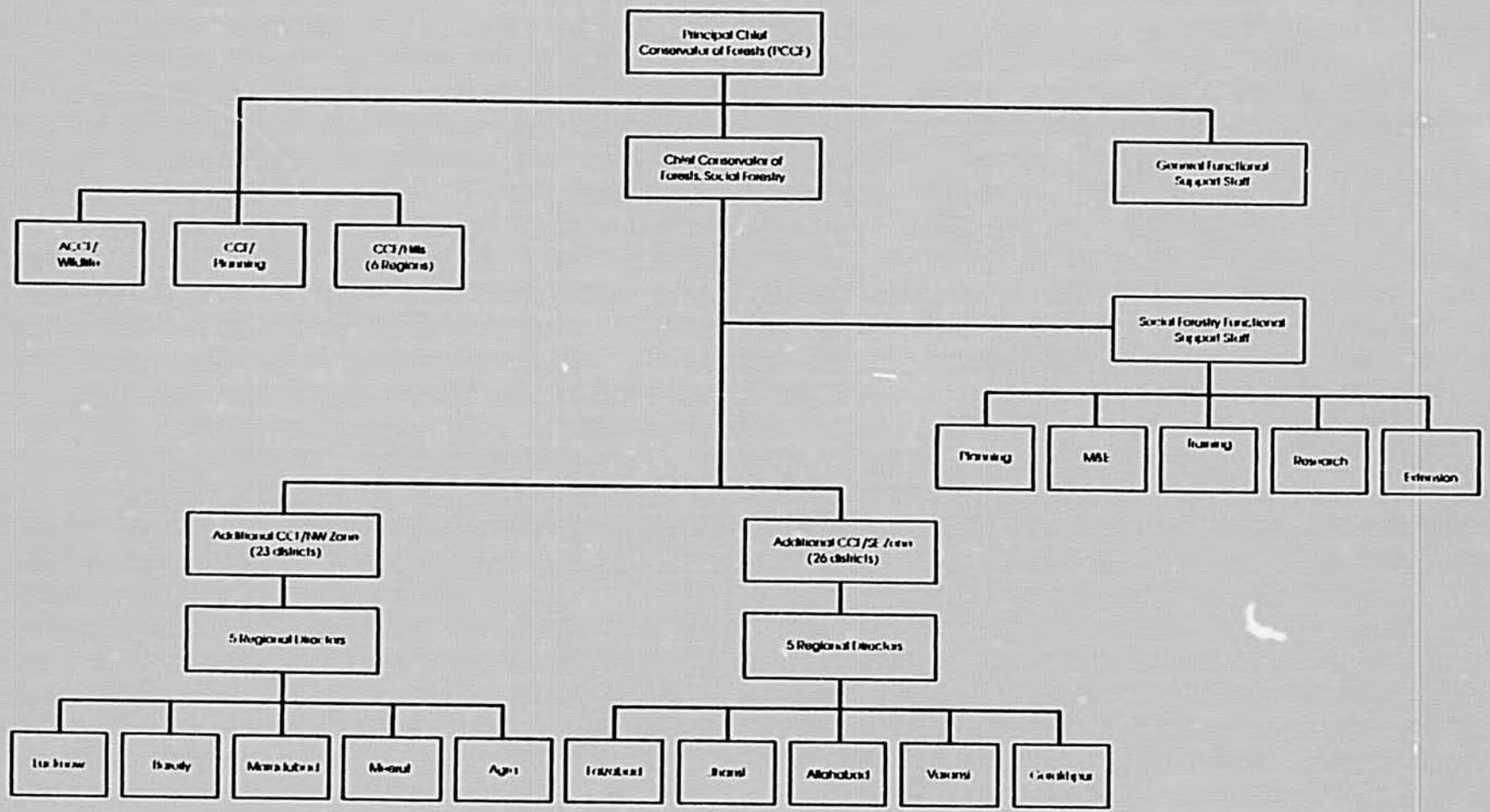
INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Proposed Forest Department Organization
Uttar Pradesh State
Organizational Chart



Organizational Chart 2

World Bank - 27197

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Organization and Training, Rajasthan State

State Organization

1. The state is divided into 27 districts, each having an elected local body called "zila parishad" which coordinate development activities and set priorities for the district. These 27 districts are further divided into 236 blocks, called "Panchayat samitis"; these are in turn divided into 7292 gram panchayats.

Current Organization in Forestry

2. The state is divided into 7 territorial forestry circles, each under the charge of a Conservator of Forests. There are about five divisions under each circle, with a total of 34 territorial forestry divisions in all. The forestry divisions generally follow the state district lines geographically except for one forest division which includes two districts (Bharatpur and Dholpur), and five districts with so much forestry activity that they include two or more forestry divisions (Kota-2, Jaipur-2, Udaipur-2, Bikaner- 3, Ganganagar-4).

3. As social forestry has been introduced over the past few years, the existing territorial staff have taken on that work in addition to their regular duties. In some areas where state forest land is scarce, forestry staff have naturally tended to devote a larger proportion of their time to social forestry. The current Forest Department organization has a Chief Conservator of Forests at its head, assisted by two Additional Chief Conservators of Forest, one each in charge of the Western region which is largely desert, and the Eastern region which includes plains areas in the East down to tribal hilly areas in the South, and is where social forestry has been primarily introduced.

4. In the field, a Deputy Conservator of Forests heads each division, and is assisted by an Assistant Conservator of Forests. For Eastern Region field staff, there are currently 135 Rangers, 549 Foresters and 2132 Forest Guards for 19 divisions. On average for the state, a forest division has about 4-6 Rangers, 15-20 Foresters, and 60-70 Forest Guards, depending on the forest area and departmental work load.

5. Under centrally sponsored schemes, the State has planted about 173,000 hectares under social forestry during the Sixth Five Year Plan period. An additional 50,000 hectares came under State schemes during that time (see Table 2). Overall expenditures for social forestry during the Sixth Plan amounted to about Rs. 250 million. The Forest Department has implemented most of the centrally sponsored and all of the State-run schemes.

Proposed Organization

6. The Preparation Report submitted by Rajasthan calls for supplementing the existing Forest Department staff, by creating a new line of Rangers, Foresters and Guards specifically for social forestry work; these Guards would be called "Village Forestry Workers" (VFW). The other field staff, designated as "territorial", would focus primarily on traditional production and protection for reserved/classified forestry, but they also might devote about 30% of their time to social forestry. According to the proposal, the designation of staff would be decided by the mix of territorial and social forestry in a given area. Staff would be assigned along block lines, with some areas demarcated for social forestry and others for territorial work. The existing DFO and his ACF would supervise the existing staff working in the territorial areas, and a new "Project Officer/Social Forestry" in the rank of a state cadre DCF would directly supervise the new staff working in social forestry areas. The "Project Officer" would answer to the DFO of the given division (see Organizational Chart 2-b).

7. The project would take place in the Eastern region, which encompasses 16 districts and their 155 blocks. The region could be divided into four circles, each administered by a Conservator of Forest. Each cicle would cover about 4 districts which correspond to about 5 Forest Divisions. At full staffing, the organization at the block level would look something like this: one Ranger for every two blocks; about four Foresters per Rangers, and 5 Guards/VFW per forester (see Organizational Chart 2-b). It was discussed whether it would be wise to establish a completely separate social forestry wing, as has been done in some other states, or whether to stay with an organization which maintains a single line of command from the DFO (division) through the Conservator (circle). It was decided to go along with the latter type of organization, since establishing a separate social forestry wing would create redundancies in staffing (eg., one territorial DCF and one development DCF in each district); furthermore the divisions between strictly territorial plantations and social forestry plantations are not that clear, since classified and unclassified forests in territorial forestry provide for many of the same social benefits and community relationships as social forestry's departmental plantations. The addition of field staff under the project would only account for a 29% increase over existing field staff levels; the Preparation Report did not request funding for any of the existing staff.

8. In headquarters, a Social Forestry Wing would be established, to be headed by a "Director/Social Forestry" in the rank of Chief Conservator of Forests (see Organizational Chart 2-c). For functional support, there would be three offices, for Planning, Monitoring and Evaluation; Extension and Communications; and Woodlots Planning. A Conservator would head the Planning, Monitoring and Evaluation Office, and would also supervise 4

DCF/PCEM, one located at each circle level. The DCF/PCEM would be responsible for advance site planning and identification collection of M&E data, and assistance in special studies. The Extension and Communications Office would generally supervise coordination with the Training and Visit System, and operation of the Van Chetna Kendra (VCK, awareness centers) located in each district. However, direct supervision of VCK would come from the DFO; in cases when there is more than one Forest Division per district, the nearest DFO would supervise the VCK. The ranger in charge of a given VCK would also be responsible for acting as a Forestry Subject Matter Specialist in conjuction with the Training and Visit System (next paragraph). The Woodlots Planning Office would come into being during the third year of the project, and would help develop plans for distribution of benefits at the local level.

9. The appraisal mission strongly encouraged a close coordination with the Training and Visit System of agricultural extension, and noted that a the World Bank financed project supporting this System was just going into its second phase in Rajasthan. During a meeting between Forest Department, agricultural extension, and appraisal mission representatives, the agricultural extension officials voiced support for coordinating with social forestry activities. Forestry officials will appoint the Rangers in charge of the VCK (para. 8) to serve as Forestry Subject Matter Specialists which would mean they would attend the agricultural extension's monthly planning meetings at which recommendations are formulated, and assist in the training of Village Extension Workers (who would disseminate the recommendations and provide feedback) during the regular fortnightly meetings. A Government order endorsing coordination between forestry extension and the T&V system would be issued before negotiations. The mission stressed that the revision of lending and travel allowance regulations for vehicles was essential in order to facilitate adequate field staff mobility. GOR would need to sanction travel allowances which permit unrestricted travel, consistent with other Government staff. Vehicles would be provided at al levels; GOR is presently deciding the method by which it would provide bicycles for Foresters and VFW - whether by loan arrangement or direct provision.

Training

10. There are two forest training schools in the state for basic instruction of Foresters and Forest Guards. While the one in Jodhpur caters mainly to the needs of Western Rajasthan, the one at Alwar serves the Eastern part of the state. At Alwar, the Forest Department has proposed in its Preparation Report that a social forestry annex be added. However, during the appraisal mission, it was decided that there should be one more school at Jaipur because of greater inservice training needs. Locating the school at Jaipur would profit from the city's proximity to government agencies whose staff could be requested to assist in lecturing.

11. The Forest Department has revised its curricula generally to include more subject matter relevant to social forestry. The old curricula contained little on nurseries, seed collection and storage, and extension methodology. Revised curricula include these, plus lectures on preparing village level forest management plans. The mission urged that the Forest Department begin immediately providing solid orientation on social forestry to existing staff through inservice courses, and initial basic training to new recruits, through whatever existing institutions could handle the training (rather than waiting for a social forestry school to be built).

12. The Department would develop various other inservice training to build staff skills for social forestry. Courses would include:

(a) Inservice training to supplement the basic training of field staff, which would include social forestry courses which all social forestry staff must attend, plus induction sessions on basic forestry technology for new recruits; for VFW, this would include a one month social forestry course, and a 15-day induction section; for Foresters, this would involve a two month social forestry course and a one month induction session; and for Rangers, there would be basic instate social forestry training, supplemented in some cases with training at institutes in other states.

(b) Extension and Communications courses for Rangers, Foresters and Village Forestry Workers with faculty members drawn for the Forest Department as well as the Gram Sewak Training Centers and other institutions such as Extension Education Institute (Nilokheri, Haryana, which has already trained staff for the Haryana Social Forestry Project);

(c) Training of Trainees, to be conducted at institutes such as the Extension Education Institute (Nilokheri) and/or Anand (Gujarat), and to include curricula in extension methodology, teaching methods and most recent developments in social forestry;

(d) Training of Rangers to act as Forestry Subject Matter Specialists in forestry extension and to participate in the Training and Visit System of agricultural extension;

(e) Orientation courses of senior staff, and for DCF/ACF field level supervisors; training would range through technical models for social forestry, species selection, formulation of agreements with panchayats/villages, distribution of benefits, etc; These would be 3-5 day intensive sessions, and might draw on practicioners or instructors outside the State;

(f) Study tours, domestic and international; it was agreed that visits to other States with social forestry programs should be stepped up, in particular States with similar agro-climatic conditions (eg.) or components (eg. West Bengal group farm forestry). ACFs and DCFs would be sent to domestic University courses, such as the new six months diploma course in social forestry at Dehra Dun. Other courses could be identified for staff, such as the upcoming ICRAF course on agroforestry to be provided through ICAR. On the international side, the project would provide for visits to other countries with relevant social forestry programs, eg. an exchange tour between International study opportunities could include courses such as: the social forestry summer course at Oxford, which includes project preparation, management and accounting, social forestry approaches, and research (eg., the project planning courses at Bradford and the university of East Anglia and the four months research course at Oxford);

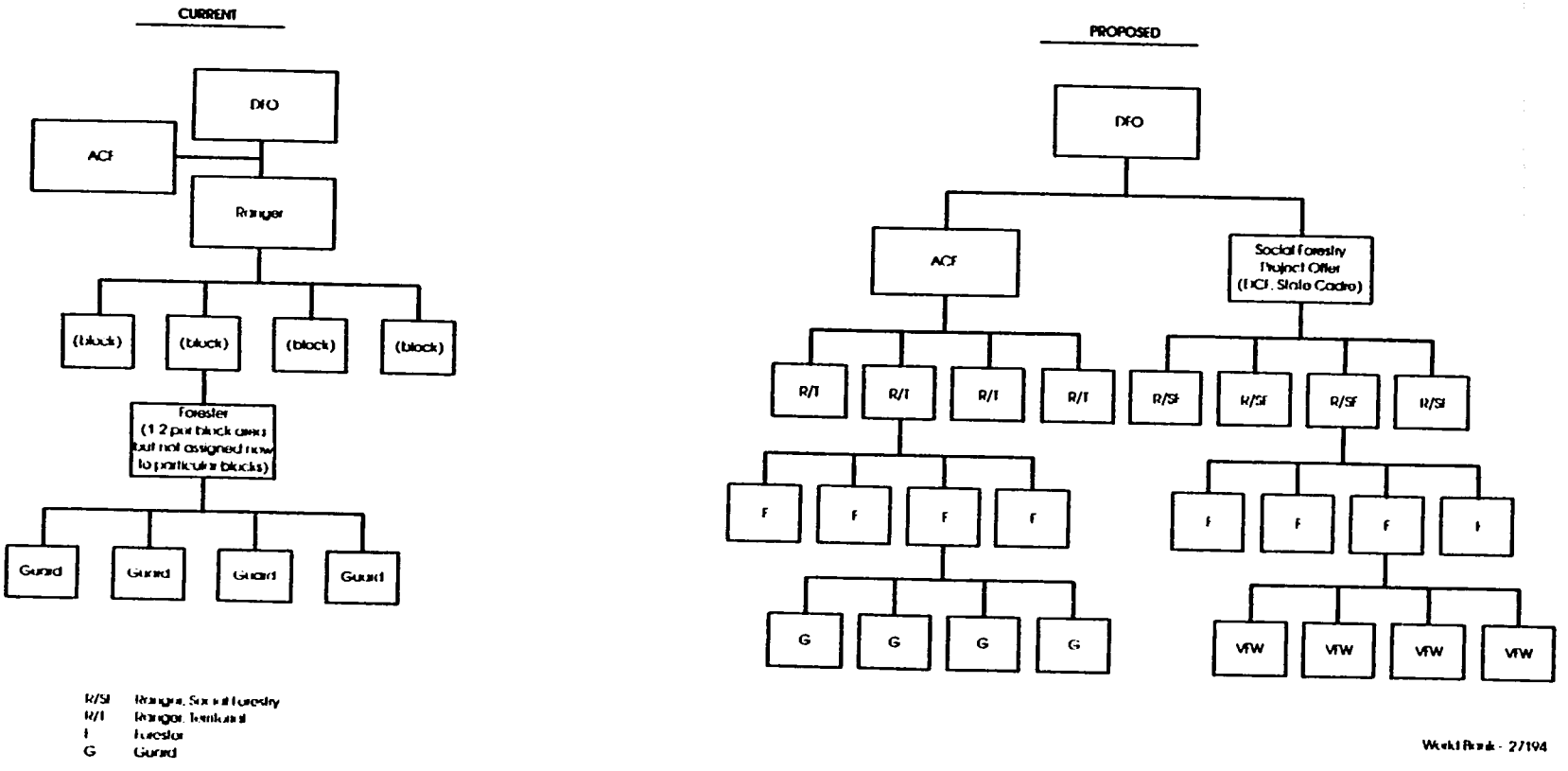
(g) Monitoring and evaluation courses on both methodology and use of micro-computers; any new director of M&E for social forestry should receive such training;

(h) Courses for field level staff engaged in collection of data for M&E and in conducting of special studies; and

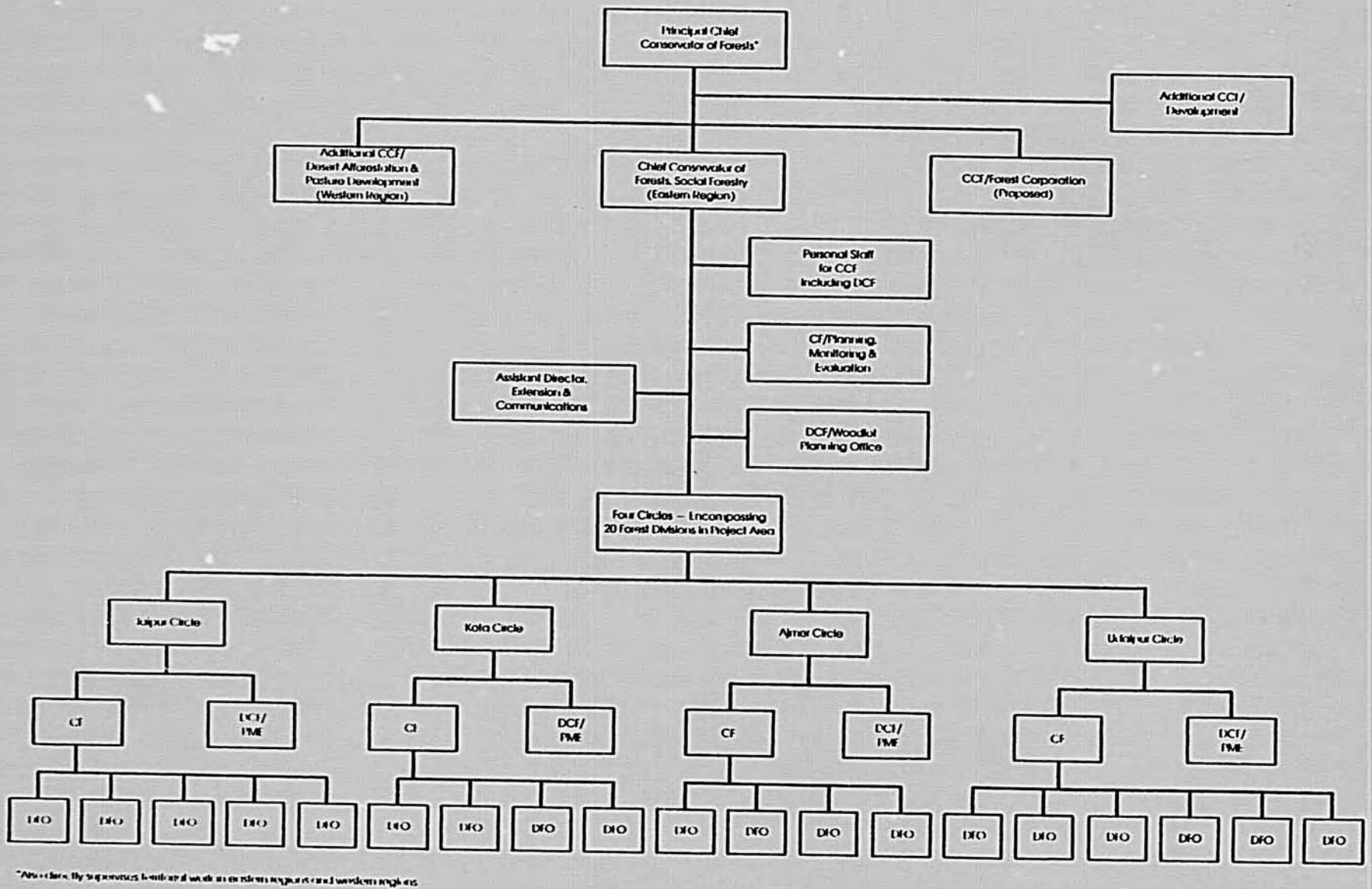
(i) Training for nursery staff including malis in extension techniques and recommendations for farmers.

13. Besides the above inservice courses for staff the Department would provide training camps for farmers, voluntary groups, etc., of an average of three days duration.

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Block Level
Organizational Norms for Field Staff
Rajasthan State
Organizational Chart



INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Proposed Forest Department Organization
Rajasthan State
Organizational Chart



*Also directly supervises horticultural work in eastern region and western region

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Organizational Chart 3

Organization and Training, Gujarat State

State Organization

1. Two types of organization exist under State government. First, the administrative boundaries for revenue and police operations follow the taluka system. There are 184 talukas, each encompassing about 80-110 villages. The panchayat system follows taluka lines. The second type of organization, which follows completely different boundaries from the first, divides the state into 218 blocks, figured according to population. Development activities such as agricultural extension and the Integrated Rural Development Program follow the block boundaries. (Both types of organization follow district boundaries). There are 19 districts in the state.

Current Organization in Forestry

2. Forest department organization differs yet again from the above state organizations, although Rangers are assigned to talukas. The state as a whole is divided into five circles for forestry purposes. Following the suggestion by Government of India several years ago that a separate social forestry wing be established by state, the Gujarat Forest Department is divided into territorial forestry and social forestry. More than half the districts have both a Territorial DCF and an "Extension" (social forestry) DCF. However some districts have an Extension DCF only (Ahmedabad, Kheda, Rajkot and Mehsana); some have more than one Territorial DCF (Sabarkantha and Panchmahal). Sometimes the Territorial and Extension DCFs are located in the same place, but sometimes the Territorial DCF is located near an afforested area and the Extension DCF is headquartered in to district capitol. Each Extension DCF has two ACFs assisting him; these ACFs divide the talukas in the district between them. Thus, if a district has 10-12 talukas, each ACF presides over 5-6 of them. (see Organizational Chart 3-b). In each taluka, there are about 2 Rangers, each of whom supervises approximately three Foresters and two Guards.

3. Presiding over forestry generally is the Secretary of Forests and Environment. The Forest Department is headed by a Principal Chief Conservator of Forests (see Organizational Chart 3-a), who oversees the work of three Chief Conservators in charge of development and management of natural forests, environment and wildlife, and social forests. Support activities including training, extension and publicity, and research currently fall under the primary supervision of the Principal Chief Conservator, and provide assistance as required to each of the Chief Conservators. There is a separate unit for training, research and communication in the Community Forestry Wing as well, headed by a Conservator of Forests.

4. During 1980-84, the World Bank has financed the first phase of a social forestry project in the state, with a credit of $37.0, or 50% of total project costs. The World Bank project has accounted for about 275,000 hectares of plantation, including farm forestry. Over and above this figure, additional plantations have occurred during the Sixth Five Year Plan period under centrally sponsored schemes (about 79,000 hectares) and State-run schemes (about 105,000 hectares). Thus, during the Sixth Plan period, social forestry has achieved a total of about 459,000 hectares of trees planted, accounting for an expenditure of nearly Rs. 1,428 million. The Forest Department has implemented most of the centrally-sponsored and all of the state-run schemes.

Proposed Organization

5. The Preparation Report submitted by Gujarat suggested that staff numbers should be increased because the level of social forestry activity has been much higher than was anticipated during appraisal of phase one, and as a result, staff have lacked the time to do extension and ensure good quality performance.

6. The state feels that plantation and extension work should be separated, noting that the former tended to take precedence in staff time in phase one. A typical taluka organization would have two Rangers, one for Plantation (social forestry strip plantations, village woodlots, etc.) and the other for Extension (farm forestry) (see Organizational Chart 3-b). The Plantation Ranger would have about five Foresters under his supervision, each responsible for about about 33 hectares of new plantation each year, plus maintenance of about 50 hectares of old plantations up to the fourth year, and supervision of a Guard's protection of about 450 hectares of older plantations. When harvesting of social forestry plantations and distribution of produce/benefits begins, that would also be the responsibility of the Plantation Ranger. Social forestry will have a much higher number of old plantations to manage during phase two than it did before (over 150,000 ha.), which must be responsible for some of the proposed staff increases. The Extension Ranger would have around two Foresters and a Lady Protection Assistant under his supervision; each of these Extension Foresters would distribute up to half a million seedlings, supervise at least five kissan nurseries and 2 school nurseries, help draw up agreements for village woodlots, and "motivate farmers". The Lady PA, working at a Guard level, would assist in farm forestry and also motivates the women in her area to use fuel-efficient chulas (wood burning stoves).

7. Headquarters organization would remain basically the same (see Organizational Chart 3-c), except that an additional circle would be added and some changes made in functional support. The Conservator for Monitoring and Evaluation will be raised to the rank of an Additional Chief Conservator of Forests. There had been a proposal for instituting the

post of CF/Planning for Phase III; the mission recommended and has continued to favor expanding the post to CF/Planning and Distribution, given the concern with how wood products will be distributed once trees mature.

8. Of all the states with social forestry projects which have been encouraged to provide some coordination between social forestry extension and agricultural extension, Gujarat appears to have gone the furthest. Forest Department representatives have begun attending the monthly planning meeting held by agricultural extension for formulation of recommendation, and they have also begun to attend some of the fortnightly training sessions for Village Extension Workers to train VEW in forestry recommendations to be disseminated to farmers. The mission has suggested that staff of the Ranger level be designated to attend the meetings and training, acting as Forestry Subject Matter Specialists, to ensure adequate forestry expertise; perhaps the Extension Rangers should perform this role once they are in place.

Non-Governmental and Voluntary Organizations

9. Considerable strides have been made in Gujarat in coordinating social forestry activities with non-governmental and voluntary organizations. The Nehru Foundation located in Ahmedabad has been particularly active in serving as a kind of apex organization for getting small village/taluka/distri ct based groups involved, running seminars and orientation sessions involving Community Forestry staff.

Training

10. One of the nine training institutes for Rangers is located in Gujarat at Rajpipla, with a capacity of 40 students per year. Additional facilities are now being added at the school for training of Assistant Conservators of Forests, with a capacity of about 40. Foresters are trained at the Foresters' Training Center in Kakarapar which has a capacity of about 360 per year, and Guards are taught at the Guards Training School in Dangs which has a yearly capacity of about 240.

11. Inservice training has been run intermittantly at the Rajpipla School, when existing trainees are out on field tour because of space constraints; otherwise accommodations must be found in the town. Since the amount of inservice training should increase, GOG will add extra dormitory facilities and another instructor at DCF level at Rajpipla.

12. Inservice training would show an important role in supplementing and updating the skills of existing staff. Key in-services courses would include:

(a) Extension and communications, as mentioned above with faculty members drawn for the Forest Department as well as institutes such

as the Gram Sewak Training Center (Mashobra) and Extension Education Institute (Nilokheri, Haryana Social Forestry Project); three courses were already planned for February and March 1985;

(b) Training of Trainees, to be conducted at places such as the Extension Education Institute (Nilokheri) and/or Anand (Gujarat), and to include curricula in both teaching methods and most recent developments in social forestry;

(c) Training of Rangers to act as Forestry Subject Matter Specialists in agricultural extension for the Training and Visit System;

(d) Orientation courses of senior staff, and for DCF/ACF level field supervisors; training would range through technical models for social forestry, species selection, formulation of agreements with panchayats/villages, distribution of benefits, etc; these would be 3-5 day intensive sessions, and might draw on practicioners, or instructors outside the State;

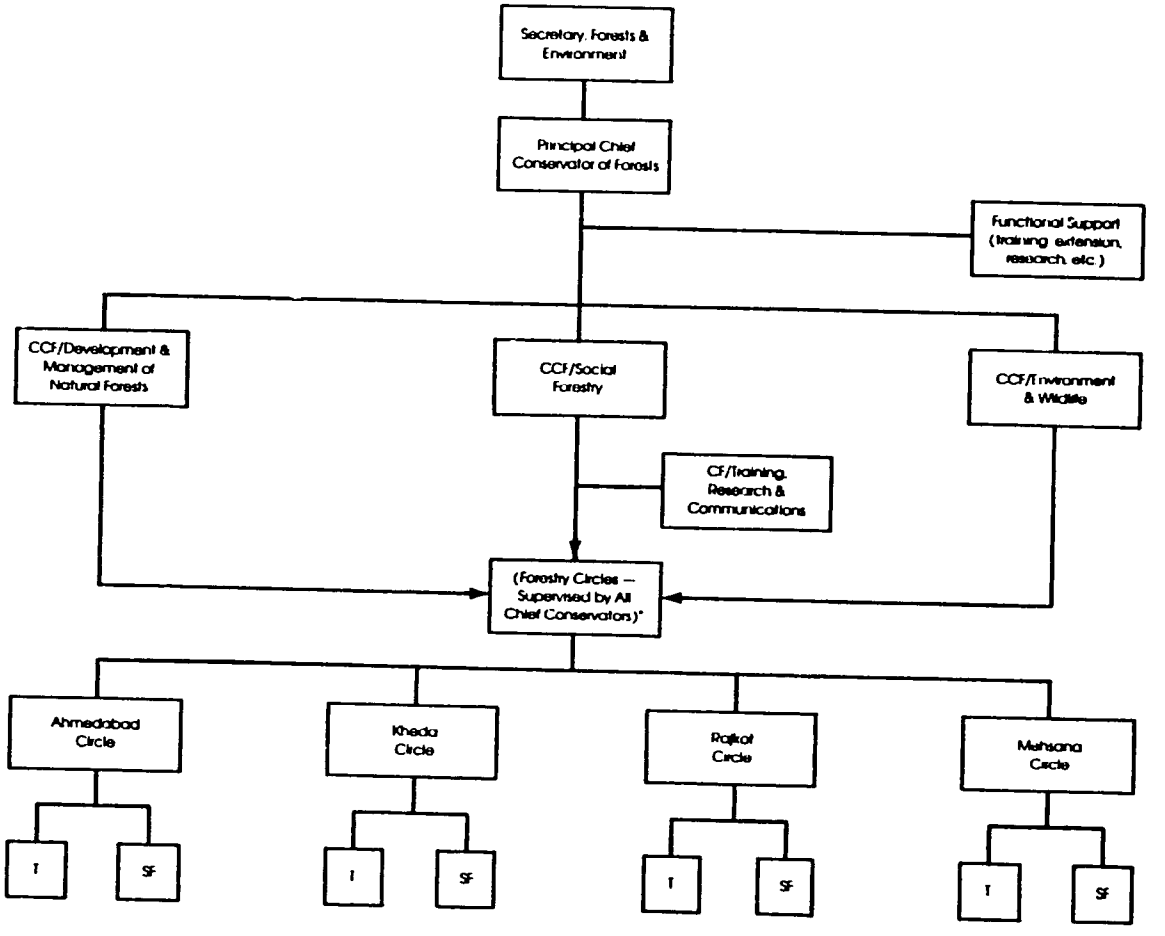
(e) Study tours, domestic and international; it was agreed that visits to other States with social forestry programs should be stepped up, in particular States with similar agro-climatic conditions or components. ACFs and DCFs would be sent to domestic University courses, such as the new six months diploma course in social forestry at Dehra Dun. Other courses could be identified for staff, such as the upcoming ICRAF course on agro forestry to be provided through ICAR. On the international side, the project would provide for visits to other countries with relevant social forestry programs. International study opportunities could include courses such as: the social forestry summer course at Oxford, which includes project preparation, management and accounting, social forestry approaches, and research, the project planning courses at Bradford and the University of East Anglia; and the four months research course at Oxford.

(f) Monitoring and evaluation courses on both methodology and use of micro-computers; any new director of M&E for social forestry should receive such training; and

(g) Training for new nursery staff in extension techniques and recommendations for farmers (besides technical skills).

13. Besides the above inservice courses for staff the Department would provide training camps for farmers, voluntary groups, forest societies, etc., of a average of three days duration.

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Current Forest Department Organization
Gujarat State
Organizational Chart



Note that each circle & district has both a territorial (T) side & a social forestry (SF) side below the district level, T & SF organizations are separate & often incongruent geographically

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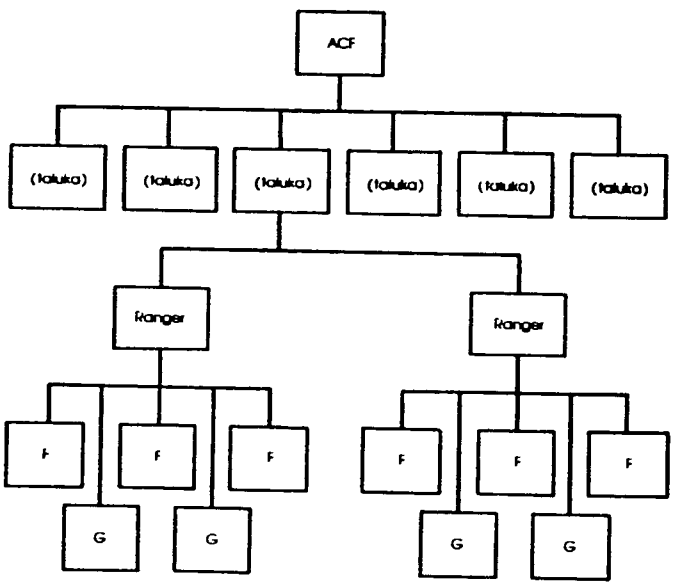
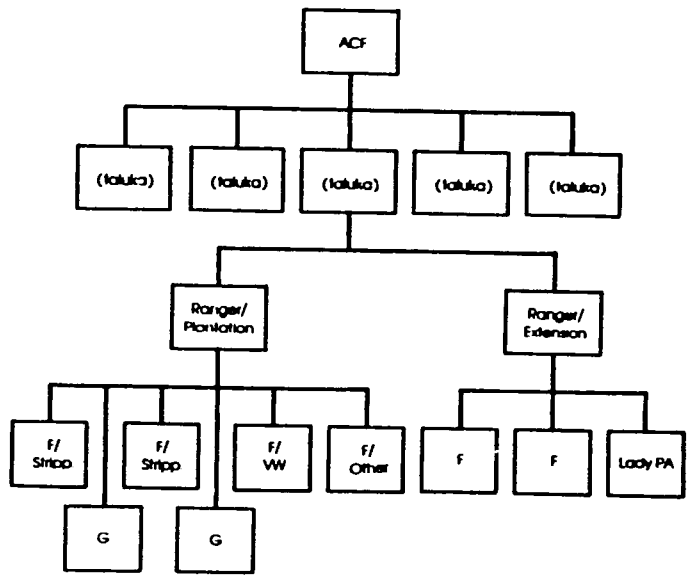
INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Taluka Level
Organizational Norms for Field Staff*
Gujarat State
Organizational Chart

CURRENT



*Field staff organization follows the "taluka" lines somewhat, but the "block" lines not at all.

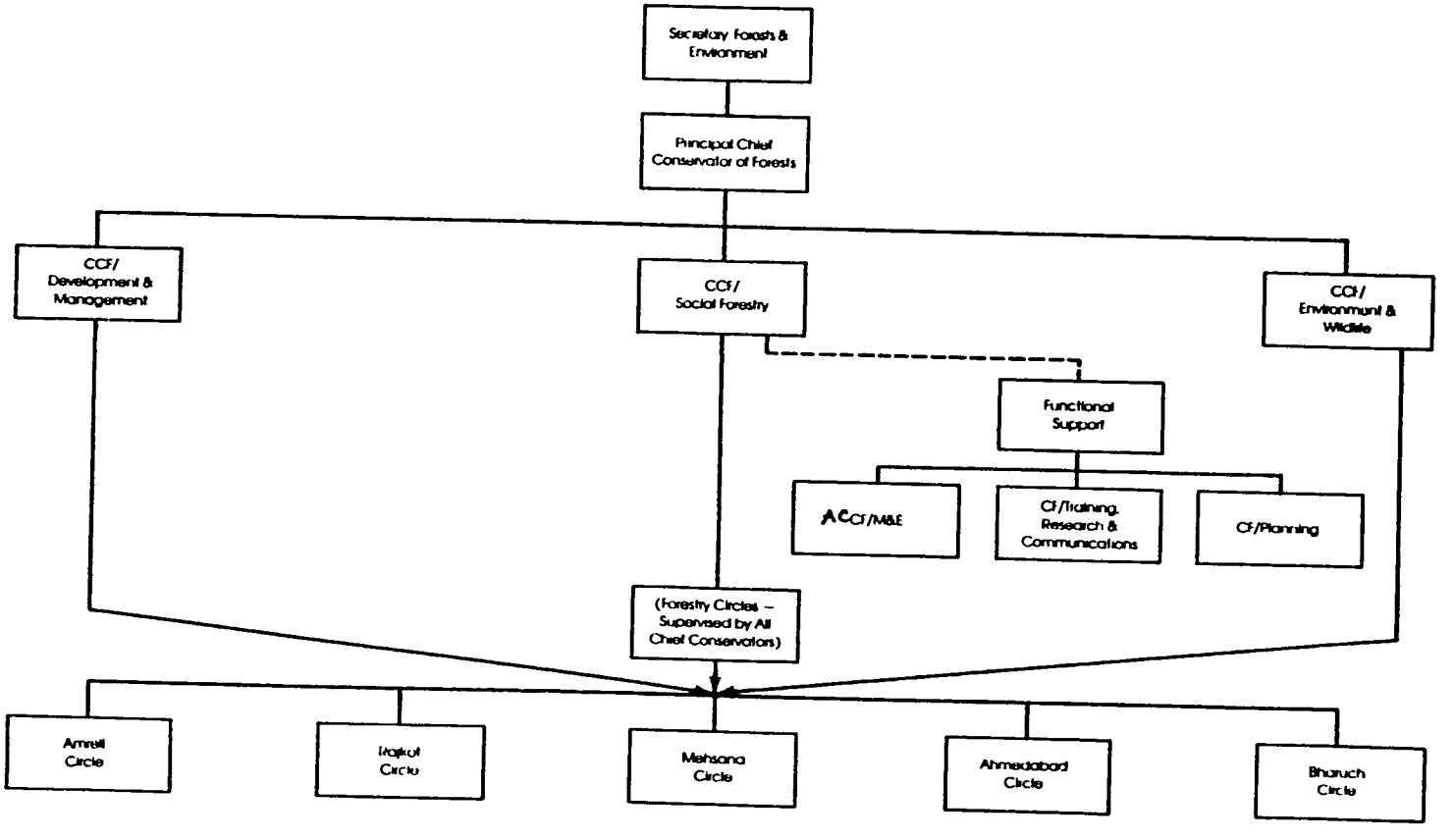
PROPOSED



**F = forester, G - guard, Stripp = strip plantations; VW - village woodlots; Lady PA - lady protection assistance (guard)

World Bank—27195

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Proposed Forest Department Organization
Gujarat State
Organizational Chart



World Bank -27193

Organization and Training, Himachal Pradesh State

State Organization

1. Administratively, the State is divided into 12 districts, 69 Panchayat Samitis and 2,357 Gram Panchayats. For rural and community development, there are community development blocks, which follow the same geographic lines as Panchayat Samitis. Most recent figures (1971 Census) show 16,916 villages in the State or about seven villages per Gram Panchayat. Forest Department organization does not follow the administrative boundaries.

Current Organization in Forestry

2. In May 1984, the Soil Conservation Department was merged with the Forest Department, with the result that the number of field units was increased. Although each field unit consequently emcompasses less territory than before, it is responsible for both forestry and soil work (combined).

3. On the side of territorial forestry, the state is divided into eight Forestry Circles (see Organizational Chart 4-a), each headed by a Conservator of Forests. These Circles are further subdivided into 37 Forest Divisions and 160 Forest Ranges, in other words, each Circle contains approximately 4-5 divisions and about 20 ranges. For the 597 Forest Blocks (which number about four per Range), there is one Deputy Ranger assigned to each block this Territorial Forestry Organization has done and will continue to the plantation work for social forestry.

4. An additional Chief Secretary who also acts as Secretary of Forests presides over forestry activities. Under him, there are the three Chief Conservators of Forests, one each for Territorial, Planning and Development, and H.P. Forest Corporation. The CCF/Planning and Development is responsible for working plans, Project formulation, Monitoring and Evaluation, Soil Conservation Functions, Training, Research and Wildlife. For research, the Forest Department coordinates with the Forest Research Institute (Dehru Dun) and H.P. Agricultural University (presently headquarters at Palamur with a Campus at Solan).

5. During the Sixth Five Year Plan, the Forest Department undertook plantation of some 27,351 ha of social forestry plantations under centrally sponsored schemes. Moreover, the State accomplished some 33,751 social forestry ha. of plantation. Besides these plantation achievements, the State and Centrally Sponsored Schemes helped establish nurseries, of the 1908 nurseries operating in the State, about 60% have been connected with the social forestry schemes. Total social forestry expenditure during the Sixth Five Year Plan period amounted to Rs 153.16 (not counting central Government's share of financing in centrally sponsored schemes).

6. Himachal Pradesh has a long-established system, which stipulates the benefits which must be given to the local population in terms of grass, leaf fodder, fuelwood loppings and mature wood products. Furthermore, a system of Forest Societies was institutionalized in Kangra about 40 years ago which still exists and could be revived. The distribution and Forest Society Institutions are described in detail in Project file Item _____ . The implication of these systems is that territorial forestry already has a strong social flavor.

Proposed Organization

7. The Preparation Report by Himachal Pradesh (Project File, Annex 9) suggested that social forestry plantation work -- which has been done to date by field state on the territorial side -- continue to be done by existing territorial staff. The social forestry physical work would comprise the large proportion of the total workload for these staff, which the Forest Department estimates to be a reasonable level of work for them. The Preparation Report also recommends adding staff to help strengthen the social forestry program through the following activities: (a) formulation of agreements with villages/panchayats for allocation of responsibilities and distribution of benefits (b) identification of areas for group farm forestry sites, (c) extension and promotion, (d) operation for distribution of benefits, and (e) collection of data for wood supply and demand study, and monitoring and evaluation as required.

8. The Bank endorsed the idea of having territorial staff continue to do social forestry plantation work. Forest Department has given assurances that it would increase the staff according to workload.

9. Government of Himachal Pradesh would maintain a single line of command for field staff, even the Additional Chief Conservator of Forests/Social Forestry. The Additional Chief Secretary (cum Secretary of Forests) made clear that the Conservators of Forests and Deputy Conservator of Forests who head the forestry circles and divisions of field staff would maintain a single line of command over both plantation and Extension Field Staff. The Chief Conservator of Forests/Territorial and Chief Conservator of Forests/Planning and Development would issue directives and receive feedback in their relative fields of responsibility, according to the Additional chief Secretary, and a Steering Committee 1/ would coordinate activities and adjudicate any conflicts in directions. The Committee would meet at least once a month.

1/ Composed of himself, and at least the CCF/Planning and Development and CCF/Territorial.

10. Organizational Chart 4-b shows the deployment of field staff currently and as proposed, according the Forest Block level norms. Every block has one territorial Deputy Ranger assigned to it for plantation work, adding up to about 16 presently Rangers per district. But there would be only 2 Rangers and 2 Deputy Rangers for Extension added under the new organization to each district. It was stressed that there must be close coordination between these plantation and extension field staff. At minimum, they should be assigned to contiguous geographic areas. Another element of coordination could come through clear setting of relative targets and priorities during planning; the relative directions for territorial and social forestry work would be detailed in the Working Plan and Annual Plan for each division. A third element in coordination would be a detailed statement of job responsibilities for each category of staff (for example within the Ranger level, there would be job descriptions for both plantation Rangers and Extension Rangers).

11. It was recommended that this staffing configuration be re-evaluated at the time of the mid-term review, since experience in the next three years may show that certain adjustments would be desirable.

12. Social forestry extension would continue to be primarily a Forest Department responsibility, with Extension Field Staff responsible for the main contacts with individuals and villages/panchayats. It has been suggested that the number of small nurseries be increased in order to spread the access of social forestry (especially since access is hampered because of the difficult terrain in Himachal Pradesh). The nurseries, especially these small ones, would become focal points for extension, where planting would be promoted and advice given to individuals and villages/panchayats. In addition to these things, the possibility of coordinating with agricultural extension was discussed capitalizing on the large field staff of the latter. The suggestion was made that, once the Training and Visit System is introduced, organizational arrangements would follow those in other states, described as follows. In order to formulate forestry recommendations and train agricultural extension field staff about them, Forest Department would appoint certain of its Rangers as Forestry Subject Matter Specialists; the Rangers/Extension would be prime candidates. These Forestry Subject Matter Specialists would attend agricultural extensions monthly subdivisional meetings at which upcoming recommendations are decided, and the fortnightly training sessions at which the Village Extension Workers (VEW) for agricultural extension are trained. The Village Extension Workers would only carry information, and would not deal with seedling distribution or other inputs; they would refer farmers to appropriate Forest Department locations for inputs. Besides the extension means listed above, other media would include schools (seedling programs and additions to usual syllabus), radio announcements, posters and brochures, farmers fairs, etc. It has been stressed that mobility of field staff will be essential for social forestry extension work, therefore the project would provide motorcycles

to be sold on loan to Rangers and Deputy Rangers, of whom must cover rough terrain about 800 sq.km.

Training

15. As in other states, basic training currently occurs at Dehra Dun for IFS (DCFs, ACFs), and at State Schools (ACFs, Rangers). The State has a well equipped Forestry Training School of its own at Chail (near Shimla) for basic training of Forester (Deputy Ranger) and Guard level staff.1/ The School has one D.F.O. and 3 ACFs instructors on staff, and facilities adequate to accommodate more than the current basic training load; in other words, there is excess capacity, which is good because this School can also cater the inservice training.

15. It has been agreed that curricula for basic training of Deputy Rangers and Guard level staff require some revision. The relative number of lectures devoted to "Social" topics versus purely technical topics (eg. surveying; law enforcement) would need to increase. An Extension and Communication curriculum has already been developed (See Attachment).

16. Inservice training would play an important role in supplementing and updating the skills of existing staff. Besides any such training which could be scheduled at Chail, other courses could be offered at the Training Center at Mallan (near Palampur), or other facilities could be borrowed from the University campus depending on availability of accommodations etc. Key in-services courses would include:

(a) Extension and communications, as mentioned above with faculty members drawn for the Forest Department as well as the Gram Sewak Training Center (Mashobra) and Extension Education Institute (Nilokheri, Haryana Social Forestry Project); three courses were already planned for February and March 1985;

(b) Training of Trainees, to be conducted at the Extension Education Institute (Nilokhri) and/or anand (Gujarat), and to include curricula in both teaching methods and most recent developments in social forestry;

1/ Deputy Ranger training runs one year April to March, and involves 30 participants; Guard level training runs 6 months April to October and involves 30 participants. Not al existing staff have been trained, and numbers of new staff would need training, so the possibility of breaking basic training into shorter segments has been discussed.

(c) Training of Rangers to act as Forestry Subject Matter Specialists in agricultural extension, once the Training and Visit System is introduced;

(d) Orientation courses of senior staff, and for DCF/ACF level field supervisors; training would range through technical models for social forestry, species selection, formulation of agreements with panchayats/villages, distribution of benefits, etc; These would be 3-5 day intensive sessions, and might draw on practicioners, or instructors outside the State;

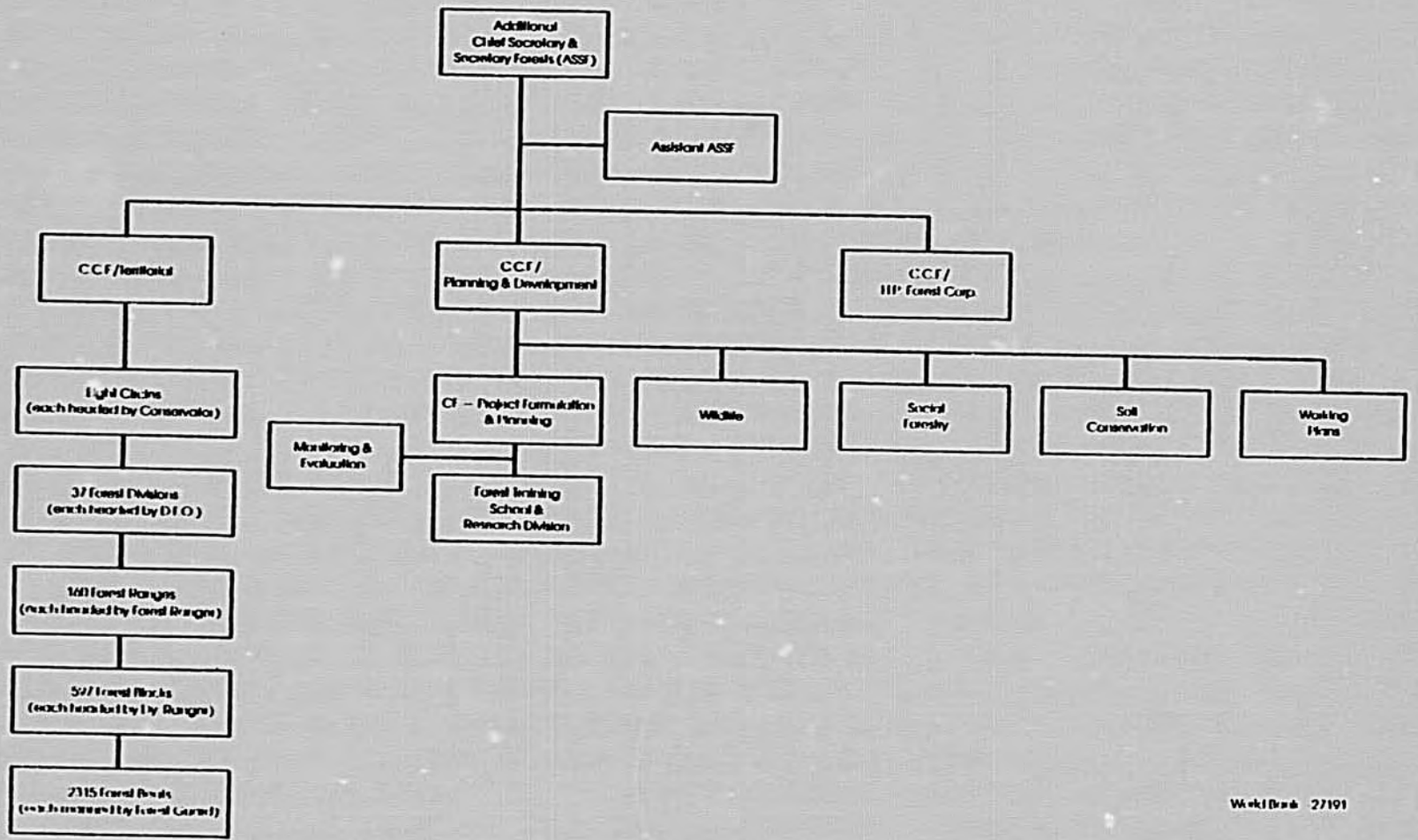
(e) Study tours, domestic and international; it was agreed that visits to other States with social forestry programs should be stepped up, in particular States with similar agro-climatic conditions (eg. J&K) or components (eg. West Bengal group farm forestry). ACFs and DCFs would be sent to domestic University courses, such as the new six months diploma course in social forestry at Dehra Dun. Other courses could be identified for staff, such as the upcoming ICRAF course on agro Forestry to be provided through ICAR. On the international side, the project would provide for visits to other countries with relevant social forestry programs, eg. an exchange tour between Nepal and Himachal Pradesh. International study opportunities could include courses such as: the social forestry summer course at Oxford, which includes project preparation, management and accounting, social forestry approaches, and research, the project planning courses at Bradford and the University of East Anglia; and the four months research course at Oxford.

(f) Monitoring and evaluation courses on both methodology and use of micro-computers; any new director of M&E for social forestry should receive such training; and

(g) Training for new nursery staff in extension techniques and recommendations for farmers (besides technical skills).

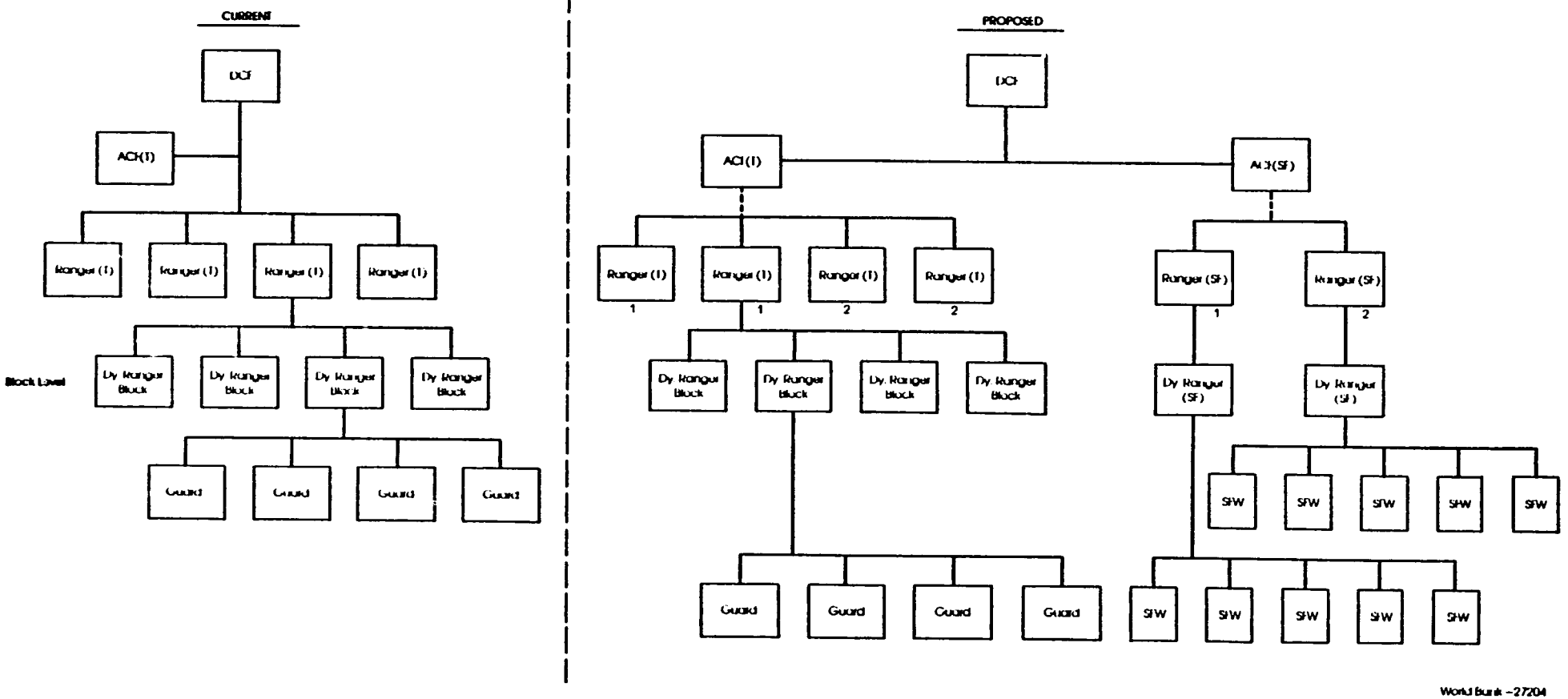
17. Besides the above inservice courses for staff the Department would provide training camps for farmers, voluntary groups, forest societies, etc., of a average of three days duration.

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Current Forest Department Organization
Himachal Pradesh State
Organizational Chart



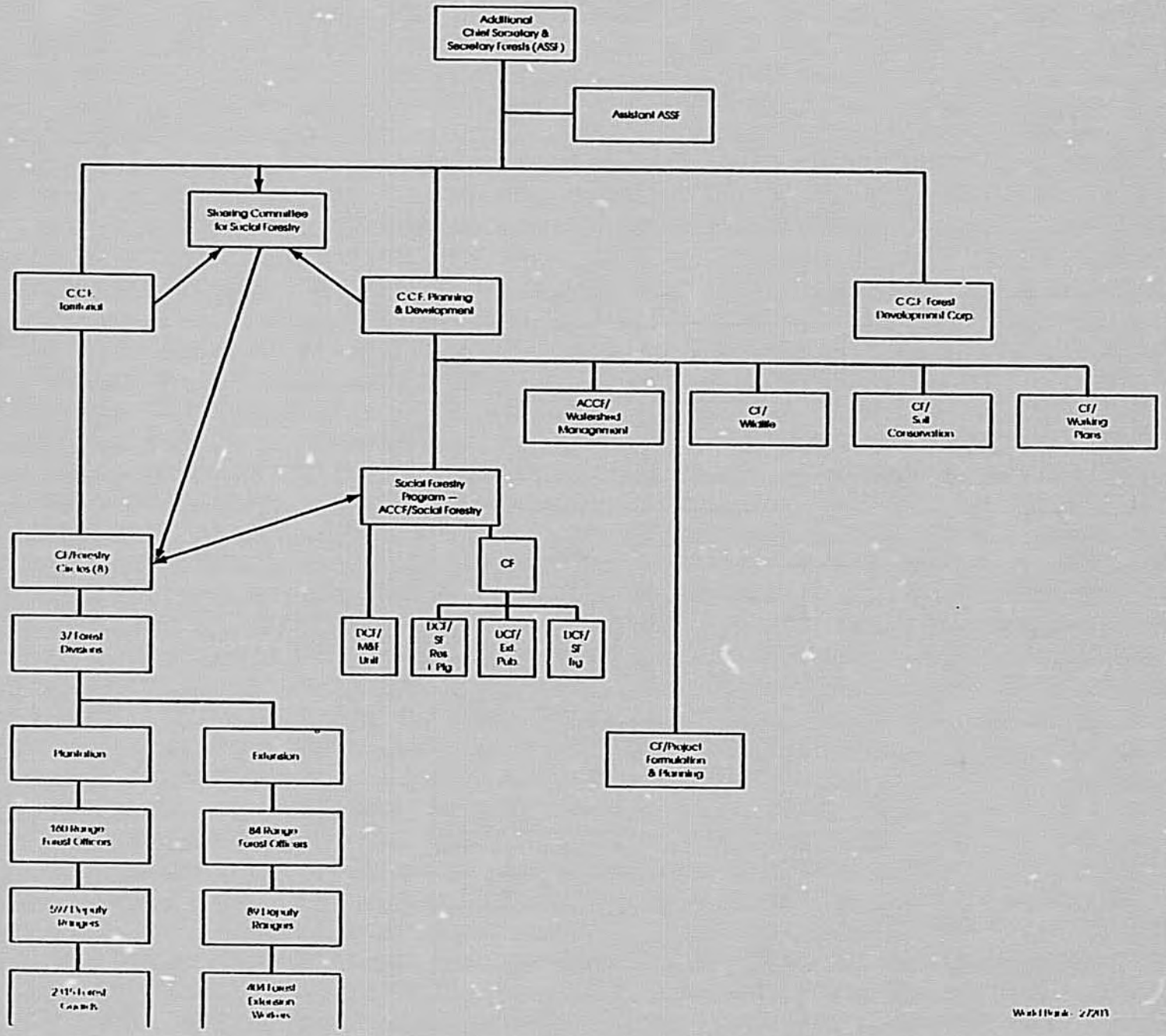
World Bank 27191

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Forest Block Level
Organizational Norms for Field Staff
Himachal Pradesh State
Organizational Chart



World Bank -27204

INDIA
NATIONAL SOCIAL FORESTRY PROJECT
Proposed Forest Department Organization
Himachal Pradesh State
Organizational Chart



World Bank 27813

MONITORING AND EVALUATION 1/

1.0 Background

1.01 Well established systems of record keeping, financial reporting and field inspections have always been a feature of forest department activities in India. In addition, the regular preparation of Working Plans for territorial forests have required periodic inventories of the condition of various forests. While these systems constitute a solid tradition of ongoing monitoring, they have not been expanded and adapted to the new objectives and activities encompassed in social forestry. Furthermore, the capability and necessity for various types of evaluation studies, particularly those involving farmers and rural institutions, has been largely non-existent.

1.02 Recognition of the crucial need for effective monitoring and evaluation in projects as innvotative and large-scale as social forestry led to the incorporation of M&E units in the Bank's previous projects in U.P., Gujarat, and other States. The primary purpose of these units was to develop systematic methods for collecting and analyzing information useful to project management in increasing the effectiveness of project implementation. It was also intended to measure and evaluate the changes induced by the project to assist in ongoing planning and policy formulation.

1.03 Operationalizing these units in the Bank's initial projects has proved to be more difficult than anticipated. Establishing and filling new positions has always been a time consuming endeavor in the context of most States's administrative processes. A more important constraint than recruiting staff, however, is the unfamiliarity with the demands of M&E and the lack of the relevant social science skills entailed among the forest officers entrusted with the job. This lack of familiarity tends to encourage the rapid turnover of staff.

1.04 For these reasons, the GOI requested the World Bank and FAO to provide assistance in developing practical guidelines for a system of M&E which could be used throughout the country. The result is a draft publication entitled An Operational Guide to the Monitoring and Evaluation of Social

1/ Dr. J. Gabriel Campbell, Consultant

Forestry in India based on a seminar with representatives from States with active Social Forestry Programs. This Guide has been distributed to the States for pilot implementation and evaluation and is being followed up by a World Bank/FAO/GOI review mission and a workshop scheduled for mid-1985. This Guide should serve as the basis for each State's M&E development.

1.05 At present, U.P. and Gujarat both have moderately well staffed M&E Units though additional staff and technical assistance are required. In Rajasthan and Himachal Pradesh, M&E units have been proposed for establishment under NSFP, but do not yet exist.

1.06 In U.P., one survival count survey has been conducted by the M&E Unit and an additional survey conducted under contract by the State Planning Institute. The Unit has shared access to its own CP/M microcomputer and has issued its first M&E report. However, the Unit has suffered from rapid staff turnover -- with four different unit heads in less than two years and has not yet fully developed the capability to implement the Guide.

1.07 Gujarat has been most successful in establishing an operational unit with strong staff support. Over 150,000 farmers who have taken seedlings have been monitored by field visits. One farm forestry sample survey (n=8,000) has been conducted of which 3,500 questionnaires have been tabulated. Both woodlot and plantation survival surveys have been undertaken. The results have been presented in a relatively comprehensive report. Efforts are currently underway to implement the Guide, although some additional assistance is required in technical aspects of sampling, data processing and analysis, and methodology of other studies.

1.08 At the central level, the Government of India has a small heavily over-burdened unit now set up. This unit conducts considerable supervisory field visits and aggregates financial and administrative data supplied by the States. At present, its ability to provide detailed technical assistance for operationalizing the Guide is limited by lack of staff and resources, although strong overall support is being provided. The proposed Sociologist and Statistician, when appointed, will be shared with the Project Formulation Unit to which they will directly report.

2.0 Main Constraints and Recommendations

2.01 Monitoring and evaluation necessarily involves a number of trade-offs between competing objectives and means. The more complete and accurate the information, the less timely and manageable; the more objective and outside the evaluation, the more removed from management needs, procedures, and less likely it is to be received; the more integrated and immediately useful to project management, the less likely that faulty underlying assumptions will be detected and corrected. Widespread understanding of these issues, of the

costs and benefits of various balances that can be achieved, is currently lacking in forest departments, given their overall unfamiliarity with what monitoring and evaluation can best do for them.

2.02 Monitoring is currently characterized by extensive reporting procedures primarily designed to track expenditures and provide the basis for accounting. The purpose of a separate monitoring unit is generally understood to provide the means for central supervision and independent physical auditing in order to help meet annual targets and detect delays in implementation. This orientation results in the bulk of the M&E effort being devoted to collecting timely information on all physical activities through a complete information and cross-checking system. Sometimes M&E is also viewed as a means to justify the existing project strategy and state policies, instead of occupying its proper role as an objective assessor.

2.03 While monitoring activities can serve as a valuable independent check on the veracity of field reports, there is a need to focus its attention more specifically on problem identification and solving. A more reasonable balance must be struck between obtaining a minimum of relevant information from all units on field activities along with selected field checks and allowing the regular hierarchy to continue more complete financial reporting and field supervision. The M&E unit cannot take over the task of all reporting and record keeping and must be mindful of the dangers of information overload in selecting the nature and frequency of data required for monitoring progress and identifying constraints which require management correction.

2.04 The Guide provides suggested formats for the monitoring information which should be required. The States are experiencing some difficulty in reconciling these proformas with their own individual reporting formats. Since each State's program components differ in small ways from other State's, it is evident that the formats will have to be adapted to individual conditions. Nevertheless, it is important that overall headings remain consistent so that data aggregation by the GOI is both possible and meaningful. It is recommended that an overall conformity on reporting formats be negotiated at the next workshop in order to allow for national aggregation and to assist the States to confining their data collection to the most relevant data. As specified in the Guide, the following monitoring tasks are required:

(a) the monitoring of seedling production and distribution through annual nursery reports;

(b) the monitoring of village woodlots through village woodlot records;

(c) the monitoring of strip plantations and rehabilitation of degraded forests through annually updated records;

(d) the monitoring of forestry produce prices through monthly observation in selected markets; and

(e) the production of a quarterly "All India" monitoring report.

2.05 To accommodate the new component of tree tenure for poor and landless and FD assistance to private wasteland planting, it is recommended that one additional element to this monitoring system be added to keep a regular record of the these activities in collaboration with private individuals to include group farm forestry on government lands, beneficiary plantings, etc. This could consist of an additional set of questions added to the farm forestry survey to incorporate the additional information required to record government inputs and cost-sharing.

2.06 The objectives and usefulness of evaluation activities are also not widely appreciated. While U.P. and Gujarat have found farm forestry and plantation survival survey data useful in defending social forestry from critics, the value of analyzing the data with a view to evaluating present policies on such issues as free seedling distribution or species selection is not widely understood. As part of the problem solving focus of M&E, it is recommended that each M&E unit work with management to identify the key implementaton and policy questions which they would like to have answered by a particular evaluation study.

2.07 Discussions with each of the States, the GOI, and donors have revealed that the current priority is to conduct the farm forestry survey in each State in order to answer pressing questions on seedling distribution. Are more seedlings planted by small and marginal farmers when seedlings are distributed free? What is the average number taken by different landholding groups? Do seedlings suffer higher mortality and less growth when farmers do not pay for them? Is the number of seedlings taken related to distance from the nursery and/or the type of nursery? To address these questions it is recommended that each State place priority on the farm forestry survey. To foster this development, it is further recommended that a series of workshops be established to assist each M&E Unit in this undertaking.

2.08 Other problem areas which should be addressed by the States through M&E studies include: distribution of woodlot harvests, establishing joint management with panchayats of woodlots, traditional and new agro-forestry combinations used by farmers, pricing and marketing issues, and improved stove use and efficiency. In each of these studies, and in the wood balance study dealt with separately, it is crucial that the views of women are accurately obtained by employing women interviewers if necessary. A detailed

discussion of special studies is contained in Chapter VI of the Guide. In addition, detailed guidelines have been developed for the following surveys:

(a) the ongoing evaluation of farm forestry through periodic sample surveys (the farm forestry survey noted above);

(b) the ongoing evaluation of village woodlots through periodic sample surveys;

(c) the ongoing evaluation of strip plantations and rehabilitation of degraded forests through rapid reconnaissance;

(d) the estimation of standard unit weights through a one-time study; and

(e) other special evaluation studies.

2.09 Implementation of these evaluation surveys and studies are likely to continue to suffer also from a lack of social science skills in the Forest Departments. The FDs have agreed to establish posts for statisticians and sociologists or economists in most of the four States. In most cases, agriculturalists will also be required as agro-forestry increases in importance for both private and departmental tree planting. In addition to filing these posts with competent staff, it will be necessary for the various officers and technical personnel in M&E Units to receive training in: questionnaire and survey design, sampling methods, interviewing methods, statistical analysis, data processing and microcomputer use, and qualitative research methods. An outline of these training needs is provided in Section 3.

2.10 Increasing the social science competence of M&E Units cannot, however, obviate the need for some special evaluation studies to be contracted to outside institutions. In the interests of greater objectivity and enlisting specialized rural research skills not available in the FD, it will be important for special studies (e.g. improved stove and crematoria use and efficiency, social dynamics of community woodlot management, management and marketing of tassar silks etc.) to be conducted by outside agencies, including research institutes, universities, and private firms. However, M&E units should coordinate and manage these studies - including the negotiation of the terms of reference and periodic review of progess - in order to insure their relevance, timeliness and balanced presentation.

2.11 Improved data processing capability will also be required by each of the States if M&E is to be truly effective. Current hand tabulation methods are tedious and error prone, frequently delaying results and discouraging further analysis. The difficulties currently experienced can be alleviated

by: (a) carefully distinguishing 100% reporting and follow-up data requirements from information which can be collected on a sample basis, and (b) installing microcomputer facilities and customized commercial software for data entry, storage, retrieval and analysis. As funds for the purchase of microcomputer systems have been included in each State's project, it is crucial that these systems be program, disk, and date-file compatible in order to avoid wasteful duplication and allow for national level aggregation.

2.12 It is recommended that the guidelines presented in Section 5 of this report be ratified and rewritten as procurement guidelines for each of the States to ensure that the desired compatibility is obtained. As a better alternative, it is recommended that funds for microcomputer hardware and software procurement be retained by the donors (either World Bank of USAID) for direct procurement of standardized equipment. This alternative is considered the most workable by GOI. It is also recommended that in the suggested follow-up workshops, each of the M&E data collection schedules be reformatted for ease of computerized data entry and relevant personnel be given training in statistical and data base management application using the commercial software available.

2.13 Attracting compentent and interested staff to fill M&E posts will require continued effort and close GOI and donor monitoring. The need to appoint FD officers with an interest in the kind of applied research and data collection involved is of paramount importance to the successful implementation of the M&E effort. It may well be that special pay incentives (such as those received by research personnel in some States) need to be instituted to increase the attractiveness of these posts. Provision of short-term training, fellowships, microcomputer training, and national workshops and seminars should help to provide more incentives to interested individuals. However, it cannot be overstressed that the effectiveness of M&E will rise or fall as a direct result of the calibre of the individuals appointed to run these new units. For the resource requirements and job descriptions of individuals staff, reference should be made to Chapter IX of the Guide.

3.0 Outline of Training Needs

3.01 Three kinds of training are needed for the effective operationalization of the M&E component. General skill development training in rural research methodology is needed for the professional staff of the unit. However, as this must be an ongoing process, there is also the need for specific workshops and follow-up training on the implementation of each of the major M&E survey components. Finally, there is the need for training of local field staff in data collection and tabulation. An outline of a five day course for the last of these is contained on Page 191 of the Guide.

3.02 Training in Rural Research Methodology could either consist of one two-to-three month course (such as is currently offered at the Universities of East Anglia and Sussex) set up by an appropriate institution in India (i.e., the proposed M&E training center at NIRD in Hyderabad, funded by NAEP I), or be broken up into two-week modules which could be farmed out to different institutions. The course should be attended by each of the professional staff, including the forest officers in charge, the economist, the sociologist, and the statisticians unless some of them are already thoroughly proficient in the skills being taught. The topics to be covered in this training should include the following:

- Introduction to theory and concepts of monitoring and evaluation (objectives, inputs, activities, outputs, effects, impacts, etc.)

- Survey research design (questionnaire design, pre-testing, interviewer training, measurement errors, data quality, rapport, bias, etc.)

- Sampling theory and Guide sample designs (probability sampling, sampling error, sampling frames, farm forestry survey sample, woodlot sample, strip sampling, etc.)

- Statistical techniques for M&E data analysis (frequency distributions, means and medians, cross-tabulations, chi-square, simple non-parametric measures, simple linear regression, etc.)

- Use of microcomputer and familiarity with selected commercial software (data base management, statistical analysis, electronic spreadsheet, and graphic analysis and presentation)

- Report preparation (organization, writing, use of graphics, etc.)

- Qualitative research techniques (rapid reconnaissance, key interviews, cross-checking, interview checklists, participant observation, methods of analysis).

3.03 The third type of training required is the implementation of the specific ongoing evaluation surveys, with the first priority being placed on the farm forestry survey and the second on the community woodlot survey, followed by other surveys according to the States' individual priorities. The following sequence of training/support is recommended:

(a) Workshop of M&E unit heads and senior statistician/economists to review and make operational plans for a full implementation of the annual nursery/seedling distribution monitoring and the

farm forestry sample survey for each participating State. This would include:

- a review of present monitoring formats and procedures and any previous surveys;
- specification of objectives;
- finalization of questionnaire;
- determining each State's exact sampling procedure;
- planning the survey schedule for training and implementation and logistic requirements in each State; and
- planning the method of data processing and analysis.

(b) Field technical assistance over the course of implementation (to be provided by the Center, a centrally contracted institution, or donors).

(c) Seminar on the completion of the surveys in which each State presents its results and works collaboratively to develop all India guidelines on policy implications (such as free seedling distribution).

3.04 One or two additional training programs following the same sequence of workshop-field assistance-seminar should also be followed for the community woodlot survey and, particularly for Gujarat and H.P., improved stove and wood saving devices survey but will likely not be required for the more straight forward survival surveys of strips and rehabilitation of degraded forest to the extent that they do not already make use of the woodlot methodology.

3.05 Specialized training will also be required to support the effective use of microcomputers in the M&E units. For this purpose it is recommended that two levels of training are instituted. A general, one week introductory workshop on microcomputer familiarity and the use of the selected software packages should be attended by all the professional staff of the M&E units and could be held at the State level (note requirements for general training in 3.2 above). A longer workshop of up to one month should be mounted by the Center to familiarize the officers in charge of microcomputer use in each State (usually the statistician) with the selected software packages and develop agreement on standardized file structures and data organization. Except for very specific non-M&E applications of the microcomputer (e.g., area calculation and mapping, biomass inventories, etc.), individual

development of wholly new programs for standard data management and statistical analysis should be discouraged as these will severely hamper expandability and national level data aggregation. See Section 5 for recommended hardware and software specifications.

4.0 Central GOI M&E Unit

4.01 The Central GOI M&E Unit is currently overburdened with a variety of administrative tasks in addition to its responsibility for supervisory visits to each State and collation of monitoring data on all donor assisted social forestry projects, on top of providing support for the implementation of the Guide. Regardless of whether or not regional offices are set up outside Delhi to assist with State supervision and monitoring, there is the need for additional professional manpower at the Central level, including a senior statistician and social scientist and microcomputer operator, together with microcomputer facilities. If such staff cannot be easily arranged on a permanent basis at present, consultants should be appointed on long-term contracts to take up these assignments.

4.02 The effectiveness of central monitoring functions could be considerably enhanced by the adoption of standardized reporting formats and microcomputer data processing at the Center. For this purpose, it is recommended that the suggested proformas contained in the Guide be modified and finalized in the workshop presently scheduled for mid-1985. It is also recommended that a software program (such as Lotus 1-2-3 or Symphony) be customized to accept and aggregate easily these data through a short-term contract.

4.03 Arrangements for the training and technical support required to make the evaluation aspects of the Guide actually operational (as specified in the proceeding section) need to also be made at the Central level. If is is not possible for the Central GOI unit to take up this task itself, it should arrange for or approve the contracting of this vital function to another appropriate institution. Perhaps such arrangements could be made with NIRD (National Institute of Rural Development, Hyderabad) or the newly constituted Wastelands Development Board or the IIFM in collaboration with other institutions.

4.04 The central GOI M&E unit also has responsibility for analyzing the results of the State M&E surveys from a comparative perspective in order to generate all India guidelines and policy recommendations. In order to compare the effects of different State programs and policies on such crucial issues as free seedling distribution limits, subsides for tree tenure programs, choice of silvicultural management options, community woodlot management and product disposal, etc., the Center is in the best position to weigh various results and develop consistent policies. Thus, even if the

training and technical support mentioned above is contracted out, the M&E unit will have to participate in the follow-up seminars and, ideally, should conduct some of its own analysis of the data.

5.0 Microcomputer Hardware/Software Procurement

5.01 The following general criteria have been used as the basis for recommending specific hardware and software specifications:

- Use of standard operating system and commercially available software which can be customized to individual requirements while maintaining file compatibility;
- Sufficient resident and storage memory to handle statistical analysis of proposed sample survey data and monitoring data;
- Cheap enough to allow two units to provide redundancy back-up and more efficient data entry; and
- Reliable, with service available in country.

5.2 The following hardware specifications are recommended in line with the above:

Microprocessor:	Intel 8088, 8086, or 80186 (16 bit IBM standard)
Ram Memory:	Minimum of 378 Kilobytes
Monitor:	Monochrome with graphics capability
Storage:	One or two floppy disk drives for 5 1/4" diskettes (double density, double sided 640 K) and one 10 Megabyte Winchester hard dick drive.
Operating System:	MS-DOS
Printer:	132 character dot-matrix printer with wide paper throughput
Data Entry:	Standard keyboard plus numeric keypad
Electrical:	1 Kw. voltage stablizer, battery back-up system, and air-conditioner
Modem:	300 BAUD Hayes Protocol

5.3 Possible systems meeting these sepcification include the following:

Imported Computers:	IBM PC-XT COMPAQ with 10 MB drive WANG PC with 10 MB drive Hewlet-Packard 150 with 10 MB drive and 5 1/4" floppy drive Or well-established Indian equivalent
Indian Computers:	Eagle PC by Usha with 10 MB drive Minicomp with 10 MB drive Chi squared with 10 MD drive Bush with 10 MB drive
Printers:	Epson FX-100 Okidata IDS Prisom Or equivalent
Modem:	Hayes 300 BAUD (optional)

5.4 Suggested software is listed below. It will be important for the GOI to issue guidelines which insure that each State purchase compatible software, regardless of which packages are selected or preferably for centralized donor purchase of initial requirements.

Data Base Management:	Able to handle over 500,000 records and 100 fields using hard disk virtual memory; own programming language; compatible with spreadsheet and statistical package. Recommended: dBase III from Aston-Tate Company. (Alternatives: R:Base, CONDOR III).
Financial Spreadsheet & Graphics:	Integrated and compatible with DBM (above); multiple column width, simple stats, sort capability; minimum 150 columns by 150 rows. Recommended: Lotus 1-2-3 from Lotus Development. (Alternatives: Framework, Multiplan).

Survey Statistics:	Able to handle 5,000 cases and 100 variables using the hard disk virtual memory; all major statistical tests, complete file handling and data manipulation, compatible with DBM and spreadsheet. Recommended: SPSS which requires minimum of 378 K RAM and hard disk. (Alternate SLMicro. STAT PRO). Also recommend one smaller package designed for use with floppy system. Recommended: SPS or statpac. (Alternatives: ABSTAT, Microstat, Systat).
Silviculture Research Statistics:	For research plot analysis, MSTAT is recommended.
Word Processor:	Ideally, the word processor should be compatible with the DBM and spreadsheet. For this reason, Symphony from Lotus Development is recommended as it already includes Lotus 1-2-3 in an integrated package. (Alternatives: Wordstar 2000 or Perfect Writer Word). It may also be desirable to obtain a local language word processor using recommended standard character codes.
Communications:	The Hayes protocol compatible Crosstalk is recommended; however, it may be desirable to obtain an Indian product capable of transmitting Deva Nagari files according to the standard recommended by the Indian Institute of Standards, if such exists.
Languages:	For special applications, the following languages (depending on the knowledge of the programmer) could also be obtained: BASIC, FORTRAN, PASCAL.

POTENTIAL ROLES OF NON-GOVERNMENTAL ORGANIZATIONS IN SOCIAL FORESTRY

Dr. William R. Bentley
The Ford Foundation
New Delhi
December 4, 1984

Summary

1. Government is the dominant sector in India. It has control over revenues, and virtually all ventures to benefit the rural poor involve public funding and public agencies. The role of government extends beyond the usual flows of money and governmental bureaucracies. India has deliberately chosen and maintained a mixed economy based on fabian socialism. Consequently, many enterprises that might be found in the profit-making sector in western nations are public or parastatal in India.

2. The public-private distinctions of the United States are not especially useful in categorizing the many shades of grey between public and private that are found in India. Most of the banks are owned by the Government of India, all but one steel mill, much of the pulp and paper capacity, all of the forest development corporations, and even cooperatives such as the National Dairy Development Board/India Dairy Corporations are parastatals. To think of these as government enterprises, however, would overlook the many differences among them and considerable independence each exhibits with regard to central authorities.

3. The Ghandian and similar traditions have given India a rich heritage and assortment of private voluntary organizations (PVOs). Some of these continue basic village-level work, focussing in headlooms, sanitation, literacy or other primary needs of poor people. Others have moved into new issues, like village organization for social forestry or distribution of irrigation benefits. A few have evolved into high-tech organizations. Bharatyia Agro-Industries Foundation (BAIF), for example, evolved from a traditional Ghandian village-level organization near Pune into a science-based rural development society that operates a major artificial insemination program in several states to improve livestock for dairy and power, a vaccine plant that ships animal health products throughout the tropical world, growing research and extension programs in agroforestry, and

action programs in small-scale water development and wasteland rehabilitation.

4. Typically, groups like BAIF evolve from PVOs, with their stress on people giving services for little or no compensation, to more modern not-for-profit organizations that pay competitive salaries and offer career opportunities. With this evolution comes more concern with managerial and social skills and with long-term financial stability. Also comes the ability to take on projects of a scale to be useful to governmental agencies in implementing social forestry programs.

5. The roles that PVOs and the newer, broader array or not-for-profit organizations (broadly termed NGOS) can play include:

(a) Village-level organization of people to grow seedlings, plant trees, protect plants, harvest and distribute benefits, etc.

(b) Cooperatives at primary production levels and various forward marketing and processing stages (e.g. Amul Milk Cooperative model) to increase value added and distribute it to primary producers.

(c) Intermediaries to provide expertise and training in various technical managerial and social skills.

(d) Intermediaries to facilitate and advocate the interests of villagers and their organizations with public agency officials and the legal system.

(e) Monitoring and/or evaluation of social forestry programs, especially in terms of efficiency-cum-equity goals.

6. Some of these roles also could be played by profit-making organizations, but this annex focuses on not-for-profit structures. There are four reasons for this focus in India. First, public ideology does not favor the profit-making sector in many roles. Second, there are several sources of discomfort in relationships between public agency officials and private sector organizations that make profits. Third, it is not likely that profit-making firms would be especially effective in delivering goods and services to poor people. Finally, the roles described are predominantly executed by skilled people, and a not-for-profit organization may have a competition advantage in delivering quality services.

Grassroots Organization

7. The social structures at the village level in much of rural India, while far from static, inhibit social changes that would make social forestry programs more effective. Most members of groups like the landless, low castes, women or children are not viewed by the power structure as actual primary beneficiaries. The degree to which the various structures -- panchayats, block-level officials, banks, etc -- reinforce one another varies enormously, and some extraordinary exceptions can be obscured where these forces are progressive in creating economic and social change. In most cases, however, a reasonable starting point is that the local social structures are not well endowed to make a social forestry program be either efficient or equitable.

8. A basic premise of this discussion is that, aside from private farm forestry, a social forestry program must be equitable to be efficient (see Wood Balance Studies annex in project document for more discussion of this premise). This means that some new elements are needed at the local level. Among the characteristics needed are:

(a) A managerial concern with results -- with goals and controls.

(b) A professional concern with science and technology -- with predictions of consequences from actions.

(c) A capitalistic concern with investments -- with costs, including interest rates, and benefits.

(d) A socialistic concern with distribution and social justice -- who pays, who benefits, and what one can do if the rich take advantage of the poor.

These and other elements like marketing are a modern mix of objective knowledge and skills with particular social premises. Simply stated, the social premises assumed in this annex are that creation of new economic surpluses and the subsequent biased distribution of net benefits toward the poor are desirable. The means and limits to these processes are not fully understood, which is why only quality grassroots organizations are able to be useful.

9. The most basic set of skills required are those needed for participatory social organization at the village level. Open discussion, group problem-solving and planning, conflict resolution, implementation, etc. are not well developed in most villages. Lack of experience precludes many rural Indians from contemplating joining the robustly entrepreneurial

unorganized private sectors. A combination of high natural risks, coupled with market risks and rigid social structures, makes many marginal farmers wary of changes. Groups that have been successful in working at the grassroots levels recognize all these limitations, set priorities to focus on a few critical issues where resolution can bring early results, and have a long time frame so that local leadership and organizations can developed before the NGO leaves a village.

10. Success studies include "Operation Flood", the NDDB program in dairy cooperatives that begins with spearhead teams that initiate village level organization. Eventually a village level cooperative evolves that itself is a cooperative owner of a milk collection, processing and distribution system that is among the largest marketing structures in India. This approach has been based on the premise that professionals are needed throughout, and graduates of management, engineering and agricultural institutes are employed by NDAB/IDC cooperatives. The diary cooperative model might be adapted to include fodder and other social forestry produce or revised annual forestry-based primary production units.

11. MYRADA, which works with resettlement of refugees and landless people, uses a different cooperative concept. A village itself is organized for cooperative purchase of inputs and sale of outputs. Rather than a focus on milk, a variety of village-based enterprises from dairying to silk to Tibetan crafts might make up the diverse portfolio of such a cooperative. Given the institutional starting point of a resettlement operation, this model has a variety of social and economic advantages. It might be especially useful where resettlement on usar or other wastelands was part of a social forestry project.

12. Other models that do not use cooperatives also have been successful. The Ramakrishna Mission and Ranchi Consortium for Community Forestry (RCCF), which operate with tribal people in south Bihar, work with the communal traits of village organizations. Other groups focus on individual enterprises and improvement of individual farming practices.

13. Sukhomajuri and Nada villages, which are in the Swaliks above Chandigarh, were successful because the villagers agreed to distribute water from new small tanks on an equal-share basis. They also agreed to take over the grazing, which is the watershed for the tanks, manage it for cut fodder and stall feed their animals, using an equal-share criterion. These were unusual experiences because the Ford Foundation carried the roles now associated with the Society for Promotion of Wasteland Development (SPWD). The results illustrate both the professional inputs required to create effective village-level social process and the extraordinary benefits that can result. In particular, the villages illustrate the compatibility between efficient results and equitable results in the rural Indian contest. Equal

shares of both water and fodder were allocated to each hearth (family units). In both cases, the shares were of a new economic surplus so that everyone was better off, but the poor proportionately received more of the surplus. Consequently, everyone had a vested interest in making this project work and no one had a vested interest in making it fail.

Intermediary Organizations

14. Village-level organizations would create a demand for a variety of services. Some are for training in technical and managerial skills that local organizations lack but need. The traditions of PVOs often lead them to be relatively strong in relevant social values and skills, but weak in both managerial and technical skills. This usually is true in the case of new land-use technologies, such as plantations and agroforestry. The Nehru Foundation, SPWD, BAIF and several other intermediaries provide technical or managerial training.

15. Intermediaries may prove to be especially useful in certain non-traditional extension roles. For example, Madhu Sarin, in a spin-off from the Sakhonajri/Nada village experience, has groups of women organized in teams to train hill village women in the construction of efficient, smokeless Chulas. The construction, based on local materials, is inexpensive and flexible to particular household needs, saves considerable fuel, improves the household health environment, and provides an experience for women in changing their world.

16. BAIF, SPWD, RCCF and the Nehru Foundation are examples of organizations that are developing extension materials and training courses in social forestry, Some of the materials will use the highly visual and multiple language model that IRRI refined in extension materials for rice production.

17. Several of the Krisi Vikas Kendres (farm science extension centers) are operated by PVOs. The performance record of these groups, such as the Ramakrisna Mission in Ranchi and the Reware Ashram in western Haryana, suggest that NGOs may be more effective in certain extension roles than government agencies. The Indian Council of Agricultural Research has identified this performance differential, and it is receptive to KVKs operated by NGOs that would focus on social forestry problems.

18. There are some skills, especially of a more technical or analytical nature, where it is not economic for local organizations to include them in their staffing patterns. Intermediary organizations could serve the role that consulting firms serve in the profit-making sector. SPWD and RCCF are examples of such organizations in social forestry.

the points established were roles for NGOs in the implementation of the projects.

23. Intermediary Channels. One or more intermediaries at the center (e.g., SPWD) could be agreed upon with the IGF and DEA to channel funds to NGOs for various purposes. This would provide a mechanism for moving funds into India without the difficulties of transfering funds from the IGF's office or the state forest departments to private organizations.

24. Required Use of NGOs. Where appropriate, loan agreements could require use of NGOs to provide skills or services that cannot be effectively provided by state agencies to social forestry projects. This might be an especially effective device for obtaining agreements on net benefit distribution before actual project implementation begins and enforcing the agreements when harvest occurs. Coupled with technical, managerial and financial skills, such NGO involvement could provide the necessary social development for social forestry to become a sustainable source of economic development beyond the period of donor funding and concern.

19. Often the funds and services for rural development are available, but either not delivered or are not delivered to the poorer half of rural society. Tribal projects, rural credit, and many other examples can be cited where public agencies have not achieved the results desired and expected. One role of NGOs is to substitute for public agency actions. Another is to become advocates for the poor to either make the "system" work or redress social injustices. RCCF has done some of this in social forestry; there are other examples in agriculture, water and rural health.

20. New roles for training and assistance by intermediaries include:

(a) Rural Entrepreneurship -- Skills needed to operate single person, family, cooperative or corporate enterprises based on social forestry produce (e.g., tassar silk from Arjun bushes to retail marketing).

(b) Problem Solving -- Skills needed by village-based associations and enterprises to identify problems that they have, frame them for decision and cause-effect analysis, the more into operational plans and implementation based on effective goals and controls.

(c) Financial Analysis -- Design of effective, efficient bankable projects based on social forestry that could incorporate rural credit from the banking industry.

(d) Policy Analysis -- Review and interpretation of the results of social forestry projects in terms of evaluating what the goals were and what was achieved.

(e) Monitoring -- Providing objective, external measures of success and failures that would be trusted by both governmental agencies and beneficiaries.

Donor Roles

21. GOI and most state forest departments are receptive in principle to increased use of NGOs. Translating this into specific actions, however, will be difficult. There are several ways that the donor community can encourage greater use of NGOs in social forestry.

22. Consultants. SIDA used two technical institutes (Xavier Labor Relations Institute, Jamshedpur and Xavier Institute of Social Studies, Ranchi) and a PVO (RCCF) to obtain advice on the Bihar social forestry scheme prior to reaching agreement with GOB and GOI to be the donor. Among