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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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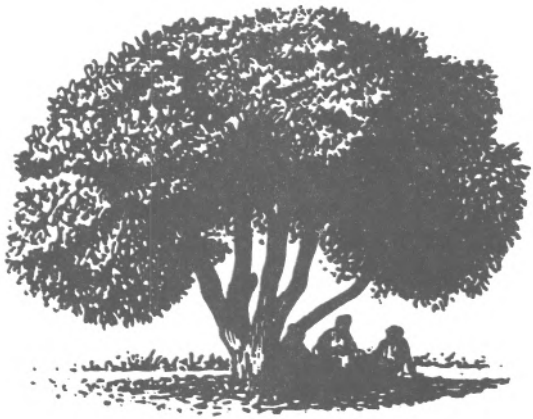
SOCIAL FORESTRY NETWORK



SOCIAL EQUITY AND SOCIAL FORESTRY IN JAVA: PRELIMINARY FINDINGS FROM FOUR CASE STUDIES

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Network Paper 10a Summer 1990

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This paper draws on a longer report written by the authors for the Centre for Development Studies at Bogor Agricultural University. Readers wishing to obtain a copy of that report should write to: Centre for Development Studies (PSP – IPB), Jalan Widuri 5, Bogor, Indonesia.

Please note that we have chosen not to identify the names and specific locations of the four sites studied. Instead, we have identified the sites by letters (A, B, C, and D) and the provinces where these sites are located.

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ABSTRACT

Case studies at four social forestry sites in Java illustrate a range of equity problems that require further investigation.

Analysis of participant selection at the sites shows that a 1986 mandate to prioritize involvement of the landless and the land-poor was not implemented. Reasons for non-implementation include: lack of need to enforce the mandate due to lack of competition for land at the site; overriding of the mandate by longstanding performance-based participant selection criteria; and ignoring of the mandate.

Overall, there is a lack of rigour in implementing the mandate. Though forestry field personnel showed some awareness of the mandate, there were insufficient training or guidelines for its implementation and inadequate systems of accountability to assure compliance. Improvements in training, guidelines, and systems of accountability are proposed as a means to remedy these deficiencies.

Analysis of plot distribution among project participants suggests the utility of the lottery system, even in cases where it appears unnecessary.

I. RESEARCH OVERVIEW

1. Why research social equity in connection with social forestry?

In recent years, there has been a growing recognition among development thinkers of the need to consider social equity in connection with sustainable development planning. At the heart of this change is an understanding that poverty is one key cause of environmental destruction, and that in order to make significant progress toward environmental stability and sustainability, standards of living must be raised for those in the bottom strata of society.[1]

The development philosophy just described applies with special force in the context of watershed and forest protection and attempts to increase forest production in developing countries. It is known that a substantial fraction of forest destruction in developing countries is caused by small farmers and shifting cultivators seeking new land for farming (Allen & Barnes, 1985).[2] Other forms of forest damage that may involve the rural poor include the gathering of fodder and wood for fuel at unsustainable rates, burning forests for the purpose of creating grazing land, and the pilferage of timber for sale on the market. High rates of rural population growth and the lack of employment in both rural and urban areas are also contributing factors to the process of deforestation. Perhaps most importantly, forest areas in developing countries are often *de facto* open access resource areas, and individual resource users have no incentive

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[1] Among the notable contributions to this area of thought are Leonard et al. (1989), Durning (1989), Blaikie and Brookfield (1987), and Blaikie (1985).

[2] Of course, there are other agents of forest destruction, including timber companies. The role of the rural poor in forest destruction is highlighted in this report because of its special relevance to the research.

to exploit the resource in a sustainable manner.[3]

Rural development projects aimed at increasing employment and the social wage can help alleviate these forms of deforestation. To the extent that substitute income sources are found and living standards are raised, reliance on destructive forest uses by the rural poor can be minimized. Also, if forest resource users are given limited rights to forest products and involved in forest management decision making, they will have incentives to help protect the forest and manage it for sustainable production.

Social Forestry is one among a number of policy measures in Indonesia which embraces poverty alleviation as a means to environmental protection. Social forestry is designed to promote forest development and watershed protection on state forest lands by raising social welfare in surrounding villages. In the Java Social Forestry Programme,[4] initiated in 1986, the increase in welfare is to be achieved by increasing the total productivity of currently degraded forest lands through reforestation, as well as increasing the share of forest resources allocated to local communities and the length of entitlement to those resources. Other key goals of the Java Social Forestry Programme are to alleviate longstanding conflicts over control of forest resources between forestry officials and forest area communities, and to serve as a means of protecting the timber revenue base of Indonesia's State Forest Corporation (SFC).[5]

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[3] See the literature on CPR management. A notable recent contribution is Bromley and Cernea (1989).

[4] Aside from the Social Forestry Programme discussed in this paper - that is to say the 'Perhutanan Sosial' programme initiated jointly by Indonesia's State Forest Corporation and the Ford Foundation in 1986 - there are other programmes in Indonesia which can be classified under the term 'Social Forestry'. For more information, see Junus Kartasubrata (1988), 'Review of Community Forestry Programmes in Indonesia', Bogor Agricultural University, Bogor, Indonesia.

[5] The State Forest Corporation of Indonesia (Perum Perhutani) is a semi-autonomous, parastatal sub-division of Indonesia's Ministry of forestry. It is responsible for the management of most production and protection forest lands in Java. The Corporation derives its income

The Java Social Forestry Programme is being implemented throughout the island of Java, where the SFC has jurisdiction over the management of production forest lands. In recent decades, these forest areas have become increasingly degraded, to a large part due to the kinds of socio-economic pressures described above. Java amounts to only 6 percent of the total surface area of Indonesia but is home to 60% of its population -that is, more than 100 million people. At an average of 788 people per square kilometre, Java has one of the highest population densities of any place in the world. Of Java's 13.2 million hectares, 22% are classified as 'permanent forest'.

Social Forestry in Java is carried out according to the following basic guidelines. A group of farmers is given usufruct rights to an area which they then plant with reforestation trees. The farmers are allowed to plant agricultural crops (both annual and perennial) between rows of reforestation trees with the agreement that they will nurture and protect the main tree/timber species. The SFC retains full ownership of these trees. The project participants must form into a Forest Farmer Group (FFG). Approximately monthly meetings of the FFG facilitate extension services and are designed to promote 'bottom up' planning and autonomous direction of the project by the members of the FFG.[6]

Usufruct rights are subject to renewal on a year by year basis. It is assumed that as the tree canopy closes and shades out agricultural crops, participants will either derive incomes from shade tolerant crops grown in the understorey or from horticultural crops that make up part of the canopy with the main species, or they will move to a new forest farming site if it is available. The roughly 0.25 hectare plot for each participant household is intended to provide a complementary income - that is, the plot is meant to be large enough to provide a substantial improvement in household income, but not so large as to create a high level of dependence on the project.[7]

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from the harvesting, processing, and selling of forest resources from state lands.

[6] The FFG is also intended as a forum for problem-solving and as a vehicle for the creation of savings and loan funds for participants.

[7] Plot size varies considerably according to the quality of soil in a given project and to the size of the family

Because the social forestry programme was in part justified as a poverty alleviation strategy, the SFC proposed guidelines in 1986 aimed at prioritizing the involvement of the landless and the land-poor in Social Forestry projects. In 1986, a 'letter of instruction' was sent to Forest District offices urging that landless and land-poor farmers be given priority access to social forestry sites. The SFC's *Guide to the Implementation of Social Forestry* (1988:7) states that 'candidate members from the nearby forest village will be prioritized according to the following criteria: low level of income, insufficient farmland, landlessness, ability to work in the forest, possession of special skills, and other criteria based on agreement'.

With this mandate written into its guidelines, the Java Social Forestry Programme is, at least on paper, an example of equity-minded sustainable development planning. It remains to be known, however, how well this mandate is being implemented, and also in what way the social status of project participants is related to fulfilment of the multiple goals of the project.

Some problems include structural or institutional obstacles to the participation of the poor. The poorest farmers sometimes depend on daily wage labour for their livelihood and thus cannot expend the time required to participate in social forestry (Bratamihardja, 1989:7). In some cases, poor farmers are not able to provide the required inputs, especially the initial labour involved in site preparation. In other cases, participation by better off farmers has impeded participation by poorer farmers. For example, research at *tumpang sari* projects (Peluso, 1986:32-33) showed that, in many cases, better off farmers could acquire preferred plots through economic or political power in the village, close relations with foresters, or through pay-offs.[1] In some

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labour force working the plot.

[1] In common usage, 'tumpang sari' refers to an agroforestry reforestation scheme which was established prior to social forestry in Java. At 'tumpang sari' projects, usufruct rights are from two to four years and participants work independently rather than as part of a Forest Farmer Group.
In the original, strict meaning, 'tumpang sari' is a forest land use technology and not a forest management programme. 'Tumpang sari' technology is known as 'taungya'

cases, better off farmers bought access to reforestation plots from poorer farmers.

Perhaps the most important obstacle is the orientation of forestry field personnel. Many are still not conscious of the reasons for prioritizing the poor nor of the means for doing so. Some hold the view that the poorest rural inhabitants, as a general rule, are either incapable of or unwilling to be responsible participants at social forestry project sites.[9]

2. Objective of the research project

One of the two central questions of the research project is: How does the socio-economic status of social forestry project participants compare with the status of non-participants in the vicinity of the four sites being researched?[10]

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in other countries. The Java Social Forestry Programme incorporates a modern version of this technology called 'integrated tumpang sari'. For information on the various versions of 'tumpang sari' used in Java since 1883, see Junus Kartasubrata (1989), "Agroforestry Systems and Technologies in Indonesia", paper presented at the Seminar on Agricultural Change and Development in Southeast Asia, Nov. 20-23, Jakarta, Indonesia.

[9] Personal communication with Suwarno, coordinator of Central Java Social Forestry Programme, August 25, 1989.

[10] The second central question of the research project is: How does the variable socio-economic status of participants relate to the fulfilment of project goals - among them, reforestation, reduction of environmental degradation, raising of living standards, and alleviation of tension between the SFC and villages near state forest areas? This report examines the first question, but not the second because much of the data related to the second question has not yet been collected or processed. Given the restricted scope of this report, the discussion on methodology, which follows, will concern itself only with the first research question.

In answering this question, it can be known to what extent the poor have been given priority access to forest land. A key adjunct question is: How was land in the project distributed? The equity outcome is determined not just by who is chosen, but how the land available for reforestation is divided.

3. Methodology

a. Site Selection

Four sites were selected to serve as individual case studies and to serve as a basis for comparison among sites. The sites were chosen according to certain contrasting features, on the assumption that this would provide insights on the key questions being investigated.

Two sites were chosen because they had relatively better soils (teak location B and damar location D) and two were chosen because they had relatively poorer soils for agricultural purposes (teak location C and damar location A).[11] It was assumed that the richer soil sites would attract both poor and non-poor farmers alike, whereas the poor soil sites would attract mainly poor farmers.

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[11] The two poor soil sites (A & C) are not equivalent to each other in soil quality. Likewise the two good soil sites (B & D) are not equivalent to each other in terms of soil quality. On an absolute scale of soil quality for agricultural crops, the case study sites might be classified roughly as follows: Location A - poor-fair; Location B - fair-good; Location C - poor; Location D - excellent.
Two teak and two non-teak sites were chosen on the assumption that this might reveal a contrast in the amount and quality of extension services between teak and non-teak sites. Teak is the source of more than 90% of the SFC's income. This assumption was not borne out.

For purposes of having as reliable a basis of comparison as possible, it was judged important that all projects be started in the same year. All of the chosen sites were started in 1987, the first year of programme expansion beyond the original 13 pilot project sites. It was deemed important that the sites should not be more recent than 1987 so that there would be time for the projects to mature and have their strengths and limitations revealed at the time of the research.

It is not assumed that the four sites researched are a representative sample of all social forestry sites in Java. This is because four sites are too few to represent the more than three hundred sites that currently exist. Moreover, a rather large sample would be necessary to represent social forestry sites in Java because there is so much variability among sites. The four sites chosen serve merely as illustrative case studies.

b. Target Population

Because it was not possible for us to gather data on all relevant households in all relevant villages in the area of each project site, we established two levels of concentration. 'Area I' is the village sub-section, village, or villages closest to the project site, and 'Area II' is the village sub-section, village, or villages furthest from the project site. In this research, we devoted most of our attention to 'Area I'.[12]

[12] In 'Area I', all households were interviewed with a census and all participant households were interviewed with a questionnaire; a representative sub-sample of non-participant households in 'Area I' was also interviewed with a questionnaire. In 'Area II', our aim was to interview with a census and questionnaire a sub-sample of participant and non-participant households. The representativeness of the samples in 'Area B' varied greatly among sites because of time constraints and unique local conditions.

1. Location A in West Java

a. Site History and Characteristics

A social forestry pilot project was established at location A in 1986 on a 25 hectare damar site. In 1987, an additional 35 hectare damar site was established nearby. The second, 1987 site is the subject of our research.

Though there have been *tumpang sari* sites in the area since the 1960s, dependence on the forest for household income is rather low in comparison to the other three sites. Social Forestry was introduced not as a means to alleviate tension between the SFC and local villagers, as at many sites.[13] Rather, Social Forestry was introduced anticipating that the low level of income in the area would eventually lead to pressure on area forests. Most area farmers have less than 0.25 hectares of farmland or no land at all. approximately one quarter of households in 'Area I' depend on income from a nearby tea plantation for their living. Wages at the tea plantation are very low –about 700 rupees per day.[14]

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[13] At Location A, there has been no serious conflict between the SFC and the community. There has been no unauthorized occupancy of forest land and damage to the forest has been relatively minor.

[14] Seven hundred rupees is equivalent to US$ 0.38 at the current exchange rate.

c. Distribution of Plots

The aim in the distribution of plots was for households to define the boundaries of a plot according to the size of their family labour force. There were problems resulting from the fact that this plot distribution system was conducted on a first-come, first-served basis. Those who came first tended to get the largest and most fertile plots while those who arrived last tended to get the least fertile plots and sometimes got plots that were smaller than their family labour force.

Among those who arrived late were several people who decided not to work the plots that were left to them because the land was judged to be inadequate. Among respondents who complained that the process of plot distribution was unjust, most were land-poor and landless farmers.

2. Location B in Central Java

a. Site History and Characteristics

A Social Forestry pilot project was established at Location B in 1986 on a 15 hectare teak site. In 1987, an additional 25 hectare teak site was established nearby. The second, 1987 site is the subject of our research.

The vast majority of households in the area of Location B rely on agriculture for a living. Most of these households are involved in forest farming, whether at a *tumpang sari* project or in a Social Forestry project. The relatively high dependence on forest land in the area results from the increasing need for agricultural land in combination with high population pressure.

Tumpang sari was introduced to the area in the 1960s as a means to alleviate uncontrolled tree felling and wood gathering. Wood was being gathered as a source of supplementary

household income. From the late 1970s through to 1983, the SFC did not establish any new *tumpang sari* sites in the area of Location B. In 1983, the SFC resumed opening forest land for *tumpang sari* projects because of excessive wood gathering, an increase of wood theft and forest fires, and the failure of labour-based community reforestation projects (*cemplongan*).[15]

Social Forestry was introduced in the area of Location B in response to continuing appeals for additional forest farmland. It was felt that Social Forestry could help alleviate the forest farmland shortage by providing an extended period of forest farming in comparison with *tumpang sari.*

b. Selection of Participants

The selection of participants at the 1987 expansion site is closely related to the selection of participants at the 1986 pilot site. This is because – owing to the small size of plots at the 1986 site – participants in the 1986 site were offered priority access to land at the 1987 site. 56 of the 66 participants at the pilot site acquired land at the 1987 site.

The selection of participants for the 1986 pilot project must be discussed because it represents the original history of the selection of participants at the 1987 site. The 1986 pilot project site was opened as a *tumpang sari* site prior to its designation as a Social Forestry pilot project. As there was no equity mandate governing participant selection at *tumpang sari* sites, a significant number of farmers entered who neither were neither landless nor land-poor. Many of these farmers then became participants at the 1987 site.

With land left over after participants of the 1986 site had selected parcels at the 1987 site, 16 new participants were added. The

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[15] Cemplongan is a system of reforestation using hired daily-wage labour. The labour is used for planting and maintaining reforestation trees. There is no farming between rows of maintree/timber trees.

new participants were chosen by the heads of the FFGs and an SFC forester, on the basis of an agreement between the project membership and the SFC. Generally speaking, those who were chosen as participants were friends and neighbours of the heads of the three FFGs. Though most of the 16 were in fact poor, this might only be an incidental outcome of the selection process.

There was some displeasure at the way the additional 16 participants in the 1987 site were chosen. This was because there were some people who had tried to apply to enter the project, but were told that only participants of the 1986 project would be admitted as participants in the 1987 project.

c. Plot Distribution

For the most part, plots at the 1987 site were allocated through a lottery system. There are several people who obtained plots in ways other than through the lottery system. These people are the heads of the FFGs, the SFC forester associated with the project, the village chief, and several of the additional participants who joined because there was unclaimed land.

The heads of the FFGs, the SFC forester associated with the project, and the village chief were allowed to choose their own plots before the lottery was carried out. In the case of the heads of the FFGs and the SFC forester, this functioned as compensation for their work in the service of the project. The plots received by additional participants were allocated directly by the heads of the FFGs.

There were no reported problems with this process of plot allocation. All participants interviewed stated they were satisfied with the process as conducted. Each participant was able to get a plot with an average size of 0.25 hectare. Exceptions were the heads of the FFGs and the SFC forester, whose plots were approximately 0.40 hectare, and the additional participants, whose plots were approximately 0.125 hectare.

3. Location C in Central Java

a. Site History and Characteristics

A teak social forestry site was established at Location C in 1987 as a means to address problems of teak theft, excessive wood gathering, uncontrolled grazing, and failed reforestation efforts by other means. Trees planted through the *cemplongan and tumpang sari* systems had a relatively low rate of survival. Through social forestry it was hoped that the incomes of participant households could be raised and that cut and carry fodder could be grown at the site in order to limit uncontrolled grazing.

Growth rates of the fodder crop (*Setaria* grass) at the site have been disappointing, but the other goals of the project are being met. In spite of variable soil fertility among the plots, there has been, on the whole, a rise in household income for participants. The teak reforestation trees are growing well in comparison with survival rates at nearby *tumpang sari* sites,[16] and rates of teak theft in the area have declined significantly. SFC foresters believe that the drop in teak theft is a result of several factors, among them: the success of the social forestry project in raising household incomes and overcoming past tensions between villagers and the SFC; the inclusion of people from the community in the forest work force; well-organized night patrols; and a working relationship between the SFC and the village chiefs and police.

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[16] There is wider spacing between teak trees at social forestry sites (6 x 1 metres) than at tumpang sari sites (3 x 1 metres). With the wider spacing at social forestry sites, the teak canopy does not close as fast and participants are able to obtain better agricultural crop yields over a longer period of time. Because they can obtain a better income in Social Forestry, participants are more likely to cooperate in SFC-mandated tree maintenance tasks.

In the area of Location C, agriculture is the primary source of income. Many area residents supplement relatively low yields on poor soil with part-time or seasonal labour. Among the more important sources of non-agricultural income are labour in the areas of oil drilling, construction, and harvest processing, and petty commerce.

b. Selection of Participants

Participants in the Social Forestry project were selected in a two-stage process. First, a decision was made that past participants in a *tumpang sari* project that had once existed on the same tract of land would be given priority to become participants in the new Social Forestry project. 47 participants entered the project through this offer.

Second, it was decided that those who had had plots larger than 1.0 hectare in the *tumpang sari* project would have their plot reduced in size in the Social Forestry project. This freed land at the site which was then made available to 11 additional participants.

As demand for land in the project was not excessive, there were no stipulations as to who could or could not become a participant in the project. All interested parties were admitted, regardless of their socio-economic status.

There were only 6 land-poor (less than 0.25 hectare of owned land) and 2 landless households in Area I that were not participants in the Social Forestry project. Three of the land-poor households had access to *tumpang sari* land and three did not. One of the landless households had access to *tumpang sari* land and the other did not. These households were interviewed, among other reasons to know why they had not sought entry into the project. The respondents said that they did not seek entry

because their household needs were already met, either from *tumpang sari* land, their own land, or from trade.

c. Distribution of Plots

Participants who had worked the land before, when it was a *tumpang sari* site, were free to choose their plots and establish boundaries among themselves. SFC foresters merely measured the plots once they had been established and marked the boundaries on a site map. The plots of additional participants were designated through a formal process overseen by SFC foresters. These additional participants later shifted boundary locations among themselves in order to adjust the area of their plot to the size of the family labour force.

These methods of plot distribution caused no apparent problems among participants. However, there was a tendency for those who arrived first to get the best plots.

4. Location D in East Java

a. Site History and Characteristics

The damar social forestry site at Location D is in a mountainous, rich-soil area of East Java. In the decades prior to the introduction of *tumpang sari* in this area, population pressure and scarcity of agricultural land led to increased reliance on the forest as a source of income. People sold furniture made from local timber, timber, firewood, bamboo, and medicinal herbs. Over-exploitation of the area forests led to conflict with the SFC.

Tension with the SFC diminished after the introduction of the *tumpang sari* system in the 1970s. The income of community members improved somewhat and there was even an increased awareness toward the environment. This was all the more so, in the beginning of the 1980s, when the introduction and development of a local dairy cattle industry raised incomes.

Production on *tumpang sari* lands and intensification of the cattle industry were complementary sources of income. It was evident that between the two, income needs were being fulfilled because there was no need for additional forest clearings for *tumpang sari* sites until 1986. However, by 1986, some people in the community were selling off their cattle to meet their consumption needs.

The social forestry site at Location D was established in 1987. This was a time when over-exploitation of the forest was resulting in environmentally unstable conditions. The low socio-economic status of the community near the forest had led once again to excessive fuelwood gathering and wood theft. The Social Forestry Programme was introduced in an effort to arrest this environmental degradation, and in an effort to increase the success rate of reforestation and increase the real incomes of area farmers.

b. Selection of Participants

At the time before the project was begun, the forest ranger announced availability of land at the site via forest overseers and several appointed community members.[17] The word was spread through meetings and house to house visits. The overseers and appointed community members were designated as the

[17] The forest ranger (mantri) is responsible for a range of forest management activities, including reforestation and law enforcement. The forest ranger supervises the work of forest overseers (mandor) in his/her district.

pemrakarsa, that is, the group of individuals responsible for selecting participants for the project.

Participant selection was carried out in two ways. Some people declared their interest to the *pemrakarsa* in order to be registered as candidates for selection, and others were approached individually by him through house visits.

There were two criteria in the selection of participants. The first was the applicant's ability to pay an illegal rental fee requested by the *pemrakarsa*.[18] The second was the applicant's willingness to plant and care for reforestation trees. This second criterion was evaluated by the *pemrakarsa* on the basis of the performance of the candidates in past *tumpang sari* projects. The closeness of the relationship of the applicant to the *pemrakarsa* also played a role in the selection process.

The methods and requirements in the selection of participants for the Social Forestry project at Location D were not different from those applied in the selection of participants for *tumpang sari* projects in the area. At the Social Forestry project, 60% got plots through rental payment, and 40% got plots without paying the rental fee.

c. Distribution of Plots

The distribution of plots was carried out by the *pemrakarsa* based on the participants' ability to pay. Those participants who paid a higher rental fee got a larger plot in a more favourable location at the site. On the other hand, those who paid a lower fee or did not pay at all got a plot of lesser quality.

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[18] Collection of rental fees for use of land by participants in Social Forestry and tumpang sari projects is strictly forbidden by the SFC.

There are thus three levels of membership resulting from this method of plot distribution:

1) Participants who paid a high fee (100,000 rupees) got a 0.25 hectare plot and a better location at the site.

2) Participants who paid a low fee (between 30,000 and 50,000 rupees) got a 0.125 hectare plot. The quality of these plots varied.[19]

3) Participants who did not pay a rental fee got a 0.125 hectare plot at an unfavourable location. Exceptions were FFG managers, who did not pay the rental fee and who got plots ranging from 0.20 to 0.25 hectares.

Most survey respondents viewed the processes of participant selection and plot distribution as bad, because they did not take social equity into account.

[19] One hundred thousand rupees is equivalent to US$ 55.55 and 30,000 to 50,000 rupees is US$ 16.66 to US$ 27.77 at the current rate of exchange.

1. Location A in West Java

In order to carry out a meaningful analysis of equity in participant selection, we must establish whether there are participants of adequate means occupying plots that might have been worked by non-participants who are poor and who sought entry into the project. Our analysis of this kind shows the following result.

i) At one of the sites (Location C) the process of participant selection was equitable in spite of the fact that farmers of adequate means were admitted. The number of farmers seeking membership in the project was in balance with the amount of land being offered at the site. As such, all applicants could be admitted, regardless of socio-economic status. There was no need to prioritize the poor.

Location C is one of the sites in the study with comparatively poor soil for agricultural purposes. From this we make the tentative observation that at relatively poor soil sites, interest in farming at the site may be at such a low level that the equity mandate need not be applied.[10]

ii) At Location A, there are some farmers of adequate means in the project, whereas there are some poor farmers in the community

[10] This observation is tentative because soil quality within a given social forestry project is not the only factor influencing farmers' interest in joining that project. It is known, for instance, that at some poor soil sites, there are many applicants because soil quality in the community outside the site is even poorer than within the site.

who had been interested to join the project but were not able to, due to deficiencies in the process of plot distribution.

Plot distribution at the site was conducted on a first-come, first-served basis. The process of plot distribution thus functioned as a *de facto* process of participant selection. Several landless and land-poor farmers were unable to farm at the site because they were among the last to arrive and received plots that were judged to be inadequate. This outcome illustrates the importance of making a sound decision as to whether or not equity criteria should be applied in the process of participant selection.

iii) At Location B and D, there are some farmers of adequate means in the project, whereas there are poor farmers in the community who had been interested in joining the project but were not accepted as participants.[21]

At Location B, the equity mandate was not observed, largely because of the carry-over of pre-existing participant selection criteria. With the promise of new forest land having been made to participants in the 1986 site, before the equity mandate became policy, the prior 'performance' criterion for entry into the project took precedence over the equity criterion. Sixteen of the 1987 site participants were to have been admitted on the basis of equity criteria, but they were admitted largely on the basis of their relationships to people responsible for selecting new participants.

At Location D, illegal rental of reforestation plots at the social forestry site prevented the participation of poor farmers who would have liked to join. Rather than seek participants according to their socio-economic status, those responsible for participant selection prioritized farmers who were most able to pay rent.

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[21] As the data has not yet been analyzed, we cannot yet supply the number of farmers in each of these categories.

Although SFC field personnel at each site showed some awareness of the equity mandate, there was no evident commitment to its implementation, nor sufficient training and guidelines for those responsible for its implementation. Nor did there appear to be any widespread knowledge in the community that the poor were to have priority.

In order to remedy these deficiencies, it is recommended that the following steps be taken:

I. Devise a system of participant selection that includes:

   a. systematic and widespread notification of the availability of forest land and of the intent to prioritize the poor in participant selection, if necessary;[22]

   b. formal registration of people applying to participate;[23]

   c. guidelines for deciding whether the equity mandate should be applied, based on the number of applicants and a formal survey of the land available at the site;[24]

   d. public notification of whether participant selection will be based on equity criteria, or not;[25]

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[22] At Location A, a number of respondents complained that they would have applied to participate but found out late about the availability of land at the site.

[23] At most of the case study sites, the practice is to make a verbal declaration to SFC field personnel. There is the risk of error if participant selection depends on memory or informal record keeping.

[24] The experience at Location A demonstrates that this practice may be necessary even at sites with relatively poor soil.

[25] People at Location B objected to the process of selection of the 16 additional participants not because equity criteria were not applied, but rather because they thought only participants at the 1986 site would be allowed to participate. Public awareness of the equity mandate would assist the goal of accountability.

e. participant selection guidelines which assist in determining who are the poor and which instruct forestry field personnel how to combine equity criteria and performance criteria.[26]

II. Have training sessions for SFC personnel on the system for participant selection, including consciousness-raising on reasons for prioritizing the poor.

III. Improve systems of oversight and accountability with the aim of ensuring that illegal rental of Social Forestry land and favouritism do not take place in the process of participant selection.

In comparing participant and non-participant populations at each site, we avoided basing our analyses on landownership data alone. Landownership data is not always a reliable indicator of wealth and it is not necessarily a reliable indicator of success or failure in fulfilling the equity mandate. For example, a disproportionately high percentage of landless and land-poor at a site does not mean that the high percentage results from an attempt to recruit the landless and the land-poor.

At Location C, there was no effort to recruit the landless and the land-poor, and yet at that site, there is a much higher percentage of landless and land-poor among participants than among non-participants. This higher percentage reflects the dependence of the landless and land-poor on access to forest land.[27] At Location C, the high percentage of those with less than 0.25 hectare of land in the project is an indicator of high dependence of the poor on forest land in that area.

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[26] Performance in the care of reforestation trees at past project sites is being retained as a criterion, but is secondary to the equity criterion.

[27] At the four sites researched, households (both participant and non-participant) which relied on forest land for most of their income were mostly those owning less than one quarter hectare of land or those having no land at all.

2. Distribution of Plots

There was variation among the sites in the method of distributing reforestation plots to participant households. In summary:

(1) At Location B, plots were allocated through a lottery system.

(2) At Location C, most participants had worked the land in the site previously when it was a *tumpang sari* site. These participants, generally speaking, worked the same plots that they had worked before. Those participants who had not worked land at the site before were allowed to choose plots from the remaining land on a 'first-come, first-served' basis.

(3) At Location A, participants chose plots on a 'first-come, first-served' basis.

(4) At Location D, plots were allocated by decree of foresters responsible for plot distribution, and through the transaction of plot rental. Rental prices varied according to the size and quality of the plot.

At all social forestry sites, there is variation in the attractiveness of plots depending on plot size, distance from the farmer's home, level of exposure to sunlight, soil fertility, the presence or absence of rocks and stones, soil compaction, drainage, and slope. The lottery – the system used at Location B – is often spoken of by forestry officials and farmers as being the best method for assuring fairness in plot allocation.

Participants at Location B expressed satisfaction at having used the lottery system to allocate plots. It may be that at Location A and C, the lottery system was not deemed necessary because of the relatively low quality of the soil in the sites and because of the

relative absence of competition for entry into the projects. However, there was dissatisfaction expressed at both sites about the 'first come, first served' method for plot allocation. Perhaps the lottery system could have been used to good advantage at Locations A and C in order to avert tension.

IV. SUMMARY

We found that prioritisation of the poor in participant selection did not occur at any of the four sites researched. This was either because such prioritisation was deemed unnecessary (Locations A and C), because other rules of participant selection were in force (Location B), or because the equity mandate was ignored (primarily at Location D and to a limited extent at Location B).

SFC officials at each site were aware of the equity mandate but in some cases did not appear to be committed to the mandate. In all cases, they had insufficient training or guidelines for implementing the policy. It is recommended that training and guidelines be improved upon to remedy this problem. adequate systems of oversight and accountability would promote compliance with the equity mandate.

Soil quality apparently played a role in determining the relevance of the equity mandate at each site. At the two sites with comparatively poorer soil (Locations A and C), equity criteria for participant selection were deemed unnecessary because of apparent low interest in joining the project. At the two sites with relatively better soil (Locations B and D), there was abundant interest in joining the project and for that reason, equity criteria for participant selection were necessary.

At Locations A, B, and D, negative consequences resulted from not applying equity criteria in the selection process. We deduced this from the fact that there were relatively well-off participants in the projects who were farming land that might have been farmed by poorer members of the community. (These poorer people had had an interest in joining the project at the time it opened.) In reaching these conclusions, we were mindful of the limitations of relying exclusively on land ownership data.

The lottery is a useful means of assuring fairness in the distribution of plots. It was used only at Location B. If it had been used at the other locations, some disappointments might have been averted and it might have helped assure an equitable distribution of land at the site.

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ACKNOWLEDGEMENTS

The authors owe special thanks to Dr. Junus Kartasubrata, Dr. Sediono M P Tjondronegoro, and Mr. Muljadi Bratamihardja at the State Forestry Corporation and to Ms Frances Seymour of the Ford foundation, for their wise counsel and moral support during the field research.

We are indebted to all our respondents at the four research sites and to countless employees of Indonesia's State Forestry Corporation, for their hospitality, their generous sharing of information and opinions, and their forbearance towards our inquisitiveness.

Our gratitude also goes to members of the support staff at the Centre for Development Studies in Bogor who performed countless favours on our behalf.

Finally, we wish to acknowledge the kind help of the following people, who reviewed and offered thoughtful comments on the draft of this manuscript, or on the longer report of which this manuscript is a product: Christopher Barr, Junus Kartasubrata, Frances Seymour, and Carol Stoney.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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SOCIAL FORESTRY NETWORK

SOCIAL FORESTRY IN DISPUTED UPLAND AREAS IN JAVA

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Network Paper 10b

Summer 1990

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SOCIAL FORESTRY IN DISPUTED UPLAND AREAS IN JAVA

Dadan Suwardi Machfud

INTRODUCTION

Brief Description of Perum Perhutani

Perum Perhutani, the State Forest Corporation, manages approximately 2.9 million hectares of forest land on the island of Java. This land is divided into production forests of 1.8 million hectares, nature reserves of 731 thousand hectares, and protection forests of 419 thousand hectares. In managing these lands, Perum Perhutani has two overall goals: economic profit and public service.

Perhutani has three unit/branch offices: Unit I – Central Java; Unit II – East Java; and Unit III – West Java. The scope of Perhutani's activities include: reforestation plantations, commercial exploitation, sericulture, pine resin collection, deer and crocodile breeding, and rural community development (PMDH).

Social Forestry in Java

History

The social forestry programme in Java was recently given added impetus through cooperation between the Ford Foundation and the Forestry Department. The history of this cooperation is as follows:

1984–1985	Seminar/workshop on social forestry held; establishment of Policy Review Steering Committee and Technical Steering Committee; diagnostic research carried out in 13 sites in West Java, Central Java and South Sulawesi.
1986	Pilot projects begun in 13 sites (totalling 231 ha), including 5 sites in West Java, 4 sites in Central Java and 4 sites in East Java.
1987	Follow–up and expansion of number of pilot project sites from 13 to 61 (totalling 1,561 ha).
1988	Number of pilot project sites further expanded to 120 (totalling 3,040 ha).
1989	Follow–up and further expansion of pilot project programme.

The Forest Department gave operational responsibility for all social forestry activities, in particular on Java, to Perum Perhutani. Before the present social forestry programme began, Perhutani had some experience in implementing similar programmes, such as *'The Prosperity Approach'* (a village economic development programme), *'Ma–Lu'* (*'Mantri–Lurah'*, emphasizing collaboration between the forest ranger and the village head), the *'Forest Village Development Programme'* (PMDH) and an earlier 'Social Forestry Programme'. The basic objective of these programmes was to assist villagers in meeting their needs. Some extension technologies developed in the course of these programmes including those for *'tumpang sari'* (tree–crop intercropping), capture of scarce water, building check dams, setting–up demonstration plots for fodder production, and so on.

Exclusion from Disputed Areas

These social forestry projects, in particular the new programme developed with Ford Foundation support, are being implemented on lands with critical status (viz, lands degraded from their natural state), and on lands adjacent to the village. The status of these lands is clear, they are not disputed. To date all social forestry projects have avoided

the so-called *tanah sengketa* (disputed lands), referring to lands within state forests and lying under the jurisdiction of Perum Perhutani, that are nevertheless being exploited by local villagers.

Disputed Use of Forest Areas in Java

History

a. Peasant claims

Some villagers claim to have originally entered the forest to carry out guerilla warfare against the colonial regime. Today the descendants of these guerillas farm the same lands (passed down to them by their parents or grandparents). Because their ancestors farmed this area long ago, these peasants feel that they have hereditary rights to do the same. In other cases, as part of a contemporary land-acquisition strategy, villagers plant perennial crops (coffee, cloves, etc), then after these plants mature, they cut the surrounding forest trees and claim the area as their own. This sequence of events is common in east and central Java (Bibrikan), in particular. These efforts by the villagers to illegally occupy the forest are based on their lack of access to land for farming, lack of employment opportunities, and low household income.

b. Government claims

Basically, the government and Perhutani claim all disputed land or otherwise illegally occupied land in the forest areas. On the foresters' 'work maps', therefore, the disputed areas are designated as government forest (despite the fact that the disputing villagers often relocate the boundary markers). In some areas, Perhutani forcibly insists on this designation, by burning houses and evicting the farmers.

Current Extent

Due to illegal use, forest land on Java is becoming degraded and less productive, and it is estimated that about 250,000 ha have become completely unproductive (Bratamihandja, 1988). This is a source of major concern to the government, because of its belief that these forests have a vital role to play in supporting national economic development and environmental conservation.

Attendant Problems

a. Impact on the environment

A lot of forest areas have been changed by illegal occupation to other functions: *huma* (dry rice fields), *sawah* (wet rice fields), *kebun* (gardens), and *pemukiman* (settlements). The result is the long term degradation of natural forests to agricultural lands, with consequent disruption of many of the natural forest functions in the greater ecosystem. In addition, because of decreasing ground cover, erosion is increasing in the disputed areas (particularly in the rainy season). Erosion is exacerbated by the widespread practice of removing the roots of trees that have been cut (whether by peasant or Perhutani), in order to make charcoal. Occasionally, fires set to clear fields for slash–and–burn agriculture also burn out of control, affecting a larger portion of the forest than originally intended and damaging young plants in the adjacent areas.

b. Impact of forest production

The direct as well as indirect consequences of the disputed use of forest land by local villagers result in a decrease in that forest's marketable timber, as well as an increase in Perhutani's costs for rehabilitating and protecting it.

c. Constant expansion of areas

It is not uncommon, over the long–term, for peasants to expand their fields at the expense of bordering forests. This practice,

called *maju kesisi* (advancing to the side), is usually accorded tacit approval by village leaders, in return for a share of the harvest (often about 15% of the total).

d. Socio-political costs

Perhutani's personnel sometimes take forcible action to remove cultivators from disputed areas, but this causes the peasants to think of Perhutani's personnel as their 'enemies'. This negative perception of Perhutani is often generalized from Perhutani (as representatives of the government) to the rest of the government, so that what was originally a local dispute over natural resource use leads to a general breakdown of relations between the rural population and the central authority.

Role of Disputed Areas in Perhutani Activities

The disputed areas are usually excluded from all of Perhutani's activities and are not included in the annual planning process for reforestation. On those occasions when these areas are included in the annual planning, little effort is made to ensure that the most suitable system of planting is used. For example, when a reforestation area contains some disputed lands (because some peasants have fields there), *tumpang sari* (intercropping) is the most appropriate management system to use, because it allows the peasants to continue to grow their own crops while protecting the forest and optimizing land use. Unfortunately, in such cases *banjar harian* (contracting labourers on a daily basis) is mistakenly implemented instead. The use of such a system flies in the face of the hard reality of the use of forest lands by local villagers, who have no alternative, and who will not desist until given an alternative.

Drawbacks to Coercive Measures by Government

As just noted, it is difficult to relocate forest settlements because there usually are no alternative locations outside the forest. Also, harsh measures such as burning houses and damaging fields are not humanitarian. They may also be impractical, since the settlements and

fields involved are usually far more scattered than in the normal village, and hence difficult to find in the first place.

Thesis of the Paper

Use of Social Forestry in Disputed Areas

It is the thesis of this paper that the use of social forestry in disputed forest areas can help to solve the problems described above without need for punitive measures or actions. A social forestry programme will help to advise peasants, organize them, and make them aware of the uses and functions of the forest. In addition, social forestry can provide education, apply technology, and most importantly, clarify the status of the disputed lands. This will enable people currently seen as outlaws to become law-abiding citizens, and permit a *bagi hasil* (division of spoils) system to be established between the villagers and Perhutani. Social forestry would promote both optimal land use and preservation/augmentation of the tree cover.

Outline of Paper

I will begin my analysis with a description of current peasant land uses in disputed areas. This will include data on patterns of settlement as well as agriculture, the determinants of these patterns, the resultant state of the environment in disputed areas, and a comparison with the state of the environment in non-disputed areas. this will be followed by discussion of two case studies of Perhutani-peasant collaboration in disputed forest areas. For each case, I will describe the original situation, the joint resolution by Perhutani and the local peasants, and the lessons to be drawn. I will conclude with a discussion of the need for, value of, and also special character of social forestry programmes in disputed forest areas, along with several specific recommendations for follow-up.

Settlement Pattern

Settlements for disputed areas normally consist of 5–15 households, found either scattered or in groups. They may be located either at the edge of the forest or deep inside it. The houses may be either permanent or semi-permanent. Sometimes they have informal village leaders. There are both local and immigrant settlers, the latter coming to this area from elsewhere with their families.

Patterns of Agriculture

Wet Rice Fields (Sawah)

Wet rice fields are found in the valleys (on level land). Some of these areas depend on rain for irrigation, while others have independent water sources. There is no intensive irrigation. These rice fields were established long ago and the peasants manage them traditionally. A few of them work the fields with *bajak* (ploughs) drawn by cows or buffaloes, while others use hoes. They make shelters nearby for resting, and plant cassava, etc. around these huts. Rice is harvested twice a year. There is a four-months *bero* (fallow) after the second harvest.

Dry Rice Fields (Huma)

Dry rice fields are found in fertile lands, young forest plantations, *alang-alang* (*Imperata cylindrica*) fields, and waste lands. Such lands are often not yet included in Perhutani's planning process. Most of

these fields are located well inside the forest areas, some far from the farmers' houses and others near. Peasants prepare these lands for cultivation by burning the vegetation, breaking and then hoeing the ground between August and September. When the land is ready, they plant it with rice *(padi gogo)* and after the rice harvest (in February – July) they plant corn, red pepper, small potatoes *(kumeli)*, beans, and so on. Rice is harvested once a year. There are no perennial crops in this area because the time to maturation is too long and they fear losing them to the forest guard. Peasants crop these fields two or three times before fallowing them.

Tree Groves/Plantations *(kibun)*

Tree groves and plantations are commonly located near houses in the forest border areas; but they may also be found far from farmers' houses in the centre of the forest. Peasants try to establish their rights to the land involved by removing border poles *(Patok)* or boundary markers. In other cases, they plant seeds stealthily in strategic areas and after these reach seedling stage or maturity, they cut the forest trees. This strategy is also practised on waste lands and in young forest plantations. The crops in these groves and plantations are generally perennials such as coffee, cloves, rubber, coconut, durian, rambutan and bamboo. Sometimes these are mixed with annual crops such as pineapple or cassava. One likely factor in selecting these crops (versus food crop) is their value in conferring property rights on those who plant them.

Determinants of Land–Use Pattern

Fear of Discovery vs Desire for Tenure

Farmers in disputed areas may choose areas that are either close to the forest's edge or deep within it. Their choice depends on their long–term goals. If their goal is to gain ownership rights they choose lands that are more easily disputed. If, on the other hand, their goal is increased income, they may choose lands deep within the forest. In the

former case, they may try to confuse Perhutani's personnel by moving boundary markers. They may also plant various seeds (coffee, cloves, rubber, etc) stealthily; then when plants have grown, they cut the forest trees. When farming deep within the forest they may come to the field in a large group (3–10 people), capable of openly opposing Perhutani's personnel. They wish to secure ownership rights because the land is fertile, suitable for farming/gardening, and located adjacent to their homes yet far enough to be beyond the constant monitoring of Perhutani personnel.

Lack of Long–Term Investment Interest

Most farmers know that the forest area belongs to Perhutani. They do not have *hak milik* (ownership rights) and they know that their activities are illegal. Because of this, they lack long–term investment interest in these forest lands. An exception is the forest border areas, where investment is sometimes made.

Involvement of Urban Entrepreneurs

Urban–based entrepreneurs strongly influence forest use patterns, particularly in coastal mangrove forests, where they give farmers capital for land clearing and fishpond constructions; they may also give farmers ideas and incentives. In all such cases, the farmer is a labourer in their employ. After each fish harvest he gets a share (averaging 15–20%). Since these entrepreneurs come rarely to the field, it is difficult for Perhutani's personnel to deal with them.

State of the Environment

Tree Cover

There are no trees in either wet or dry rice fields. The farmers plant only annual crop after the main rice harvest (e.g. potatoes, beans, red

peppers, etc.). Many kinds of perennial crop are found in groves and plantations, but few forest trees. In some gardens *(pekarangan)*, coffee, rambutan, bamboo, etc. are found.

Erosion

Erosion patterns vary with land management techniques. In the dry rice fields *(huma)*, the method of land clearing and the use of hoes and terracing affects the rate of erosion. In the wet rice fields *(sawah)*, the nature of irrigation influences the rate of soil loss. In home gardens and forest plantations, erosion rates are moderate.

Comparative Analysis of Environment

Compared to State Forests with no Peasant Use

State forests that are free from any local peasant land use usually have better tree cover than those in disputed areas. In many such forests Perhutani uses the contract system *(banjar harian)* involving the villagers, to maintain the forest plantation by weeding and pruning. Enrichment planting is also done when any forest tree dies. The ground cover in such plantations is established between the fourth and sixth year. Common ground covers include grasses and shrubs such as *Lantana camara.*

In state-managed forests, the land is not exploited as intensively as in the disputed areas. For instance, there is no burning, no hoeing, and no breaking of ground, not even during logging and reforestation. For the latter, land clearing is done by cutting groves of trees; the ground cover is not disturbed. Under such conditions, erosion levels are relatively low.

Compared to State Forests with Approved Peasant Use

In the *tumpang sari* system practised in these forests, the survival rate of seedlings and poles is more than 90%. Enrichment planting is always done by the farmer and the forest trees benefit from the weeding and fertilizing that the farmers do to their annual crop. Again, therefore, the tree cover is better than in the disputed areas.

The *tumpang sari* system employs terracing as well as intensive inter-cropping of *Leucaena* and grasses to prevent erosion. Small drainage ditches *(parit)* are also built. All of these measures keep the rate of erosion lower than in the disputed areas.

Compared to the Peasants' Own Land

The peasants plant many kinds of trees (incl. perennials and forest trees such as *Albizzia*, bamboo, etc.) on their own land. Peasants think it is most important to use this land intensively. The tree cover here, is also better than on disputed land.

The peasants terrace the slopes of their own fields and on the steepest slopes they also bank the terraces. this reduces the rate of erosion compared to disputed land.

EXAMPLES OF PEASANT–PERHUTANI COLLABORATION IN DISPUTED AREAS

Cikeong Mangroves

Former Situation

For a long time, mangrove land management has included the building of fishponds where peasants raise fish for sale. Probably because of a lack of control (on the part of the Perhutani), problems have arisen, particularly related to the building of illegal fishponds. There are two kinds of fishponds: old and new ones. Problems include stealing of fish, illegal cutting of firewood for cooking and processing fish (by steaming), deteriorating forest security, and the felling of mangroves to enlarge fishponds. The last activity involves the conversion of the older and less destructive type of fishpond (called *pola empang parit* and shaped like canals) to the newer, and more destructive type (called *pola empang parit terbuka*, shaped like a simple square).

Outside entrepreneurs *(pihak ke tiga)* have been involved in this process. They put up the capital to meet the costs of building new fishponds, renovating old ones, stocking them with fish, and maintaining them. They also gave ideas and incentives to the farmers, who in some cases were reduced to mere labourers.

Problems associated with this system are numerous. Farmers were not happy. They wanted to change their status from labourer to owner of fishponds so as to increase their income. They were limited by a lack of capital and by their use of traditional management methods (because of the lack of extension input from the government).

Perhutani was unhappy with the former situation because the legal status of the fish farmers was unclear. Perhutani also did not have enough staff to deal with forest security, illegal cutting of mangroves for firewood. Not did they obtain any revenue from the fishponds.

The system was also bad for the environment because unregulated construction and expansion of fishponds was reducing the area and density of the mangroves. As a direct consequence of this, the fish and animal population, native to the mangrove habitat, was disturbed as well.

Resolution

Perhutani personnel overcame these problems by using the social forestry approach. Their strategy involved the following:

- collecting the farmers and organizing them;
- giving the farmers technical advice on land management and marketing systems;
- clarifying the status of land and drawing up management agreements between Perhutani and the farmers (legalizing the farmers' status).

The main objective of this strategy, besides clarifying the status of disputed land, was reforestation of waste lands.

Farmers were ready to participate in reforestation and protection of the mangrove forests. In support of the reforestation efforts, the farmers returned to the more conservation-minded patterns of fishpond construction (based on a canal-like rather than square-shaped design). In this collaboration with Perhutani, the farmers provided all the labour, and were also responsible for planting mangrove trees (*Avicenna* sp, *Rhyzophora* sp, and *Bruguira* sp). Most importantly, they ceased their illegal cutting.

The chief benefit of the new arrangement for Perhutani with the fish farmers is that the security of the existing forest is guaranteed. Forest peasant groups have the responsibility of protecting their areas and indirectly protecting the mangrove area (no stealing, cutting, etc). The growth rate of forest plantations is higher (more than 90%) than it had been, because of enrichment planting. There are no permanent waste lands. With the traditional canal-type fishponds, the overall forest cover is better and the size of openings in the forest is less.

The most important benefit for the farmers is that they can manage the fishponds legally. They are now organized in forest farmer groups (KTH), which are advised by Perhutani. The building and maintenance of the irrigation system is now handled by shared labour *(gotong royong).* The KTH have begun to pool capital, and for the future they are planning a cooperative/marketing system. As a consequence of these actions, the farmers have been able to increase their incomes as well as secure their legal status.

The environment is benefitting from the new arrangement as well, through preservation of the mangroves, mangrove fauna, biological diversity, and coastline. But most important, the mangrove ecosystem is now being used in a sustainable way.

Indramayu

The second case study to be discussed in this paper is drawn from Indramayu.

Former Situation

The state forest land in Indramayu is flat, swampy, and used by Perhutani for the cultivation of *kayu putih.* Local farmers also use the land, for the cultivation of wet rice. The farmers' reasons for cultivating this state land included their lack of any other land, their lack of cash income, and their lack of any other livelihood outside farming.

Problems associated with this system were numerous. Farmers were unhappy because their use of land was illegal and thus they had no access to government extension assistance. The Perhutani was unhappy because its plantations of *kayu putih* were frequently disturbed by the wet rice cultivators.

Resolution

Perhutani took several steps to resolve this impasse. First, it organized and advised the peasants. Their occupancy of these lands was legalized by the negotiation of an agreement. These contracts are renewed on an annual basis. In addition, Perhutani involved the farmers in the management of its *kayu putih* plantations, on a share basis. Perhutani has also increased security in the forest area with cooperation from the peasants.

The role of the local farmers under this new arrangement is to maintain the *kayu putih* plantation, harvest the leaves, and carry out enrichment planting. In return for this contribution of labour, the farmers are allowed by Perhutani to plant wet rice in the plantations on an inter-cropping basis *(tumpang sari)*, and they are also given a share in the *kayu putih* harvest.

The chief benefit of this new arrangement for Perhutani is a guaranteed labour source for various plantation activities, including protection, maintenance, and picking of *kayu putih* leaves. The chief benefit for the local farmers is that they are paid for their labour and receive a share of the *kayu putih* harvest. They are also given advice and extension services. Most important to them is the fact that they can use the land legally, and future use is assured as well.

Lessons of Cikeong and Indramayu

Causes of Disputed Uses of Forests

The most obvious lesson of the Cikeong and Indramayu case studies is that farmers occupy forest areas illegally because they are landless or marginal farmers. Their incomes are low (below the poverty line), they lack job opportunities, and their only livelihood is farming. Their land disputes with the government arise therefore, due to lack of alternatives and not due to ignorance or tradition.

Another lesson from the case studies is that outside entrepreneurs are often involved in illegal uses of state land. They provide the capital, incentives, ideas, and equipment, limiting the role of the farmer to that of a labourer. This involvement is often not recognized by Perhutani personnel.

Optimal Role of Perhutani

The two case studies provide several lessons as to how Perhutani can best deal with the problem of disputed state forest areas. First, it must survey the use being made of the disputed land by local farmers. Then, it should meet with the farmers to discuss how the area could be managed optimally and legally. Advice and extension services must be provided by Perhutani or by other agencies through inter-sectoral coordination (e.g. the Fisheries Office and Agricultural Office). Perhutani should also provide security for long-term investment and use by the local farmers. Most importantly, Perhutani must control and monitor land use, and heighten the farmers' awareness that they are utilizing forests that belong to and hence must be protected by the state.

CONCLUSION

The overall mission of Perhutani is to deliver economic benefits and provide public service. Social forestry programmes are accepted as one way to achieve this mission. it is now time for social forestry programmes to be considered as a way of resolving government – villager impasses in disputed forest areas. These problems, while serious, may be solved by increasing the prosperity of the villagers through social forestry. This would help to improve the relationship between the villagers and Perhutani personnel which is one of the most important factors in successful reforestation. It is hoped that the use of social forestry in disputed areas will lead to an optimal land use management system and provision of benefits for both Perhutani and villagers alike. Several conclusions can be drawn from this discussion.

Need for Social Forestry in Disputed Areas

Absence of Realistic Alternatives

Social forestry is one of two ways to manage disputed land. The other way is to take punitive action against the illegal occupants. This type of action often backfires and has high social and political costs. Doing nothing is not an alternative either. The antagonistic relationship that exists between farmer and forester cannot be left unresolved. The status of disputed land cannot be left unclarified. Indeed, the need for social forestry in disputed lands is so high that it should be given higher priority there than in non-disputed lands.

Greater Degradation of the Environment

Land-use by local villagers in disputed forest areas involves unregulated clearing of vegetation by burning, hoeing, and breaking ground. Such land use practices can be principal factors in soil loss and coastal

erosion (in the case of mangroves), and ultimately lead to degradation of national forest resources.

Less Incentive for Sustained Yield Use of Resources

Without guarantees of continued access, villagers farming in disputed areas have no incentive for investment beyond one crop. This is especially true in the least-secure areas in the centre of the forest. In addition, the farmers of such areas have no access to extension services, they use traditional farming methods and low quality seeds, no fertilizer is applied, no trees are planted and no terracing is done.

Added Benefits of Social Forestry in Disputed Areas

For Farmers

The long-term security that social forestry brings frees the farmers from the threat of arrest and from reliance on outside entrepreneurs. It also allows them to enjoy the benefits of government extension services, as well as those from long-term investment in the land.

For Perhutani

Perhutani benefits most from the legalisation and clarification of the status of disputed land. This permits these lands to be included in Perhutani's planning process. In addition, there are improvements in forest security, tree cover, and Perhutani's public image. With the cooperation of the farmers, reforestation and enrichment planting efforts are more likely to succeed. Finally, there is reduced expenditure on protection, and revenue gains from Perhutani's share in the produce of joint agroforestry programmes.

Differences between Social Forestry in Disputed and non-Disputed Areas

Social Forestry programmes in disputed areas will necessarily differ from those in non-disputed areas. In disputed areas, there is no pre-selection of farmers; Perhutani has to work with whatever farmers are present. In non-disputed areas, on the other hand, participants can be chosen by Perhutani for their interest and motivation. The eventual goal of Perhutani in the disputed areas is to relocate the peasants; whereas in the non-disputed areas, its goal is to work with the peasants and involve them in Perhutani activities. In the non-disputed areas, sustainable use of resources is more possible because of the greater certainty of continued access to land; but in the disputed areas, the focus must be on shorter-term increase in income. The relationship between Perhutani and the farmers in the non-disputed areas allows Perhutani to become more involved in agriculture and increase productivity in the area; again, this is less likely in the disputed areas. Due to the tension that exists in the disputed areas, the community organiser probably cannot act as forest guard as well; in the non-disputed areas, in contrast, one individual may be able to fulfil both functions.

RECOMMENDATIONS

The issues raised in this paper should be discussed in a seminar attended by high-level Perhutani personnel (central and provincial level). It is necessary to get the reactions of these officers in order to identify alternatives and to develop a plan.

It should also be realized that the analysis in this paper is not yet supported by systematic data. For this reason, field studies of this topic must be done to reach more reliable conclusions.

Finally, the results of the aforementioned field studies should be analyzed and then, on the basis of this analysis, pilot projects should be designed. The objectives of these pilot studies should be to identify methods and strategies that are suitable for different environments. The results of the pilot studies could then guide a more widespread implementation of social forestry in the future.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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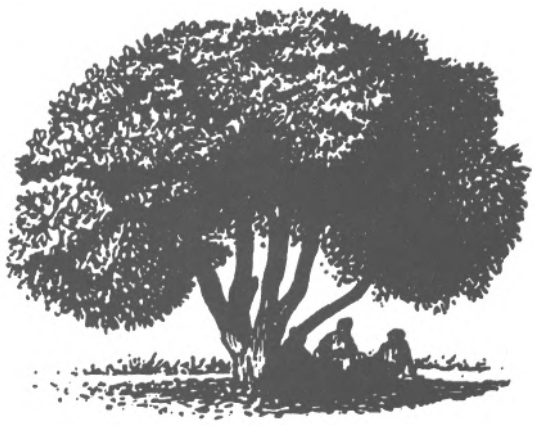
SOCIAL FORESTRY NETWORK



THE CEBU INTEGRATED SOCIAL FORESTRY PROJECT

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Network Paper 10c Summer 1990

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THE CEBU INTEGRATED SOCIAL FORESTRY PROJECT

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The Cebu pilot project is an undertaking of the Forest Management Bureau (FMB, then the Bureau of Forest Development) under its Integrated Social Forestry Programme (ISFP). Launched in 1981, the ISFP addresses the problems of poverty and environmental degradation in the uplands using three major strategies: provision of farm tenure to uplanders; promotion of upland development technologies designed to increase the productivity of upland resources while at the same time stabilising them; and mobilisation of uplanders through local organisations.

The farm security arrangement being implemented by the project is the stewardship system, which allows upland farmers 25 years or more of undisturbed use of public lands provided that they adequately develop the land following ecologically sound and stable resource management practices. (An alternative farm security arrangement being promoted under the ISFP and implemented at the project sites is the communal forest lease.) The upland development technologies prescribed by the ISFP deal with soil stabilisation measures and agroforestry. The local organisations formed under the ISFP are expected to function as natural resource managers upon FMB's withdrawal from the project sites.

This paper focusses on the experience of the Cebu pilot project in integrating women in the project. It first provides an overview of the goals and the organisation of the project, and of the community in the project area. It also describes the project participants and discusses the ways in which women and men have been mobilised for project activities. Lastly, the paper presents the authors' reflections on gender issues that directly concern project implementation and the possible ways in which these issues may be addressed in the future.

GOALS AND ORGANISATIONS

As a pilot project under the Ford Foundation–assisted Upland Development Programme (UDP) of the FMB, the Cebu project innovates in the manner of implementing the ISFP by using community organising technology. This innovation is intended to develop a farmers' association, impart organisational skills to farmers, help the community manage its human and natural resources, and develop the farmers' ability to acquire for themselves the social and agricultural services they need. The organising approach is also employed in delivering farm security to members of the project community and in promoting adoption of the recommended technologies among them.

The project is being implemented by two project field coordinators (PFCs), who are detailed to the social forestry unit of the FMB Argao District Office. PFC–1 is a female agriculture graduate from the Visayas State College of Agriculture (VISCA). She has been in the FMB since 1981 and in the pilot project from its beginning in 1984. PFC–2 is a male forestry graduate from VISCA. He has been in the FMB since May 1986 and in the pilot project since February 1987 replacing a female PFC, who is also a VISCA agriculture graduate.

The PFCs are assisted in the field by a survey aide, a clerk, and a bookkeeper. The project field staff members are backed up by the district forester, the social forestry unit and section chiefs of the FMB district and regional offices, respectively. (All these personnel are male. The assistant district forester of Argao, a female, is also currently involved in the project in an unofficial capacity.) The PFCs receive on–the–job training in community organising from the Philippine Association for Intercultural Development (PAFID), and later, from the Philippine Business for Social Progress (PBSP). They also receive training in agroforestry technologies from the College of Forestry of the University of the Philippines.

THE SITE AND PARTICIPANTS

The Cebu project is located in an area of Barangay Nug-as in the municipality of Alcoy, Cebu. Encompassing 356 hectares of a 3,000 hectare timberland area, the project is located 18 km southwest of the town of Alcoy. Nestling on the hinterlands of Southern Cebu with an elevation of 600 to 800 m, the area is accessible by a rough, winding barangay road that is passable throughout the year. It can be reached by motor vehicles. However, because no public transport vehicles ply the route, local people travel the distance to and from Alcoy town on foot.

The Community

The project area is inhabited by 92 households, all of which rely on farming the rocky, steep mountainsides for subsistence. The majority earn cash income from the production of vegetables which are sold in Mantalongon (a barangay in the neighbouring municipality of Dalaguete) 20 km away. A few of the households occasionally earn cash income through employment in the FMB's Southern Cebu Reforestation and Development Project (SCRDP), the barangay road maintenance projects of Nug-as, and, until recently, in the industrial tree plantation and coal exploration of two privately-owned mining firms in the area. Young women and men also earn cash through employment in the lowlands as domestic helpers, storekeepers, bakery assistants, or stevedores. They occasionally remit cash to their families in the mountains, but they generally spend their earnings on themselves (on clothes and *kalingawan* or entertainment).

Farming has been the main occupation of the local people. It was begun by their ancestors who had come from mountain farming communities in the neighbouring municipality of Dalaguete. The early settlers came in the late 1800s and in the 1940s during the Japanese occupation. They cleared the land by cutting down and burning the forests. As their numbers grew, they developed a system of claims over the land and

gradually created permanent settlements in the community in and around the lands they tilled.

Today, their descendants and the descendants of those to whom they had passed on their lands, continue to cultivate the farms as before. This time, however, the farms are no longer the rich, fertile farms of the past. Farmers have shortened the fallow period of their lands, and they now depend heavily on commercial fertiliser to produce enough corn, the staple crop, for subsistence. Thus, there is a need for them to halt further deterioration of the soils and make them naturally productive again.

The Project Participants

The target beneficiaries of the pilot project were the farmers in the community who had been cultivating landholdings within the project site since 31 December 1981. This criterion for identifying target beneficiaries was an offshoot of the choice of the stewardship system as the farm security scheme for the project. Stewardship certificates, the instrument of farm security under the stewardship system, are awarded to qualified cultivators of landholdings within a social forestry project.

The stewardship holders, who constituted the qualified project participants, were selected following the ISFP implementing guidelines. Ministry Administrative Order (MAO) No. 48, which provides the implementing guidelines for the ISFP, specifies that stewardship be awarded to forest dwellers who have been in the upland community since or before 31 December 1981. The actual participants in the project, however, were largely determined by membership in the upland farmers' association. The constitution and bylaws of the association limited membership to those at the project site who had been awarded the stewardship certificates by the FMB, or who were in the process of obtaining one, and who had taken the association's oath of responsibility.

Of its 115 target beneficiaries as of June 1987, the project had awarded stewardship certificates to 84 farmers; 9 more were expected to be given their certificates (see Table 1). Of the 84 awardees, 49 (46 males and 3 females) have joined the farmers' association.

As mandated by the implementing guidelines of the UDP and ISFP, the project focused on three main concerns: the creation and development of an upland farmers' association; the delivery of farm security to the participants; and the promotion of upland development technologies. Other activities which were undertaken based on the participants' articulated concerns pertained to the delivery of basic social services to the community.

Table 1 Distribution of stewardship certificates, by status of awards, and by civil status and sex of beneficiaries (June 1987)

Status of awards	Family heads		Single		
	Male	Female	Male	Female	Total
Awarded	77	3	4	0	84
To be awarded	8	1	0	0	9
Total	85	4	4	0	93

Creation and Development of a Farmers' Association

The first two years of project implementation centred on the creation of the farmers' association. The project mobilised a core group of 8 leaders who, in turn, mobilised 26 farmers to initiate the formation of the association, supported the formulation of a constitution and bylaws, and implemented a farm input credit project through the association. The association conducted officers' caucuses and general assembly meetings to plan and decide on activities, and formed *ad hoc* committees to implement them. Towards the end of the second year, conflicts associated with the credit project were widely attributed to the highly centralised decision-making processes carried out by the association leadership. Thus, on the third year, the project divided the site into four sectors, and thereafter concentrated its efforts in assisting the sectoral groups to formulate plans for undertaking sector-specific agroforestry activities even as a new set of officers endeavoured to resolve the issues that arose from the credit project.

The core group members were identified by the project staff based on the recommendations from FMB personnel who had worked in the community. The group was composed of seven men and one woman. All of them were subsequently elected officers of the association. The female core group member was elected Public Relations Officer (PRO) because of her network of family relations, fictive kin and friends in the community. When the association drew up its constitution and bylaws about five months after the elections, it was decided that the elected officers be retained and sworn into office. The lone female official, whose spouse held the stewardship for their household, was also inducted as an association member. Her household became the only one represented by two members (she and her husband) in the association.

While most of the planning and decision-making activities of the project were initiated by the predominantly male officers and members of the association, a few women were able to participate in these activities through their attendance in general assemblies. These women generally came to the sessions as their husbands' substitutes. Some attended the meetings to take advantage of the opportunity to sell food, cigarettes and *tuba* (coconut wine). However, three women consistently attended

the meetings even when their spouses were also present. A few of the more articulate women participated in the discussions by asking clarifying questions, commenting on the issues being discussed, and contributing suggestions.

In the credit project, four committees were formed to formulate the guidelines and procedures for implementing the project. Members of the association were allowed to avail of loans; non-members could avail of the inputs in cash but at higher prices. To implement this policy, the association required the secretary to verify the membership status of the loan applicants in the association and to issue promissory note forms to them. Because very few women were members of the association, most women participated indirectly in the credit project by influencing their spouses' decisions to avail of the farm inputs. In one case, the woman, who spent more time farming than her husband who was preoccupied with off-farm work, prodded her husband to avail of the project's pesticide supply when she observed insect infestation in their fields.

Deliver of Farm Security

The activities associated with the delivery of farm security were the parcellary survey, receipt of applications for stewardship certificates, and subsequent awarding of stewardship to the project's target beneficiaries. Parcellary surveys were conducted in two periods of project implementation. The first, conducted at the very start of the project (in July 1984), resulted in the awarding of stewardship to 32 farmers.

The complaint by the association's PRO regarding the inaccurate depiction of her family's landholdings in their stewardship certificate led the association to pass a resolution requesting for a resurvey of the awarded landholdings. It also passed another resolution requesting the FMB to extend the project's coverage to the entire area, thus increasing the potential membership of the association and the number of participants in project activities. Another series of parcellary surveys was then conducted and mechanisms for ensuring farmers' participation were initiated.

In the activities pertaining to land security, adult male members of the community constituted the major participants. Except for four widows, three of whom were members of the association, all those who applied for stewardship were men following the project's assumption that they headed their households. In ten cases where the lands 'belonged' to the women, stewardship was granted in the names of their husbands. An exceptional case was that of one widow who took on a common-law husband. She applied for stewardship herself to protect her children's rights to inherit her lands. In the parcellary surveys, all the participants were men because they were considered the most knowledgeable about the boundaries of their farmholdings; the widows sent their sons or brothers to participate in their stead.

Promotion of Upland Development Technologies

Until early 1987, the project's efforts to promote upland development technologies had focused on soil conserving measures. These included the construction of rockwalls for bench terracing purposes, vegetative methods of contouring such as hedgerow planting, fascine contouring (gathering and tying farm debris along the contour lines of the field), contour planting, and boundary tree planting. Rockwall construction was promoted in the project initially through the mobilisation of an *alayon* group (an indigenous system of labour exchange) and, later, by making the approval of individual credit applications dependent on farmers' compliance to construct rockwalls. The promotion of vegetative methods of contouring and boundary tree planting was undertaken through information dissemination and dispersal of seeds or seedlings of farmer-specified tree species, respectively. Improved ways of constructing rockwalls with the use of an A-frame are currently being promoted by the project through individual demonstrations on the farm lots of interested farmers.

In 1985, these promotional activities were supported by a cross-farm visit to three agroforestry showcases in Cebu, and a farmers' seminar on forest ecology. Another support activity was the institution of an 'Outstanding Farmers' Awards' scheme in 1986. Many planning sessions were also held on agroforestry activities which could be conducted at the project site.

Because the project was concerned with promoting soil conservation and tree planting to as many farmers as possible, association membership was often not required for participation in the project staff's promotional activities with individual farmers. The project staff disseminated information about rockwall construction and other soil conservation measures to any farmer who showed interest in them. They gave tree planting materials to members or non-members who cared to ask for them. In such activities as the cross-farm visits and the farmers' seminar, however, participation was limited to association members and to their substitutes because of budgetary constraints. Nonetheless, interested non-members came to the farmers' seminar as observers.

Information dissemination and distribution of planting materials were addressed to the men although there was no deliberate attempt to exclude (or to include) the women. This was because information dissemination was often done in conjunction with groundworking activities. On such occasions, the project staff generally sought and communicated with the association members (or the men). They met with the women only when the men were not around and requested them to relay information to the men. This communication process obviously influenced the women's farming practices for many began to practice vegetative contouring methods, either on their own initiative or on instructions from their husbands. Some women were also observed to participate in such activities as the distribution of planting materials through the men. One woman, in particular, persuaded her husband to avail of the project's mahogany seedlings and supervised his planting of the seedlings in their farm.

Unlike the other technology-promotion activities, the planning sessions were largely association activities and participation in them was generally confined to members. In the first two years of the project, these sessions involved only the project staff and a few association officers. The plans discussed dealt with support activities such as the establishment of a community library on upland development technologies, the initiation of a demonstration farm and a nursery, and the construction of a farmers' training centre.

When planning sessions and other activities began to be undertaken by

sector in 1987, the participants were primarily male. As in general assemblies, however, women and non-members were free to attend the sector meetings. Moreover, not all the people who engaged in sector-level project ventures were association members. In fact, the membership question was one of the issues discussed in some sectors in connection with planned agroforestry activities. These activities included black pepper production, bee-keeping, livestock production, and hedgerow planting using napier grass, *kakauate (Gliricidia sepium)* or ipil-ipil *(Leucaena leucocephala).*

Delivery of Basic Service

The upland farmers' associations created opportunities for the officers who were also key community leaders, to address some basic needs of the community. The regular association meetings served as fora for discussing and planning these needs. These plans were brought to the attention of the project staff for support in their implementation. Thus, in late 1985 and early 1986, the project assisted the association with the preparation of a proposal for a water supply development project and in holding free clinics at the project site.

REFLECTIONS ON THE PROJECT EXPERIENCE

Many of the lessons people learn are drawn from hindsight. Since the members of the project staff were unacquainted with gender issues in social forestry, they dealt primarily with the male heads of farming households. The staff's experiences in the field, however, suggested that this was not necessarily the best approach in implementing the project. Three issues which they realised must be addressed are discussed in the following sections.

The Equity Issue Regarding Land Security

While the ISFP implementing guidelines express no bias as to the gender of those qualified for stewardship, the certificate of stewardship itself specifies the head of the family as the stewardship holder. The project thus assumed that the 'head of the family' referred to the male spouses in farming households, regardless of who among the married couples originally 'owned' or developed the land. It further assumed that the male spouse was the farmer in the family or household because it was he who was perceived as having the major responsibility of providing for the family. The assumption that the male is the cultivator and head of the farming household was not exclusive to the project staff. Even among the farmers themselves, the men generally claimed being the heads of their households. They reasoned that 'it has always been that way'. These pro-male biases raise the question of equity in relation to the men and women in the upland project. Two points are worth considering.

The first point is anchored on existing civil laws governing ownership of properties. The Civil Code of the Philippines allows ownership of properties acquired before marriage to be retained by its owners. Thus, land inherited or purchased by the man or the woman before marriage continues to be recognised as owned by the spouse concerned. Development of and the fruits from the land, however, are shared in so

far as these accrue to the family. In the absence of agreements covering separation of property, lands purchased in marriage are considered jointly owned by the married couple; this proceeds from the assumption that the funds used to acquire such properties had been raised through the couple's joint effort.

While the Civil Code refers to ownership of alienable lands, its principle of conjugal ownership has been invoked in awarding stewardship in the uplands. In the project it has been argued that the stewardship rights are conjugally' owned by the couple; thus, it is sufficient that only one spouse should be awarded stewardship. This argument is tenuous, however. In the first place, it disregards the origin of the land, that is, who among the spouses first acquired and developed the land before marriage. In the case of the 10 women in the project whose lands were awarded to their husbands, the stewardship system ignored the original possession of the land by the women, and instead gave the land rights to the men. Moreover, the stewardship system falls outside the realm of the Civil Code on conjugal property rights. Thus, there is no guarantee as yet that, in cases of separation, the unnamed spouse of the stewardship holder will have protected access to the land. While it can be argued that a one-person stewardship grant will serve as an incentive for the unnamed spouse (that is, the woman) to remain wedded to the male grantee, it may not operate in the same manner for the grantee. The stewardship system, therefore, may not really provide security of land tenure to the women.

A second point for consideration pertains to the labour contributions of women and men in the development of farms in the uplands. It is a well-known fact that, particularly in subsistence farming, cultivation of the land is generally a household activity. Providing for the survival of the family is thus, a collective responsibility of the husband, wife, and the children.

At the project site, the women have been observed to work in their farms as long as 8 hours daily, 6 days a week, and 10 to 12 months a year to ensure the availability of at least a meal a day for their families. Their field activities include weeding, planting, harvesting, and attending to the livestock. While the men spend similarly long hours in the farms, some women, in addition to their work in the farm, undertake

the more physically exhausting tasks such as rockwall construction (which is usually a male task) and clearing the land with the use of a *bodlong* (a crowbar), generally considered a man's farm tool and usually employed for breaking the soil hardened by several rainless months. Many of the women in the project area wield the *bodlong* when necessary. They tell the men when fertilizers or pesticides have to be applied in the fields, or apply these themselves when the men are not available to do so. The women also instruct and supervise their children's work in the farm. In a number of cases, the women are often left to provide continuity in the care and management of the farm because their spouses spend time in search of or doing cash-paying work. (The main source of wage employment at the site is the FMB's reforestation project.) All things considered, the women are as much farmers as are the men. In naming the men as the stewards, the project denies the women the recognition that they deserve for developing the lands alongside the men.

The project's narrow view of the role of women in upland farming is further reinforced by the rules governing membership in the farmers' association and participation in the project. It has been noted that project resources are directed through the farmers' association, and membership in the association is based on the possession of stewardship certificates. Because of these procedures, the project denies the women access to its resources. It also denies itself access to a valuable resource in the uplands: the women.

Women as a Vital Resource

As farmers and homemakers, the women in the project are in a position to carry out responsibilities in the association, and assess and implement farming technologies. The lone female officer, whose membership in the association was an exception rather than the rule, was credited by the project staff for the attendance of a good number of members in association activities while she held the position; her persistence in questioning the accuracy of past stewardship awards led to a resurvey of landholdings in the site. Three other women (who attended meetings in spite of their husband's presence) contributed to the discussions of certain project issues through their clarifying

questions and comments. An officer's wife was known to help her husband in his functions as treasurer of the association.

These cases of women's direct and indirect participation in organisational functions indicate their potential for holding leadership positions in the association. A further indication of this is the way in which a group of women organised themselves into an organisation. In undertaking activities, the women showed ability for dividing work among themselves, coordinating with the project staff and health personnel, and reflecting on their experiences to improve the implementation of subsequent activities. However, because of the association's definition of membership, the women had to create another organisation in which to exercise their leadership skills over what are generally regarded as women-specific concerns. Thus, the project was unable to tap the organisational skills of the women.

The women, too, showed keen interest in the upland development technologies promoted by the project staff. They implemented the technologies, such as hedgerow planting, in their farms. Because some of them spent more time in the fields than their husbands who were occupied with off-farm work, a number were in a better position to assess these technologies. For instance, the wife of an association officer complained to one of the authors about fascine contouring which her husband instructed her to use. Even as she followed his instructions, she reportedly voiced her doubts about the effectiveness of the procedure in controlling soil erosion. She claimed to prefer to use crop debris as mulch rather than as material for fascine contouring. She said that mulching keeps the topsoil in place and prevents the soil from gathering just above the contour lines. Because the project had focused on the men, its staff had not immediate access to valuable feedback from the female users of the technologies promoted by the project.

Efficiency in Technology Promotion

To respond efficiently and effectively to the grave problems of poverty and environmental degradation in the uplands, a development agency needs to know its target beneficiaries well. It needs to know who they

are, what they do, and who among them do what specific activities. Such knowledge enables the agency, among others, to plan more appropriate interventions and to implement or promote these interventions more efficiently.

In the project area, farming is an activity jointly undertaken by men and women. It must be added that in the households farm work is generally assigned among members depending on their capacity for physical labour. The men usually prepare the land using the *bodlong* while the women and children do the weeding using the *guna* (a flat bolo). Men apply fertilizers and pesticides while the women observe the progress of the crops. Men also generally construct rockwalls to prevent soil erosion while the women use vegetative contouring techniques. Men fetch water from deep open wells for cows while the women and children bring goats to pasture and feed the pigs and the chickens. In households where the man takes on off-farm jobs or does not attend religiously to his tasks, these divisions become blurred and the woman takes on some of the man's farm responsibilities.

It has been argued by the project that male association members share the information and technologies they learn from the project with other members of their households; thus, it is sufficient to have them represent households in the association. The case of the woman who complained about the soil erosion measure recommended by her husband indicates that this indirect route may not be the most effective. The man, who spent less time in the fields, did not have the same understanding of his farm's situation as his wife. There seems to be a need for the project to impart soil conservation measures not only to the men but also to the women. More specifically, there is a need for the project to identify the effective users of the technologies it espouses, and to address these users directly.

Final Notes

The project staff realised the severe limitations which the male definition of association membership placed on the implementation of the project. They were particularly concerned that, under the present organisation, the women's efforts in the fields are not being given due recognition by the project. Specifically, giving the 'outstanding farmer award' only to the man when it is his wife who does most of the farmwork seems grossly unfair. They were also concerned that budgetary constraints limit the delivery of assistance only to the farmers' group and prevent them from responding directly to the concerns of the women's group.

The project staff intends to review the association's constitution and bylaws with the farmers. The staff also plans to initiate discussions on the matter of women's participation in the association. However, they will leave it to the men and women of the project community to decide how gender issues should be resolved.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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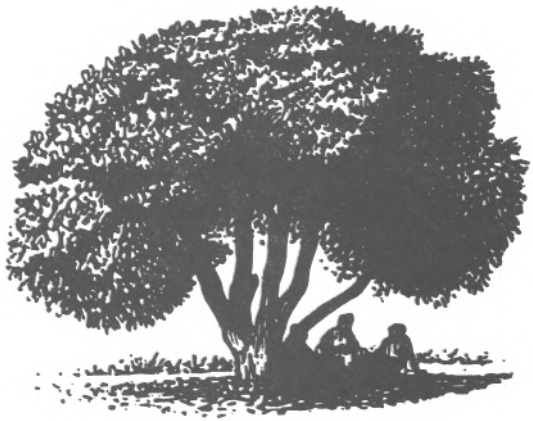

SOCIAL FORESTRY PLANNING: SEARCHING FOR A MIDDLE WAY

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Network Paper 10d

Summer 1990

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SOCIAL FORESTRY PLANNING: SEARCHING FOR A MIDDLE WAY

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INTRODUCTION

Social forestry programmes are based on community participation in the design and implementation of land management plans. These programmes seek to help farmers identify their demands for various social forestry products, develop sustainable plans for achieving self-sufficiency in these products, determine how to distribute products among themselves, and regulate abuses. On government forest lands, these programmes are implemented with the consent and assistance of the forestry department. Social forestry programmes thus require not only an understanding of the people, their needs and aspirations, but also of the forest management agency, its planning and implementation mechanisms, and its capabilities.

As one writer asserts:

> The ideal resource management system should combine the strength of both community controlled and bureaucratically controlled systems, integrating responsive local decision units into larger systems able to distribute risks and developmental costs while mediating conflicts among individual local units (Korten, 1987:48).

Social forestry programmes take as their point of departure the community –its needs, its capacities, and ultimately its own control over both its resources and its destiny. But while these programmes emphasise empowering local communities to make decisions on the use

and management of their productive resources, they also recognise that management decisions made by diverse communities need to be merged into a national perspective. Forestry departments can serve a useful role as instigators and supporters of community-based management projects. Forestry departments, however, often take as their point of departure the bureaucracy – its needs and capacity and its control over forest lands. Social foresters seeking to implement community participation programmes on public lands must search for a middle way through the contradictions implied in a bottom-up land management strategy being implemented by a top-down management agency.

Various planning processes and strategies have been used or proposed for social forestry programmes. In Nepal, for example, village governments (panchayats) seeking to gain control of local forests are required to work with forestry officials to design land management plans. Once accepted, these plans form a contract spelling out the rights and obligations of the government and the panchayat with reference to managing this piece of land (Manandhar 1980, Fisher 1990). Gilmour (1988) describes the following steps to be taken by the forestry department in planning and implementing this programme: investigation (including data gathering), negotiation (culminating in agreement), monitoring, review, and revision.

Likewise, in India, the National Wastelands Development Board (1987) emphasises developing simple micro-plans that require low staff input and that propose agroforestry technologies consistent with people's needs and available resources. In Thailand, the government is promoting a forest village programme that seeks to develop rural areas and rehabilitate forest lands. This programme relies heavily on forestry officials for planning and implementation, requiring at least six forestry officials per village: project chief, secretary, two sociologically inclined officers for village establishment, and two biophysical specialists for forest plantation (Pratong, 1985:214).

Obviously, methods for integrating micro-scale forest-management programmes into national programmes and objectives will vary from country to country according to cultural and social norms and political and institutional constraints. Some similarities exist, however. Social forestry programmes must solicit the participation of villagers and forest

managers and must encourage institutional arrangements that allow effective cooperation between forest agencies and forest communities to develop.

Social Forestry in Java

This paper describes the planning process used by the social forestry programme in Java. We begin with a discussion of the organisational hierarchy and planning processes of the State Forest Corporation (SFC), the agency responsible for managing forest lands in Java. We then describe how the social forestry programme in Java has been structured to fit within the framework of the SFC while allowing farmers a larger role in forest management. Finally we examine the processes used to design management plans that meet the aspirations of farmers and foresters alike. Because of SFC's experience in developing a programme that is responsive to the needs of both farmers and foresters, this paper should be of interest to a broad audience.

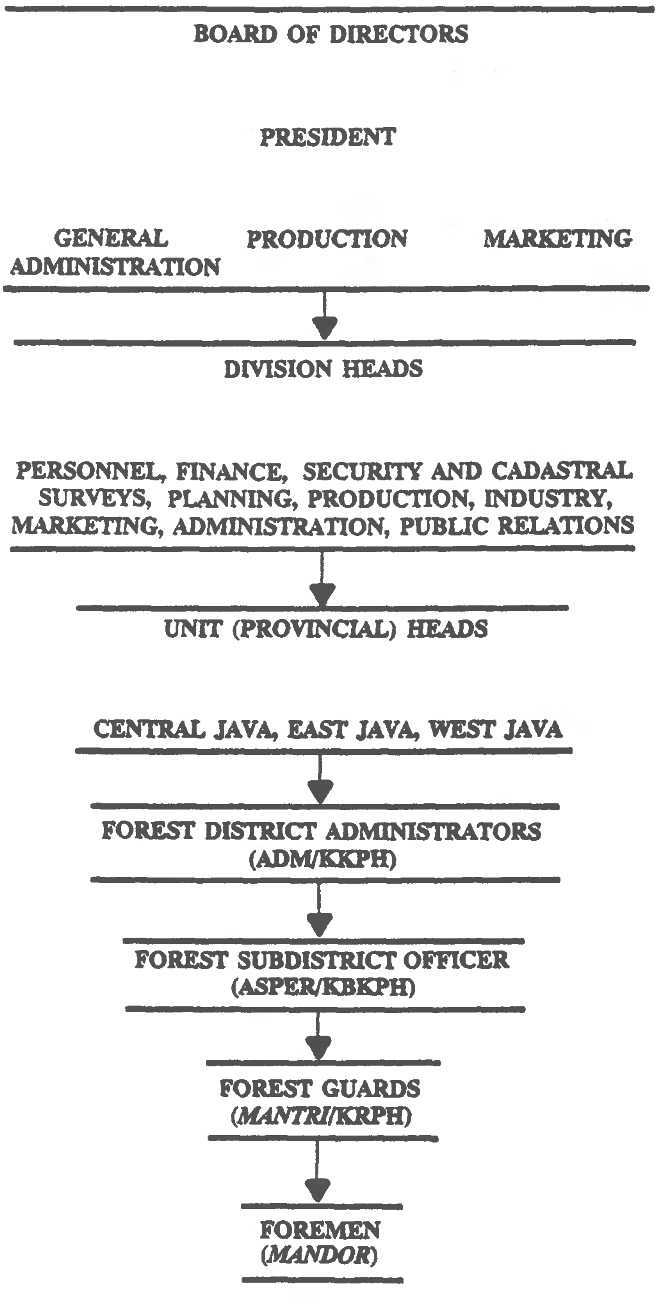
ORGANISATION OF THE STATE FORESTRY CORPORATION

Figure 1 shows the structure of the State Forestry Corporation (Peluso *et al.* 1989). The central office and chief administrators are located in Jakarta, and provincial or unit-level offices are found in each of the three provinces of Java (west, central, and east). Decision-makers in Jakarta and the provincial offices set policies that affect the entire hierarchy of management and labour. Each province is divided into approximately 20 to 25 forest districts (KPH), which are managed by a forest administrator (ADM or KKPH). Forest districts are further divided into approximately 5 to 6 subdistricts (BKPH) and managed by a subdistrict officer (Asper or KBKPH). Each subdistrict is divided into a number of police resorts (RPH) and supervised by a forest guard (*mantri* or KRPH). Some police resorts, particularly in non-teak forests, comprise extensive forest areas of 1,800 to 2,500 ha. In any one year, planners may slate several hundred hectares of a police resort for intensive management activities such as planting, tapping, logging, or maintaining forests. These duties, plus the more time-consuming task of forest security, are the responsibilities of the forest guard and an average of four forest foremen (*mandor*) for each police resort.

Forest planning occurs at three levels in the organisational hierarchy. At the central level, the Planning Division (Divisi Perencanaan) is the lead organisation. At the provincial level, the Planning Bureau (Biro Perencanaan) assumes responsibility for planning activities and is assisted by the Rayon or Regional Forestry Planning Section (Section Perencanaan Hutan Daerah) to prepare plans for groups of 4 or 5 forest districts. Finally at the district level, staff members are supervised by the Technical Planner (Kepala Technique Kehutanan Umum) who handles district planning activities.

Forest management plans are made for 20, 10, 5, and 1-year periods. the 20-year master plan (Rencana Umum Perum Perhutani) is prepared by the Planning Division and describes broad policies, strategies, and goals for use of forest lands.

Figure 1: Structure of the State Forestry Corporation



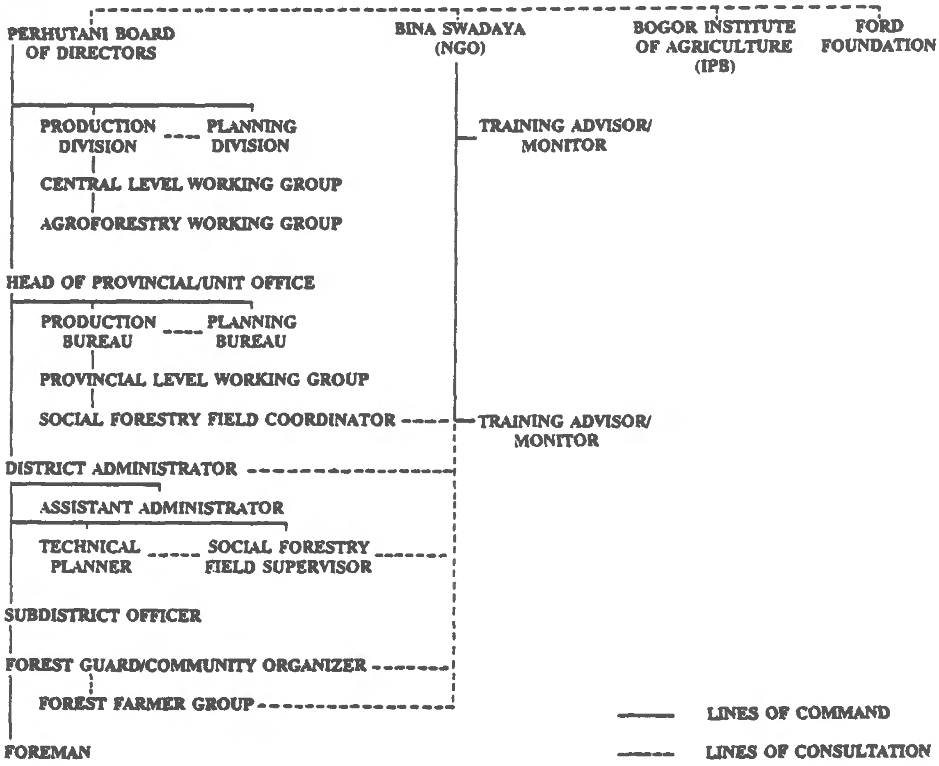
The 10-year plan (Rencana Pengaturan Kelestarian Hutan) outlines sustained yield regulations and is concerned with the management of forest concessions and other forest-related industries. Personnel in the provincial Planning Bureau prepare this plan. The 5-year plan (Rencana Karya Lima Tahun) outlines SFC's objectives in more detail and defines the subdistricts and police resorts that will be the target of different forestry programmes during the 5-year period. This plan is produced by Rayon personnel in consultation with personnel from the Planning Bureau. The 1-year plan (Rencana Technique Tahunan) states the precise objectives to be achieved by the forest districts during the next year, gives priorities to these objectives, and outlines the budget. This plan is prepared by district personnel (KTKU) and approved by the Rayon and provincial offices.

STRUCTURE OF THE JAVA SOCIAL FORESTRY PROGRAMME

Social forestry activities in Java are structured as shown in Figure 2. At the central level, three outside organisations are associated with the programme. The Ford Foundation provides partial funding and advice; Bina Swadaya, a locally registered non-government organisation (NGO), conducts training in community participation techniques and has assigned staff members to work in the State Forest Corporation's central and provincial level offices, and the Bogor Institute of Agriculture provides expertise in socio-economic and agroforestry research. Within the SFC, social forestry working groups at the central and provincial levels determine the direction of the programme and monitor its progress. An agroforestry working group has also been established at the central level to establish agroforestry planning policies. A member of the provincial working group, the social forestry coordinator, supervises all social forestry activities in the province. The coordinator reports to the head of the Production Bureau and consults with the district administrators. At the district level, a social forestry field supervisor manages the social forestry activities in several districts. These supervisors report to the administrator in each of the districts in which they work and consult with social forestry coordinators. Forest guards are trained as community organisers and assigned to organise and work with forest-farmer groups in each community. These guards report to the officer responsible for the subdistrict in which they work and consult with the social forestry supervisors.

Outwardly the structure of the social forestry programme mirrors the administrative hierarchy of the SFC, but several significant changes have been made. These changes include the working groups established at the central and provincial levels to advise and monitor the programme, and the new positions created (coordinator and field supervisor) to supervise the programme daily. More significant differences are the changes in the role of forest guards from being strictly police to being both police and community organisers, and the role given to forest-farmer groups for designing and implementing management plans that respond to local needs.

Figure 2: Structure of the Social Forestry Programme



On first thought, using forest guards as community organisers appears to be a contradiction in terms. Funding limitations, however, demanded if the programme was to be replicated throughout Java that existing personnel had to be used. This practice is true of social forestry programmes everywhere: changing the role of forest guards from police to community organiser does not allow forest departments to hire all new personnel. Barber (1989:267), however, argues that SFC rejected the notion of an institutionalised role for non-SFC community organisers

from the start in order to head off potential growth of an alternative centre for power and authority. By doing so on the basis of pragmatic necessity ('We can't afford to put non-SFC community organisers in every forest village'), SFC justified inclusion of forester-community organisers in the programme from the start and avoided discussion of its implications.

Despite the apparent contradiction in the role of forest guards as community organisers, the project has met with success. This may be because most forest guards are members of the local community and do not relish duties that put them in conflict with their neighbours – as evidenced by the amount of theft and destruction of forest property that has occurred. This is not to deny the argument by Peluso *et al.* (1989) that while many forest guards overlooked small transgressions in order to maintain working relations with local villagers, these informal systems of controlling forest access could also lead to misuse of power. Examples of these abuses include extracting illegal fees and accepting bribes (for access to land or 'purchase' of seedlings), underpaying forest labourers, and using strong-arm tactics with villagers. Other factors attributed to the success of forest guards as community organisers include the training given them in community organisation techniques, the opportunities given them to promote socially acceptable agroforestry systems, and the power given to forest-farmer groups to lobby for their own interests.

Another difference is the role of outsiders. The NGO, Bina Swadaya, trains forest guards in the skills required to become community organisers and assists the provincial coordinators to supervise, improve, and monitor the effectiveness of these trainees. The Bogor Agricultural Institute researches and designs more effective land management programmes. In the provincial planning office, the programme has developed a rapid rural appraisal team to act as an 'outsider' for evaluating forester-farmer relationships and for identifying suitable villages for establishing social forestry programmes (Khon Kaen University 1987). Theoretically, outsiders monitor the progress of the programme and continually create a tension, which is useful for prompting the SFC to change its practices.

SOCIAL FORESTRY PLANNING IN JAVA

Social forestry programmes on public lands must be responsive to the needs and aspirations of farmers and foresters alike. To begin, both farmers and foresters require a programme that provides incentives for their participation. Farmers desire a programme that is responsive to their subsistence and cash needs and that is sensitive to their time and capital constraints. Foresters, on the other hand, desire a programme that meets planned production and conservation objectives.

Two other factors important to social forestry programmes are flexibility and clarity. Farmers require a flexible programme that responds quickly and easily to changes in weather and marketing conditions. The programme should contain minimal red-tape and should clearly define each farmer's rights and responsibilities for forest products and management. Foresters desire a programme with clear rights and responsibilities and, in particular, a programme that does not cause the state's ownership and control of forest land to be questioned by farmers or other public organisations. Foresters also want a programme that follows existing organisational and planning procedures. This minimises confusion among agency personnel and maximises the use of the agency's infrastructure and resources.

Finally, both farmers and foresters need a reliable programme. Farmers want to feel that their risks are minimal and their rights to forest products are secure. Foresters require a programme that produces reliable results, does not question their tenure rights, and is minimal trouble to implement. Occasionally, forest agencies may also be concerned with promoting goodwill among forest communities.

A multi-level planning approach is necessary for meeting these diverse and sometimes conflicting objectives. The following discussion describes the processes being used or proposed for designing and implementing management plans in Java. Consistent with the bureaucratic hierarchy,

the programme is discussed in terms of central, provincial, district and village activities.

Central Level

Two central level working groups – social forestry and agroforestry – set the policy guidelines that determine the structure of the programme. These guidelines provide the framework for stimulating the design of forest management plans by local communities and for tying these plans together into a national perspective. These working groups are also responsible for soliciting the cooperation of middle-level (provincial and district) personnel with the programme.

Provincial Level

Social forestry planning teams have been organised at the provincial level under the supervision of the head of the Planning Bureaus. The responsibilities of these teams include:

1) identifying the forest districts to be included in the social forestry programme;

2) assessing and ranking according to need and suitability the villages to be included in the programme;

3) tying the management plans developed by different communities in the same police resort into an integrated activity.

These teams are responsible for introducing plans for these activities into SFC's 5-year plan.

To fulfil the first goal, the provincial planning teams meet with the administrators of the various forest districts under their supervision to determine the districts most suitable for inclusion in the social forestry programme.

Criteria used for assessing these districts include:

1) the amount of critical or degraded forest land found in the district;

2) an estimate of how much of this degradation is due to socio-economic pressures and not just the result of a poor resource base (determined by evaluating population density in surrounding areas);

3) the willingness of district personnel to participate in the social forestry programme;

4) the history of reforestation programmes in the district.

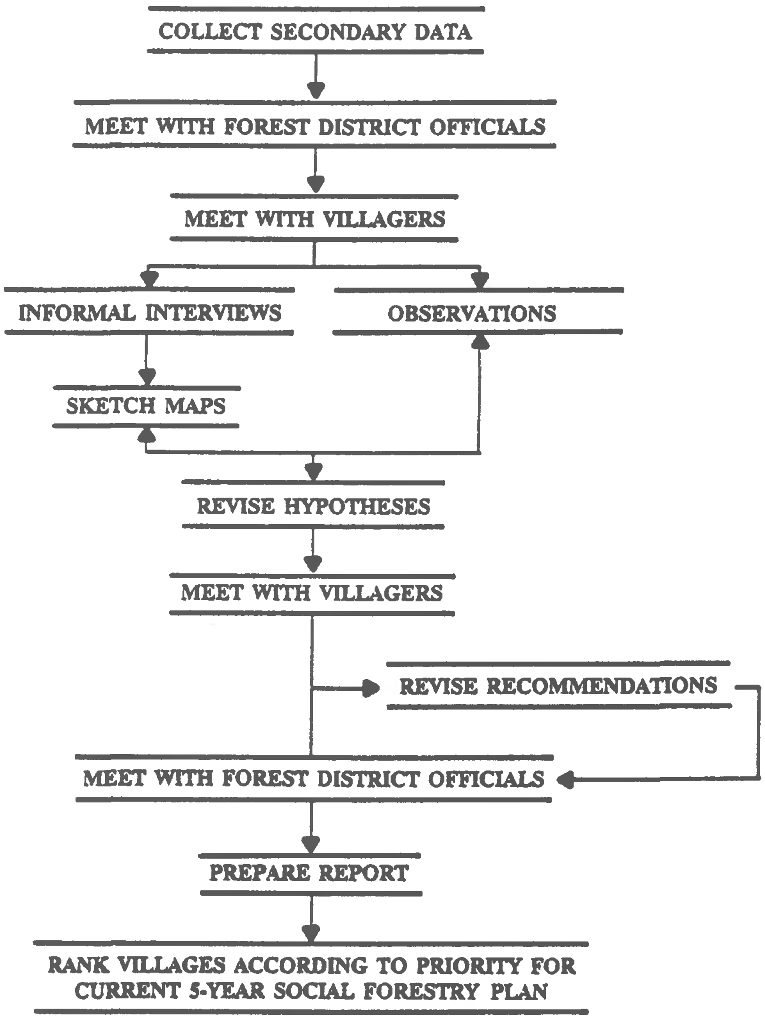
After assessing these factors, the teams give priority to the districts with the largest amount of suitable land. This analysis provides a broad outline of the districts and the number of hectares in each district that need to be scheduled for inclusion in the social forestry programme in the next 5-year plan.

As noted, Rapid Rural Appraisal (RRA) teams were established and trained for assessing the villages to be included in the social forestry programme and ranking them according to need. This responsibility was placed on the provincial and not on the district teams, because the operation of the district office itself forms part of the assessment. The RRA teams act as an 'internal' outside, evaluating forester-farmer relationships and identifying suitable villages for establishing social forestry programmes.

The RRA teams begin by collecting secondary information on the forest districts identified in the 5-year plan and meeting with the administrators of these districts to learn their perspectives on the problems and causes of land degradation (Figure 3) (Direksi Perum Perhutani 1989). Problems include failed nurseries, overgrazing, burning, and theft of lumber and firewood. During these meetings, a team selectively chooses several villages in which it will conduct RRAs. The team then visits these villages and holds meetings with village leaders to explain the objective of their visit and to learn about forest-use problems. The team spends several days meeting with villagers, learning about land-use practices and problems. Interviews with a cross-section of villagers are conducted in

fields, forests, and homes. The team also maps forest-use patterns on sketch maps (Fox 1989) and checks results by walking through the village and surrounding area to observe their accuracy. Before leaving the village, the team presents their findings to villagers for discussion and verification.

Figure 3: Using Rapid Rural Appraisal Methods to Identify and Recommend sites for Social Forestry Projects



After reporting again to district officials, the team prepares a report on forest-use practices and problems, and possible agroforestry alternatives for overcoming these problems. These reports are studied by planners at the provincial office, and recommendations are made on the villages for inclusion in the social forestry programme during the current 5-year planning period.

The final responsibility of the RRA teams is to identify how management plans developed by different communities in the same police resort can be tied together into an integrated activity. The RRA teams visit communities around the police resort and help them to identify who will be responsible for which pieces of land.

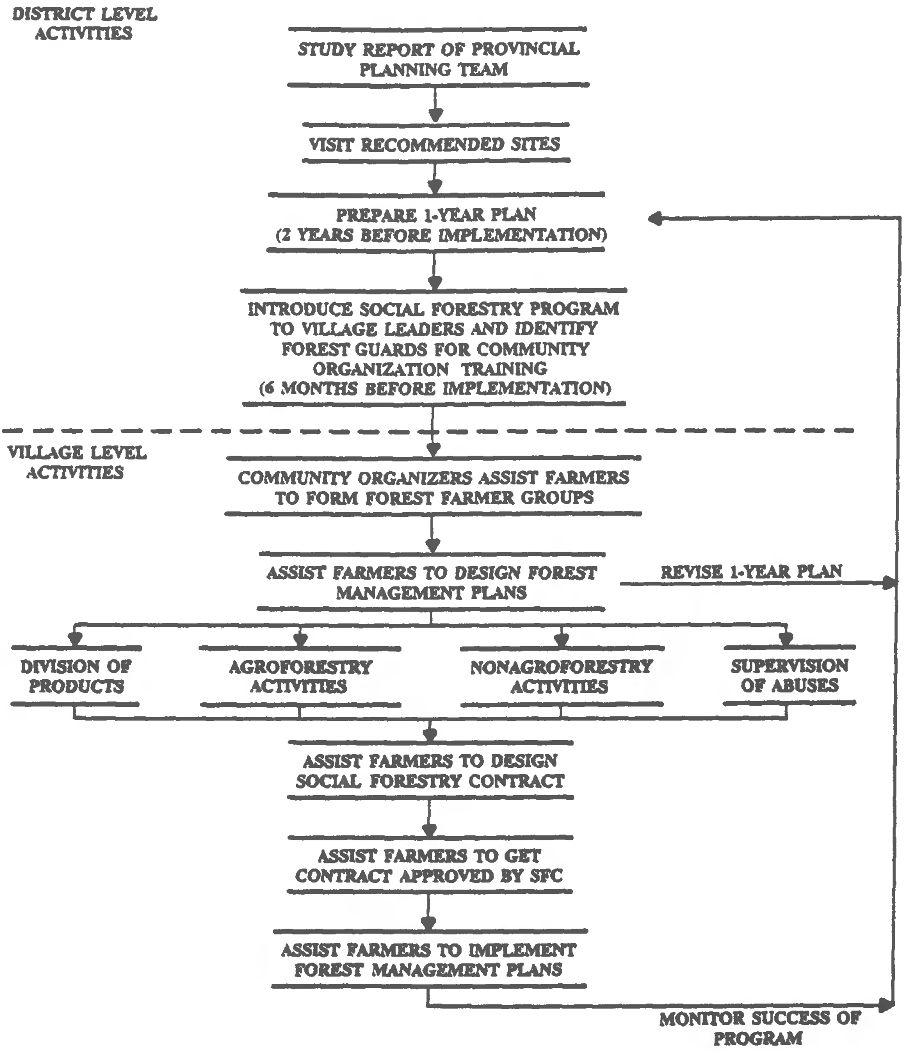
District Level

The district level planning committees are responsible for implementing the broad goals suggested in the 5-year plan (Figure 4). A district committee begins by reviewing the RRA reports prepared by the provincial team. If more than 1 year has passed since the RRA was conducted or if the district team doubts the accuracy of the provincial report, the team is instructed to return to the field and evaluate the accuracy of the report. After reviewing the provincial reports, the district team makes a final recommendation on which villages will be included in the social forestry programme. This recommendation must be made at least 2 years before implementation so that plans can be made for these activities in the 1-year plan. This report includes information on area (hectares), forest block, police district, and broad pattern of social forestry to be implemented.

Six months to 1 year before implementation of the programme, district level personnel visit local government agencies to explain the programme and to seek agreement on the villages selected for the programme. The district team then visits the identified villages to explain the programme again and to seek cooperation. In addition, before the programme is implemented, forest guards from the affected communities are trained in community organising techniques such as forming and advising

forest–farmer groups, communicating with farmers, and designing agroforestry plans (Barber 1989:293–320).

Figure 4: District and Village Level Social Forestry Planning Activities



After forest guards begin village organisation activities, the social forestry field coordinator, in conjunction with district personnel, provides backup support and acts as a funnel for channelling information from the field to provincial planners and *vice versa*. In addition, the social forestry field supervisor is responsible for monitoring the success of each forest–farmer group. Finally, social forestry programmes do not mean that the state relinquishes responsibility for policing forest lands. District personnel remain the enforcers of last resort for the community–initiated and community–designed forest management plans.

Village Level

At the village level, the forest guard/community organiser works with local farmers to design and implement land management plans (Figure 4). The forest guard initiates a series of discussions with farmers living near or on forest lands about their needs and problems and helps them to form forest–farmer groups. The guard then assists the forest–farmer groups to identify agroforestry plans for the state forest land. Forest–farmer groups determine how products will be divided among members, how abuses will be regulated, and choose non–agroforestry activities for the group to engage in until the agroforestry project begins to bear fruit.

Results from the bargaining sessions held between the forest–farmer groups and the forest guard on the trees to be planted on state forest lands form the basis of a contract between the parties spelling out the rights and obligations of each group (Barber 1989:373–377). Based on land quality and spacing, the State Forest Corporation determines the primary forest species to be planted. The plants used for filling in the spaces between forest trees, for fencing, and for intercropping are chosen by the forest–farmer groups. A general contract is used for all social forestry projects, but the content of the contracts is determined individually for each project. Contracts are written in the local language so that all parties understand the content. These contracts form the basis of the 1–year social forestry plans and are renewable as long as both sides are happy with the results.

Agroforestry

The Agroforestry Working Group at the central level divided the island of Java into a series of agro-ecological zones. Each zone represents similar soils, elevation, geomorphology, and climate. Within each zone, lists of appropriate annual and perennial species have been compiled. Recommendations are made in terms of suitable dominant, intermediate, and understorey species. These lists assist community organisers and communities to identify appropriate species for planting in their forest plots (Kelompok Kerja Agroforestry 1989). A technical manual has been prepared outlining the steps to be taken in designing the planting scheme. Most decisions on the species, planting distance, and other relevant factors are made in conjunction with the forest-farmer groups.

Evaluation and Monitoring

The major responsibility for monitoring the success of the programme falls on SFC and its field workers. The forest guard/community organiser writes journals and monthly reports that are forwarded to the provincial coordinators. The five types of reports prepared by the forest guard/community organiser include:

1. A baseline study of biophysical and socio-economic data. The district level field supervisor assists the forest guard/community organiser to prepare these reports.

2. A forest-farmer group report. This will be prepared after the group is formed and describes the membership by income and land-holding category.

3. Annual forest-farmer group progress reports. These look at criteria such as membership stability and participation, leadership, by-laws, self-generated credit systems, technical progress, relationships with SFC, and attitudes of group members.

4. Monthly reports documenting the general progress of the project for use at the monthly forest-farmer group meetings.

5. Annual technical reports on the growth of tree species and the harvest yields from agricultural species.

The Ford Foundation has also funded a programme with the Development Studies Centre at the Bogor Agricultural Institute (IPB) under which IPB students will undertake field research at project sites. The objectives of the studies include documenting and evaluating activities such as the establishment and development of forest-farmer groups. This group will also evaluate the impact of the social forestry programme on the economy and environment of the village (Barber 1989:389).

PROBLEMS

As the programme has grown through three phases – diagnostic research, pilot project, and expansion – different problems have surfaced (Peluso *et al.* 1989). The problems associated with the expansion stage of this programme are typical for projects being widened to provincial or national scales. One important issue has been the limited number of staff able to provide attention to the rapidly growing number of social forestry sites. Reassigning forest personnel from 'protection' to 'community organiser' duties and providing them with training for their new duties are two blocks to the rapid expansion of social forestry programme. SFC is trying to provide one full-time social forestry specialist for each participating forest district.

A second problem has been a lack of support and misperception of the social forestry programme at the district level. Specifically, District Administrators and planning staff have not received sufficient training in social forestry, and many of these staff members still do not understand the purpose of the programme. Middle-level management has been particularly concerned with the distribution of authority and responsibility in the programme, including clarification of how the new actors fit into the existing hierarchy, who is responsible for what, and on what basis they are to be evaluated (Barber 1989:351). The failure to clarify these concerns has resulted in a lack of support from middle-level managers for programme implementation. To remedy this problem, the SFC plans a series of short meetings at the Provincial Office for introducing District Administrators into the programme.

A third major problem relates to the involvement of poor farmers in the programme. Project evaluations indicate that the programme has not yet succeeded in reaching the poorest farmers in a consistent manner. The extent to which the poor benefit from the programme is influenced by site selection, the method used to select forest-farmer group members, and the level of support provided to group members during implementation. Barber 1989:398) argues that the primary goal of the

programme is not increasing community welfare but rehabilitating forests. There is thus a built-in incentive to recruit the most able forest farmers rather than the poorest, and foresters often perceive wealthier farmers as more skilled and diligent. In addition, SFC defines 'participation' as meaning participation within the existing structure. The social forestry programme is thus attempting to build in protection against the symptoms of élite domination but neglecting to address the causes (Barber 1989:278).

REFLECTIONS

The social forestry programme in Java was designed to solicit the cooperation of farmers with forest management plans by involving them in the design and implementation of these plans. The programme was also designed to solicit the support of SFC personnel and to maximise the use of the corporation's resources by fitting the programme to the structure of the SFC. Our discussion of the responsibilities of different actors in this programme is not meant to imply that any one actor or level of the bureaucratic hierarchy is more important than another. But rather we hope to provide insight into a programme where both 'top-down' and 'bottom-up' approaches have a role. Unfortunately, this discussion may create the impression that the responsibilities of different actors are clearly differentiated. In reality these roles overlap and are shared by members at different levels in this hierarchy.

National and provincial level planners do not dictate the content of local management plans but provide a general framework for stimulating the design of these plans by local communities and for tying these plans together into a national perspective. These planners provide assistance for meeting the short-term needs of the villages willing to participate and for sharing the risks associated with new programmes. National and provincial level planners are also responsible for selecting and ranking the areas to be included in social forestry programmes and for allocating budget resources effectively among project participants.

Planners at the district level are responsible for monitoring village activities and for providing back-stop support for village-initiated requests. District planners serve as a go-between, feeding information up and down between provincial planners and village communities. Social forestry programmes do not mean that all policing efforts can be dropped, and district level personnel remain responsible for enforcing the social forestry contracts made with farmers through the participatory planning process.

At the village level, farmers work with a forest guard/community organiser to design and implement land management plans that meet their needs. Farmers working through forest–farmer groups design plans for improving land management, distributing products among themselves, and protecting against abuses. Forest–farmer groups work with district and provincial personnel to adapt village programmes to broader national needs and to take advantage of market opportunities.

Community participation in the designing of land management plans and the sharing of forest products is the 'carrot' for soliciting villager support for controls on forest–use practices. Community participation also guarantees that land management plans are realistic in light of environmental and social constraints. The role of the forestry department is to provide suitable conditions for community participation to develop, and to help individual communities design plans that meet national needs and minimise marketing risks for individual farmers. Forestry departments also provide the 'stick' for enforcing the terms of the social forestry contract and regulating abuses. Outsiders play an important role in these programmes by training forestry personnel to be sensitive to village needs, by conducting research on the best land management technologies available, and by monitoring project results. Through these activities, outsiders help keep the forest department 'honest' in its attempt to reform its approach to land management problems.

This programme was not designed to induce significant changes in the structural, legal, or policy framework of forest management on Java. Rather, the programme employs instrumental changes in the stfucture and technology of agroforestry systems to stabilise the environmental, social, and institutional landscape in which SFC operates (Barber 1989:399). As for the farmers who live near or on forest lands, SFC seek to solicit participation in ways that respond to resource degradation problems but do not challenge SFC's power and authority. As for working with other government agencies and international donors, SFC seeks to integrate these actors into SFC's efforts to order and control its universe. In the short run, the programme depends on its ability to improve the welfare of rural communities dependent on SFC land.

By seeking a middle way through the tangle and contradictions of bottom–up land management plans being implemented by a top–down management agency, social forestry programmes may be attempting the impossible. This paper describes how the SFC in Java is attempting to wrestle with this problem. The first few years of experience give cause for guarded optimism; it will be interesting to observe the long–term results.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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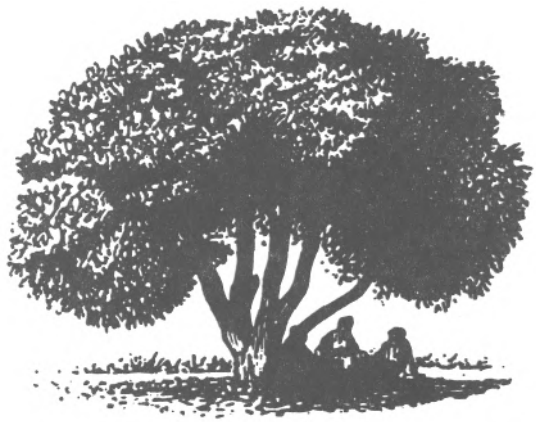
SOCIAL FORESTRY NETWORK



FROM THE FIELD
Shorter Contributions from Networkers

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Network Paper 10e Summer 1990

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FROM THE FIELD

Shorter Contributions from Networkers

A NEW SERIES

This is the first of our new omnibus papers 'From the Field': a collection of shorter contributions bound as a single network paper. The series is in response to our concern that excellent short contributions to the newsletter tend to 'get lost' because newsletters are so much more ephemeral than full-length network papers.

It makes sense for both users and would-be-authors if such pieces have a slightly longer shelf life. We also hope that a specific slot for short items might encourage networkers who hesitate to write at length. We especially welcome case-histories, problem-oriented pieces and comments, and contributions sent in response to the most recent set of network papers.

The first 'From the Field' contains pieces on the role of monks in Thailand as extension workers; on Social Forestry in China; and on an NGO farm forestry programme in Timor, Indonesia; finally, we publish two case-history responses to our mailing on nurseries and sustainability, one from India and one from Senegal.

CONTENTS

BUDDHIST MONKS AND SOCIAL FORESTRY IN THAILAND

Dusit Wechakit

INTRODUCTION

The Buddhist kingdom of Thailand occupies the Indo-Chinese peninsula of South East Asia. In former times, the population grew rapidly and much forest area was devastated in meeting the increased demand for forest products and agricultural land. The forested area declined from 53% to 29% of the total land area between 1971 and 1985 (Wacharakitti, 1988). The Thai people have experienced the direct and indirect effects of this devastation, for example the severe flooding in southern Thailand in 1988.

The government and the Royal Forest Department (RFD) has tried different methods to solve the problem of deforestation. For a long time, RFD activities were limited to forest protection and reforestation. Forests were protected by proclaiming national conservation and recreation areas (now totalling 52,815 km^2). These include watershed catchment areas, national parks, forest parks, wildlife conservation areas, no-hunting areas, wildlife parks, botanical gardens and arboretums (Planning Division, RFD, 1986). A second protection activity was the establishment of forest protection offices and mobile forest protection teams. Reforestation efforts focused on planting valuable species (i.e. those sought by loggers, fast-growing trees, teak and hardwoods) such as *Melia azedarach*, *Cassia siamea*, *Leucaena leucocephala*, *Casuarina* sp, and *Eucalyptus* sp.

However, these activities failed to reduce deforestation, because of local people's perception that forests did not belong to them. Local people continued to encroach into forest areas for agricultural land. In response to the increasing forest degradation, the Royal Forestry Department began to implement social forestry projects. These include forest villages, village woodlots, agroforestry systems in reforestation projects, and social forestry. The last took the form of a pilot project that was established in 1988 with funds from the Ford Foundation.

SOCIAL FORESTRY

Current forestry projects face many problems. Forest officials are attempting to cooperate with the villagers to solve them, but some problems persist. This paper will show some methods through which these can be remedied using local institutions, in this case Buddhist monks.

Buddhism, the Thai national religion, established itself in Thailand about 800 years ago (Tambiah, 1970; Mole, 1973). Most Thais (95%) are Buddhists, and Thai males will, at some time in their lives (usually at 20 years of age, after completing their basic education and before marriage), live as monks.

The close connections between Buddhism and forests are reflected in the chosen location of temples where the Buddhist monks live which are always located in forests and near villages. There is a close association between the Buddhist monks and the villagers based on exchange of food and guidance by the monks of the villagers' spiritual well-being.

ATTITUDE TOWARDS TREES AND FORESTS IN BUDDHISM

Forests and trees are important in Buddhism because of the central role they played in Lord Buddha's life. Buddha was born, enlightened and died under the sala, bo, and rang trees, respectively. The Thai government's action in designating Visaghabucha day, when the birth, enlightenment and death of Lord Buddha are remembered, as National

Tree Planting Day in Thailand shows the interconnections between Buddhism and forests.

Today, there are more than 300,000 Buddhist monks living in more than 20,000 temples all over Thailand. About 50% of the temples are located in cities or in villages and another 50% are located in forests or in groves of trees near villages (personal communication, 1989). Whenever a new village is established, the villagers invite a monk from another village to build the village's temple. The location chosen for the temple is almost always in the forest, to ensure the peace necessary for meditation.

TRADITIONAL ROLE OF MONKS IN FOREST MANAGEMENT

Protection

Because of their desire for seclusion, monks customarily protect and maintain the trees around their temples. The monks mark the boundaries of their temple grove or forest and do not allow anybody to cut trees within this area. Local villagers usually gladly help the monks protect these forests and groves, scolding anybody who cuts the monks' trees.

Tree-Planting

Within the boundaries of their temple's territory, monks also reforest bare land and degraded forest areas. The land immediately around the temple is reforested first and more distant areas included gradually. Some less desirable trees are removed and replaced by more desirable trees.[1] The local villagers may help the monks in this activity, especially on important Buddhist days such as Visaghabucha day, Makhabucha day (a commemoration of the day when the Buddha assembled his

[1] Those trees that are particularly important to Buddhists and those that are less significant will be discussed later in the paper.

disciples to teach them the fundamental principles of Buddhism), and Asarahabucha day (which marks the day when Buddha first began teaching his disciples).

Of the 227 precepts that Buddhist monks must follow, the first is to abstain from destroying living creatures, to refrain from taking life (Government of Thailand, 1988; Mole, 1973). Thus, monks customarily show a great deal of kindness to living creatures, including the wildlife of the forest. Not only do the monks not chase away the animals, but they also try to feed them. Sometimes they ask people to give them wild animals that have been captured; these they feed or release in the temple grounds. No one will disturb any animal living within temple boundaries. The respect accorded to the monks ensures that animals under their protection are also respected by local people.

Monks routinely meet with local villagers in the course of their religious duties and act as facilitators for encouraging social forestry initiatives. The monks use these meetings to discuss environmental issues with villagers and encourage villagers to plant trees and conserve existing ones. Buddhist doctrine also teaches that the relationship between Buddhists and living things, including trees and forests is one of protection and conservation.

IMPACT OF MONKS' MANAGEMENT ON THE FOREST

Forest Structure

The location of forest temples depends on the location of their corresponding villages, which differs from one part of Thailand to another. In the north, the villages – and thus their temples – are always located on the flat arable lands at the base of mountain slopes. In central Thailand, villages are located near streams to facilitate transportation. In the south, villages are located near streams or the sea for the same reason. In the northeast, which has little water-travel, villages are located near footpaths.

Within their temple grounds, monks remove some undesirable trees, for example thorn trees and undergrowth, replacing them with the bo tree

and other trees important to Buddhism (eg sala, rang). Shady and wide canopy trees (e.g. *Ficus* sp, *Eugenia* sp) and flowering forest trees (e.g. *Lagerstroemia* sp, *Delonix regia*, *Tabebuia* sp, *Cassia* sp) are usually also found around the temples. Fruit trees (eg mango, jack fruit, tamarind) are planted near the monks' dwellings, and valuable timber trees (e.g. *Tectona grandis*, *Hopea* sp, *Dipterocarpus* sp, *Pterocarpus macrocarpus*, *Xylia kerii*, and other hardwoods) are planted in the vicinity of the temple. Since shade is valued, some fast-growing tree species are also planted (eg *Terminalia catappa*, *Samanea saman*, *Azadirachta indica*, *Cassia siamea*). The number of species found on the temple grounds is often greater than that found outside the temple boundaries due to the monks' many and varied tree-related needs.

Forest management carried out by monks also includes replanting gaps in forests. Consequently, the overall density of trees in forests adjacent to temples is higher.

Temple territories frequently increase in size over time, either because adjacent landowners donate their land to the monks, or because the village offers the monks money to buy some land. These additions to temple lands are always planted with trees; thus, the monks not only prevent forests or tree cover from shrinking, they actually increase the land area planted with trees.

Forest Protection

Since the rural population is increasing rapidly, there is a continuing need for land for house construction and agricultural cultivation. As a result, villagers and farmers are encroaching on the forest, except for the forested land belonging to the monks. The livelihood of many villagers depends heavily on trees and forest products. They cut the trees and gather forest products such as wood, rattan, bamboo, and orchids for their own use and for sale. Again, however, villagers avoid the temple grounds and territories when pursuing these activities. Sometimes, monks establish temples in concession forests, and when commercial firms log these forests, they are careful to operate outside temple boundaries. If logging within a temple boundary is unavoidable, they will first ask the monks' permission. Local feeling towards the monk's forests is so strong that if concessionaires logged these forests without permission they would be attacked by the villagers.

Temple grounds, which may be considered wildlife conservation areas, usually have much greater numbers and varieties of wildlife than surrounding areas. Since birds, monkeys, and squirrels help spread forest tree seeds, they are also an indirect benefit to forests.

Relations between Forest Temples and the Royal Forest Department

Today, most forest temples are located in national reserve forests. It is very difficult, given forest laws, for the government to recognise their legality. Nevertheless, the Royal Forest Department does accord them legal status in some cases, but this recognition extends only to the monks' dwellings and not the surrounding forest.

The monks implement their own forestry activities, with occasional help from the villagers. They receive no direct financial support from the government, the Royal Forestry Department, or other government offices. They do get some informal support such as seedlings and advice from the local forest office or forest officials.

Potential Role of Forest Monks

Unlike forest officials, monks live in the forest. Hence, forest protection and work is more easily undertaken by them. They can monitor forest conditions on a daily basis. Since monks live in forests they have accumulated much practical knowledge. They understand the forest micro-environment, a knowledge which they use to choose appropriate tree species, planting locations, seasons, and edaphic conditions; they are also fully aware of potential pests and diseases. Monks are skilled at nursery establishment and maintenance of trees. One of their major advantages over the Royal Forest Department lies in their rapport and understanding with villagers.

Since monks interact daily with the villagers they understand their lives. In addition, they enjoy the respect and obedience of the villagers, especially with regard to the forest in which they live. Monks have also established the custom of working side-by-side with villagers in reforestation activities.

Finally, the monks have a greater interest in forest conservation than any other group: the villagers cut trees for fuel and timber; the contractors cut trees for market. Even foresters give concessions for the harvesting of forest products. The monks alone are not interested in cutting and exploiting the forest.

RECOMMENDATIONS FOR FUTURE RELATIONS

Legalisation of Temples within Forest Areas

The government and the Royal Forest Department, in cooperation with the Department of Religious Affairs, ought to solve the problems of illegal forest temples immediately. The solution is complicated by the fact that forest temples are always associated with villages, and whereas temple monks are always conservation-minded, villagers are not. Nevertheless, an interim solution can be suggested, which is to legalise the status of temples in production forests but not in protection forests.

Sharing of Expertise

Most monks rely on their own experience and have no formal training in managing forests, so mistakes sometimes occur. Moreover, they may convey incorrect information to the villagers. Since the monks have such an important role as social forestry facilitators it is important that they receive appropriate training from the Royal Forestry Department. The training might include reforestation, nursery techniques, social forestry, forest management, and conservation.

In addition, because of their long and close relationship with villagers, the monks know the villages better than the foresters, particularly aspects such as the characteristics of the micro-environment and motivation of the villagers. An effective dialogue should be established between the monks and the foresters in order that both parties can learn from the other's experience. The monks' knowledge could provide the basic data for bottom-up planning.

SUPPORT FROM THE ROYAL FOREST DEPARTMENT

Forest management initiated by the monks could be more successful if their activities were directly supported by the government. The Royal Forest Department could help by contributing funds, seedlings, tools and professional advice. In addition, the collaboration between the RFD and the forest temples should include the preparation, publication, and distribution of informative newsletters, brochures, and other extension materials.

SUMMARY AND CONCLUSIONS

This paper began with the suggestion that some of the problems of deforestation in Thailand could be reduced by the forest conservation activities of Buddhist monks. Monks are an important focus within rural areas for social forestry activities, since their temples are ideally located within the forest, and the monks play a positive role in forest management (eg through tree protection and planting, wildlife conservation, and motivating the public to assist in conservation efforts). Their management activities have a distinct impact on forest structure, area, and integrity.

The next section of the paper discussed the current lack of coordination between the Royal Forest Department and the forest monks, and the potentially important role that the monks could play. Finally, several recommendations were offered for future collaboration between foresters and monks in social forestry.

The data presented in this paper show that Thai monks conserve forest resources. They and their forest temples are not enemies of either the Royal Forest Department or the forest. Therefore, the RFD should take steps to involve monks in social forestry. More generally, there should be more cooperation between religious communities and the government

in performing conservation work. This analysis has clearly demonstrated the importance of religion in environmental conservation.

These conclusions lead to several recommendations. First, the RFD should cooperate with the Department of Religious Affairs to organise a seminar on the role of Buddhist monks and social forestry in Thailand. This seminar should bring together foresters, monks, and village heads to discuss how to manage future collaborative work. A social forestry project committee should be established to advise and direct subsequent work.

Second, a field survey should be carried out to gather data on the monks' involvement in social forestry all over Thailand. Data can be gathered from a sample of temples using rapid rural appraisal (RRA) methods. The data from this survey should then be analysed, and the results used to design the broad outlines of a pilot project for collaboration between the monks and the RFD.

Third, a second seminar should be organised to present and discuss the results of the field survey, and the recommendations for a pilot project. Participation in this seminar should be limited to the members of the social forestry project committee and the field researchers with some external participants.

Fourth, after the design of the pilot project has been revised in accordance with the findings of the second seminar, the project should commence. At least one pilot project should be carried out in each of the regions of Thailand (north, northeast, central and south). The implementation and initial results of the projects must be carefully monitored and evaluated. Based on the recommendations arising from these pilot projects, after an initial one-year review, guidelines can be prepared for gradual expansion throughout Thailand.

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THE DHAMMANAAT FOUNDATION

Rod G Nelson

The Dhammanaat Foundation is a Buddhist charity whose aims are to promote awareness of the importance of forests in the lives of all people in Thailand, and to encourage social forestry initiatives. The Foundation was formed as a response to a chronic water shortage caused by rapid deforestation in Tambon (parish) Mae Soi in the vicinity of Chiangmai.

The Mae Soi valley, an area of some 70 km², used to be covered with dense forest, seamed with watercourses. By 1980, indiscriminate commercial logging had turned the area into a scrubland. Phra Ajahn Pongsak, a Buddhist monk, provided the impetus for the ambitious reforestation programme now being implemented in the watershed valleys of the three streams which serve the Tambon. He is the abbot of Palad monastery, just outside Chiangmai. He had for many years been concerned about the scale of forest destruction throughout the country, a destruction he had experienced directly from the many years spent in retreat in forest areas.

He became actively involved in opposing forest destruction when it engulfed the forests of Mae Soi in 1983. He used to spend the *pansa* (rains) retreat in a cave in the Mae Soi forest, and was well known by the villagers. In 1984, he was approached by Tambon representatives, who were worried about declining stream flows, and fearful of resulting food shortfalls. Ajahn Pongsak called a series of meetings, in which he pointed out the direct links between forest destruction and water shortage, and made it clear that immediate and direct action was

necessary, in order to avert ruin of the whole community. However, until the villagers understood the true importance of forests to their lives, the problem could only grow. Ajahn Pongsak explained these concepts to the villagers:

> What is the value of forests? Many of us look at a tree and see only its value in terms of how much we can sell it for. The trees in the forests are much more than that. The forests are our first home. The one we live in and feel so possessive about is only our second home. It cannot be built without the first.
>
> Our parents give us life but the forest sustains it. From it we get the four necessities of life – food, shelter, clothing, medicine. It balances the air we breathe, cleanses the water we drink, produces the soil we grow our crops in. It nourishes the spirit in the same way as it nourishes the body. We should be endlessly grateful to it –every grove, every tree, every leaf.

He called for a commitment from the villagers in terms of voluntary labour, and offered his own commitment to the task of redressing the damage. He also pointed out that the responsibility for what had happened must be accepted by all, himself included, and that no help from outside could be counted on, given the prevailing political climate.

Since 1985 the villagers of Tambon Mae Soi with Ajahn Pongsak have worked to preserve their remaining forest and to restore what has been lost. Their achievements are many and include:

- A 14 km fence built to protect the watershed forests on the ridges.
- Firebreaks constructed throughout the forests.
- A nursery established of many thousands of local seedlings.

- 10 km of water pipes laid on both sides of the valley for watering seedlings and aiding in fire control.

- Village volunteers maintain a 24 hour forest patrol against hunting, felling and firing.

- Badly eroded areas and degraded forests have been planted with trees to protect and improve the soil.

- The valley is being replanted with its former tree species of teak, ironwood, and wild mango.

During this time, the villagers were the subject of considerable antipathy and suspicion. From an outsider's standpoint this might seem incomprehensible, but the work in Mae Soi inevitably brought a conflict of interest with those people and organisations supporting a pilot crop-substitution programme in the hill-tribe village of Ban Paa Kwey, high on the Mae Soi watershed. A Thai-Norwegian Christian organisation was encouraging the Hmong tribespeople to grow cabbages instead of opium as their cashcrop. This unfortunately had serious consequences for the watershed forests, which were cleared wholesale for cabbage-fields. People living farther down the valleys were liable to poisoning from pesticide residues in the streams. Ajahn Pongsak saw it as vital to highlight this situation, where the livelihood of some 12,000 Khonmuang (ethnic Thai) villagers was threatened by the cash-cropping of 650 hill-tribe villagers. As a result, charges of racism, self-seeking and subversion were made against Ajahn Pongsak and the villagers.

His consistent reply has been that his duty as a monk is to concern himself with moral issues, and that the health of the forest is vital to the moral, spiritual and physical welfare of all those who live in proximity to it.

In the last two years, the tide of political opinion has swung in favour of the type of work that Ajahn Pongsak and the villagers of Mae Soi are trying to do. The involvement of the Royal Thai Forest Department (RTFD) has been wholly constructive, although they are not able to offer

financial support. The Dhammanaat Foundation is funding a major social support programme for the Tambon, involving construction of dams, irrigation of new land, and establishment of rice banks in the villages. The tree-planting programme has been expanded with direct involvement by the RTFD.

All funds have come from private sources notably from M R Smansnid Svasti, a botanist, artist and conservationist member of the Thai Royal Family, who has worked tirelessly and at great personal sacrifice for the success of this project.

Further information about the work of the Foundation in Thailand is available from the UK branch of the Dhammanaat Foundation:

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TO AID AGRICULTURE: THE MAIN ROLE OF SOCIAL FORESTRY IN CHINA

Zhang Xianping

There are five major objectives for social forestry (FAO, 1985:43):

- Meeting rural people's basic needs
- Participation of local people
- Counteraction of land degradation
- Economic growth
- Social equality

There are three levels of social forestry in China: state plantation of protection forests; local forestry projects for soil conservation in mountainous and desert areas; and village-based Sound Ecological Agriculture (SEA).

Protection forests have been established in 551 counties in the north of China. Between 1978 to 1985 5.30 million ha have been planted. In the second phase (1986-1995) to date 3.70 million ha have been planted. The whole plantation phase is scheduled to end in 2020 with a final target of 30 million ha of forest. This will represent an increase in forest cover from 5.05% in 1978 to 7.09% in 1990 and 10.55% in 2020. There are protection forest schemes in other areas of China including plantations established to prevent soil loss in the Yangtze River area. This scheme will take about 30-40 years to complete and will lead to the afforestation of 20 million ha. The third area of protection forest is to secure the eastern and southern coasts against typhoon damage. All these schemes are supported through state funding.

Counties in northern China are faced with poor soil conditions, deserts and mountains. In these areas protection forests have been established together with water-soil conservation forests and forests for the supply of fuelwood and cash crops.

The particular local farming system determines the form local forests take. For example, some counties in inner mountain areas give priority to cash crops such as mulberry. In other areas animal husbandry and agriculture are more important and take priority over forests. Exploitation of natural resources has been intensified in some southern counties under the name of 'suitable-scale management'. These counties have developed particular forest products such as traditional Chinese medicines, tea, bamboo, rubber, and fruit trees such as orange, mango and litchis. Capital for local forest products has been collected from bank loans, donations, international organisations and from a special levy on miners and other enterprises which benefit from forestry.

Forestry was a component of a village-based SEA that began in Dafong County, Jiangsu Province in the early 1980s. It has since been extended to neighbouring counties and provinces in central China. SEA has been developed to include appropriate animal-agroforestry components, improved stove technologies and appropriate methods to control plant diseases. Apart from money obtained from loans and allowances some of the money for SEA projects comes from the rural people themselves.

The three levels of social forestry are usually complementary. For example local projects establish forest nets between fields, houses and roads; the SEA component ensures that agricultural land is used to its maximum potential with trees, crops and animals fully integrated. These two village-level systems link with the larger state protection forests.

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THE GEO MENO FOUNDATION AND ITS WORK IN THE VILLAGE OF GERODHERE, INDONESIA

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The Geo Meno Foundation is a newly developed self help community development institute established in 1988. Farm and Social Forestry are used by the Foundation as methods for coping with several agriculturally related problems. Experiences with other NGOs led to the decision that there was a need for more practically oriented research and implementation with the rural poor. Tonny Djogo together with members of his family, students and the people of Gerodhere village began to tackle local land degradation problems by establishing a nursery centre for various kinds of multipurpose trees and shrub species either local or introduced.

Initial activities included the establishment of a nursery, soil conservation measures using hedgerows of *Gliricidia sepium*, *Acacia villosa*, *Leucaena leucocephala* and *Cassia siamea*, and an arboretum and seed gardens.

The First Phase

One of the first activities was the inventory and selection of local multipurpose trees and shrub species useful for agroforestry. The survey focussed on drought resistant species as this area is in the dry zone of Nusa Tengara Timur. During the research a large quantity of seeds were collected and distributed to many farmers. Seed germination trials were also started in the local nursery to obtain some understanding of their germination capability. Most of the species studied are growing naturally but farmers rarely grow them deliberately on their own farms.

No.	Name of Species	Local Name	Fodder Supply	Live Fences	Shade Trees	Wind Breaks	Soil Conservation	(Reforestation, Land rehabilitation or Aforestation	Firewood
1	Acacia farnensiana	Bakuro	no	yes	no	no	no	yes	yes
2	Acacia leucophloea	Kabesak, Besak	yes	yes	yes	no	no	yes	yes
3	Acacia polyacantha	Kabesak hitam, Beskase	yes	yes	yes	yes	yes	yes	yes
4	Acacia villosa	Lantoro/Petes Merah	yes	yes	no	no	yes	yes	yes
5	Adenanthera pavonia	Saga pohon, Pitikuli	yes	yes	yes	no	no	yes	yes
6	Albizzia lebekioides	Pusine, Pusinat, Pusienta	yes	yes	yes	yes	yes	yes	yes
7	Albizzia saman	Hausena, Kihujan	no	no	yes	yes	no	yes	yes
8	Cassia fistula	Nikis,	no	yes	yes	yes	no	yes	yes
9	Cassia siamea	Haubesi, Johar	no	yes	no	yes	yes	yes	yes
10	Gliricidia sepium	Ganal	yes	yes	no	no	yes	yes	yes
11	Hibiscus tiliaceus	Waru, Fao	Yes	yes	yes	yes	yes	yes	no
12	Macaranga tanarius	Bafkenu, Kfenuk	yes	yes	yes	yes	yes	yes	no
13	Melia azedarach	Kae, Kame, Aknel	yes	yes	yes	Yes	yes	yes	yes
14	Parkinsonia aculeata	Adjao kase	no	yes	yes	yes	no	yes	yes
15	Pongania pinnata	Sikan, Waringi	yes	no	yes	yes	yes	yes	yes
16	Sesbania grandiflora	Kane, Gala-gala	yes	yes	yes	yes	yes	yes	yes

In conjunction with research on suitable plants work was also carried out on local agro-ecosystems including traditional agroforestry systems practised by local farmers.

Reconnaissance Survey From Bajawa to Gerodhere

In 1988 two members of the project made a preliminary approach to the people of Gerodhere and to local government officials. This visit also enabled the project staff to familiarise themselves with the local farming systems and biophysical conditions. A collaborative relationship was established between the project and the local agricultural office in Bajawa.

The biophysical environment of Gerodhere is different in many ways from most of the villages in Flores. It is an 'enclave' of uplifted clayey marine terraces on a volcanic island. Soils are calcareous and clayey, and annual rainfall is about 1500mm over a period of 3-4 months. In the 1960s local people established a large furnace for burning natural local limestone to convert it to a material suitable for building. However, the furnace required 32 m_3 of firewood every time a load of rock was baked. Eventually the supply of wood diminished and the furnace was no longer viable and also poor road access made it difficult to market the converted limestone.

Gero and Dhereisa are the two main hamlets that comprise Gerodhere. Traditionally people of Gerodhere used to build terraces on the slopes for soil erosion control. However, soil fertility was not maintained by the farmers and gradually as farm plots became exhausted farmers would clear more land for agriculture by burning. Thus the area of degraded land spread as farmers moved further into previously uncultivated areas.

Now the landscape of Gero is dominated by grasslands with very few trees or shrubs. In the 1950s-60s, it was reported that there were still large areas of dense forest, and farmers were able to support large numbers of cattle. Now there is only grassland and very few livestock.

This decline in the number of livestock is due to a number of factors: sale of cattle to supply cash for food; the lack of fodder; and the spread of anthrax.

The supply of firewood is also becoming a major problem. Many trees have been cut down for firewood and for building materials or have been destroyed by fire in the quest for additional agricultural land. The decline in forest cover has led to a change in the types of firewood used by women. Women are now forced to supply their needs with twigs collected from their gardens or river banks. Previously, ample supplies of firewood were available from the forests.

The degrading biophysical environment has also led to changes in households' diets and a decrease in food diversification since the 1960s–70s. At this time there were several main staple foods – maize, sorghum, millet, 'keo' (Job's tears), rainfed rice, sesame seed and about four or five types of wild root crops (*Dioscorea* spp.). Cassava and sweet potatoes are also major sources of food. In November–December local people went to the forests to collect mangoes. Ripe mangoes were sliced and dried and then stored in baskets to be used as emergency food if there was a poor harvest from the farmers' plots. Legumes used as a source of protein included *Cajanus cajan*, rice bean (*Phaseolus* spp.), local soya bean, green gram and peanuts. At that time there were also various types of fruit trees but since then the numbers and varieties have declined. These fruits included guava *(Psidium guajava)*, pineapple, orange, mango, *Annona squamosa*, *A. reticulata* and *A. muricata*. There were also many types of gourds and pumpkins. All these plants and trees occurred in large stands in the bush, on farmers's plots, and in homegardens. Now most of these species are rarely seen.

This decline in local germplasm of both crops and trees is influencing the stability and sustainability of the agro–ecosystem. Farmers' diets now tend to be dominated by rice. Intensification of rice production has not always led to increased production as many farmers cannot afford the necessary inputs to increase the fertility of their land. This radical and rapid change in traditional cropping systems has led to long periods of famine and to the increased out–migration of young men in search of non–farm based work.

In the 1970s, the government introduced cashew nut plantations in Gero, as was common in most areas of Nisa Tengara Timur. Although this was a community project which involved individual farmers' land, cashew was also planted on some communal land. But as farmers did not obtain direct benefits from the project most of the cashew trees were not cared for and in many cases the trees were felled. The project had also promised the local people that the cashew nuts would realise a high cash value. However, when the cashew trees produced fruits and seeds there was no market. This also led to widespread local dissatisfaction and resulted in the felling of more cashew trees. Thus when the world market for cashews picked up the farmers had insufficient trees with which to supply the market, and by this stage they were not prepared to reinvest in cashew and thus disturb their existing farming system.

There are several major issues to be addressed by the Foundation in Gerodhere village:

1. Soil conservation measures must be introduced to improve and ensure an ecologically sound agricultural system.

2. Fodder supplies pose serious problems for the development of livestock husbandry. There are vast grasslands but their botanical composition together with the land tenure system does not make these areas suitable for livestock.

3. The existing systems of integrating trees and crops on farmers' land should be strengthened with new agroforestry technologies.

4. Tree species should be appropriate and of benefit to villagers.

5. Firewood is a problem for all households, and thus needs to be addressed. This is in contrast to most Timorese villages where firewood is abundant.

6. There is limited water availability which will hinder any new developments within the village.

7. Slash and burn systems together with hunting will continue to devastate natural resources. This may also hinder the planting of trees on communal and private lands.

Following a survey of trees on farmers' land a nursery was established with seedlings of a number of different species both local and exotic. All the species used are to fulfil needs identified by farmers. Several enthusiastic local farmers are involved in trials of tree species on their own land. The remainder of the seedlings raised will be used in village-level reforestation programmes.

On-Farm Field Trials

There are several types of programmes and trials planned for the implementation of agroforestry interventions:

1. Direct on-farm trials in the form of hedgerow establishment to reinforce existing terraces on farmers' land and as a measure for erosion control and soil fertility maintenance.

2. Establishment of a seed garden and arboretum of all the desired species to act as a seed supply and store. Seed supply is one of the major

constraints in any agroforestry intervention as seed is required in large amounts for hedgerow planting. Species suitable for hedgerow planting include: *Acacia villosa*, *Gliricidia sepium*, *Cassia siamea* and *Leucaena leucocephala*. Species suitable for live fences include: *Thevetia peruviana*, *Acacia farnensiana*, *A. catechu*, *Parkinsonia aculeata*. Species raised for fodder include: *Sesbania grandiflora*, *Acacia polycantha* and *Albizzia lebekioides*.

3. Design of improved agroforestry systems. This is based on upgrading existing agricultural production systems using an agroforestry approach. Any systems introduced are simple in order to facilitate adoption by farmers. Home garden improvement will also form part of future strategies.

4. Social forestry planning. Agroforestry will be developed together with a social forestry programme. Agroforestry will cover interventions solely on farmers' land whereas social forestry will be based on both farmers' land and communal land.

5. Micro-watershed management will be based on initial agroforestry work carried out on farmers' land. All initiatives will be built on farmers' understanding of their own land, and from this basis farmers' will be encouraged to increase their understanding of the larger environment in which they live i.e. the watershed. In conjunction with social forestry planning the watershed programme will conform to the general objective of improving existing agricultural production systems using multipurpose trees and shrub species.

CONCLUSIONS

This newly established NGO takes a grass-roots approach and has learnt from the successes and failures of existing NGO programmes. Its focus is on farmers' needs and it is based on an understanding of the key local agricultural problems. A combined farm-social forestry approach is taken to provide some solutions to the current land degradation problems. The programme is supported by scientific research conducted in conjunction with farmers and research institutes. The research will be applied and relevant and will focus on working with key farmers. Thus it is hoped that this type of multi-facetted approach will help farmers to improve their local environment.

SEEDLINGS INTO TREES: THE ROLE OF NURSERIES
The Experiences of YCO in Andhra Pradesh, India

M.S.R. Prem Kumar

The concept of local participation and control in social forestry has gained centre stage in forestry development issues. It has come to prominence because demand for forest products has risen dramatically with increasing populations, with environmental change and industrial development. Together these changes have reduced thousands of acres of bush and forests to degraded land. Participatory social forestry has also arisen because the top-down approach used in forestry project design has not worked. Social forestry for local community development has come to mean more than simply changing the local resident from an invisible being to someone who is a pawn in someone else's game.

No longer are forestry projects confined to dense stands of trees; now they are directed to the planting and management of many different associations of trees, shrubs and crops. Trees are integrated into indigenous agricultural systems where villagers are responsible for the care and management of these trees. Hence the role of the forester has also changed: in general foresters are now offering technical support and advice to villagers.The greater part of the new forestry agent's time will no longer be confined solely to management control and rule enforcement, instead villagers have become central to resource management. The purpose of this reorientation of social forestry has been to help local people gain control over solutions to resource problems. This new approach is undoubtedly more difficult and time consuming to design and execute than the former blueprint approach. Villagers must be informed of the options and encouraged to participate in deciding what is appropriate and affordable within their economic and social environments.

Using these concepts the educated unemployed youth of Yellamanchili founded Youth for Wastelands Development (YCO) to promote participatory forms of social forestry.

Beginnings

From 1981 YCO has worked as a catalyst with poor people to help them to identify solutions to their resource needs. Villagers wanted to plant trees on their own land and so YCO approached the Forest Department for a supply of seedlings. Farmers used their own transport to take seedlings from government nurseries and planted them on their own land. Although only a small number of farmers were initially involved in the programme the survival rate of the seedlings was very high, and showed that farmers were prepared to invest large amounts of time and labour in collecting and nurturing the seedlings.

From these small beginnings YCO learnt several lessons:

1. People needed nurseries close to their villages.

2. Seedlings must be ready in time for the monsoon and the peak planting period.

3. The government nurseries did not supply the types of seedlings that farmers required, because farmers had not been asked about their tree-based priorities.

YCO Nurseries

a. Centralised Nurseries

These lessons led YCO to establish their own nurseries. A central nursery was established on one acre of revenue land given by the

government. The District Rural Development Agency provided the necessary infrastructure and capital investment under the National Rural Employment Programme (NREP). However, although the project raised the seedlings with the help of unemployed and destitute labour it was not possible to distribute the seedlings to poor farmers. At this time the project had to work through the local government structures which led to the allotment of seedlings to wealthy and politically influential farmers.

This experience led to YCO delinking their seedling distribution service from government agents. The YCO instituted a survey of 30 villages to assess their requirements for tree planting. From the results of this survey the project decided to establish decentralised nurseries in 12 villages.

b. Decentralised People's Nurseries

Financial assistance for the establishment of these nurseries was obtained from the National Wastelands Development Board. Local people were involved in the construction of the nurseries and the selection of species to be raised. As opposed to previous experience seedlings were lifted on time and were distributed to poor farmers.

YCO has also worked in conjunction with the Forest Department to establish other nurseries with low caste families.

From Nursery to Tree-Planting

In 1981 YCO applied to the revenue authorities to lease 30 acres of land in Maribanda village. But it was not until four years later even with good contacts in the revenue department that YCO was able to complete all the necessary formalities. Initially the land was given to YCO on lease but the project decided it would be better to give Pattas to 30 destitute and landless families who had recently been resettled in the locality. The land was planted up six months after the pattas had

been handed over to the families. The villagers used indigenous soil and moisture conservation practices to ensure the protection of the seedlings. Intercropping systems were also introduced by the participants. The sale of vegetables and cashew nuts has realised a large income, of which half has been reinvested by the project to improve the programme, and the remaining money has been used to establish a community fund. From this fund the 30 participating families have been able to take out interest free loans to purchase livestock and other assets.

The experiences of YCO indicate the importance of learning by doing. It is also apparent from this description of their work that YCO has a vital role to play as a mediator between government services and villagers.

FACTORS INFLUENCING SUCCESS IN SENEGAL'S VILLAGE-BASED TREE NURSERIES

Thérèse Glowacki & Dr David Cleaves

INTRODUCTION

In land-scarce environments such as Senegal, social forestry holds great promise for improving and sustaining the productivity of lands under cultivation, but must overcome obstacles to adoption and create incentives to encourage farmers to adopt these practices.

One key to encouraging tree planting efforts has been the establishment of a highly decentralised nursery and seedling distribution system funded by internationally and locally funded reforestation projects. At the centre of such a system is the village nursery where villagers grow seedlings to supplement or replace those supplied by government-owned regional nurseries.

The benefits of a village nursery can be viewed in social as well as economic terms. In many African villages, distinct social groups exist for economic and political decision making. Village nurseries can be managed by women's or men's groups or by individuals. Village nurseries provide lower labour and transportation costs and fewer mortality losses than government nurseries. Disadvantages of village nurseries can include poor quality control, unpredictable production, lack of access to expertise, and insufficient water sources.

The effectiveness of village nursery programmes depends on the villagers' willingness to establish and continue a network of nurseries. To ensure success it is vital to help change agents create local support for each nursery. A year or two of poor survival may result in disinterest by villagers and perhaps permanent abandonment. Even if the nursery is initially successful, sustaining it is not a certain proposition, and the factors influencing discontinuance of agricultural and forestry practices are not nearly as well understood as those affecting the initial adoption.

In Senegal, there are approximately 690 village nurseries in 10 regions, 461 of which were established under 16 reforestation projects (Division de Conservation de Sol et Reboisement, DCSR, 1988). We selected eight villages in each of four projects (32 total).

OBJECTIVES

The objectives of this study were:

1) to investigate determinants of success in village nurseries in terms of

   a)seedling survival at the end of the nursery season;

   b)manager's intentions to continue;

2) to understand how future programmes for implementation of village nurseries could be improved.

Seedling survival rate was used as one indicator of success. We hypothesised that survival can be influenced by village knowledge, physical/environmental conditions, competition from other agricultural activities, and cultural barriers. Survival rate is important because

reforestation efforts depend on a crop of healthy seedling outplantings.

Intention to continue was chosen as an indicator of programme self-sustenance. Response was limited to plans for next year and was divided into conditions of with and without continued financial incentives. Some projects provide seeds, pots, a water well, or other forms of financial supplement. The intention attitude was assumed to be prerequisite for actual continuation. Despite the well-noted methodological discrepancies between attitude (intention) and behaviour, we treated positive intention as a necessary, if not sufficient condition for actual continuance of nursery practice. Follow-up studies would confirm whether these villagers act on the intentions expressed.

ANALYSIS OF THE RESULTS: DISCUSSION

Seedling survival

Participation by the village in planning the nursery was revealed as an important determinant of seedling survival despite the fact that many other potentially important factors could not be measured, such as interest and activity load of the extension agent, political problems within the village, and pest losses.

The results reinforce the concept that the adoptability of social forestry depends on accurately and obviously reflecting the needs, aspirations and problems of the people, and is best implemented through open consultation with the people from early in the process. When villagers perceive ownership in the conception of projects, and ultimately the benefits, they better care for the nursery, and the biological success is higher. Species selection in this case related more to end uses than to biological suitability to nursery conditions.

Intention to continue

Financial incentives had a significant impact on the nursery managers' intentions. The one-year discontinuance rate would at least triple without financial incentives. Most of this was due to the lack of money to buy seedlings and to repair wells, and part was due to the perception that continued technical advice was less likely if there was no investment by the project. This raises a question about whether self-sustained production is possible. Even with continued financial incentives, about 25% of the villages did not plan to continue the next year. This was a substantial rate of abandonment that would severely reduce the number of nurseries after several years. Some of the reasons for not continuing were: lack of adequate water supply, lack of sufficient labour, and disinterest due to poor seedling survival.

Without financial incentives, continuance was most positively correlated with the previous experience of the nursery managers. This suggests that villagers who had helped establish nurseries in the past, with other projects or on their own, should be targeted for sustained adoption.

Since villages without water supply problems are more likely to continue, projects should concentrate financial incentives and technical assistance on securing a permanent water source. The provision of a water supply may be more important than the supplies and equipment normally provided.

Villagers who had sold seedlings from their nursery, in this sample, were more likely to continue. This supports Anderson's (1987) idea that charging for seedlings to cover operating costs would maintain nursery viability and discourage wasteful practices. There is evidence that the demand for seedlings among villagers and the availability of currency or in-kind barter is large enough to support more nurseries. Marketing systems and business practices are not usually covered, however, in the training provided to the villages by project personnel. Markets for trees and tree products from the village woodlots would also encourage greater seedling demand, but market development was not an important facet of any of the four projects we studied.

CONCLUSIONS AND RECOMMENDATIONS

Our results reinforce other studies that suggest that villager input in fitting the innovation to local needs positively influences how well and how completely it will be adopted. We feel that this begins with the amount of care villagers put into tending practices and carries over into attitudes for sustaining the innovation.

Our study showed us several ways to maximise nursery project success (continuance) when projects are selecting new villages, for example, it would be beneficial to start with those individuals with previous nursery experience. Because villages with ample water were more likely to continue, projects could allocate resources to maintain water sources. Finally, seedling sales could be promoted by projects by providing marketing education along with nursery techniques training. Any project redesign should be based on a thorough evaluation of these and other factors.

FURTHER RESEARCH

Further research is needed to correlate villager characteristics and elements of village social structure with nursery continuance. Research is also needed on the impact of economic incentives including:

- costs and benefits of direct incentives such as wells;
- seedling market potentials in rural communities;
- procedures for efficiently marketing seedlings.

It appears that the marketing of seedlings could engender further

commitment on the part of villages selling the seedlings, purchasing the seedlings, and could also promote inter-village trade.

Village nurseries in Senegal offer an alternative to government seedling production. The key to successful establishment and continuation lies with the creative blend of extension methods, incentives, technical assistance and organisation. By combining the current village-based nursery practices and the key success factors studied here, forestry extension programmes could create even more positive changes in the attitudes and behaviours in reforestation practices of villagers in rural Senegal.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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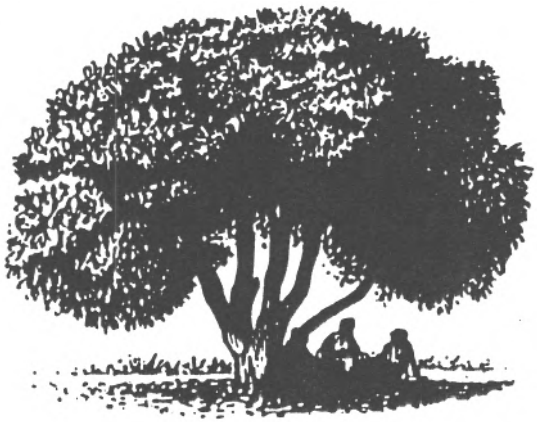
SOCIAL FORESTRY NETWORK



NEWSLETTER

11 Winter 1990

Agricultural Administration Unit,
Overseas Development Institute

The Overseas Development Institute (ODI) is an independent, non-profit making research institute. Within it, the Agricultural Administration Unit (AAU) was established in 1975 with support from the British Aid programme. Its mandate is to widen the state of knowledge and flow of information concerning the administration of agriculture in developing countries. It does this through a programme of policy-oriented research into selected subject areas. The dissemination of this research and the exchange of ideas and experience between countries is achieved through the four Networks on Agricultural Administration, Irrigation Management, Pastoral Development and Social Forestry. Each of these has between 600-1500 members, drawn from a wide range of nationalities, professional backgrounds and disciplines. Members contribute to and receive papers, and newsletters containing information on recent work, workshops and other recent events. Information on other networks can be obtained from the network secretaries. Membership is currently free of charge, but members are asked to provide their own publications in exchange.

ISSN 0951-1849

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PAPERS ACCOMPANYING THIS NEWSLETTER

This series of network papers reviews experiences with woodlots in Asia and Africa, and provides suggestions for alternative forms of action for tree-planting, protection and management.

11a **'Forestry, Social Forestry, Fuelwood and the Environment: A Tour of the Horizon'**
Gill SHEPHERD

11b **'Social Forestry and Communal Management in India'**
J.E. Mike ARNOLD

11c **'Communal Woodlots in Tanzania: Farmers' Response and an Evolving Extension Strategy'**
Edwin SHANKS
and
'Social Forestry in Northern Ethiopia: Turning Felt Needs into a Driving Force'
Julian WAKE

11d **'Trees on Farm Lands in North-West India: Field Data from Six Villages'**
N.C. SAXENA

11e **'Beyond Community Woodlots: Programmes with Participation'**
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10f **FROM THE FIELD**
Shorter Contributions from Networkers
Martin E. ADAMS, John CASEY, Peter KARINGE, Paul KERKHOF, Janet STEWART, and Nicola WILSON & Stephen CONNELLY

and the Second Social Forestry Bibliography

THE SOCIAL FORESTRY NETWORK: ITS PAST AND FUTURE

We are coming to the end of yet another funding period, and are currently raising new funding for the next three years. **How has the Network changed over the past three years, and where are we heading for in the future?**

In this brief review of past activities we see a social forestry horizon which has broadened to encompass more of the forestry world. The two current research fellows, Dr. Gill Shepherd and Dr. Mary Hobley, through their different disciplinary backgrounds in social science and forestry, have succeeded in bridging the gap between natural and social sciences in forestry. We have tried to offer continuity and theoretical clarity to networkers, moving as the subject has unfolded over the last six years, from fuelwood and energy issues, through farmer priorities in farm and agroforestry to participatory approaches to forest and woodland management for greater sustainability. Our overall policy objective has been to dissolve the distinction between 'social forestry' and 'forestry' so that all forestry in future takes the needs of local people, as well as trees, into account.

During the period from March 1988 to March 1991, we have undertaken six pieces of research:

- The effect on household land and labour allocation of more intensified tree-use, and its implications for village tree-planting, and the division of labour by sex. Based on a literature search from 1940 to the present day, presented as a time-series for various African and Asian countries. **Gill Shepherd and Mary Hobley.**

- Participatory management of natural woodland in Africa. This has resulted in published field research: Charcoal in Somalia: A woodfuel inventory in the Bay Region of Somalia, **Neil M. Bird and Gill Shepherd**, ODNRI: Chatham, 1988; and in a literature analysis: Communal Management of Forests in the semi-arid and sub-humid regions of Africa. **Gill Shepherd.** FAO, forthcoming.

NETWORK NEWS

- **Appropriate social forestry for the poor in Asia and Africa**. We are editing a series of Indian and African case-studies which look at original project methodology in a variety of Social Forestry Projects, and the adaptations they made to reach the poor. The book is intended as a guide to future policy and project design. **Mary Hobley** and **Gill Shepherd**

- **Forest Policy and Forest Politics in the Sahel** **Gill Shepherd** ed. Containing case studies from Mali, Sudan, Somalia, Kenya and Nigeria, and with an introduction by the editor, the book addresses forestry initiatives in dryland Africa, and impediments to success. In English and French (ODI and Centre Technique Agricole, in press).

- **Social Forestry, Social Reality: the case of two Nepalese panchayats** **Mary Hobley**. To be published in 1991. This doctoral study focussed on differential access to forest resources in two localities, and the impact of a social forestry project on class and gender relations. Methods used to involve local people in natural woodland management were evaluated.

- **The Management of Natural Woodland with the Participation of Local Inhabitants**. **Gill Shepherd** and **Freerk Wiersum** (eds.). To be published as an ODI Occasional Paper and as a BOS Foundation paper in Wageningen. The book results from a workshop held on the topic in the netherlands in November 1989, and includes cases from Africa and Asia and two comparative papers by the editors.

The network has about 1500 members in 109 countries drawn from a variety of backgrounds. Seventy per cent of networkers are resident in the developing world, and the largest single discipline represented is forestry, with a wide scatter of other related natural and social science disciplines. By affiliation, about 30% are in teaching institutions of various kinds; 20% work for NGOs; 20% are officials of bilateral or multinational agencies; and 20% are Government officials.

The strengths of our interactive network became apparent when we assessed our large collection of social forestry materials. We have been able to gather a unique library and data-base, which we have used in some of our major bibliographiic searches. It is a key research tool for networkers around the world. Since fully computerising the collection we have been able to conduct keyword computer searches on request.

Our plans for the next three years involve consolidation of earlier work and a theoretical push forward into the problems of forest and environmental management in higher rainfall areas. Many people have now realized that plans for natural resource sustainability must encompass the human dilemmas that underlie resource degradation. However, it is in the field of social forestry, in the last few years, that the first practical efforts to address local and official, human and biological priorities have been made. Despite the inevitable errors, this has been the ground on which key issues have been identified, methods refined, and new knowledge gained. These advances are now exactly those needed to address tropical environmental issues. If we look more closely at the word 'environment' what we find above all is land-tenure conflict, and competing land use plans. Because of legitimate global concerns over loss of biodiversity, or the greenhouse effect, we may find local needs down-played, instead of remembering that both local and broader goals must be addressed simultaneously if the one is not to conflict with the other.

Until now we have concentrated on Africa and Asia for two reasons. Firstly, much of the experimental work in social forestry was focussed there, and secondly we have mainly worked in the English speaking world, although we have been able to translate some network papers into French.

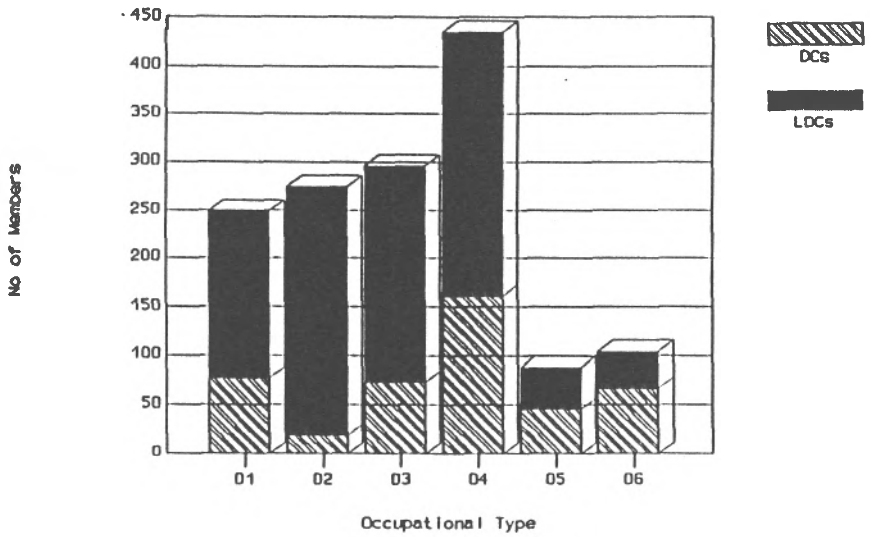
In our next phase, one of our aims is to establish stronger links with Latin American individuals and institutions. There are numerous researchers and implementers in the region who feel out of touch with new approaches being tried elsewhere and who are eager for interchange. Moreover, as we have argued, tropical moist forest management is ripe for some injection of methods and insights from social forestry.

ANALYSIS OF NETWORK MEMBERSHIP DATA
20th September 1990

SOCIAL FORESTRY NETWORK MEMBERS BY COUNTRY

ARGENTINA	2	GERMANY FR	14	PHILIPPINES	40
AUSTRALIA	12	GHANA	19	POLAND	1
AUSTRIA	1	GUATEMALA	3	PUERTO RICO	2
BANGLADESH	31	GUINEA-BISSAU	3	RWANDA	7
BELGIUM	7	HAITI	5	SENEGAL	13
BELIZE	1	HONDURAS	4	SIERRA LEONE	7
BENIN	3	HONG KONG	1	SINGAPORE	1
BHUTAN	4	INDIA	170	SOLOMON ISLANDS	3
BOLIVIA	2	INDONESIA	25	SOMALIA	8
BOTSWANA	11	ISRAEL	4	SOUTH AFRICA	10
BRAZIL	7	ITALY	13	SPAIN	2
BURKINA FASO	5	JAMAICA	1	SRI LANKA	12
BURUNDI	4	JAPAN	2	ST HELENA	1
CAMBODIA	4	KENYA	83	ST LUCIA	2
CAMEROON	7	LESOTHO	7	SUDAN	44
CANADA	10	LIBERIA	6	SWAZILAND	3
CAPE VERDE	1	MADAGASCAR	3	SWEDEN	15
CHAD	5	MALAWI	13	SWITZERLAND	5
CHILE	3	MALAYSIA	10	SYRIA	2
CHINA	16	MALI	9	TAIWAN	1
COLOMBIA	2	MEXICO	5	TANZANIA	38
COMOROS	2	MICRONESIA	2	THAILAND	31
COOK ISLANDS	1	MOROCCO	1	TOGO	3
COSTA RICA	17	MOZAMBIQUE	2	TRINIDAD	2
COTE D'IVOIRE	6	NEPAL	51	TRINIDAD & TOBAGO	1
DENMARK	8	NETHERLANDS	28	TUNISIA	1
DOMINICAN REP	3	NEW ZEALAND	2	UGANDA	13
ECUADOR	4	NICARAGUA	3	UK	167
EGYPT	4	NIGER	8	USA	137
EIRE	3	NIGERIA	24	VANUATU	2
EQUATORIAL GUINEA	1	NORWAY	4	VIETNAM	2
ETHIOPIA	21	OMAN	3	WESTERN SAMOA	2
FIJI	5	PAKISTAN	22	YEMEN A R	2
FINLAND	5	PAPUA NEW GUINEA	5	YEMEN PDR	1
FRANCE	4	PARAGUAY	1	ZAIRE	3
GAMBIA	3	PERU	10	ZAMBIA	51
				ZIMBABWE	21

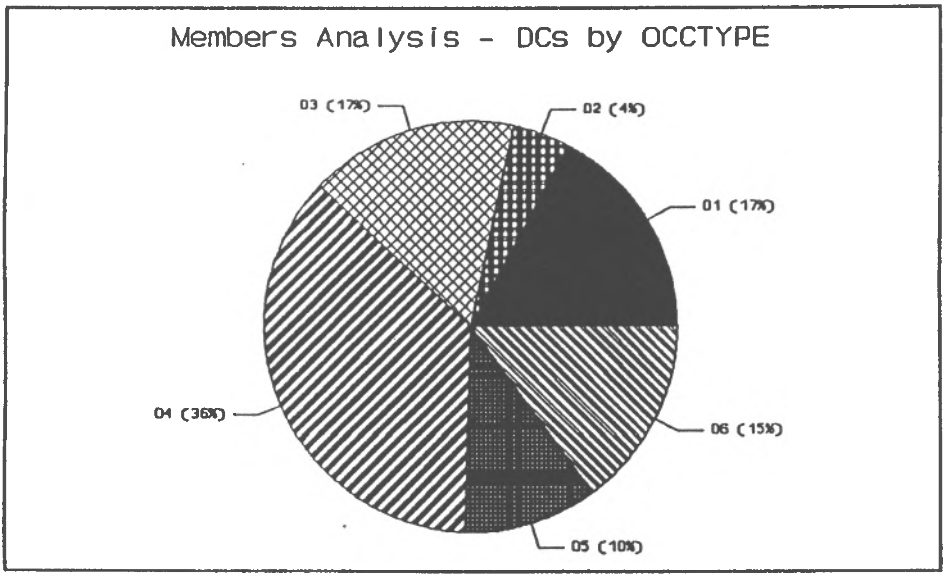
SOCIAL FORESTRY NETWORK
Members Analysis - DCs & LDCs by OCCTYPE

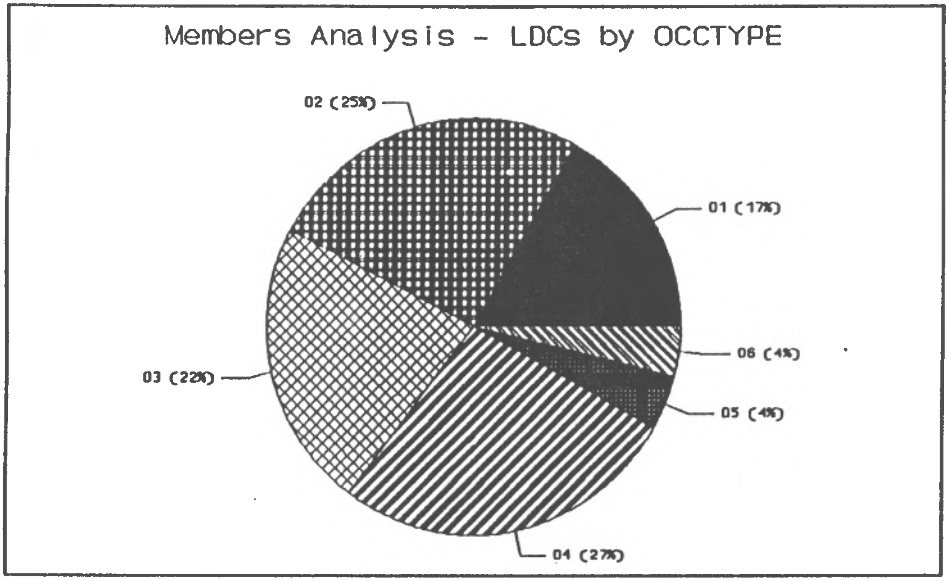


Occupational Type

	DC	LDC	Total	%
01 International or National Aid Agencies	77	172	249	18
02 Government Civil Service, Parastatal,	19	256	275	19
03 NGOs, PVOs, Foundations, etc.	73	223	296	20
04 Universities, Colleges, Research Institutions	161	274	435	30
05 Libraries/Documentation Centres/Publishing	46	42	88	6
06 Independent Consultants, Business	66	38	104	7
	442	1005	1447	100

Break down: DC members slightly over 30%
LDC members slightly under 70%


Members Analysis - DCs by OCCTYPE
03 (17%)
02 (4%)
01 (17%)
04 (36%)
06 (15%)
05 (10%)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01 (17%)
06 (4%)
03 (22%)
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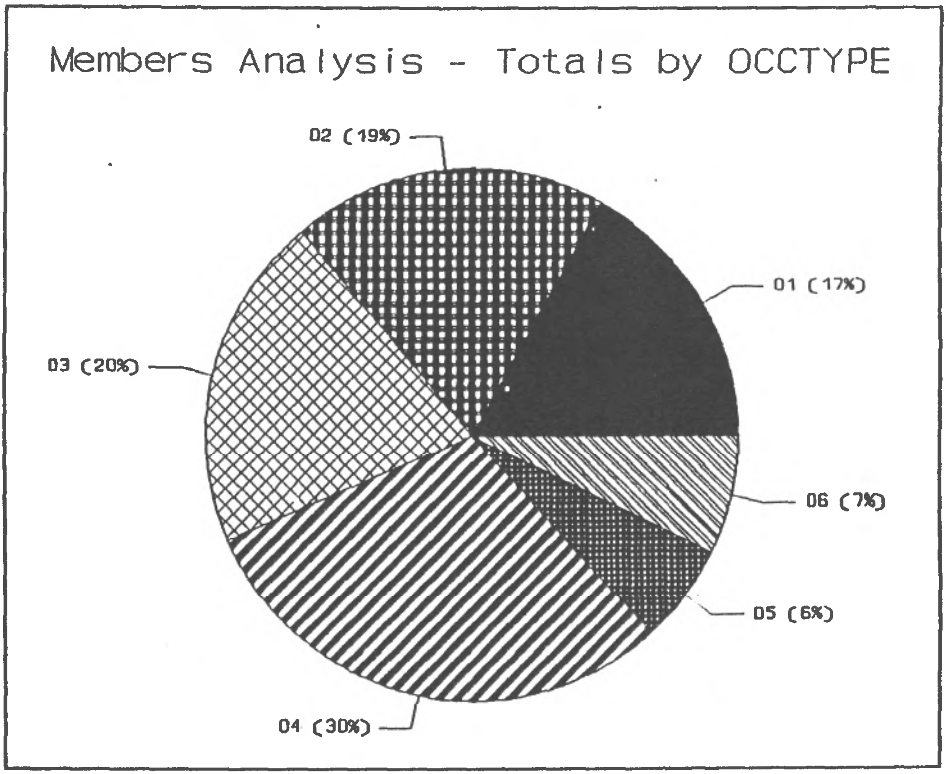
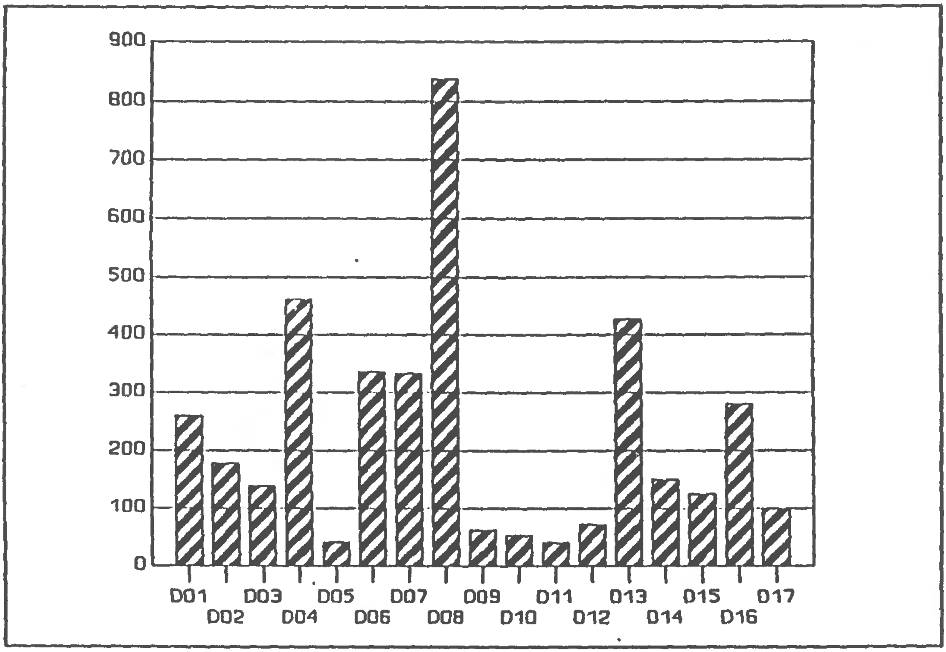
04 (27%)



Occupational Type

01 International or National Aid Agencies
02 Government Civil Service, Parastatal,
03 NGOs, PVOs, Foundations, etc.
04 Universities, Colleges, Research Institutions
05 Libraries, Documentation Centres, Publishing
06 Independent Consultants, Business

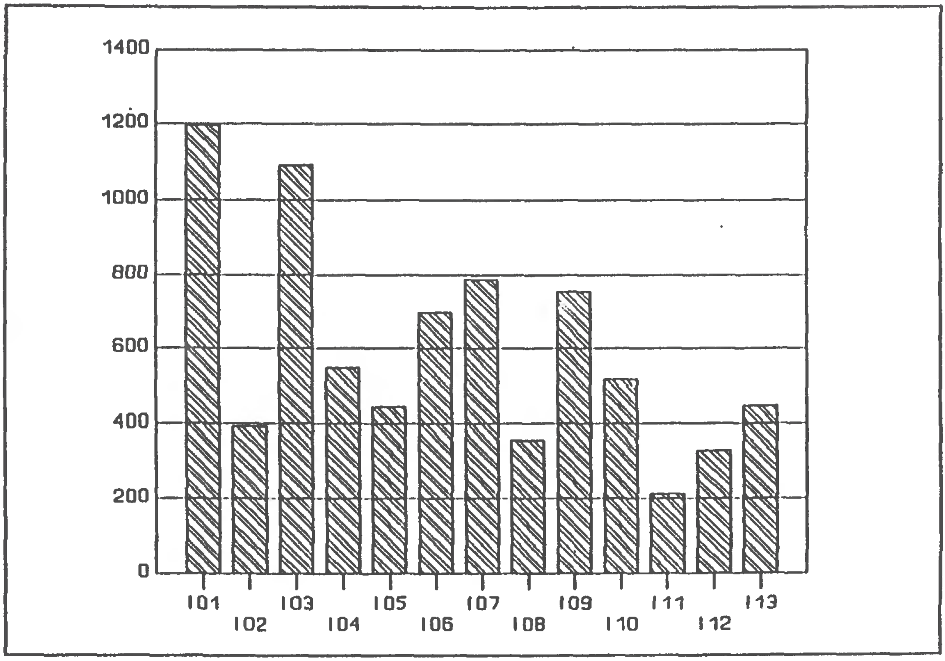
Members Analysis by DISCIPLINES



BREAKDOWN OF NETWORK MEMBERSHIP BY DISCIPLINES

D01 Agriculture/Agronomy
D02 Agricultural Economics
D03 Economics
D04 Education, Training, Extension
D05 Engineering
D06 Environmental Sciences
D07 Farming Systems
D08 Forestry/Silviculture
D09 Geography
D10 Horticulture
D11 Journalism
D12 Librarianship
D13 Management
D14 Natural Sciences
D15 Regional Planning
D16 Social Sciences (not Economics)
D17 Soil Sciences

Members Analysis by INTERESTS



NETWORK MEMBERSIIIP INTEREST GROUPS

01 Agroforestry
02 Anti-desertification
03 Community Forestry
04 Conservation Measures
05 Energy Issues
06 Farm Forestry
07 Forestry Extension
08 Institutional Management
09 Production Aspects: fuelwood / food / fodder
10 Project Management
11 Rights of Forest Dwellers
12 Rights for the Poor/Landless
13 Women and Forestry

REVIEW OF SOCIAL FORESTRY EXTENSION MATERIALS

We have been continuing to gather items for this review. The response from network members has been extremely positive, many people have sent examples of extension publications as well as putting us in touch with others who may be of assistance. Sufficient material is now in-house to begin compiling the report in the near future.

In deciding what to include in the review the following working definition of 'extension literature' will be used: educative materials that aim to facilitate the spread of information and understanding on social forestry between two or more discrete social groups; these groups may be defined in educational or cultural terms, or in terms of the relative position of individuals within an organisational structure. Following this definition, a number of different types of material will be evaluated:

- Publicity materials produced as part of awareness campaigns including posters, calendars, stickers etc., as well as items of popular appeal such as 'photoessays' on land use initiatives.

- Field manuals (how to go about a piece of work) and handbooks (the information required to carry out that work effectively). This is a broad category containing many different documented approaches. Some concentrate on tree-growing and forest management practices, or on particular species, whilst others are concerned with communication methods/skills and farm level appraisal techniques.

- Training packages and associated literature on curriculum development with regard to 'on the job' training of field staff.

- Materials which aim to facilitate the internal flow of information and understanding within an organisation as associated with procedures for monitoring and evaluation.

An assessment will first be made of how effectively these materials convey their messages to the intended audience according to the conceptual structure within which the information and ideas are ordered. Background literature, including guidelines on the preparation, use and evaluation of extension materials, and on matters pertaining to visual and functional literacy and environmental education will be incorporated.

Many organisations use a range of extension media which need to be evaluated together according to the integration of messages, methods and materials with the work in action. To achieve this a number of case studies will also be developed, each having a particular focus in terms of geographical location, scope (local/regional/national) and organisational setting (forest service/NGO). Other topics which will receive attention include the historical development of forestry field manuals from floras, the use of illustrations, field testing procedures and school's projects.

Output from the review will be in two parts: a report providing guidelines on the production of cost-effective extension materials; and a source book containing illustrative material which may be used as an aid for the preparation of materials in the field.

NETWORK ANNOUNCEMENTS

THE EDINBURGH CENTRE FOR TROPICAL FORESTS (ECTF)

The ECTF is being established as an association bringing together the Natural Environment Research Council, the School of Forestry in the University of Edinburgh, the Royal Botanic Garden, Edinburgh and the International Forest Science Consultancy (IFSC).

The sustainable utilisation and conservation of natural forests in the tropics is an important global issue. The destruction of tropical forests is occurring at an alarming rate with potentially serious environmental effects and the loss of many valuable resources. ECTF promotes sustainable management, conservation and protection of forests and other woody vegetation throughout the tropics to the benefit of local populations and the world generally.

All four founding members of the Centre are actively involved in research, training, education and consultancy in over 50 developing countries in the tropics. ECTF integrates the resources and expertise in tropical forestry among the participants. The Centre will become a recognised reference source on all matters pertaining to forest resources for policy makers, the media and other informed groups.

ECTF offers expertise in the management and conservation of the forest in the tropics in the following areas:

- Assessment of sustainable management techniques in natural and manmade tropical forests and the implications of these techniques for biodiversity, conservation and multi-purpose utilisation.
- Surveys of land use and tree cover and environmental assessments of development schemes and land use changes.
- Research into tree physiology, reproductive biology and tree nutrition and the application of research findings to the clonal selection, vegetative propagation and successful establishment of native and exotic tree species.

- Systematic botany and identification of socially and commercially important tree species
- Ecological and economic modelling of forest management and conservation
- Provision of training in Edinburgh, and in-service, in the above topics and the techniques required for sustainable tropical forestry and agroforestry.

For further information please contact the Manager:

Dr. Helen Whitney McIver
The Edinburgh Centre for Tropical Forests
University of Edinburgh
Darwin Building
Mayfield Road
Edinburgh EH9 3JU, UK

DEVELOPING COUNTRIES FARM RADIO NETWORK

The Developing Countries Farm Radio Network is an international information exchange, sending simple, ready to use radio scripts to rural communicators throughout the developing world. DCFRN collects practical information aimed at increasing food supplies and improving health and nutrition at the grassroots levels. Network participants include radio broadcasters, extension workers and others who aim to reach small-scale farmers. They interpret the information in their local language and culture of the farmers they serve, using it on radio, in extension work and in print. DCFRN packages are supplied in English, French or Spanish.

Contact: DCFRN
595 Bay Street, 9th Floor,
Toronto M5G 2C3, Ontario,
CANADA

NETWORK ANNOUNCEMENTS

NETLINE

Netline is the newsletter of the Rural Social Science Network. It is designed to link scientists focused on agricultural development and natural resource management in Bangladesh and throughout the world. The newsletter is produced by the HRDP Winrock International Office in collaboration with BARC. For more information please contact:

Winrock International,
BARC Complex,
Farmgate,
Dhaka,
BANGLADESH.

NITROGEN FIXING TREE ASSOCIATION

The Nitrogen Fixing Tree Association (NFTA) is looking for new associates from non-government organisations (NGOs) in the tropics. NGOs interested in becoming members should write using their organisation's letter-head giving a brief description of the work of their organisation to NFTA. Membership fees will be waived for one year, and subsequent annual fees will also be waived if a follow-up letter is received indicating the continuing interest of the organisation in membership of NFTA. Members will receive newsletters, technical highlights and journals on the use of nitrogen fixing trees for agroforestry systems.

The NFTA is also involved in organising workshops for its members. It has recently co-hosted a workshop with World Neighbours in Karnataka, India. The purpose of the workshop was to introduce community leaders to the use of nitrogen-fixing trees. The NFTA will support several of the participant groups with development grants to establish community-level nurseries. Further information is available from:

The Nitrogen Fixing Tree Association
PO Box 680
Waimanalo, Hawaii 96795, USA

SOCIAL FORESTRY COURSES

AGROFORESTRY AT BANGOR
School of Agricultural & Forestry Sciences, UCNW, UK

Agroforestry at Bangor is an expanding interdisciplinary programme of education and research in the principles and practice of sustainable land use to produce appropriate balances of food, fuel, timber and other products. This involves the consideration of trees, crop plants, livestock and people and their interactions with one another in farming and forest systems. Undergraduate and postgraduate degrees in agroforestry are offered.

Contact: Fergus Sinclair
School of Agricultural and Forest Sciences
University College of North Wales
Bangor LL57 2UW, Gwynedd, UK
FAX: 44(248)-354997

SHORT COURSE IN AGROFORESTRY EXTENSION AND TRAINING, University of Florida, USA
13 May - 14 June 1991

This course is designed for mid-level personnel from developing countries who are involved with the promotion of the integration of agriculture, forestry and livestock production among small farmers. Participants will develop the knowledge and skills to understand the principles, concepts and potentials of agroforestry; apply the diagnosis and design, and evaluation procedures; and develop agroforestry technologies and extension techniques in their home countries. Topics will also include agroforestry systems, practices and technologies; productive and protective role of agronomy; biophysical and socio-economic characteristics of land use systems; agroforestry options to address identified problems; economic evaluation; and problems and methods of agroforestry extension.

Contact: The Short Course Director, Development Resources Division
Office of International Cooperation and Development
United States Department of Agriculture,
Washington DC 20250-4300, USA.
FAX: 1(202)-245-5960

SOCIAL FORESTRY COURSES

SHORT COURSE ON AGROFORESTRY SYSTEMS

Silsoe College, Cranfield Institute of Technology, Silsoe, UK
3 June - 23 August 1991

Silsoe College is introducing a course on agroforestry aimed at professionals involved in land use planning with emphasis on development projects. The primary aim is to increase the effectiveness of professionals in the diagnosis, analysis and design of mixed cropping systems involving woody perennials. The contents of the programme will include: animals in agroforestry; trees in agroforestry; the ecological environment; the socio-economic environment; the ecology of resource use and interference; extension methods; temperate case studies; tropical case studies; the effective manager; and synthesis and action plans.

Contact: The Student Recruitment Executive
Silsoe College
Silsoe MK45 4DT, Bedford
UK
FAX: 44(525)-61527

FOURTH CERTIFICATE COURSE IN COMMUNITY FORESTRY

Regional Community Forestry Training Centre, Bangkok, THAILAND
10 June - 6 December 1991.

This course is oriented towards individuals presently involved in or scheduled to join a community forestry programme. Applicants should have a basic degree or equivalent experience in forestry, environmental sciences, biology, geography or soil sciences.

Contact: The Director
RECOFTC
Faculty of Forestry
Kasetsart University
Bangkok 10900
THAILAND

SOCIAL FORESTRY COURSES

SHORT COURSE ON RURAL DEVELOPMENT FORESTRY

Oxford Forestry Institute, Oxford, UK
26 June - 26 September 1991

This Specialist Forestry Course gives the participants the benefit of qualified and experienced staff and a learning environment within which to work out the potential of social forestry and agroforestry and the problems faced during project implementation. Delegates should return home with the skills and understanding necessary for overcoming the constraints and achieving the full benefits of these systems within the context of rural development forestry.

Contact: Course Coordinator, Oxford Forestry Institute
University of Oxford, Department of Plant Sciences
South Parks Road, Oxford OX1 3RB, UK
FAX: 44(865)-275074

COURSE ON TENURE AND MANAGEMENT OF NATURAL RESOURCES IN SUB-SAHARAN AFRICA

The Land Tenure Centre, University of Wisconsin-Madison, USA
1 July - 2 August 1991

This course aims to provide participants with a broad understanding of African tenure systems and policies and their impacts upon resource use and management. The course is intended for professionals from African countries responsible for policy making, project design, socio-economic research and for managers of natural resource programmes. During the course participants will complete a project related to tenure and resource management issues in their home country. The equivalent of a BA or BSc degree is desirable but not essential. English proficiency is required.

Contact: Dr. S.W. Lawry
Land Tenure Centre, University of Wisconsin,
1300 University Avenue,
Madison, Wisconsin 53706, USA.
FAX: 1(608)-262-2141

SOCIAL FORESTRY COURSES

FOURTH INTERNATIONAL COURSE ON THE DESIGN OF COMMUNITY FORESTRY

International Agriculture Centre (IAC), Wageningen, NETHERLANDS
9 September - 14 December 1991

This course is designed for programme officers engaged in policy formulation or in the design, management and evaluation of community forestry activities at the regional or national level. The course is open to officers from both government and NGOs. Applications by women are strongly encouraged. Applicants should have an academic degree, experience in forestry, agriculture or rural development, a professional position related to community forestry, and competence in English.

Contact: The Director - IAC
P.O.Box 88, NL-6700 AB Wageningen,
NETHERLANDS

SHORT COURSE ON FORESTRY AND AGROFORESTRY TRAINING AND EDUCATION

AETU, Wolverhampton Polytechnic, Walsall, UK

This is an intensive 12 week training methods course for foresters and agroforesters involved in teaching, training, extension and social forestry work. Considerable emphasis is placed on the individual requirements of participants who, after studying a range of basic training methods, are encouraged to select and apply them to their own subject area and job description. Units of study include: planning training programmes; training methods; production of training resources and evaluation of training. Each participant is also attached to a training institution or organisation for a two week period. The course leads to the Overseas Technical Teachers' & Trainers' Award (OTTA).

Contact: Agricultural Education & Training Unit (AETU)
Wolverhampton Polytechnic
Gorway Road, Walsall WS1 3BD, UK
FAX: 44(922)-722099

LUNCHTIME MEETINGS

SOCIAL FORESTRY NETWORK

06.09.1990 - 'The Nepal-Australia Forestry Project Revisited'. Prof. DAVID GRIFFIN, ANU, Dept. of Forestry, Canberra, Australia.

18.09.1990 - 'Tree Farming as a Cash Crop in North-West India: Recent Experiences seen in Historical Perspective'. N C SAXENA, OFI, University of Oxford, Oxford, UK.

AGRICULTURAL ADMINISTRATION (R & E) NETWORK

03.08.1990 - 'Seeds and the Small Farmer: Research Issues', E.A. CROMWELL, ODI, London, Dr. M.R. TURNER, School of Agriculture, University of Edinburgh, and E. FRIIS-HANSEN, Centre for Development Research, Copenhagen, Denmark.

05.11.1990 - 'NGOs, Income Generation and Agricultural Technology: reports on research in progress', Dr. Mark ROBINSON, ODI, and Dr. John Farrington, ODI, London, UK.

IRRIGATION MANAGEMENT NETWORK

22.11.1990 - 'The Programme for Privatising Small-Scale Irrigation Schemes in Indonesia by Turnover to Farmer Management', Dr. Doug Vermillion, International Irrigation Management Institute, Sri Lanka.

PASTORAL DEVELOPMENT NETWORK

22.11.1990 - 'Analysis of the Productivity of Sahelian Rangelands', Dr. Nico de Ridder, University of Gröningen/Université de Ouagadougou.

REPORTS ON LUNCHTIME MEETINGS

'The Nepal-Australia Forestry Project Revisited'
Prof. DAVID GRIFFIN, ANU, Dept. of Forestry, Canberra, Australia.
held on 6 September 1990

Prof. David Griffin, Project Director of the Nepal-Australia Forestry Project (NAFP) presented two recent training films produced by the Project. These films are designed to complement the earlier Sadupayog film, also shown at a previous lunchtime meeting, to train field-level forestry staff in management planning with user groups.

'Gaunle ko Ban Byavastha' - Indigenous Forest Management for Nepal. This film dealt with the identification and description of indigenous forest management systems, and the most appropriate methods of using them to implement the government's community forestry programme.

The second film 'Ban Sambardhan' - Silviculture for User Groups, showed options for the silvicultural treatment of forest and shrubland, demonstrating techniques suitable for use by forest user groups.

Most forests within the NAFP working area now have user groups capable of sustainably managing their forests. The films emphasised the importance of establishing a defined user group in which individual members recognise each others rights, and agree on methods of management and distribution of products.

These films stimulated a lively discussion focussed on the innovative approaches being adopted by NAFP to evolve participatory forms of forest management.

'Tree Farming as a Cash Crop in North-West India: Recent Experiences seen in Historical Perspective'
N.C. SAXENA, OFI, University of Oxford, Oxford, UK.
held on 18 September 1990

N.C. Saxena, a PhD candidate from Oxford Forestry Institute, presented the results of his recently completed study of tree-production in six villages in Uttar Pradesh, India. He discussed the forms in which agrarian dynamism is linked to commercial production of wood on farm lands and considered the market limitations imposed on wood production. This area of Uttar Pradesh is particularly interesting as the process of deforestation is complete. As a consequence large farmers have adapted to life without trees, why then did these farmers start producing wood on their farms in the early 1980s?

Saxena's tightly argued case clearly demonstrated that large farmers replaced annual crop production with trees to reduce their labour costs and also as a response to unfavourable agricultural prices. Planting of eucalypts reduced their labour costs, improved profitability, minimised the danger of encroachment on fallow land, and reduced labour supervision time. Trees with a long gestation period were not a viable option for small farmers in the subsistence dominated areas of the state. Saxena suggests therefore that tree planting needs to be a seen as an outcome of agrarian capitalism - production for the market but with reduced labour inputs.

However, recent uncertainty over markets has led to a downturn in eucalypt planting, and it appears that large farmers are returning to the greater certainties associated with annual crop production. Looking at the trends in the 1990s it appears that absentee landowners may still continue to plant eucalypts as they wish to avoid encroachment and ease the intensity of land management required.

REPORTS ON RECENT CONFERENCES

The Nineteenth IUFRO World Congress
Montreal, CANADA
August 5-11

The Congress which meets every five years was attended by 2,400 people. IUFRO is an association of 700 private, government, and academic research organisations representing 15,000 scientists from 106 countries. The purpose of IUFRO is to give forestry researchers more opportunities to communicate with their counterparts in other countries.

The Congress made the following recommendations:

- Governments, international development agencies, and forestry research organisations are encouraged to foster international cooperation and coordination of research programme needs identified in the Tropical Forestry Action Plan, led by the FAO. Accordingly, IUFRO should strengthen linkages with other international organisations especially the CGIAR, FAO, ICRAF, ITTO.

- Recognising the implications of air pollution and of global climate change, IUFRO members should encourage initiation, expansion and redirection of basic and applied research concerning the role of forests.

The wide representation of organisations and disciplines encouraged lively debate across a broad range of forestry-related issues from economics, social forestry, and history, to silviculture, wood science, management, tourism and many others.

Mary Hobley

Tropical Forestry Action Plan - Double or Quit?
IUCN and IIED
Friday, 14 September 1990

This meeting brought together a group of people from widely different backgrounds; from activist NGOs to government bodies and research institutions. It was an interesting and potentially highly conflictual meeting with a divergence of non-reconcilable views. However, the purpose of the meeting was to discuss the future of the TFAP process, and to this end many opinions were aired.

The agenda of the meeting focussed attention on three key areas:

- the TFAP has so far given insufficient attention to natural forest management and the conservation of biodiversity;
- there is a need for more liaison, participation, sharing of information and networking as part of the TFAP process;
- there should be more consistent monitoring of the TFAP as a whole and country-by-country.

The consensus achieved by the end of the meeting was that although the TFAP process is deeply flawed it has been an important initiator of change, and has at least brought sustainable development of forests onto the national agendas of many countries. The future of TFAP remains uncertain and much more attention needs to be given to improving inter-sectoral and institutional linkages within participating countries.

Mary Hobley

REPORTS ON RECENT WORKSHOPS

OVERGRAZING OVERSTATED

A workshop entitled *'Savannah Development and Pasture Production'* was held from 19-21 November 1990 at Woburn, UK, sponsored by ODI's Pastoral Development Network in conjunction with the Commonwealth Secretariat and IIED. The workshop was convened to reexamine the received wisdom that Africa's rangelands are being reduced to desert through overgrazing by domestic livestock. Conventional thinking has for decades been based on the principle that private self-interest makes pastoralism environmentally damaging and under-productive with a consequent emphasis on new tenure arrangements such as group ranches and grazing rotation schemes, and on reducing herd size, for the greater common good. All such projects have failed.

Terms such as 'overgrazing' and 'overstocking' assume that we know what the right stocking density is and can calculate 'carrying capacity' correctly. Range scientists have assumed that environmental damage occurs when livestock numbers exceed carrying capacity (the number of animals the range can sustain) and calculate this level by estimating the total edible plant biomass produced annually, multiplying it by a 'proper use factor', and dividing it by the amount of forage an animal needs to survive.

However, as this meeting pointed out, all the components of this calculation are subject to 'variability, error, and subjectivity' giving a final figure which is in fact no better than arbitrary. Plant productivity is strongly dependent on rainfall, which varies greatly from year to year; the 'proper use factor' is rarely more than a rule of thumb since the relationship between the amount of forage left uneaten and the next year's growth is not well understood. Even estimation of the quantity of forage needed by an animal is not straightforward, as it depends on the economic objectives of the herder: five thin animals may make more economic sense than three fat ones if milk and hides are the most important products, as is common in traditional systems.

Much time and effort has been expended in these calculations - unfortunately to little effect since there has been massive resistance by pastoralists to any changes based upon them. Only now is the realisation

coming that such calculations may be quite misconceived in much of Africa's rangelands. The conventional view has been that livestock overgrazing causes population crashes - but a ten year study among the Turkana in Northern Kenya suggests rather that it is highly variable rainfall that controls ecosystem dynamics. And if this is the case, the search for a stable stocking density is doomed to failure, and the traditional pastoralist strategy of building herds as fast as possible in good years in order to survive with some of them in dry years, may be the best use of the range.

While it is true that, in the dry season, large areas around each permanent water source are totally denuded, there is actually so much seed around that it almost all grows back in the next rains. And the bulk of the range, far from permanent water, can only be used in the weeks right after the rains and is completely rested for the remainder of the year. In such a situation, ensuring that herds remain mobile over large areas is far more important than destocking.

In slightly wetter situations, heavy grazing may discourage grasses and provide the right conditions for woody seedlings to take over. But this does not matter for the pastoralist who herds browsers such as goats and camels as well as cattle. Indeed, multi-species herding is one of the main adaptive strategies open to Sahelian herders. A workshop participant from ILCA in Addis Ababa pointed out that in another ten year study, of the Borana in Southern Ethiopia, this flexibility has made it possible for the herder to adapt constantly to the evolving bush - over possibly a 60 to 100 year cycle - until it eventually matures to a point where perennial grasses come in again.

If pastoralists were chronic overgrazers, then livestock numbers should be in long-term decline, but they are not: it would seem rather that those areas most prone to drought and livestock mortality are also those with the greatest resilience. While there is not the evidence to say that no long-term damage is taking place, the conclusion of the meeting was that our knowledge of range ecology is at the same time too limited to justify failing to support a system that may be more efficient and less damaging than irrigation and agriculture.

Ruth Mace

NEWS OF THE OTHER AAU NETWORKS

Agricultural Administration Network
run by John Farrington, published the following December 1990 papers:

17. 'The Mennonite Central Committee's Experience in Agriculture Research and Extension in Bangladesh', by Jerry **BUCKLAND** and Peter **GRAHAM**

18. 'A Research-Based NGO in India: The Bharatiya Agro-Industries Foundation's Cross-Bred Dairy Programme', by S. **SATISH** and John **FARRINGTON**

19. 'NGOs and Farmers' Organisations in Research and Extension in Chile', by Julio A **BERDEGUE**

20. 'The Scope for Collaboration Between Government and Private Voluntary Organisations in Agricultural Technology Development: The Case of Zambia', by James G **COPESTAKE**

21. 'Seed Diffusion Mechanisms in Small Farmer Communities: Lessons from Asia, Africa and Latin America', Elizabeth **CROMWELL** (ed)

Irrigation Management Network
run by Linden Vincent, published the following July 1990 Network papers:

2b 'Farmer Participation in Planning, Implementation and Operation of Small-Scale Irrigation Projects', by Ian **SMOUT.**

2c 'Reading, Writing and Cultivating: The Role of Literacy in Irrigation', by Juliet **MILLICAN**

2d 'Estimating the Economic Profitability of Irrigation: The Case of Brazil', The FAO Investment Centre

2e 'Tank Irrigation in South India: What Next?', by K. PALANASAMI

NEWS OF THE OTHER AAU NETWORKS

Pastoral Development Network
run by Roy Behnke, published the following November 1990 Network papers:

30a 'The Commercial Sale of Camel Milk from Pastoral Herds in the Mogadishu Hinterland, Somalia'
by Urs J Herren

30b 'Aspects of Labour in an Agro-Pastoral Economy: the Northern Beja of Sudan'
by John Morton

30c 'The Contextual Nature of Range Management'
by Gregory K Perrier

30d 'An Institutional Approach to Pastoral Development: an example from Ethiopia'
by Richard Hogg

30e Comments on PDN papers 29b (de Leeuw and Tothill 1990) and 28b (Scoones 1989)

BOOK REVIEWS

Permaculture: A Designer's Manual
Bill Mollison (1988)
Published by: Tagari Publications
P.O.BOX 1, Tyalgum, NSW 2484,
AUSTRALIA Price: Aus$ 40.00
Also available from:
Ecologic Books, 8 Hunter's Moon, Dartington, Totnes TQ9 6JT, UK

This manual describes and illustrates the concepts and practical applications of permaculture, a method for designing sustainable land-use systems. It is based on an integrated and functional approach to design where the use of ecological principles guides the weaving together of earth, water, plants and animals into complex balanced landscape patterns having the diversity of natural ecosystems while providing food, energy, shelter and the recycling of wastes. Within the system the output of one component provides the resources for another and no component is included unless it has more than one function. Energy-efficient building and natural energy technologies are also included together with the legal and financial strategies needed to create such systems.

The conservation of soil, water, energy and forest resources are issues central to permaculture and each of these topics is covered in detail in the manual. The application of permaculture principles, through practical and tested design solutions, is illustrated by key chapters on the humid tropics, wetlands and cool temperate regions. One of our most urgent global needs, according to Mollison, is the development of sustainable strategies for the management of dry lands and the largest chapter in the book is devoted to a detailed analysis of desert landscapes and soils, water harvesting techniques and appropriate agroforestry methods.

In terms of the breadth of the research, depths of insights and range of appropriate design solutions to serious environmental problems, this book has few equals. It is essential reading for agroforesters and those wishing to rehabilitate degraded lands into productive human ecosystems both in developed and developing countries.

Richard Webb

BOOK REVIEWS

Tinker, Tiller, Technical Change
Matthew S. Gamser, Helen Appleton & Nicola Carter (Eds) (1990)
Published by: Intermediate Technology Publications
103-105 Southampton Row, London, WC1B 4HH, UK

Cases documented in this book show that the development process in most countries has marginalized poor people, their local knowledge, and their innovations. The formal research process and 'professionalism' associated with it ensures that technologies introduced through these systems are considered superior to indigenous innovations. The case-studies are drawn from 14 countries in Latin America, Asia and Africa. Each case-study author selected a technology from his/her country and carried out detailed field studies of its evolution, its social and economic importance and its limitations. The technologies discussed include improved water mills in Nepal, solar energy technologies in Bolivia and the Nigerian cassava grater.

This book carries a strong message to all development workers that solutions to technological and other social problems often lie with local innovators. Encouragement should be given to local innovation and not swamped by often inappropriate western technology.

Mary Hobley

Trees and Shrubs of the Sudan
Hamza Mohamed El Amin (1990)
Published by: Ithaca Press
8 Richmond Road, Exeter EX4 4JA, UK

Previous floras of the Sudan have been published in 1929 (Broun & Massey - *Flora of the Sudan*) and in 1950 (Andrews - *The Flowering Plants of the Sudan*). This book, which is posthumously published from a PhD thesis presented by Professor El Amin (and edited by Dr. Ekhlas Abdel Bari), is a timely update providing comprehensive description of the woody plants, including exotics, found in the country. Illustrations are also by the author. The book follows the conventional mould of floras, concentrating on botanical descriptions and species distribution aiming at an audience of professional foresters and researchers.

Edwin Shanks

FORTHCOMING CONFERENCES AND MEETINGS

FEBRUARY 1991

10-15 Developing A Sustainable World
Kathmandu, NEPAL
Contact: Institute for Sustainable Agriculture Nepal (INSAN),
P.O.BOX 3033
Kathmandu, NEPAL
FAX: 977(1)-524509

17-22 Latin American Forest and Conservation History Conference
San José, COSTA RICA
Contact: Harold K Steen
Forest History Society
701 Vickers Ave, Durham, NC 27701, USA
Tel: 1(919)-6829319

MARCH 1991

Expert Consultation on Cookstove Development in South Asian Countries
Location to be announced
Contact: Regional Wood Energy Development Programme
FAO/RAPA
39 Maliwan Mansion, Phra Athit Road,
Bangkok 10200, THAILAND
FAX: 66(2)-2800760

11-15 International Workshop on Conservation Policies for Sustainable Hillside Farming
Solo, INDONESIA
Contact: Dwiatmop Siswomartono
UACP Secretariat
Gedung Perikanan, Lantai 1,
Jl. Salemba Raya 16
Jakarta 10430, INDONESIA
FAX: 62(21)-5202502

FORTHCOMING CONFERENCES AND MEETINGS

MARCH / APRIL 1991

Workshop on the Use of Nitrogen Fixing Trees for Animal Production in the Tropics
PHILIPPINES
Contact: Nitrogen Fixing Tree Association
P.O.Box 680
Waimanalo, HI 96795,
USA
FAX: 1(808)-2624688

APRIL 1991

22-26 ***Faidherbia albida* in the West African Semi-Arid Tropics: State of the Art and Goals for the Future**
Niamey, NIGER
Contact: Dr. Rick J. Van Den Beldt
ICRISAT Sahelian Centre
B.P. 12404
Niamey
NIGER
FAX: 227()-734929

MAY / JUNE 1991

Humid Tropical Lowlands Conference: Development Strategies and Natural Resource Management
Panama City, PANAMA
Contact: Dennis Johnson
DESFIL
624 9th Street, NW, 6th Floor
Washington, DC 200001
USA
FAX: 1(202)-7832962

FORTHCOMING CONFERENCES AND MEETINGS

JUNE 1991

2-7 **Windbreaks and Agroforestry**
The 2nd International Symposium
Ridgetown, Ontario, CANADA
Contact: C.S. Baldwin
Ridgetown College of Agriculture
Ridgetown N0P 2CO, Ontario, CANADA
FAX: 1(519)-6743042

AUGUST 1991

5-9 **Multi-products Inventory of Tropical Mixed Forests**
Arusha, TANZANIA
Contact:Dr.A.B.Temu or Dr. Hassan Osman Abd El-Nour
Faculty of Forestry College of Agricultural Studies
Chuo Kikuu Khartoum Polytechnic
P.O.Box 3013 P.O. Box 6146 (Takamal)
Morogoro Khartoum
TANZANIA SUDAN

SEPTEMBER 1991

12-21 **International Workshop on Evaluation for Sustainable Land Management in the Developing World**
Chiang Rai, THAILAND
Contact: Dr. Marc Latham - IBSRAM
P.O.BOX 9-109, Bangkhen
Bangkok 10900, THAILAND

17-26 **10th World Forestry Conference**
Paris, FRANCE
Contact: CTFT
45 bis Avenue de la Belle Gabrielle
94736 Nogent sur Marne Cedex, FRANCE
FAX: 33(1)-43 94 44 96

EMPLOYMENT OPPORTUNITIES

THE FORD FOUNDATION
320 East 43rd Street, New York, NY 10017

Program Officer
Asia Programs

SUMMARY DESCRIPTION:

Work with the Foundation's Representative for Bangladesh and other program staff to plan, implement, monitor and evaluate Foundation grants in support of efforts to improve rural livelihoods through better management of natural resources. Program efforts focus on agroforestry and social forestry with particular emphasis on community management of common property resources. The assignment involves work with public and private organisations engages in applied research, training and social action. The aim is to enhance opportunities for the landless and near landless rural poor (especially women) to gain access to and benefit from improved productivity of public lands and to take better advantage of the productive possibilities of their private homesteads. Responsibilities include work in field settings as well as in policy arena and across a wide range of agricultural and social sciences. The incumbent may also occasionally assume administrative responsibilities in the absence of the Representative.

REQUIRED QUALIFICATIONS:

A strong background (PhD desired but not essential) in the social dimensions of rural resource management; knowledge of participatory research and appraisal methods; appreciation of and commitment to multi-disciplinary work; familiarity with broader environmental issues and policy concerns; strong analytical writing and interpersonal skills; and a demonstrated capacity to conceptualize problems, analyze information, formulate problem-solving approaches, and encourage action programs.

LOCATION: Dhaka, BANGLADESH
TARGET DATE: February, 1991

For further information please contact:
Joan C. Carroll, Manager of Employment, Tel. 1(212)-5735144.

EMPLOYMENT OPPORTUNITIES

WINROCK INTERNATIONAL
Route 3, Box 376, Morrilton, AR 72110

Programme Leader
Agroforestry
BANGLADESH

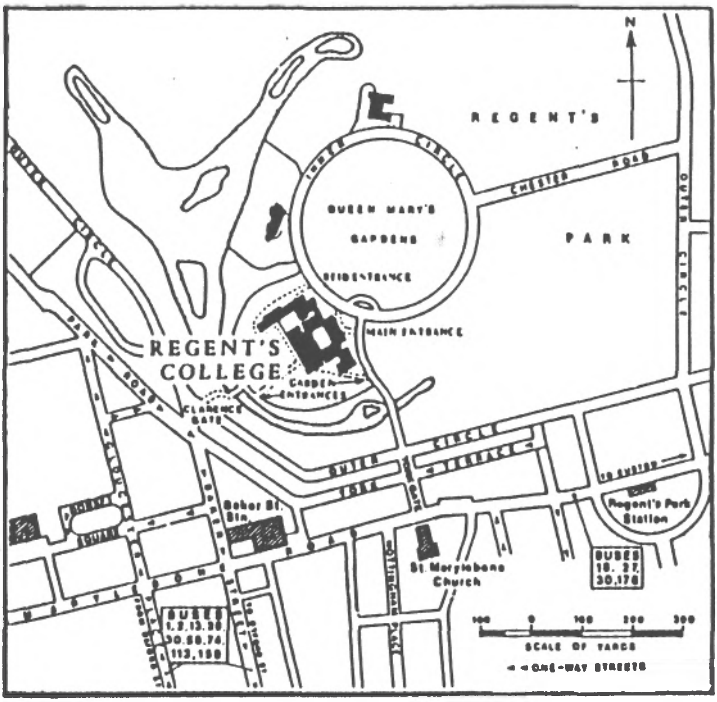
SUMMARY DESCRIPTION:

Winrock International Institute for Agricultural Development, a non-profit making agriculture and forestry development organisation based in Morrilton, Arkansas, is seeking candidates for a proposed two-year position in Bangladesh. The Programme Leader, Agroforestry, will be responsible for facilitating and implementing the activities of a joint Government of Bangladesh/Winrock programme to strengthen agroforestry research and training. This will involve close, collaborative work with governmental agencies and NGOs active in the area. An important focus will be to nurture the development of a national agroforestry working group, which promotes coordination and collaboration in the sector. The position requires extensive in-country travel and field work.

REQUIRED QUALIFICATIONS:

Qualifications include a PhD or master's degree in forestry, agriculture, natural resources management, ecology or related disciplines, including rural social sciences; a minimum of 5-years experience on technical assistance projects, preferably in Asia; and excellent project management and organisational skills and demonstrated ability to work well with host country personnel from a wide range of backgrounds and organisations. Please send your CV to:

Bill Condon
Programme Associate
Asia Division
Winrock International



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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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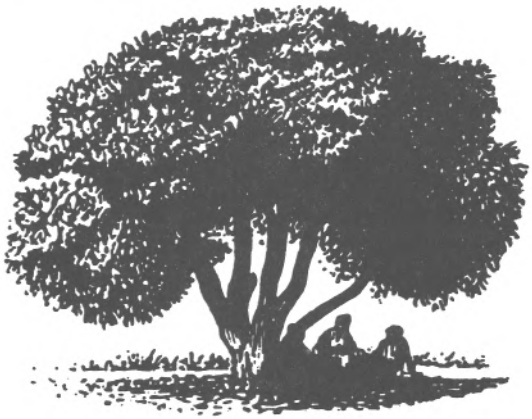

FORESTRY, SOCIAL FORESTRY, FUELWOOD AND THE ENVIRONMENT: A TOUR OF THE HORIZON

Gill Shepherd

Network Paper 11a

Winter 1990

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FORESTRY, SOCIAL FORESTRY, FUELWOOD AND THE ENVIRONMENT: A TOUR OF THE HORIZON

Gill Shepherd

INTRODUCTION

THE RURAL FUELWOOD CRISIS THAT WENT AWAY

Well over a decade of village tree-planting projects in the developing world - with all the false starts that always attend new development initiatives - have brought us to a point where we can see what some of the misperceptions were at the outset, and what the real problems are.

It was the oil price rises of the early 1970s which first made it clear that poor third world people would in fact be relying indefinitely on woodfuel for the bulk of their energy needs. Yet populations were growing, and desertification was apparently on the increase. The obvious answer seemed to be massive tree-planting programmes in which rural people grew timber and fuelwood to meet their own needs, and thereby plugged the rapidly widening 'fuelwood gap'.

Village tree-planting programmes

Dozens of such programmes were started, using paid labour or traditional village working parties, but in every case intractable problems rapidly developed as the trees grew. Ordinary villagers became quickly disillusioned as they realised that the wood would not be gathered continuously for fuel as the bushland is, but would be felled at one given moment several years hence. They clearly thought it unlikely that they would benefit from this wood directly, and so it proved. The wood was usually sold for poles and not distributed locally for firewood at all.

The dynamics of successful village tree-planting programmes have only slowly become apparent.

The excessively high value of village woodlots

Firstly, while bushland can be used communally with minimum group rules for sharing, because it is an ample and low-value resource for those living nearby, a village woodlot is very different. Because of the much higher degree of labour invested, whether paid or unpaid, the timber has a far higher value and is unlikely to end up as firewood.

Land tenure

Naturally, people wish to attach far more clear cut ownership rules to planted trees than they do to tracts of bushland. But often they can see that no effective corporate group exists competent to manage a village woodlot. Foresters have found, in consequence, that they can interest villagers in tree-planting on their own land far more easily than they can start a village plantation; and that successful farm forestry programmes are easiest to promote, therefore, where shifting cultivation has come to an end, farms are permanently owned and population density is already high.

Trees in the farm economy

After all, for the farmer, trees are just one more component of the farming system. Fruit trees may be the first requirement, followed by species which provide poles and small timber but which can also be coppiced for firewood. Typically, farmers will use trees to enhance the value and convenience of the farm by putting shade and fruit trees near the house and perhaps by planting stock-proof hedges around field boundaries and the compound. On hill slopes, trees are used to help form terraces. As a rule, the only market for farm-grown tree products will be for fruit and possibly poles.

The real nature of the fuelwood crisis

Finally, it only gradually became apparent that there is no real firewood shortage in most rural areas anyway - at least, not for those who live there. The disappearance of tree cover is the result firstly of land clearance for cultivation, and secondly of the rapidly growing demand for cooking fuel of city dwellers.

The problems resulting from supplying urban households with rural biomass as fuel have so far been addressed only by a few Asian countries. Most developing country urban fuelwood users are obtaining biomass from rural areas at a price which reflects little more than transport costs, with neither

replacement costs nor environmental costs taken into account. Moreover, because such fuel is naturally produced at the least possible opportunity cost, it is usually gathered over an area far too small to be sustainable, given the concentration of urban dwellers.

Because of the 'woodfuel gap', approach to tree-planting - the citing of aggregated national-level figures for actual and projected shortfalls - early social forestry projects failed completely to understand that inside the woodfuel problem there were two issues to be broken out: provision for urban and provision for rural people. It was simply and wrongly assumed that there were plentiful suitable planting sites in rural areas, and that the creation of more biomass through the planting of village woodlots would be popular with rural people and would benefit both them and the urban population.

THE CASE OF KARNATAKA'S VILLAGE WOODLOTS

As an example of this, let me cite the Karnataka social forestry project in South West India, which has run so far from 1983-1990. I was a member of the project's final evaluation team which reported in 1989, and the findings were that such rural woodlots were causing more problems than they solved.

Official views of the woodlots component

The village woodlots component of the Social Forestry Programme is technically very good on most sites, and it is the part of the project of which the Department feels most proud.

The State government is also very enthusiastic about such plantations, as the way forward for re-afforesting the state and for buffering the natural forests of the Western Ghats by providing alternative sources of woodfuel, poles and (though not under this project) raw materials for industry. Some of Karnataka's academics have also stressed the potential the plantations have as substitutes for the felling of valuable farm trees such as neem and mango, for urban fuelwood markets.

The welfare view of the woodlots component

From the welfare point of view, however, woodlots are much more problematic, and this is why voluntary organisations have taken far more interest in the benefits and disbenefits of woodlots than in those of farm

forestry. The trees being grown on the public lands near villages are unlikely to benefit the 'weaker sections' for whom they are partly designed while in many cases they clearly take away a resource that those same weaker sections were using before. To that extent, woodlots exploit the very people they were designed to help.

The selection of woodlot sites on common lands

The way in which lands for afforestation are selected is as follows. They are identified by the Forest Department as legally available and technically feasible for planting, and only then, if at all, is the Village Council of the village nearest to the site approached. So long as more than 50% of those who attend the Village Council meeting at which the matter is discussed agree to the idea of a woodlot, the Forestry Department goes ahead. But often no such meeting took place. Villagers near woodlots had no idea what the woodlots were for, village officials had not been told that they were due to take over the management of the woodlot in due course, and arrangements for distribution of benefits were totally unknown.

The importance of fodder from the land on which woodlots were sited

Even where there had been council meetings, they failed to elicit information about the importance of wastelands for grazing, because such meetings are attended by the wealthy - who feed their animals from their own lands - or by poorer villagers too shy to speak up. But in fact, there are serious problems about the use of grazing lands near villages for tree planting if rural welfare is the aim.

- Several studies have pointed to the declining availability of fodder in the State, particularly for the marginal farmer and the landless, the categories who use the common lands the most. At the same time, they are being assisted through poverty alleviation programmes to acquire animals.

- Both the trends in agriculture in Karnataka - more intensified use of irrigated land for horticulture and vegetables and the placing of marginal lands under trees - have cut into the availability of fodder from agricultural residues.

- The commons are shrinking as a result of encroachment and tree-planting and the poor, because they have a tight time-budget and cannot hire herders, cannot exploit any common lands other than those nearest to the village.

The project was very slow to discover how important public lands near villages were for grazing, either from secondary sources or by direct enquiry. Yet an hour or so out and about in a village talking to poorer villagers usually uncovers such problems.

The distribution of benefits

The formal arrangements for the distribution of benefits have always assumed that the main benefit from woodlots would be fuelwood and that the poor in the area would benefit not by free but by subsidized fuelwood.

Again, the most cursory enquiry in Karnataka's villages makes it clear that the poor never buy firewood and indeed hardly use it. A recent study in two villages indicates that under 30% of the fuel needs of the poor are met by firewood, the shortfall being made up with roots, twigs and leaves. Firewood is the fuel of the wealthy. Indeed for most rural households, what is needed is small quantities of cooking fuel daily, not a large purchase once every few years.

The conceptual confusions behind the woodlots programme

We are back to the old problem: for whom and for what purpose are the village plantations being raised?

- For rural people, they represent too expensive and too luxurious a resource in themselves, and indeed remove, rather than create, a valued local resource.

- If they are really for urban fuelwood needs, they should not be taking up valuable village grazing lands.

The uncertainties inherent in the intentions behind the plantations can be read from species choice in them. In the beginning, when it was assumed that the resource was being created for urban and rural fuelwood needs only, the FD was criticized for planting too much eucalyptus and not enough of traditional local fuelwood species and species with other subsistence uses.

More recently, it has been argued that there are too many different species being interplanted merely to please the anti-eucalyptus lobby, with the result that some bizarrely complex management plans will have to be drawn up for

some village plantations.

Both criticisms are valid, but are overshadowed by the even more fundamental confusion about who the woodlots were to serve and what they needed. Annual district planting targets were what drove the planting programme, not a planned response to needs.

More recently, the plan for the plantations has been that they be handed over for management to the Mandal Panchayats, the lowest level of local government under Karnataka State's decentralization programme. They are to apportion the fuelwood raised between local purchasers and the open market, and to raise a proportion of their own running costs thereby.

With hindsight, a more ingenious woodlot programme was needed which, while it met State-level aims, was also at the same time tailored to the separate needs of identified groups. These could have been, on the one hand woodlots aimed at providing sellable poles or firewood to towns and raising cash for Mandal Panchayats; on the other, seeded areas of species which could be used, without money changing hands, by villagers for their own firewood and fodder needs. Careful siting of each type of woodlot could have made sure that lands nearest to the villages were put to subsistence use, and remoter sites reserved for Mandal Panchayat revenue earning plantations.

URBAN FUEL SUPPLIES AND THE RURAL ENVIRONMENT

The problems for urban supply are actually much more complex, and their relation to the rural environment complex too. That is to say, one can hope to protect the rural environment by a change in urban energy planning strategies, which may have little to do with rural planting.

Unfortunately urban energy planning,[1] while vital, often has no clear cut niche in any ministry, and those concerned can never have control, in any case, the rapid in-migration or scarcely-rising standards of living are mostly at the root of urban energy problems. At the same time, the solutions sought must emerge from the understanding that fuel use in cities is highly diverse and that they will need to be flexible.

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[1] I am grateful to Dr John Soussan, of the Geography Department, University of Reading, for allowing me to pick the meat from an unpublished paper of his, in this section.

Three solutions present themselves which might have some positive effect on the rural environment:

i) **Technology-based conservation strategies such as improved stoves**

The household is the most important sector in which to try to effect fuel conservation for far more fuel is used than in industry. Stoves save fuel and money, and improve the health of women and of the urban environment as well. But stove programmes have failed to take off; partly this is because they have surprisingly tended to concentrate on rural fuel saving up till now (a further aspect of the misunderstanding of the fuelwood crisis, no doubt); partly because market-based manufacture and dissemination systems have rarely been developed. In any case, stove programmes will rarely contribute much to fuelwood saving at national level, despite the difference they make to the quality of life of individual households, and therefore they can only form one part of any urban strategy considered.

ii) **Improving fuelwood supplies to cities**

To increase supplies for a given urban area, various methods have been tried: improved management of existing fuelwood supply sources; the supplying of fuelwood as a secondary output from some other productive activity; and the growing of peri-urban plantations by the State or private farmers.

Improved management of natural woodlands

When fuelwood from natural woodlands is still relatively plentiful near to a city no other fuelwood option is economic, unless those woodlands are fiercely controlled. And indeed, even when we see government control mechanisms in action, we can observe that it is more often local people who are denied traditional access to woodlands rather than are urban dealers, who remove far more by volume, but who can bribe or intimidate local government officials into turning a blind eye.

Local woodland management often needs to be put into the hands of local communities along with management and exploitation rights if more effective controls are to be attempted. Even then, results will depend upon many site-specific factors, and the potential for such local control must be investigated, not assumed.

Fuelwood as a byproduct of other activities

There is some potential for fuelwood as a byproduct of other activities, but there are problems too. Potential supplies are often inconveniently sited and may be small at any one site, so that transport becomes complicated and expensive. Such supplies are likely to be erratic over time so that both producers and buyers lose interest eventually.

State-run peri-urban plantations

Peri-urban plantations have looked like a good idea to planners in the past, but although inputs and outputs from such plantations look easy to calculate, their inherent problems are now much better recognised. They cannot compete in price with fuel from natural woodlands or residues from some other activity, and even where these are not available, the price of commercial alternatives such as kerosene or LPG gas is always lower than that of wood from peri-urban plantations.

Private farmers' peri-urban fuelwood production

Finally, there are a few examples of successful fuelwood production for cities by farmers living on peri-urban agricultural land. This solution worked successfully on the hillsides around Ancient Rome, and has worked more recently around Addis Ababa and Kano. In each case forests had retreated so far that transport costs from there were higher than production costs of wood grown nearby.

But the economics are often complex. Since food crops always make more money than fuelwood, trees tend to be grown as fuel in peri-urban migrant households where there is a serious labour constraint, and on the lands of absentee landlords looking for a cash-crop for a low labour outlay, or who fear that, otherwise, their lands will be confiscated and redistributed by the State. Even in these special situations, pulp and pole markets where they exist will always attract the tree-grower more than fuelwood sales.

iii) Fuel-switching strategies

Urban energy users are concerned with three things: availability, cost and fuel preference. In many cases, fuelwood maintains the place it does in urban fuel supply not because it is liked, or cheap, but because it is reliably available throughout the year. Households will switch fuels

readily as the interrelationships between cost, availability and preference shift, so long as the opportunity cost for doing so is not too great. For instance, the price not just of the fuel but also of the appliance needed to use it is very important here.

Despite these problems, users will shift fuels more readily than was once thought, especially if the shift can be encouraged by the right kind of intervention. Research has revealed that the most effective interventions are firstly to subsidize the cost of the new appliance for the fuel, and secondly to improve the regularity and reliability of fuel supplies and infrastructure. Improvements to these can be targeted to particular sections of the city where fuel-switching is particularly desired, and the resulting impact on fuelwood demand can be large.

Creating secure kerosene and LPG supplies in cities are likely to be one of the most certain ways of safeguarding the rural environment and promoting sustainable development there.

The strategy has already worked well in Bangladesh and South-East Asia, and was under discussion in Mogadishu before the outbreak of civil war in that country, Somalia's ruling party having become so alarmed by the effects of the charcoal trade on the country's livestock economy that it proposed taxing vehicle fuel to subsidize a switch to kerosene.

RURAL PLANTING

If the rural fuelwood crisis turned out to be a myth in most places, and if the best solution to urban fuel problems is a switch to non-biomass-based fuels, what remaining role does rural tree-planting have? Where should it be done and why?

The history of many parts of the world shows a clear pattern. People clear forest or bush for cultivation, and at first have little incentive to plant trees because uncleared resources are still not so far away. But as others clear their own fields, gradually these resources recede further and further away. Over the decades, a time will come when the first comers, furthest from the woodland frontier, find tree-growing has a lower opportunity cost than time-consuming expeditions for 'free' biomass, and it gradually becomes a part of the farm economy. The first shortage is always for poles; fuelwood shortages come far later, if at all.

Trees are used simultaneously for more than one purpose as a rule: poles are planted where they also act as windbreaks or to demarcate field boundaries; firewood species are put in hedges with dense or thorny species which keep animals out. Fruit trees are popular near the house, where they may double as shade trees.

This steady and inevitable move from tree-use to tree-planting is worth encouraging through rural projects and extension, once the conditions are right. Worth it, because better farming is the result; because rural biomass needs are most readily met that way in that context, and because environmental benefits on a local scale will inevitably result from the presence of trees. Farmers will respond especially well if a good urban pole market develops (or a pulp market as in parts of India).

CONCLUSIONS

The conclusions to be drawn from this overview are, I hope, clear.

Firstly, urban and rural fuel problems are completely distinct, from the point of view of appropriate solutions. A vaguely targeted woodlots approach will solve neither. Urban fuel problems need very specialized solutions of their own.

Secondly, and in consequence, rural social forestry programmes can usually have little to do with urban fuelwood supply, **unless** urban prices are so high and alternative fuels so hard to get that farmers living immediately outside cities find tree-growing attractive - perhaps because they are trying to combine on- and off-farm activities.

Thirdly, many more farmers not too far from markets are likely to be attracted by the prices obtainable in towns for the fruit, poles and maybe pulp that they might grow. Nevertheless, the attraction of trees in the right circumstances is that they are fungible assets. Shade trees in the courtyard may also be income-generating fruit trees; windbreaks and boundary markers may eventually be felled for house-construction or for the raising of a quick cash sum; trees serving a vital function in helping to maintain and uphold terraces may also be doing double duty supplying fodder or mulch in a highly intensively worked farm.

The implications of these conclusions for the environment

There are environmental implications to be drawn out from these findings.

Firstly, environmental degradation, desertification and the like will naturally always be observed in rural areas, but its causes may or may not be local. Appropriate project interventions cannot be devised until cause is well understood. For instance:

- There is no point in throwing social forestry programmes at rural degradation, if it is being caused by urban biomass extraction.

- Similarly, even if rural people are causing the environmental degradation an understanding of its dynamics are needed. Do people own the land they are degrading? Did they use to own it? Have they had to leave land elsewhere and now find themselves essentially squatting in their current situation as refugees? People do not destroy their own homes unless they are at their wits' end.

Once the causes are better understood, plans for environmental management can be drawn up which address protection through one of the following mechanisms:

- through Social Forestry programmes on clearly owned and usually private land;

- through management of land to which local people have clear locally devised and legally recognised common property rights, and where such land - be it woodland or watershed - has sufficient importance for local people and their needs to be worth protecting from their point of view;

- by government protection where neither of these two other situations apply.

But often government finds itself in a situation where it cannot manage all the land it owns effectively, yet will not relinquish it either. Such contradictions should be faced. Where individuals or groups are keen to own and manage natural resources (and this will by no means happen everywhere) government would often be better off giving up some of its sovereignty, and concentrating state resources on lands which for whatever reasons must be protected but will never attract more specific ownership.

All too often, however, government seriously expects that while it continues to own the land, local people should manage it voluntarily. Needless to say, such hybrid arrangements, in which the party which owns the resource experiences no expense, while the party which does not faces costs, can never work. The classic example is Ethiopia, where forests have declined to only 3% of total area as the result of insecure tenancy arrangements, first under Ethiopia's old aristocracy, and latterly under the current regime, yet people will not plant trees because they have no confidence that they will be alive, and living in the same place in seven years' time to benefit from them.

Sustainable land use may be costly in the short-term, in time if in nothing else, and unless people are assured that they, and not government, will reap the benefits of their investments, naturally they make none.

For the best environmental management, land-rights for local people are probably the best solution - and this is now an area of great experimentation. Where the rights offered are too limited, or bring no obvious benefits, local people decline them, yet governments in many countries are plainly too weak or too corrupt to have much success either.

Paradoxically, the simplest action for governments to take to protect the environment may be nothing to do with trees at all. It may consist rather of tackling the really enormous problem of urban fuel needs. But at least this is a problem quite literally in their own backyards.

The role of Social Forestry in the light of these conclusions

Paradoxically, Social Forestry's contribution has ended up being, not the provision of more fuelwood, but a strenuous training ground for foresters in more participatory approaches to rural people; approaches which are essential if sustainable environmental activities are now to be the order of the day, and for which they were on the whole ill-equipped in the early 1980s.

What began as an attempt at a large-scale rural tree-planting programme based on the plantation models popular since the 1960s, has over the past decade set in motion an inevitable and major paradigm shift in the whole discipline of tropical forestry.

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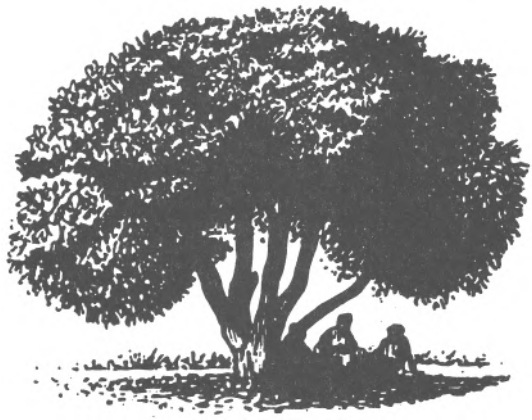

SOCIAL FORESTRY AND COMMUNAL MANAGEMENT IN INDIA

J.E.Mike Arnold

Network Paper 11b

Winter 1990

Mike Arnold is Senior Research Officer at the Oxford Forestry Institute. This paper draws on a larger study, *'Common Property Resource Management in India'*, which he undertook with William Stewart for the World Bank, and which is being published in the Tropical Forestry Papers series of the OFI.

SOCIAL FORESTRY AND COMMUNAL MANAGEMENT IN INDIA

J.E.Mike Arnold

INTRODUCTION

The Social Forestry programmes in India form one of the largest and most innovative experiments in participatory forestry anywhere; and also one of the largest interventions designed to improve the productivity and use of communal land. Though none of the component projects has been in existence long enough to demonstrate how the complete cycle will evolve in practice, enough experience has accumulated to allow some tentative conclusions to be drawn. The present paper is based on a number of recent studies which have attempted to document and evaluate parts of this experience[1].

Social Forestry had its formal origins in India with the report of the National Commission of Agriculture of 1976, which recommended growing trees on lands accessible to village people in order to reduce the pressures on forests set aside for production forestry brought about by mounting rural demands for fuel, grazing and other forest products (GOI 1976). This was to be achieved by encouraging the growing of trees by farmers on their land, and by block plantings on various categories of public land. A number of different approaches to achieving the latter have been developed, of which only those designed to establish woodlots on communal land, to be collectively managed by the user community, are examined in this paper.

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[1] This review is based primarily on recent evaluations of the Social Forestry programmes in Gujarat, Himachal Pradesh, Rajasthan and Uttar Pradesh (World Bank/USAID/GOI 1988), Tamil Nadu (Arnold et al. 1988), Orissa (SIDA 1987, GOO 1987), Bihar (SIDA 1990), Andhra Pradesh (CIDA 1986), Karnataka (ODA 1989), Madhya Pradesh (USAID 1985) and Maharashtra (USAID 1985).

Table 1: **Areas planted to communal woodlots under Social Forestry projects in selected states**
(SIDA 1987, World Bank/USAID/GOI 1988, Arnold *et al.* 1988, ODA 1989)

State	Period	Area (ha)
Gujarat	1985/86 to 87/88	9,720
Himachal Pradesh	1985/86 to 87/88	24,500
Tamil Nadu	1981/82 to 85/86	112,629
Orissa	1984/85 to 87/88	32,076
Karnataka	1983/84 to 87/88	26,946

Social forestry projects and programmes were initiated in most states during the first half of the 1980s. By the end of the decade, their communal woodlot components had in aggregate already covered considerable areas. The figures in Table 1 record areas planted under donor supported projects in just five states; in each case with the project forming only a part of the total woodlot activity in that state. This activity has been spread over very large numbers of communities; the 32,076 ha planted over four years in Orissa, for example, was distributed among about 3,200 villages (SIDA 1987).

Management and Use of Common Lands

The establishment of woodlots has occurred predominantly on village lands, and other uncultivated government lands available to villagers for communal use, in the drier plain areas of the country. Traditionally the main role of such common property resources (CPRs) has been to complement the highly variable level of private agricultural production. A large percentage of the draught animals that are needed for dry land agriculture have been maintained on non-arable CPRs. Vegetation on CPRs helps farmers guard against the risk of unstable rainfall, forming a major source of fodder, food and saleable products in the long period when there is little or no crop production or stored supplies from the last harvest. This role is especially important during extended periods of drought.

During the last two decades much of that part of common land that is cultivable without substantial investment to improve its productivity has been allotted to

the rural poor. Wherever agriculture was possible, land that has not been allotted has usually been either encroached upon, or has had earlier encroachments regularized. Much of the rest of the common land is of low productivity and is likely to remain uncultivated, as it cannot sustain low input annual agriculture. Although there are substantial regional differences in the magnitude and role of CPRs, generally land allocation and encroachment have reduced communal lands to a small area, on average perhaps 20 ha per village, which is typically heavily degraded and under open access usage (Chambers *et al.* 1989).

As a consequence of these inroads and pressures the range, quality and quantity of products collected have often been sharply reduced. Nevertheless, the rural poor are still heavily dependent on CPRs. In his study of common property resource management in the dry regions in India, Jodha found that CPRs supplies most of their fuel and grazing, and that CPR product collection is an important source of employment and income for the poor, especially during periods when other opportunities are not available. In contrast, the rest of the population in the areas studied depended on supplies from CPRs to only a very limited extent (Jodha 1986).

The same period has seen a progressive weakening, and often collapse, of the institutional arrangements within which common property was controlled and managed. Jodha found that, of the communities that in 1950 had exercised controls such as rotational grazing, seasonal restrictions and watchmen, only 10 per cent had such controls in 1980, while use of fines, taxes and fees had ceased altogether. Most CPRs had become an open access type resource.

Growing population pressure, greater commercialization, and technological change all contribute to this breakdown. In addition, privatization has lessened interest in and commitment to the maintenance of CPRs on the part of the wealthier and more powerful. Possibly the most important factor in undermining communal control, though, has been the progressive replacement of local leadership and authority with centralized political control - 'the ever increasing tendency of the state to expropriate the initiatives and activities which belong to people' (Jodha, 1990).

The Social Forestry interventions

The attempts to increase the productivity of CPR use through communal woodlots have therefore taken place within a situation characterized generally by shrinking CPR availability and breakdown of local control of CPR use

(Figure 1). Though there has been considerable variation from state to state, the main features of most Social Forestry communal woodlot activities have been as follows:

- Planting, and management during at least the early years, has been undertaken by the forest department;

- Planting has been on village lands or uncultivated revenue lands, which have usually been temporarily transferred to the forest department for this purpose;

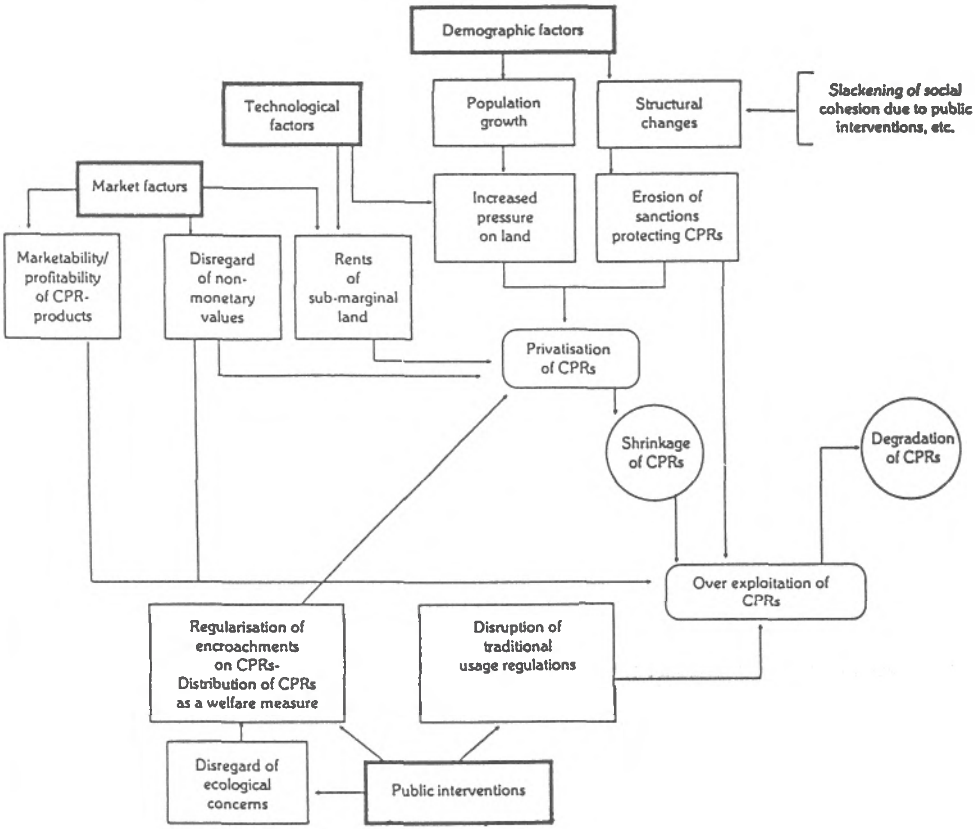
- Planning was to be in conjunction with the local government body, the panchayat, or some other community level body, which was to take over responsibility for management in due course in accordance with rules prescribed by the forest department, and a management plan drawn up jointly with the latter. Benefits were to be split between the forest department and the community.

Although the target areas were usually small relative to the total nominal areas of uncultivated public land, at the local level Social Forestry programmes in several States have already encountered shortages of actually available plantable land. The reasons have included encroachment, competition from other government programmes (including competition between the Social Forestry programmes of different departments), competition from grazing and other existing local uses, and poor productivity (additional land could be brought to plantable state, but only at a per hectare cost well in excess of what had been budgeted and made available).

As a result, the area of woodlot available to a community is usually small; often too small to contribute significantly to meeting local needs. Another consequence of shortage of village land has been to divert Social Forestry planting onto areas such as roadsides which are available to forest departments but which are less easily brought under communal management and usage, and on to categories of public land for which legal authority for establishment of village woodlots is weak or absent.

In many, though not all, states the forest departments responsible have achieved high standards of establishment and maintenance, and the woodlots are exhibiting satisfactory survival and yields. However, the structure of most plantations reflects forest department rather than local preferences and priorities. Though the earlier preponderance of eucalypts and other commercial species has usually now been superseded by a range of coppicing, timber, fruit

Figure 1: **Process of depletion of common property resources in the dry regions of India** (Jodha 1990)



and fodder tree species, and bamboo, these are commonly grown in intimate mixtures, which have been criticized (Banerjee 1986) as being difficult to manage and inefficient ways of producing fuelwood and fodder (as these trees are likely to be progressively suppressed by the longer rotation species).

Management regimes still predominantly give priority to the final timber crop rather than intermediate products. Close spacing to minimize the need for maintenance has the same effect of reducing grass, prunings, thinnings and other annual or short term outputs. In short, technology with which the foresters were familiar for large scale commercial plantations within forest areas has tended to be applied to small scale village woodlots, where the need was more for fodder and fuelwood than for timber.

The imbalance between the woodlot resource and local needs for CPR outputs has been accentuated by misunderstandings about what these needs actually are. Priority was given to production of fuelwood over fodder; apparently because the importance of CPRs in fodder supply systems, and of fodder and livestock in agricultural systems, was not fully grasped by forest departments. Woodlots have reportedly often reduced fodder supplies to those who earlier used the sites for grazing. Though the protection of the grass cover in woodlot areas, and its enrichment in some places, has often subsequently increased fodder supplies, it requires cutting and stall feeding and so is not necessarily available to the graziers displaced. When woodlots are reopened to grazing the grass cover can quickly deteriorate again.

At the same time, the extent and magnitude of rural fuelwood shortages was often overestimated; and the role of other gatherable biomass fuels (woody shrubs, agricultural residues, animal dung) underestimated. Shortages of fuel are often severe, and bear particularly heavily on women. However, village studies have shown that when confronted with shortages of fuelwood, the landless and poor shift to other gatherable fuels rather than to purchased fuelwood (Bhagavan and Giriappa, 1987). Fuelwood which is to be sold, as is the case with most Social Forestry woodlot projects, is therefore unlikely to be accessible to them - even at concessionary prices. Moreover, as they need regular supplies of small quantities, sources which produce only at the infrequent intervals provided by the harvesting of woodlots are likely to be of only limited value to subsistence users.

In general, the woodlot planting has therefore created a resource which is unlikely to make a significant contribution towards meeting local needs of the poor for subsistence supplies of fodder and fuelwood. The main benefit to the poor has usually been from the wage employment created, which has often been on a considerable scale. Local studies have shown that employment in woodlots has generally gone to the poor in the local community, and that women have benefitted proportionately (Olsson 1988).

What are being created are important resources of poles and timber. However, the pole and timber products are proving to have greater commercial than subsistence value. The output from older communal plantations that have already been harvested has been largely sold to urban and commercial markets. In Tamil Nadu, a survey in 1985 disclosed that 97% of the wood harvested from communal tank bed plantations was in the form of billet, faggot and brush wood; of which only 6% was used by local people. The rest was sold into urban markets (GOTN 1985).

Intermediate products such as grass and dead wood may be allocated to villagers, or made available to them to gather, but may also be auctioned or sold to contractors. There is widespread evidence that village and panchayat bodies perceive the Social Forestry woodlots as primarily as significant sources of communal income, rather than as sources of produce to meet village needs. For this reason there is usually a preference for auctioning the output, rather than selling it at preferential rates or distributing it.

Management Arrangements

Many of these characteristics of Social Forestry reflect the nature of the management arrangements that have emerged. The communal groups charged with the dialogue with forest departments over the planning of woodlots, and with their eventual take over, have nearly everywhere been panchayats, or a sub-committee of the panchayat, rather than a village council or user group or a body selected by a village specifically for the purpose of managing the woodlot. Decisions have therefore reflected the politicized functioning of the panchayat system, and the interests of the local elites which frequently control panchayats, rather the interests of those dependent on CPR management.

With panchayats not functioning for periods of several years in many states, even this level of local involvement has often been absent. Mechanisms for direct consultation by the forest department with villagers, such as the 'microplanning' developed in Karnataka, have generally not been put into practice.

Village Forest Committees in Orissa were one of the more ambitious efforts to establish user group institutions. Although Committees were found to be in existence in all villages visited in late 1987, it was reported that they appeared to have been formed in an *ad hoc* manner, without much if any prior consultation among the various interest groups in the village about their composition, and in many cases they were not functioning at all actively. Also, that they were 'in danger of becoming the instruments of government authority, and more specifically of the Forest Department' (SIDA 1987). The panchayat leader (sarpanch), who often came from another village, was the chairman and representatives of the Revenue and Forest departments were members (with the latter also being the convener). Village Forestry Committee members were often unclear about the Village Forest Rules and had not seen the Joint Management Plan.

The literature reports an almost universal failure to precede woodlot

establishment with effective public discussion. Repeatedly reports record villagers being unaware that the woodlot had been established for the community; it was a 'government woodlot'. Often even village and panchayat officials have also appeared to be unaware that a woodlot was to be handed over to them, or of the implications of such a transfer.

Where people were aware, there appears usually to have been lack of belief that the produce would be distributed within the community; particularly where the panchayat or forestry committee leader came from another village. Benefit sharing agreements are frequently neither finalized nor formalized. A government evaluation of the Orissa Social Forestry Project (GOO 1987) indicated that 82% of the villages did not know how the produce from village woodlots would be distributed. Most of the people did not expect any share from the final output. They looked upon such woodlots as another category of government reserved forests.

Lack of communal involvement

Almost everywhere that woodlots have reached the stage at which the panchayat or forestry committee should take them over, reluctance to do so has been encountered. Even in the longer running programmes only a small proportion of the qualifying woodlots have been transferred; and then the transfer of responsibilities has usually been of a limited nature. It has been reported for a number of states in north India that 'Out of the thousands created, only a handful of woodlots have been turned over to panchayats, and the majority of them continue to be managed by Forest Departments' (World Bank/USAID/GOI 1988).

A number of reasons for this failure of communal bodies to take on responsibility for management can be discerned:

- Control carries with it financial responsibilities which villages and panchayats have difficulty in meeting - as a minimum hiring watchers to protect the woodlot. Sometimes the budgetary implications are much more burdensome - in Tamil Nadu, for example, the panchayat had to pay a deposit equal to the floor price value of the produce in the woodlot before taking it over (Arnold *et al.* 1988);

- Woodlot management plans, village forest rules, etc., are often complex, unclear and require skills and experience that panchayats do not possess. Very few communities have had any experience of management of anything

remotely resembling a woodlot; and the task of acquiring the necessary skills is complicated by management systems which reflect the technical orientation of the forest departments;

- Continued involvement of the forest department discourages local bodies from taking over; and encourages them to opt for extending forest dept. management. Handover arrangements commonly empower forest depts. to exercise a considerable degree of control and involvement, and to retain a share of the revenue. As this is often allied with pressures on forest departments to meet very ambitious Social Forestry planting targets, they are frequently reluctant to hand over effective control;

- Lack of local interest in the woodlots because of their smallness relative to local needs, difficulties in ensuring satisfactory distribution of benefits, and uncertainties about their status and access to the benefits.

Security of access and tenure has often been further undermined by the uncertain legal situation, which has been summarized as follows: 'The legal status of the 'community' executing community woodlot schemes is often vague. The people are not in a position to actually negotiate the terms of contract with the forest department and are sometimes in conflict with the interests of the local government (panchayat) ... Appropriate legal models for benefit sharing and usufruct rights have not been worked out with the communities. They have been verbally assured in some places, but there is no legal document to guarantee the benefit sharing.' (Chhatrapati Singh in World Bank/USAID/GOI 1988).

Non forestry laws often conflict with Social Forestry. In Gujarat, village woodlots are not legal on revenue land; but have been established there by the forest department because of shortage of communal land (World Bank/ USAID/ GOI 1988). Similarly, in Orissa communal land used for grazing may not be afforested, but some has been planted under Social Forestry (SIDA 1987). States have been slow to amend laws - or to implement them. In Orissa, where many woodlots had been established on forest land, by 1987 none had yet been given legal status as 'village forests' under the Indian Forest Act (SIDA 1987).

In addition, the December 1988 amendments to the Forest Conservation Act have created considerable uncertainty over the status of communal woodlots, by preventing the lease of any forest land to any non-government entity without prior permission of the GOI. Revenue and other public land which has been transferred to the forest department for afforestation under Social Forestry programmes falls under this Act.

Discussion

To sum up, Social Forestry programmes have created important new resources on land used as CPRs. However, in doing so, prior uses have often been altered, and the focus of control has shifted. As one observer has put it: 'The village or community woodlot is conceived as common village property at the planning stage, but ... acquires an alien nature, especially because of the commercial crops grown there. The establishment of a village woodlot by [the] Forest Department has shifted the nature of the CPR away from a common property regime to a private property regime. Grass and fuel may be sold by the panchayat ... and those who lack purchasing power get nothing. Commercial crops are harvested by [the Forest Department] and [part of] the profit goes to the panchayat with no guarantee that the income will be spent on the welfare of those who were most dependent on the area as a CPR previously' (Ewers Andersen 1988).

This raises the question as to whether there could be alternative approaches to enhancing the productivity, control and use of these common lands. Examination of surviving indigenous regimes, and of promising new ones, elsewhere in India shows that they are generally characterized by control and management by the user group rather than the state or official village or panchayat level bodies, investment in outputs that users value and can manage rather than commercial products, and state commitment to securing the rights of the user group and in defending those rights against intrusion by outsiders (Arnold and Stewart in press). These characteristics contrast sharply with those of most Social Forestry woodlot programmes.

Many of the more successful regimes are in heavily forested hill areas, where the ratio of CPRs to population is high, and, in contrast to the dry rainfed areas, all households tend to have similar resource use patterns, and hence a shared interest in CPR management. Their applicability to the resource poor dry areas is consequently likely to be limited. Nevertheless, some of the lessons that emerge from them could probably be usefully drawn upon in designing any future Social Forestry interventions.

However, when local institutions have broken down under the pressures of change, it is not to be expected that new village institutions capable of controlling resource allocation and use can be created easily. Interventions which increase the productivity and value of a CPR may attract interest in its privatization, and so undermine even the present level of control. The low returns and high social cost associated with trying to control CPRs may prove

unacceptable to users, to the point at which they prefer to leave it to the state to manage them. Indeed, one recent evaluation covering Social Forestry projects in a number of states concluded that '[Forest] Departmental management must be considered as the likely alternative for the future, at least in areas of heavy population pressure' (World Bank/USAID/GOI 1988). But as this would be at the expense of the poor who are at present the main users of the land, it raises the question of whether any future interventions do indeed exist able to deliver fuel, fodder and other locally valued products to them. The last remaining possibility might be sowing low-value bushes and grasses; at least the poor have shown some enthusiasm for such an approach.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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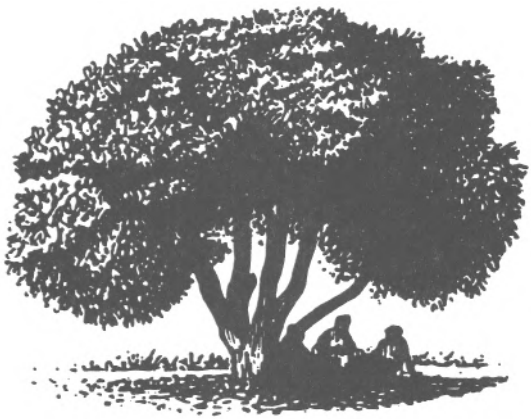

COMMUNAL WOODLOTS IN TANZANIA: FARMERS' RESPONSE AND AN EVOLVING EXTENSION STRATEGY

Edwin Shanks

SOCIAL FORESTRY IN NORTHERN ETHIOPIA: TURNING FELT NEEDS INTO A DRIVING FORCE

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Network Paper 11c

Winter 1990

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COMMUNAL WOODLOTS IN TANZANIA: Farmers' Response and an Evolving Extension Strategy

Edwin Shanks

INTRODUCTION

This paper reviews the experience which has been gained with regard to woodlots in the Tanzanian National Community Forestry Programme since its inception in 1967. It begins by tracing the formative years of the programme, identifying those factors which led to 'communal woodlots' receiving such a high profile. The reasons why they proved to be an unsuccessful approach are then summarized, drawing on the findings of internal reports produced by the forest service; interim reports from various non-governmental and bi-lateral aid projects which began to play an increasingly important role in farm based tree growing after 1980; and independent surveys which aimed to develop a more detailed understanding of what was happening in particular villages. Leading on from this, the paper will show how the programme now encompasses a much wider set of tree growing and forest management practices and social objectives as part of an evolving extension strategy.

AN OVERVIEW OF THE COMMUNITY FORESTRY PROGRAMME

Tree growing by rural people in Tanzania was first given formal backing in 1967 with the proclamation of a national Community Forestry Programme (formally called the Village Afforestation Programme). The role of the government body responsible for forestry, the Forest and Beekeeping Division (FBD), was then augmented beyond management and protection of forest plantations and reserves to include the distribution of tree seedlings and advice to farmers. In early years of the programme the method of tree growing promoted amongst farmers was almost exclusively that of scaled-down plantations or woodlots. It was intended by the forest service that these should

be managed for woodfuel or poles for light construction purposes. Tree seedlings were raised in central government nurseries and distributed to villagers free-of-charge.

The single focus which was initially put on woodlots can be attributed to several factors. First, foresters were inexperienced in devising tree growing strategies in response to the diverse needs of farmers. They tended to rely on tree species and silvicultural techniques already well known to the profession. Woodlots were also regarded as the best means of raising trees for providing woodfuel to rural communities; at this stage in Tanzania, as in many other countries, the extension effort was governed by an over-riding concern with the rural and urban energy crises. In early government statements regarding the programme it was stated that every rural village should be in a position to supply its own woodfuel requirements through tree growing.

Formulation of the forestry programme was also shaped by a sequence of radical policy measures undertaken by government during the 1970s including decentralisation reform and villagisation. These aimed to create the institutional channels and legislative means whereby rural people would become involved in the formal processes of land use and social planning; the underlying aim being to promote 'self-reliance' at the local level and to entice the smallholder farmer into the arena of national economic production.

The Decentralisation Act of 1972 heralded an era during which attempts were made to shift decision-making machinery closer to the people, with district and village governments given greater control over planning and the allocation of resources within areas of their jurisdiction. Responsibility for the executive administration of the community forestry programme was delegated to District Forest Offices at this time; the central office of the FBD then took on the supportive role of developing national policy for the various forestry sectors as well as advice, training and publicity.

Decentralisation reform preceded an increasing drive towards villagisation in rural areas of the country from the mid to late 1970s. This involved the enforced relocation of several million people into larger nucleated and stabilized settlements. Concerted attempts were also made to superimpose a universal collective form of land management onto the multiplicity of existing patterns of resource tenure and labour organisation.

In line with these policies, it was initially stipulated that village woodlots should be established on collective land holdings. Planting, tending and harvesting operations were to be undertaken through communal work effort under the authority of the newly established system of 'village councils' which were the formal contact point for extension services at community level. Under guidance from the forest service, the councils were ultimately responsible for setting and enforcing rules concerning management and the distribution of harvests from the woodlots.

Villagisation also served to bring the issues of deforestation into focus. Both the initial establishment and subsequent growth of many villages resulted in increasing localised scarcity of forest products and land degradation. It was recognized at the time by Kjekshus (1977) that unless villagisation was coupled with the necessary inputs to create a novel technology to master the environment, the new settlement pattern would be counterproductive in economic terms and destructive to the ecological balance of the land. The community forestry programme was in part designed to provide such a 'novel technology', but villagers were initially reluctant to plant trees. It is estimated that during the first ten years of the programme, up to 1979, only 23,000 ha of woodlots were established. This fell far short of the expected target of 16 ha per village per annum (Mnzava 1980). In some places people were even openly hostile to efforts to establish communal woodlots, uprooting or cutting the plants deliberately (Lulandala 1983).

Consequently, in an effort to boost the profile and impact of the programme, a multi-media extension campaign entitled 'Forests are Wealth' was staged at the beginning of the 1980s. This was a collaborative effort between FBD and the Tanzanian Institute of Adult Education. According to Mutangira (1984) the comprehensive objective of the campaign was to 'raise the awareness of the people as regards their environment with particular respect to the conditions of existing woodlands; so that they were ready to receive the campaign inputs in the form of education, information, expertise and seedlings; consequently to embark on the task of conservation and reforestation of the land'. At this time, forestry departments in many countries had gone so far as to introduce 'arbour days' on the official calendar. The 'Forests are Wealth' campaign was a far more ambitious undertaking because it attempted to achieve nationwide coverage over an extended period of years, employing an integrated range of communication channels. Priority was given to eight regions in the semi-arid heartland of the country where problems associated with land degradation were considered to be most acute, and where a mass media approach was

complemented by more intensive extension practice including village seminars and peripatetic cinema.

At the outset of the campaign the technical emphasis was still firmly placed on communal woodlots. However, the campaign proved to be a significant learning experience for the newly established Community Forestry Section of the FBD. It was soon revealed that a much broader based approach to the forestry extension effort was in fact required.

REASONS FOR THE POOR RESPONSE TO WOODLOTS

In the early 1980s the first detailed evaluations of the forestry programme began to appear. According to the official report on the 'Forests are Wealth' campaign (FBD 1982) the rate of tree planting in villages immediately before and after the campaign rose from 4,500 ha in 1979-80 to 6,500 ha in 1980-81; a trend corroborated by Matiko (1987) who revealed a significant increase in tree planting of more than 50% in ten out of the twenty regions of the country. However, other reports point out that a majority of successful woodlots were established by schools and other institutions rather than by farmers cooperating under the auspices of village councils; tree seedling survival rates in village woodlots were also generally much lower (Table 1). The programme continued to meet with an ambivalent or negative response from farmers particularly with regard to communal woodlots. Various factors have been noted as contributing to this limited success.

All reports refer to the logistical difficulties of establishing a viable forestry outreach service, especially those caused by the lack of transportation for seedling distribution and extension visits, as well as an insufficient supply of tree seedlings to some villages where response to the programme was more favourable.

TABLE 1: PLANTING GROUPS AND SURVIVAL RATES IN THE DIFFERENT COMMUNITIES

Planting Groups	Survival Rates 0-25	26-50	51-75	76-100	Total
Village/Communal	50	35	15	-	100
Schools	10	20	40	25	95
Individuals	14	46	32	04	96

Source: FAO, 1984:36

Reference was often made to poor tending of village woodlots as a reason for their failure, including unrestrained grazing and trampling by livestock and uncontrolled fires. Such causes were, however, nearly always symptomatic of underlying disaffection with the programme. Experience from many countries has shown that if there is a strongly felt need to grow trees, then it can often be achieved through local agreement with or without physical or legal protection measures.

Throughout the country woodlots were far too small to meet village woodfuel needs. In early years of the programme villages planted on average between 2 and 5 ha of woodlot per year. Assuming that a village of 500 households had 5 ha of woodlot to harvest annually, then the wood shared would not be sufficient because each household would receive only 0.8 m^3 as compared to the national average wood requirement of about 2.5 m^3 per annum (Mnzava, 1983). A majority of communal woodlots surviving today have been diverted

to serve as an amenity resource round village offices; although in some the council has designated special uses for harvested wood such as poles for ox-carts.

Some commentators observed a dislike among farmers of the fuelwood/pole species which were the major type first issued from government nurseries. Although in a survey of 18 villages in central Tanzania, Skutsch (1985) found that this was not perceived to be a major problem. In many parts of the country, however, the greatest demand was and continues to be for fruit trees rather than timber or fuel species.

These questions of species choice and the inadequate size of woodlots, rather than being primary reasons for failure in themselves, relate more to the assumption made that woodlots were for the provision of woodfuel. In fact a majority of rural people did not rank this need highly. As shown by Leach and Mearns (1988) with respect to similar initiatives in a number of African countries, planning for woodfuel projects often failed to take into account the true variable dynamics of forest production and fuel utilisation at the local and household level. Householders often decide to make adjustments to their sources of fuel, and levels of fuel use, before it becomes worthwhile growing trees for this purpose.

Inadequate planning and a lack of follow-up activities also contributed to the limited success of village tree plantings. The style of forestry extension tended to encourage the establishment of woodlots as an end in itself, but not their planning and expansion. Moreover, performance was initially interpreted on the basis of numbers of seedlings raised and distributed from FBD nurseries, rather than on field data on survival rates or on an understanding of the problems farmers were having managing the plots.

Many commentators have spoken of the excessively bureaucratic style in which development works were implemented in Tanzania at the time. Local government officers were often distracted by solving administrative problems and achieving visible results rather than entering in upon the long, complex and often un-rewarding task of involving farmers in land use planning. Skutsch (1985) found that even the establishment of a woodlot was often dependent on the presence of an attentive extension worker. Not only is the number of motivated and well-resourced extension staff limited in most parts of the

country, but it has taken some years for FBD to generate in-service extension training capabilities.

Several surveys have tried to ascertain to what extent and in what ways labour was a constraint on woodlot establishment. It is frequently suggested that tree planting operations suffer from neglect during periods when the demands of crop cultivation are greatest. In a survey of 18 villages in Central Tanzania, Skutsch (1985) tested this amongst a number of hypotheses in trying to determine why some villages started woodlots while others did not, and why some woodlots failed once started. Perhaps contrary to expectation, it was found that only a small number of people in both starter and non-starter villages claimed they were 'too busy' to plant trees. A comparable response was recorded in a similar survey carried out more recently in Zanzibar (Bertram 1990).

What both these surveys do reveal is that labour considerations are important in understanding women's involvement, or lack of involvement, in communal tree planting exercises. The Zanzibar survey showed that because women householders are responsible for the bulk of the work cultivating agricultural plots, they are less inclined to become involved in tree planting activities, especially if organized through local cooperatives. Smaller, exclusively male, forestry cooperatives also existing in this area are able to set about tree planting much more efficiently. It is concluded from this that basing future women's involvement in tree growing on flexible but existing arrangements between women for labour exchange could produce better results.

Similar conclusions have been reached elsewhere in Tanzania. To generate productive women's groups, which work on the basis of cooperative action and organisation, requires a level of animation work beyond the capability of all but a handful of foresters. Reports from the Morogoro Women-Based Afforestation Project (1988) - which was set up specifically to generate guidelines on such matters - indicate that in those places where active women's groups are not present, the forest service is most likely to achieve success by working on a broad front whilst clearly acknowledging and responding to the particular needs of women as co-managers of a household.

It has been suggested that farmers were unwilling to cooperate in the establishment of communal woodlots because of a scarcity of land. However,

it was rarely an absolute shortage of land which caused anxiety; most woodlots were too small to make this a problem. Of more importance were the perceived and actual implications of woodlot planting on the tenure of that land.

Establishment of a communal woodlot often entailed the transfer of a parcel of land held individually or communally under customary law, to collective ownership under the new village regulations. In the survey of 18 villages undertaken by Skutsch (1985) it was found that the lack of a clear commitment to establish a woodlot generally resulted from conflict over this process of redesignation. Such conflict was often associated with controversy between factions within a village, in turn often brought about by the arrival of new people during villagisation.

Redesignation could be strongly resisted by those who owned or had usufruct rights over a parcel of land identified as a site for a communal woodlot. This resistance was often strongest in those villages least disrupted by villagisation where pre-existing decision making groups maintained a stronger hold over the allocation of land and other resources.

Uncertainty over the tenure of land brought under communal woodlots was also bound up with apprehension about who would actually benefit from them. Skutsch (1985) found that in a significant number of villages where the decision was made not to start a woodlot, people expressed a degree of mistrust in the village council. This problem was compounded by the fact that no clear guidelines were laid down for the legal status of communal woodlots. Shanks (1988) found that in some villages, several years after establishment, people were still uncertain as to whether the woodlot was in fact the property of the village or of the forest department.

In recent years, the laws governing the allocation of land within villages have been greatly relaxed. In many parts of the country people are moving away from the nucleated settlements and returning to lands abandoned at the time of villagisation but over which they have retained some degree of customary tenure. However, this does not automatically resolve uncertainty over the status of land which was formerly brought under collective control.

The survey of farmer's attitudes to tree growing in Zanzibar by Bertram (1990)

revealed that over half the respondents were of the opinion that tree planting changed the ownership status of the plot. The report suggests that as a result of this local leaders may be unwilling to allow tree planting on communal land due to fears of land grabbing by certain individuals or groups.

This report also confirms the view that land scarcity is stated to be a constraint to tree growing only in areas of more intensive agriculture where the proportion of land claimed individually is also greater, although this does not reduce the desire of farmers to plant trees in such areas.

NEW APPROACHES

Re-examination of the policy on communal woodlots in Tanzania is instructive because it was conceived to be part of a wider government strategy to achieve self-reliance in the rural areas. Skutsch (1985) has recognized that the limited success of the programme in its early years is surprising in view of the major reforms made by government. A formalisation of land rights, the decentralisation of decision-making powers and the creation of strong units of social organisation (e.g. the village councils) at grass-roots level are frequently cited pre-requisites for successful social forestry. Yet fundamental reasons for the limited success of the woodlots programme lay precisely within these realms. Villagers frequently felt uncertain about or resisted the redesignation of land for woodlots, and the system of village councils did not prove to be a universally accepted or effective mechanism for involving farmers, especially women, in their planning. Apart from reflecting the particular and in many ways unique circumstances of rural development in Tanzania, what does this apparent contradiction suggest for the ways in which social forestry can or should be managed?

In recent years the community forestry programme has evolved rapidly in response to the changing political climate in the country. During 1985, the new president of Tanzania, Ali Hassan Mwinyi, made an inaugural speech which again stressed the importance of tree growing, and the new Party Chairman

Mwalimu Nyerere spoke on the radio about's the country's tree loss, advising every Tanzanian to plant five trees a year henceforth. Suddenly, the implication was clear that, at the highest level, permission was being given for a change from the woodlots policy to one which sanctioned and even encouraged individual tree planting. This new policy arose logically from moves towards recognition of the importance of private land-holding rights for farmers.

Coinciding with this the Community Forestry Section began formulating an updated strategy for the programme which it advocated as part of in-service training seminars for forest officers and extension field staff.

One of the implications of the decentralisation reform moves of the 1970s was that, except in a few 'pilot' villages, the central office of FBD has had no direct control over the resources put into village forestry. This situation has been lamented because it reduced the efficiency of the flow of information and expertise in the extension system (Kowero & Temu 1985) and because it means that district foresters are subject to the competing demands being made on limited local government expenditure (Kihiyo 1987). Nonetheless, decentralisation has meant that the 'brain' behind the programme, the Community Forestry Section, has been less encumbered with administrative duties and therefore freer to learn from the mistakes made and to develop innovative approaches for which it has gained a good reputation.

Quoted directly from an internal FBD document (Mtallo & Gerden 1987) the updated strategy, as of 1987, runs as follows:

> **DECENTRALISATION OF NURSERIES**
>
> The aim is to encourage and assist villages, schools, non-governmental organisations etc. to, as far as possible, produce their own seedlings.
>
> **TREE GROWING WITHOUT THE USE OF NURSERIES**
>
> Trees can many times more successfully and more economically be grown through using cuttings, saplings, stumps and direct sowing rather than planting seedlings raised in a nursery.

DEMAND ORIENTATED SEEDLING PRODUCTION

This item of the strategy concerns to what extent the kind of seedlings provided in the central FD nurseries correspond to the demand of the recipients and that the seedlings are distributed, planted and tended in such a way that a reasonable survival rate is achieved.

SOIL CONSERVATION - AGRO-SILVIPASTORAL FORESTRY

Integration of tree growing, soil conservation, fodder production and agricultural crops on the same piece of land.

CONSERVATION OF NATURAL FORESTS

This point raises questions such as: to what extent has the local FBD demarcated natural forest areas close to villages and established a contract with the village on how to properly use it for a sustained yield (ie not burn, not graze but cut branches)? Has FBD assisted villages close to encroached watershed areas (catchment forests) to establish alternative sources of fuelwood and other forestry products?

PEOPLE'S PARTICIPATION

The other aspects of the strategy will be successful only if the FD cooperates fully with the people in its extension services. NGO gatherings must be a main activity in the work plan for the FD. The ultimate aim must be to make the people as much as possible self reliant in satisfying their own tree related needs.

It will be noted that from a technical point of view the official menu for community forestry has widened considerably to include agroforestry practices and natural woodland management. Implicit in the strategy is the expectation that provided the forest service can support the production of cost-effective

planting stock, farmers are more than able to decide for themselves where, for what purposes and how (i.e. individually or cooperatively) they wish to grow the trees.

Decentralisation of nurseries is taking place in many districts. This can entail more than just a redistribution of resources to improve supply from government nurseries; some projects are taking it a stage further by attempting to transfer the entire means of production to the farmers, thereby de-mystifying the whole process and technology of tree growing (Shepherd 1989). Prompted by the promise of cash returns farmers in many places, but especially in more densely populated areas, are now embarking on seedling production or tree growing for cash sale.

But if the FBD is content to let the market set the limits of individual tree planting to a greater extent than before, the new strategy implies that collective action is still required with respect to management of areas of natural forest which exist within the boundaries of villages in some regions. In addition, there is the question of future policy towards people's involvement in the significant areas of forest reserve which represent an invaluable resource for the country. In one region of Tanzania alone (Tabora), for example, there is twice the area of government forest reserve than in the whole of Kenya.

The radical policy interventions of the 1970s undoubtedly had a significant and lasting effect on social, political and economic life in the rural areas. Yet it is also apparent that the process of directed social transformation at village level is exceedingly difficult to facilitate and sustain. In the more remote parts of the country a significant proportion of smallholder farmers have not been fully incorporated into either the national cash economy or the formal administration of development. Many farming communities maintain a range of non-formal organisational mechanisms for dealing with land use matters which, in places, operate in virtual isolation from the workings of formal government.

These locally active patterns of social organisation can, under some circumstances, be enlisted to support a variety of rural development initiatives including common property resource management. For example, the existence of a long established system of dry season grazing reserves together with strong mechanisms for policing them, has allowed foresters in one part of the

country, Shinyanga, to successfully negotiate and establish a number of village forest reserves (Kilahama 1988). But when local and national priorities diverge, most notably with regard to destocking and labour intensive soil conservation efforts in semi-arid regions of the country, as well as the communal woodlots programme, then local feeling has been able to keep even the most concerted development interventions at bay.

The final point of the updated strategy refers to the participatory means by which foresters should enlist the support of farmers in tree growing activities. Yet this is still rather loosely defined in terms of cooperation and self-reliance. Experience from the communal woodlots programme suggests that participation in the Tanzanian context is less a matter of the extent to which farmers are prepared to participate in the organisational structures created by government, but the extent to which representatives of government, including foresters, are able to participate in the organisational structures farmers create to manage resources in their own area.

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SOCIAL FORESTRY IN NORTHERN ETHIOPIA: TURNING FELT NEEDS INTO A DRIVING FORCE

Julian Wake

INTRODUCTION

Many farming communities in war-torn, famine-ridden Northern Ethiopia are now actively involved in social forestry programmes. When the programmes started five years ago many farmers did not believe that they could grow trees successfully, but as timber was in very short supply and extremely expensive a few farmers planted trees in the hope that a some might survive. Now, many village communities have tree nurseries in which they raise enough seedlings to plant between 30,000 and 40,000 trees a year. Some of these will be used for individual planting around the farm, but the majority will be planted on uncultivable hilltops in true social forestry programmes.

Why has there been this positive response? What lessons can we learn from Northern Ethiopia? The purpose of this paper is to examine these questions, taking as an example a small mountain hamlet close to Adargi Arbi in the region of Tigray.

GETTING STARTED

The area around Adargi Arbi is mountainous. There are many steep-sided valleys which are intensively cultivated as are the pockets of fertile land on the mountain sides. The natural tree cover has been destroyed; having been cut for timber and fuel or grubbed up to increase the area under cultivation. Erosion is widespread with deep gullies extending far out into the flat-bottomed valleys. Rains have become unreliable and, twice in recent years, have failed completely, resulting in severe famine.

Farmers living in the area around Adargi Arbi often talk about the forests that used to grow on the hillsides around their hamlets and how they used to go and cut down trees without thinking of the future. Now they are amazed at their lack of foresight, and this growing awareness has been put to good effect by encouraging them to grow trees. The Department of Agriculture has adopted two main tactics to foster a change in attitudes: mobilisation and increasing farmers' knowledge.

Mobilisation

The mobilisation tactic was used when many people were gathered together, for example, at the beginning of meetings or on field days. It involved discussing three sets of questions. To begin with, older people were asked to look back to the time when the hills were still forested and to describe, to the rest of the group, farming conditions at that time. Then people were asked to describe how the lack of trees may have created difficulties and hardship for themselves, their family and community. Finally people were asked to look forward to envisage the possible advantages of re-foresting the hilltops.

This simple tactic was repeated frequently, encouraging as many people as possible to respond each time. These repeated public statements helped to generate positive attitudes towards reforestation and to sharpen people's resolve to undertake planting work.

Increasing Knowledge

In 1985, all the people of Tigray were asked to decide what major problems affect their socio-economic status. This was debated at local mass gatherings throughout the country, with everyone over the age of 15 was expected to attend. The findings from these meetings were taken, by representatives, to the Department of Agriculture at regional level. There, at a regional conference, the peoples' representatives stated firmly that the major problem facing the farming community was soil and water conservation. The Department were asked to advise communities on ways to alleviate this problem.

Among other soil and water conservation measures, the Department suggested that the planting of trees would help reduce soil erosion, hold more water in the soil, help refill aquifers, and possibly induce more rain. In summary, the Department said 'Why not grow your own tree seedlings and, as a community, plant them on all hilltops that cannot be used for cultivation'.

At Adargi Arbi this reply was discussed at the next mass gathering, but the people did not believe that they could propagate trees successfully, or plant them and keep them growing on the hillsides where they were needed. They also thought that herdboys would not be able to control their goats and stop them destroying young trees.

However, a few farmers said that as timber prices were so high, they would like to plant some trees close to their homes to see if some would grow - but they did not know how to grow tree seedlings or look after them when they were planted out. The Agricultural Department responded by offering to train elected village representatives in the skills needed to grow trees successfully.

Production cadre (local farmers elected by the people to act as grass-roots extension agents) were also given training in raising tree seedlings. This was part of a regular programme of training set up by the Department of Agriculture and involving all staff. The programme also acts as an efficient two-way information system.

TRAINEES	LENGTH OF TRAINING
Production cadres	1 - 1½ days every month
Local extension agents	2 days every month
District extension coordinators	3 - 4 days every month
Area coordinators	3 - 4 days every 3 months

At these training sessions, staff were given technical training, and were also trained how to train the next level down. They also passed information up to senior staff. Production cadre were trained how to raise tree seedlings, plant them out and care for them. They were also taught how trees helped conserve soil and water. All this information they passed on to the people at farmers' training sessions and at field days.

During the next year, several farmers sowed Eucalyptus seeds in their back yards and grew them on successfully. Eucalyptus was selected for several reasons: they already grew in the area so people knew them well; experience had also shown that Eucalyptus grew well in the area and were relatively easy to raise from seed. In later years, when the people were confident in their ability to grow trees, native trees were grown in preference.

In this first year of planting, seedlings were grown in back-yards and later planted around the house or in gulleys around the farm. It was soon found that herdboys were able to control their goats and very few trees were eaten. Despite this, the people were still not prepared to take part in a communal forestry programme, mainly because it would involve large scale commitment in both time and effort and because they were not convinced that it would succeed.

The local production cadre arranged farm visits to those farms where seedlings were being grown and, by the end of the second year, could demonstrate how the young trees were already resisting soil erosion. They also made sure that tree growing was frequently on the agenda of farmers meetings to keep people thinking about trees. At these meetings farmers who were growing tree seedlings talked of their experiences and the production cadre passed on technical information gained at training sessions and from other farmers.

By these means - through training programmes, farmers' meetings, and farm visits, the peoples' technical knowledge about trees and their effect on soil and water conservation increased greatly. This technical knowledge reinforced and helped strengthen attitudes favouring reforestation and convinced the people that they were able to grow the trees themselves.

GATHERING MOMENTUM

Two years later, at a mass gathering, it was decided that the community would try a small social forestry project. The technician surveyed possible planting sites and the community decided which ones to use. They selected several gulleys and an exposed hilltop which was communal land. As the demand for

tree seedlings for private use had also grown enormously, the people decided that they would need to grow 40,000 seedlings that year. To grow this number of seedlings they decided to establish a communal tree nursery on a site close to the centre of the village and nearby water supply. The Department of Agriculture appointed a technician to supervise the nursery and offer technical advice.

One knowledgeable farmer who had been trained by the Department was elected to collect all the Eucalyptus seeds for the nursery, another ploughed the land and the technician laid out the beds. In all 216 beds were planned with each expected to produce 150 to 200 seedlings. After ploughing, communal work groups dug each bed properly, removing poor soil and replacing it with good soil mixed with well rotted manure. When the rain started in February they dug each bed again, sowed and fenced them.

Each bed produced seedlings for a specific group of farm families plus the communal planting site. These families assigned two people to water, weed, cultivate, and prune the seedlings in their bed. This work was done to a high standard because:

a. all farm families wanted good seedlings and put pressure on the 2 elected people to do a good job;

b. because the nursery was in a public place everyone was interested in progress and quickly noted any bed that had not been tended well or in which seedlings were not up to the standard of the others. There was thus an element of competition between the people tending the plots, and a desire not to lose face in front of the rest of the community.

All work was unpaid (except for the technician). This was accepted as Tigrayans consider communal work to be their social duty and are usually proud to be elected.

In July, when the seedlings were about 50 cm high, they were planted out. Every family took between 5 and 20 seedlings to plant around their houses (9,000 seedlings were used this way). One group planted 700 seedlings to fill

in an old tree planting site, and the community organised itself into groups to plant around 30,000 seedlings in gulleys and on the hilltop site.

The technician and production cadre supervised planting. Initially 400 to 600 seedlings were planted per hectare to make sure there was an adequate survival rate. Although many seedlings died a sufficient number flourished for the villagers to consider the planting a success. People from neighbouring villages heard of their experience and came to see for themselves. The following year many came back for seedlings. All were given a few free of charge as, in this area, it is felt important that village groups help one another.

In 1989 roughly the same number of seedlings were grown and planted out, but because of the drought many died. However, most of those which were planted in previous years look as though they will survive. Despite this setback, the community has decided that tree planting in 1990 should be about the same as in 1989, but with an extended nursery to partially accommodate the growing needs of the surrounding area.

LESSONS TO BE LEARNED

1. Involvement of the People

The people were involved in all decisions related to the forestry programme in their village area. This is a feature of Tigrayan local government, where the people are expected to make all major decisions at mass gatherings, while the local government organisations, called Baito, are primarily executive bodies.

In general, social forestry programmes are much more likely to succeed if the people feel it is THEIR programme, not the government's.

2. Peoples' Attitudes and Beliefs

In the past, villagers considered trees a gift from god. No one gave a thought about planting trees. In the debate surrounding the cause of the 1984/5 famine,

the role of trees in inducing rainfall was discussed in detail and, nowadays, most people in this area believe that at least part of the problem underlying unpredictable rains is the denudation of hillsides. They also know erosion, poor penetration of rainfall, and other problems related to soil and water conservation, have been created by deforestation. There is, therefore, a very positive attitude towards reforestation as the people now believe it will help fulfil their most urgent need - the re-establishment of regular rains and reduction of erosion.

The development of positive attitudes was not left to chance. The Department found out what the people felt were their most urgent needs, then used mobilisation tactics to force people to recognize the importance, to themselves and to the community, of fulfilling those needs; and to strengthen attitudes towards accepting practical measures to fulfil those needs.

The Department also helped people to increase their knowledge so that their attitudes were reinforced by being based on a sound scientific foundation.

3. Basing Action on Peoples' Needs

One of the first actions of the Department was to determine the people's needs. This obviously helped them plan an appropriate programme, but also helped in ways they did not at first expect.

People are often unclear about their real needs, or the priority which should be given to competing needs. During the early days of the programme, discussion and debate enabled the people to clarify and articulate their needs. This had three main attributes.

Individuals became clear about their own needs and whether they could realistically be fulfilled. To a limited extent the discussion also made people face up to the amount of effort they would be willing to expend. Debates held at mass gatherings also helped them recognise needs felt by others in the community, which were generally felt to be important and which were important to only a few.

Discussion helped the people to identify the underlying causes of a problem. All too often people are asked about their needs without being given the opportunity to discuss them. Because of this, they often quote day to day difficulties which may only be superficial symptoms of a deeper problem. Usually, as in this case, it is the underlying cause that has to be tackled - not just the symptoms.

After discussion and debate in the community, the peoples' representatives could present their needs clearly and concisely to the Department of Agriculture, and be authoritative in their dealings with them.

4. Scale of Commitment

At first farmers rejected communal planting because of the large scale commitment and uncertainty of success. During the first few years tree seedlings were grown for private planting not for communal planting programmes. The Department did not force the people to plant communally, but made use of this private enterprise because they realised that the people needed time before embarking on ambitious projects, time to convince themselves that they could grow trees and that the trees would survive. It was recognised that planting in gulleys around the home would demonstrate benefits related to soil conservation.

It was also realised that trees planted on private land would be used for timber and firewood and so enable future social forestry projects to be decided solely on the basis of soil and water conservation. Many social forestry programmes break down when communities attempt to agree how future forest products and/or profits are to be distributed. This problem was avoided in Tigray. Many social forestry programmes have tried to force people to start communal forestry immediately. This would probably have had a negative effect on the whole programme. By allowing individual planting first, the Tigray programme reduced uncertainty, reinforced beliefs that trees would, in fact, fulfil farmers needs, and also reduced social problems related to the future use of trees.

5. Starting Simple

The programme started small and as simple as possible. It started by using Eucalyptus, which were known, liked by the community and easy to grow. Later, more beneficial native trees were introduced. It only used resources available to the community. No additional tools or inputs were required and nothing had to be financed by the people. All that was required of the people was time and effort. The programme also started with a few farmers planting trees around their houses, and used these farmers to prove that they, and the rest of the community, could grow trees. These plantings were also used to reinforce the teaching they had received about trees stabilising ground and resisting the formation of gullies.

6. Fitting in with Social Norms

The system of local government in Tigray is 'by the people'; with all major decisions being made at mass gatherings. Mass gatherings consist of meetings by all local people over the age of 15. In the local government system they are used as a forum for discussion and debate prior to the making of decisions by mass consensus. They are also used as a means of gaining information from the people and transmitting information to them. In the social forestry programme this normal process of decision-making was adhered to, with the people making the decisions, and the Department of Agriculture facilitating them chiefly by training villagers and appointing a trained technician.

In Tigray, communal work is normal and it is expected that the individual works for the benefit of the community. Communal planting in this area depended on these norms as did the election of persons to select seed, plough the ground and care for the nursery plots.

The managers of social forestry programmes have to be sensitive to the social norms of the people they are working with, and use these norms as the basis of strategic planning. Unfortunately, many try to impose their own system on a community and almost always end in failure.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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SOCIAL FORESTRY NETWORK

TREES ON FARM LANDS IN NORTH-WEST INDIA: FIELD DATA FROM SIX VILLAGES

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Network Paper 11d

Winter 1990

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TREES ON FARM LANDS IN NORTH-WEST INDIA: FIELD DATA FROM SIX VILLAGES

N.C. Saxena

I. INTRODUCTION

Trees have long been planted and protected on farmlands in India as part of age-tested agroforestry practices from the semi-arid regions to the hill farming systems and humid sub-tropical areas. In such situations trees generally complement or supplement agricultural production (Filius, 1982). However, during the last decade a form of tree growing has become popular with some farmers whereby trees may partially or completely replace annual crops. This is known as farm forestry and the trees are grown primarily on field bunds and boundaries or in place of annual crops as woodlots. As regards species planted, Eucalypts (particularly hybrids of *E. tereticornis)* have been favoured. The intention of farmers has been to raise trees chiefly for market sale, as poles or pulpwood rather than as fuelwood.

Farm forestry is generally linked with commercial enterprise. In regions of the country characterised by poorer soils, insecure agriculture and greater dependence on rainfall farmers have often planted Eucalyptus in place of inferior food grains such as ragi (sorghum) in Karnataka, or risky cash crops like groundnut in Gujarat. In the northern states of Punjab, Haryana and Western Uttar Pradesh (U.P.) where cultivation is under more secure conditions of assured irrigation and better soils, farmers have been less inclined to attempt wholesale transfer of landuse. Trees were planted on boundaries, retaining cultivation of annual crops, but woodlot planting was attempted either by absentee landowners or by resident farmers on inferior soils.

Field work was undertaken in six villages from three districts of U.P. using data from the period 1978-89. Two districts, Muzaffarnagar and Nainital, lie within the 'green revolution' belt. Farmers in these districts had longer experience of farm forestry and were thus more likely to yield information on returns and marketing. The third district was Allahabad which represents a low productivity region of the state.

In each village a record was first made of the land holdings and the trees planted by every household. These were divided into two categories - planters and non-planters. Planters were defined as those farmers who owned or had planted more than 10 trees. The planters were further divided into two groups - 'large' farmers owning more than 2.5 ha and 'small' farmers with less than 2.5 ha. More detailed information was collected from between 25 and 30 planters by way of a formal questionnaire. In addition, from each village 6-12 non-planters were selected for questioning, ensuring that this group also contained large and small farmers in almost the same proportion as in the sample of planters.

II. REASONS FOR PLANTING TREES

Formerly, trees did not play a critical role in farming systems of the alluvial plains of North-West India. Agriculture was almost exclusively geared to crop and livestock production. Soil fertility was replenished by alluvium from the hills and, unlike in other regions of India, cow-dung and crop residues rather than wood provided much of the fuel for cooking. Thus trees were required neither for ecological functions nor to satisfy subsistence needs.

In the surveyed villages agricultural residues and dung were still important sources of domestic fuel. Only 35% of the fuel requirement was met by wood, of which only half came from the planted trees. Furthermore, as shown in Table 1, farmers did not produce wood on farms solely to meet their household consumption needs. Among large farmers 70% stated that income generation was the main reason for growing trees, whereas only 54% of small farmers mentioned this as the most important reason.

This trend is further shown in the species planted by farmers. In a majority of villages Eucalyptus were most common, totalling 83.9% of all trees planted. Mangos were also found in all villages. Apart from these, there were species of local importance such as mahua *(Modhuca indica),* sheesham *(Dalbergia sissoo),* babul *(Acacia nilotica)* and poplar. Other reasons indicated for tree planting included the need to protect fields from the risk of encroachment by neighbours.

TABLE 1: REASONS FOR PLANTING TREES

REASON FOR PLANTING TREES	MOST IMPORTANT	SECOND MOST IMPORTANT
Additional income through sale	87	1
Small construction timber	29	26
Fuelwood	17	13
Others	7	5
	140	45

III. THE LOCATION OF FARM TREES

The most common pattern of tree growing was in boundary plantations, which accounted for 51.6% of trees located. For most resident landowners, both large and small, annual crops continued to be the main source of sustenance and income and they did not wish to see a reduction in their crop yields through planting trees. Trees were planted to supplement crop production, with farmers looking forward to receiving the income in 'lumps' for key expenses such as marriages and house building.

Woodlots accounted for 30.3% of the total trees, whilst the remainder (18.1%) were grown in home gardens or intercropped with seasonal crops.

It should be noted that in each village of Muzaffarnagar and Nainital district there were two or three farmers, often absentee landowners, who had between themselves planted 25000 to 40000 trees on crop lands woodlots. The selection of land on which to establish woodlots was made according to a number of reasons. Resident farmers tended to select land which was giving low crop yields or where supervision of labour was difficult. Some absentee landowners also diverted their crop lands so as to reduce labour and supervision headaches. In a few cases the urban rich (presumably those with unaccounted money) bought marginal land with a view to establishing eucalyptus plantations on a commercial basis.

IV. REGIONAL VARIATION

The initial village census indicated that of a total of 1011 farmers in all six villages 35% could be classified as tree planters. As shown in Table 2, the proportion was low (20%) for villages in Allahabad district and high for those in Muzaffarnagar (43%) and Nainital (52%). The total number of trees planted and the number of trees planted per household in the Allahabad villages were also much lower than in the other districts. All categories of farmers, but especially larger farmers, had planted many times more trees in the commercialised villages of Western U.P.

These differences appear to be linked with land productivity and the overall degree of commercialisation in agriculture. Data on these indicators (Table 2) suggests that villagers in Allahabad were poorer, with low intensity cultivation and few surpluses for market sale, preventing them from investing their land and capital in long gestation crops.

Eucalyptus requires 6 to 9 years to mature. Increasing its planting density on farms entails either sacrificing crop production in the first few years or substantial capital investment if undertaken on barren land. In either case the option of tree planting would be exercised only if the farm had been generating cash or grain surplus, or if there was an alternative means of income support for the farmer. Further, growing wood economically on a large scale requires efficient marketing. Farmers acquire this by experience when they produce agricultural surplus for sale.

The western districts of U.P. are characterized by larger holdings, secure means of irrigation, a long history of owner cultivation and cash crops, higher surpluses and their re-investment in agriculture, a higher risk-bearing capacity and better enterprise. There is greater diversification of rural incomes in this region, enabling even marginal farm households sometimes to have an alternative source of income. These conditions facilitate investment in long rotation tree crops.

On the other hand, the agrarian structure of the eastern districts of U.P., of which Allahabad is an example, is characterised by heavy dependence on grain production, smaller holdings, low overall incomes, a less marketed surplus, imperfect credit markets, more dependence on the village merchant for marketing small surpluses, inter-locked credit and output markets, less monetisation, less diversity of rural incomes and greater debt bondage. A less

TABLE 2: BASIC DATA ON VILLAGES AND TREES

INDICES	ALLAHABAD		MUZAFFARNAGAR		NAINITAL	
	DEOGHAT	ALIPUR JEETA	CHAUKRA	JHATMU JHERA	HAJEERA	BAGHWALA
% irrigated land	0	88	95	93	85	93
Agr. Assets/ha	1961	9226	11395	12397	8303	11996
Fertilizer/ha	4	708	1154	2169	1344	1570
Production/ha	3161	7228	11404	18932	17381	19922
% produce marketed	49	27	78	81	67	81
Payment made to casual labourers per ha of cultivated land						
by large farmers	320	643	1205	2445	1591	2192
by small farmers	0	104	275	1551	1472	1909
No. of farmers	219	193	240	197	99	63
No. large farmers	50	17	87	72	39	39
No. small farmers	169	176	153	125	59	24
Planters (large)	33	10	50	53	26	31
Planters (small)	10	30	27	57	16	12
Trees owned (large)	3255	1337	42631	69843	38661	45732
Trees owned (small)	591	2674	18110	4412	4893	3873
Trees per household						
large farmers	65	78	490	970	991	1173
small farmers	4	15	*118	35	83	161

* In this village, one non-resident who was classified as small farmer planted about 15,000 trees. If this number is excluded, the average for trees by small farmers per household would be only 32.

developed infrastructure for the supply of agriculture inputs, greater insecurity of land tenure, and on the whole poor human capital as far as enterprise is concerned are also features of these areas. Surplus from land is not ploughed back into farming to the same extent as in Western U.P. These conditions are not conducive to market oriented high intensity tree planting.

V. SMALL AND LARGE FARMERS

The percentage of planters among large farmers was significantly higher compared with small farmers. Out of 304 large farmers in the six villages 67% had planted more than 10 trees. But of the remaining 708 small farmers only 27% had planted trees. From the category of small farmers, if one takes out those who had holdings of less than 0.5 ha it transpires that very few of them planted trees although their percentage among land owners was 28%. This confirms the findings of other evaluation reports that small farmers tended to lag behind in the uptake of farm forestry.

Experience has shown that small farmers attempting to adopt the technology associated with high yielding crop varieties do so gradually over a number of years, each year financing a higher application of inputs from the enhanced profits of the previous season. For this process to take place with commercially oriented tree crops takes several rotations. The lag between the adoption rate of a small and large farmer, and between a farmer entirely dependent on land and the one with other sources of income cannot be bridged in ten or fifteen years. Therefore, even after a decade of tree planting activity, differences in the intensity of planting by the big and small farmer may persist.

Various other socio-economic characteristics which distinguish planters from non-planters, and woodlot planters from others, became apparent through the survey.

VI. CASTE

The survey revealed that caste status appeared to be a greater barrier to tree growing than a lack of land on which to plant trees. As shown in Table 3, when the size of land holdings is kept roughly constant middle and upper cast

TABLE 3: CASTE-WISE ECONOMIC INDICATORS AND TREE PLANTING

	CASTE				AVE-RAGE
	HIGH	MIDDLE	BACK-WARD	LOW	
Land owned in ha	5.57	5.01	4.33	3.08	4.773
Assets/ha	12736	9392	9346	7005	99653
Cash-fertilizer used/ha	1263	1335	1100	930	12143
Non-crop income	22359	10880	8371	5953	12501
Casual labour/ha	1577	1638	1020	469	1340
Production/ha	14347	13051	11998	12157	12988
% of output sold	77	72	70	66	72
Trees planted/ha	498	330	289	87	337

1. Fertilizer means cash paid for chemical fertilizer, and the value of manure used is not added. Fertilizer is being used here as a proxy for monetisation of inputs, and not for calculating the total value of inputs.

2. To calculate production the value of annual produce taken home after payment to labourers is multiplied by the unit price obtained by the farmer.

3. Except for land and trees, the unit for all other indicators is Rupees.

farmers have more assets and employ more casual labour per unit of land, sell a larger proportion of their output, have better access to non-crop incomes and in addition plant more trees. The two lower caste groups, constituting 37% of the interviewees and owning 32% of land, planted only 15% of the trees.

In addition, if we look at the number of trees planted per ha by woodlot planters from the lower caste groups, we find that they planted less than other planters, though they may have been large farmers. Thus low caste status seems to have inhibited the woodlot planters from putting too much area under trees.

The importance of caste in this situation can be attributed to several factors. First, higher caste farmers have greater access to education and to channels within bureaucracy which enabled them to tap sources of credit, markets and extension. These farmers were previously landlords and as such traditionally planted fruit trees on grove lands. Caste restrictions meant that they tended to shun manual work; tree growing was a good option which suited their cultural attitudes towards work on the land. And lastly, they had better access to non-farm businesses which enabled them to wait till the trees matured.

VII. AGRICULTURAL ASSETS

At this stage it is instructive to distinguish further between woodlot planters and others and to identify the reasons why some farmers were able and concerned to undertake this more ambitious reallocation of land. In each village, amongst both large and small farmers and in each caste group, woodlot planters had significantly more land than other planters and even more when compared to non-planters. As regards trees planted per unit of land, the woodlot planters planted more than other planters.

So how did woodlot farmers compare with other farmers in ownership of assets? As planters generally possessed more land than the non-planters, in order to make comparison meaningful the value of these indicators per hectare of land owned has been calculated, details of which are given in Table 4. The table shows that except in Jhatmujhera in all villages the planters in general and woodlot planters in particular possessed far more assets per unit of land owned than the non-planters.

TABLE 4: AVERAGE ASSETS/ha OF WOODLOT PLANTERS, PLANTERS AND NON-PLANTERS IN RUPEES

NAME OF VILLAGE	ALL HOUSE-HOLDS	WOODLOT PLANTER	PLANTER	NON-PLAN-TER
ALIPURJEETA	9226	35132	5653	1953
DEOGHAT	1961	2840	1969	1613
CHAUKRA	11395	22319	9654	6192
JHATMUJHERA	12397	11530	12644	11734
HAJEERA	8303	25237	7669	4556
BAGHWALA	11996	22067	10607	8088
Average for all villages	9313	19659	8619	4664

Woodlot planters were almost a class in themselves in terms of the number of trees planted, land owned and the value of agricultural assets. This was specially true of large farmers. Woodlot planters from the small farmers category also possessed substantial assets as compared to other small farmers, and even higher than the assets of non-planting large farmers. One can conclude that more land and secure asset position was positively correlated with higher levels of tree planting, especially for woodlot planting, as it enabled farmers to meet their needs during the period trees gave no returns.

VIII. NON-CROP INCOMES

In the study area non-crop incomes were recorded as originating from three major sources:

i) 'Wage' - the aggregated income from wage labour and artisan based activity;

ii) 'Land based' - income accruing from subsidiary land based activities, for example from orchards, the sale of milk and hiring of tractors;

iii) 'Urban' - remittances, salaries, pensions, income from shops and businesses etc.

When these three components are studied for different size-class and categories of planters, as shown in Table 5, it is apparent that farmers with higher non-crop incomes planted more trees. The security from non-crop incomes clearly improved the risk bearing capacity of farmers and allowed them to afford to wait until the trees mature. Moreover, once a family's time is committed to non-crop occupations it becomes difficult to support intensive agriculture; tree crops demand less continuous labour and supervision. Thus non-crop income has both an enabling and a compelling role in the change-over from annual to perennial crops.

The information in Table 5 has been analyzed separately for large and small farmers.

Large farmers - The income of woodlot planters from 'land based' and 'urban' components was several times higher than the income of other planters or non-planters. Non-crop income for woodlot farmers formed a sizeable component of their total incomes, and in many cases was comparable with crop incomes. Woodlot planters from these groups were not involved in wage work at all, but some other large farmers (these belonged to lower castes) had a small component of income from 'wages'. In between other planters and non-planters too there was a perceptible difference between their non-crop incomes from non-wage sources.

TABLE 5: NON-CROP INCOME BY COMPONENTS IN RUPEES

CLASS GROUPS	NUMBER OF FARMERS	WAGE	LAND BASED	URBAN	TOTAL NON-CROP INCOME
LARGE					
WOODLOT PLANTER	22	NIL	14761	31118	45879
PLANTER	82	347	3221	3364	6931
NON-PLANTER	26	489	1791	3362	4719
SMALL					
WOODLOT PLANTER	9	583	1014	7144	9853
PLANTER	56	2730	1178	3954	7969
NON-PLANTER	20	2699	1051	1216	5466

Small farmers - For woodlot planters the 'urban' component of their incomes was far in excess to such incomes of other small planters or non-planters. Between other planters and non-planters too, the pattern for small farms was similar to that of large farms. There was no such strong trend for the 'land based' component, understandably as the land held by such farmers is not much. On the other hand, for the small farmers the wage income was an important source of their non-crop incomes (except for woodlot planters), often more than the total of 'land based' and 'urban' components of non-planters.

Looking at the two sets of figures together, as the farm size decreases, share of wage income in the basket of non-crop income increases. In fact, the other planters who had marginal land holdings had a higher wage income than the planters. But as the size of land increased, the difference between the 'land based' and 'urban' income of planters and non-planters also increased, suggesting that it is this component which influences tree planting most.

To conclude, planters had better access to non-crop incomes than the non-planters. The difference becomes very significant - by a factor of 7 - when one compares woodlot planters with non-planters.

IX. LABOUR

With regard to labour three facts need to be mentioned at the outset. First, large farmers tend to have larger families with a higher adult representation. Second, in the 'green revolution' areas even small/marginal farmers tend to hire labour, as multiple cropping requires more labour than can be provided by families. Third, casual daily labour is being slowly replaced by contract labour, which reduces supervision problems.

The labour required in growing trees is not uniformly distributed across the rotation. Substantial labour and supervision are required at nodal points but the per ha absorbtion of labour is generally much less in tree-based farming than in annual crops. For example, Malmer (1987) calculated that over an average rotation of 10 years Eucalyptus plantations require only 45 person-days of labour annually as compared to 100 person-days of employment needed for groundnut cultivation in unirrigated conditions of Tamil Nadu. Formerly, the objective of minimising involvement of family labour was possible only by renting out land, now trees have emerged as a new alternative to leasing (Bhalla, 1987).

X. OVER PRODUCTION OR MARKET FAILURE?

The data presented in Table 6 reveals that in villages of West U.P. there was a significant decline in the level of tree planting after 1986. After initial good sales of Eucalyptus the market was rapidly saturated and prices started to fall. In contrast, since planting in Allahabad began at a later date and remained at a low level there has been no such glut; in the winter of 1989/90 farmers in this district seemed keen to continue planting eucalypts.

TABLE 6: EUCALYPTUS PLANTING IN MUZAFFARNAGAR AND NAINITAL (1981-89)

YEAR OF PLANTING	EUCALYPTUS PLANTED IN				TOTAL	% SHARE IN THE TOTAL
	CHAUKRA	JHATMUJ HERA	HAJEERA	BAGHWALA		
1989	NIL	NIL	27	1000	1027	0.6
1988	260	1500	710	2825	5295	3.1
1987	40650	1070	13050	5925	60695	35.3
1986	3650	3596	2430	6350	16026	9.3
1985	16000	6655	250	1400	24305	14.1
1984	2500	3970	18950	5750	31170	18.1
1983	10500	7230	600	NIL	18330	10.6
1982	600	1410	60	7870	9940	3.8
1981	1800	90	NIL	1000	2890	1.7
BEFORE 1981	135	NIL	150	2100	2385	1.4
TOTAL	76095	25521	36227	34220	172063	100.0

Many farmers had planted eucalypts on farm bunds, hoping to get a good income after 6 years. They did not anticipate that trees would cause any loss of agricultural production. However, they did experience a loss in crop production after the third year, varying between 10 and 25%. This loss, which farmers put at Rs 3-6 per tree per year, was not adequately compensated by the revenue, which was between Rs 25 and 35 for a 5 year old tree. They had been led to anticipate Rs 100 per tree. By February 1990 many farmers said that they had stopped planting eucalypts and intended to go back to annual crops after the expensive removal of the tree stumps.

Two factors explain the collapse of Eucalyptus markets. First, the main demand for wood in India is from the rural population for fuelwood, but people are prepared to spend time gathering 'free wood' and are loathe to pay money for it. Hence the market for wood is limited. Second, the producers are in a poor bargaining position with the merchants.

Eucalyptus is a versatile tree. Its wood can be used as timber, pulpwood, poles, for packing cases, and as fuelwood, depending upon the size and quality of wood. The total area brought under eucalypts in the farm forestry programme is estimated to be 2.5 million ha (Chambers *et al.*, 1989) which could give an annual wood production of about 10 million tonnes. How would this be utilised? The approximate figures for demand and supply in the country are shown in Table 7.

TABLE 7: DEMAND AND SUPPLY OF WOOD IN INDIA [in million tonnes]

TYPE	DEMAND	SUPPLY
Timber	13	6
Pulpwood	10	5
Fuelwood	157	95
Poles	na	na
(Saxena, 1990)		

Farmers face several problems in catering for the small demand from sectors other than fuelwood. Wood with a diameter of more than 20 cm is utilised as second class timber, that between 10 to 20 cm as pulpwood and poles, and below 10 cm as firewood (Ahmed, 1989). However, farmers have found that it is uneconomical to extend the rotation beyond six or seven years. They have generally resorted to dense woodlots of over 2500 trees per ha, or planted at a distance of 1 to 1.5 m on bunds, which has led to poor quality produce. In their anxiety to reduce loss of crop production in case of bund plantation they often sold the trees in the 4th or 5th year. In none of the 48 cases of sale from West U.P. villages was the diameter of trees sold more than 22 cm, and in as many as 20 cases it was less than 15 cm. In spite of the excess production of Eucalyptus this has not helped to reduce shortages of timber.

As regards pulpwood, there are three paper mills within 100 km of the four Western U.P. villages. Their annual requirement is 100,000 MT each, 70% of which is met from government supplies. Despite problems of irregular supply and corruption mills still prefer to buy from government as supplies are cheaper and available in bulk. The mills are also permitted to bid in open auctions which Forest Corporations organise for traders, but purchasing small lots from a large number of dispersed farmers requires a new marketing infrastructure (Chambers *et al.*, 1989). It is also not easy to obtain permission to move wood bought from private sources as restrictions exist on transport of wood obtained from private lands.

Eucalyptus is also used for scaffolding and shuttering purposes in the construction industry and poles are now being used in making shacks, road-side stalls and packing cases. It has not been possible to estimate the total demand from this sector, but it would be much less than what is required by the paper mills from the open market. Small scale industry prefers to buy wood through the commission agents as it ensures a stable supply and the commission agents often sell on credit. Farmers sell in the months of May, June or September when they are free from agricultural operations, whereas industry requires wood throughout the year.

Brick-kilns were another major market for Eucalyptus. Some kiln owners come to the village themselves, while in a few cases farmers had delivered the wood. In such cases, in addition to the expenses on felling, transport and roadside bribes, the farmers have to get an ownership certificate from the revenue department, for which they pay Rs 50 to 100 per case. Permission causes delay

and uncertainty (Chambers *et al.*, 1989).

According to traders in Muzaffarnagar, of the total farm wood which is marketed in the district, the share ultimately reaching papermills is 10%, small scale industry (5%), brick-kilns (35%) and households (50%). These figures may not be exact but they do indicate that a substantial portion of Eucalyptus raised by farmers is ending up as domestic fuel which runs contrary to their intentions. Unlike timber, which has to be bought from the markets, fuelwood is generally gathered by rural people and even by urban poor, and only the lower middle class (the middle class use kerosene and the rich use gas) in urban areas and the very rich in rural areas buy fuelwood. Moreover, the north Indian villager has for centuries used cow-dung and husk as fuel in preference to wood.

The fact that fuelwood markets supply scarcely 10-15% of the total fuelwood which is consumed has two implications for the production of fuelwood as a farm crop (Leach, 1987). First, the gatherers always have the advantage over producers over the pricing of fuelwood. Second, the market price of fuelwood would generally be lower than the social cost for replacement of growing stock through investments in plantations. These considerations make production of wood by farmers for fuelwood markets a non-viable proposition. This has been exacerbated by the fact that although the real price of fuelwood in Muzaffarnagar increased steadily from Rs 30 in 1980 to 43 per quintal in 1984 at the 1980 value of the rupee, it has since declined to Rs 30 again in 1989.

These problems on the demand side have to be viewed in the context of excessive production of Eucalyptus on farms in the entire West U.P. region. Though no firm estimates are available, the following calculation would show that supplies from Western U.P. are quite substantial.

The average number of Eucalyptus trees in the four West U.P. villages was about 50,000 per village. Even if a lower figure of 20,000 is assumed and taking the average number of villages per district as 1000, the number of districts covering the three mills as 12, average quantity per tree being sold as 0.5 quintal, and rotation of Eucalyptus as 6 years, the production reaching the market is in the order of 2,000,000 tonnes annually. Comparing this with the over-all demand from the mills and industry one can understand why most Eucalyptus is being sold as fuelwood.

XI. THE MARKETING STRUCTURE

In addition to issues of macro supply and demand it appears that rigidities caused by laws, the marketing structure and under-development of wood markets also result in a low price for producers.

Farmers in U.P. are allowed to fell Eucalyptus trees on their holdings but transportation necessitates a transit permit from the Forest Department, who in turn ask the farmers to obtain a land ownership certificate from the Revenue Department. Few farmers are able to get these certificates, hence they sell the standing crop to a trader who 'deals' with the bureaucracy. These laws prohibit direct contact between the producer and the market.

Between the producer and the consumer there are several types of intermediaries; the village trader, traders from other villages, town based contractors, commission agents, saw mill owners, wholesalers and retailers. Many have multiple functions. Only in a few cases, such as to a brick-kiln, was the producer able to reach the consumer directly.

Some farmers felt that only the contractor is aware of the market specifications (length of the log) and that it was therefore necessary to sell the standing crop to them for appropriate cutting. Most growers were not aware of the support price being offered by the paper mills. The factory would like debarked and graded wood to be delivered at their doorstep, but farmers lacked the necessary expertise or knowledge about this.

Traders were able to exploit this situation. When bought on the basis of weight, farmers complained that the traders tended to delay weighing so that weight might be lost whilst drying. The other trade practice was to delay making the full payment. In about one-fourth of the cases farmers did not get the entire amount soon after felling, the delay ranged from 5 days to 5 months. Moreover, it was observed in Muzaffarnagar that the prevailing market price for fuelwood for the consumer was Rs 65 to 70 per quintal, whereas farmers got Rs 25-35 a quintal for fuelwood. The difference was more pronounced for larger trees, the farmers receiving only Rs 45-50 per quintal against a market price of Rs 110-120.

XII. CONCLUDING COMMENTS

In the alluvial plains of U.P. farm production systems were formally geared to crop and livestock production. Trees were neither necessary for fuel nor for fertility. Why then did farmers take to tree planting in West U.P. villages and not in Allahabad?

Wood production entails the investment of land, labour and capital in a long gestation enterprise, and hence was undertaken by those with surplus to invest. This was more evident in the agriculturally commercialised villages in Western U.P. where a greater proportion of cultivated land lies in large holdings. Farmers planted trees on their own with minimal outside assistance in anticipation of handsome profits. The planting of eucalyptus appeared to them a very attractive proposition as it promised to reduce their costs, improve profitability, minimise the danger of encroachment and at the same time cut down on their supervision time.

Farmers in Allahabad, with less monetisation, less use of cash inputs and cheaper labour had less compulsion to change their cropping pattern. Trees with a long gestation period were hardly a viable option for those farmers who had no means of alternate income. Thus, rather than associating tree growing with peasants' subsistence strategies, the north Indian experience shows that tree planting needs to be seen as an outcome of agrarian capitalism; production for the market with reduced labour.

But producing wood for the markets brought new problems. Markets in general perform two functions, allocative and exploitative (Harriss, 1989). To the extent markets facilitate commodity production and integrate producing regions with consuming regions, they help the farmers in choosing the most profitable production strategy. Farmers allocate their resources on the basis of signals received from markets. But markets may also play a retrogressive role by coercing producers to sell at a low price through monopsony, credit and withholding of information. In such a case commercialisation may take place either without increase in production or without increase in benefit to producers.

It appears that wood markets in the study area are more exploitative than allocative. The very fact that high pole prices prompted many farmers to change their existing landuse shows that at least initially the markets did perform an allocative function. High prices signalled a demand which was transmitted to the farmers through the markets. But other issues relating to market imperfections became more relevant as the supply grew. Farmers' enterprise then seems to have been thwarted by market constraints and rigid laws.

In the mid-eighties the Indian press and environmentalists were alarmed at the rapid spread of Eucalyptus on private lands. This was seen to symbolise private gains at social costs. However, the scenario has changed since 1986. Many farmers are uprooting Eucalyptus stumps and returning to annual crops. Does this mean that Eucalyptus remained 'a five-year wonder', an innovation that failed? Should this experiment be seen as an aberration in the long chain of cropping patterns that the north Indian farmers have tried? Looking at the trends in 1990 it appears that some absentee landowners may still continue planting Eucalyptus, as their interest is to avoid encroachment and to seek ease of management. But for a majority of resident farmers their involvement with farm forestry seems to be over. For them money no longer grows on trees.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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SOCIAL FORESTRY NETWORK

BEYOND COMMUNITY WOODLOTS: PROGRAMMES WITH PARTICIPATION

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Network Paper 11e

Winter 1990

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BEYOND COMMUNITY WOODLOTS: PROGRAMMES WITH PARTICIPATION

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THE SOCIAL PREMISES OF REFORESTATION PROGRAMMES

The 'social' in social forestry should be understood to signify a broader meaning than individual behavioural change alone: it includes collective action, institutional development, and the establishment of enduring social structures and value systems that activate and organize individual actors.

Collective actions have the highest chance to occur and be effective when people belong to organized groups, when they are informed and consciously perceive that it is in their best interests to act purposively in a coordinated manner. Performance of these groups will also improve when the group has developed leadership structures and internal norms and procedures capable of organising and managing its members and to overcome conflicts and deviant behaviour. The common position of many people as direct users of a certain resource is a propitious social condition that often turns itself spontaneously, and can certainly be turned deliberately, into a powerful motivating and organizing force for producing the needed resource. The deliberate construction of user groups is therefore particularly important for using and husbanding a common pool resource in programmes such as afforestation or irrigation which depend on sustained, long-term consensual action of a large number of individual actors.

When an innovative programme is deliberately pursued, central among the social prerequisites for success is a unit of social organisation capable of sustaining that programme. Therefore, social forestry projects must start with the identification (or the establishment) of such a viable unit or group; aim to engage the rural users of forest products in patterns of collective action for producing the products they need; tend to ensure a match between the silvicultural technologies they promote and the social groups they address; and deal with the issues of social engineering (group formation, leadership,

participation in decision-making, intra-group structures, incentives, penalties, communication, benefit distribution, and so on) with the same scrupulous attention as is given to the technical or financial elements of the strategy.

Unfortunately, the planners of financially induced social forestry programmes often do not yet realize that consideration of these social factors has to be woven into the very fabric of such programmes from the outset. There is often a contradiction between the theory and the practice of social forestry and 'many projects that are called social forestry are a far cry from the theoretical vision of social forestry' (Fortmann, 1988). The penalty for ignoring the social factors is project failure.

Practical recipes for how to incorporate these social prerequisites into action plans are not readily available. Culturally informed forestation strategies have to be produced, tailored, and retailored anew for each socio-ecological context. For that, foresters, planners, and action-orientated sociologists and anthropologists have to cooperate, search, predict, design, test, monitor, learn, redesign, and retest in order to combine effectively the technical and social approaches into coherent reforestation programmes (Guggenheim and Spears, 1990). In the quest for creative new solutions, much of the already existing sociological know-how can be mobilized and used as a stepping stone to action, to testing, and to new knowledge.

Recognising that there is a need for creative, sometimes new solutions for each context does not mean that no substantive sociological knowledge is available about the general socio-cultural processes in forestry and everything is still to be discovered. Much of the already existing sociological know-how can be mobilised and used as a stepping-stone to actions, to testing and to new knowledge. There is no justification for sociologically illiterate social forestry programmes.

SOCIAL FORESTRY IN AZAD KASHMIR

This study of two successive World-Bank assisted social forestry projects in the same area of Pakistan describes how good intentions proved to be no substitute for missing social knowledge. The study demonstrates the costly fallacies of

planning without having a sound sociological understanding of the socio-economic forces spontaneously at work and of the social strategy requirements for translating pursued goals into social actions. Salient sociological factors are at work always, and forcefully so, under the thin layer of the new 'reality' temporarily constructed by the financial in-flows of the programme. Such factors in this case were: the existing land ownership system and the rights-to-use system; the local power and authority system; farmers' tree planting behaviour; and the absence of social structures for collective action aimed at reforestation.

The Hill Farming Technical Development Project (HFTDP) began in 1978 in Azad Kashmir as a pilot test of new approaches in several agricultural sub-sectors, with the intention of replicating the successful ones in a subsequent, larger-scale project (World Bank, 1978). The pilot forestry component financed fuelwood plantations, tested new tree species under local conditions, and established tree-seedling nurseries.

Increasing demand for fuelwood and timber had caused large-scale deforestation in Azad Kashmir over the preceding 30 years. In 1972 about 1.5 million residents, or 300,000 families, relied entirely on gathering fuelwood for cooking and heating. Pressure on government forests was increasing as people cut trees both for fuel and for clearing forest land for farming.

Both the formal regulations (enacted under British colonial rule) and the old customary rules in Azad Kashmir have allowed rural people to remove deadwood, branches, and non-commercial species from reserved forests without payment, primarily for personal consumption. In practice, however, customary rights have been liberally interpreted and broadened, while the limits set through formal regulations have been transgressed. In the Chir pine areas, long thin vertical slices of the bole of the tree are removed at stump level for kindling. Forest resources have also been devastated by local livestock that graze without adequate controls. The situation is aggravated by the transhumant livestock of semi-nomadic populations coming from Punjab and the North-West Frontier Province to use the Azad Kashmir alpine rangelands during summer.

Under such circumstances, the Forest Department needed the cooperation and support of the area population to stop and reverse deforestation. Instead,

however, it came into open conflict with many local inhabitants. At the time of project appraisal, over 50,000 cases of forest offences were pending in the Azad Kashmir courts. This amounted to about one household in six involved in an alleged forest offence. Many farmers were therefore reluctant to participate in reforestation schemes and were suspicious of the Forest Department.

Far-reaching changes were therefore required, both to improve the management of existing forests and to reforest depleted areas, if the increasing need for fuelwood was to be met.

When the pilot project was prepared, it was thought that social support for the programme (contributions from private users) could be blended with public support (government financing). Accordingly, the strategy was designed to experiment with both the technical and the social variables of developing forestry, particularly to involve local users in planting and maintenance. Community acceptance was regarded a crucial for the project's success. The government was to finance the establishment of four local nurseries (at Patika, Kotli, Hajira and Bagh) to produce seedlings for sale at a low price to the area farmers. The government was also prepared to finance the costs of planting trees in several communities on common property lands in order to work out a model replicable by other communities and benefitting primarily the small farmers.

The project design was based on a set of assumptions made by technicians and planners about the tenure of the land to be reforested, about community processes, and about farmers' willingness to participate. In hindsight, these assumptions appear rather naive and uninformed.

Lacking a sociological field analysis, the appraisal report relied on explanations about land tenure offered by local officials, as understood by the members of the appraisal team. The report vaguely identified **shamilat** land as 'land generally left uncultivated, owned jointly by a number of families' (World Bank, 1978). Shamilat land was considered to be community land, over which all villagers had decision-making authority as well as rights to share in its use. The appraisal report estimated the existing shamilat areas to be a major resource, totalling some 325,000 acres. This was equivalent to more than half the total farmed area in Azad Kashmir, then about 500,000 acres.

Based on these estimates, the project planned to finance the pilot planting of 3,000 acres of fuelwood, mainly on shamilat land; only a small proportion was expected to be planted on government or private lands. The small farmers in Azad Kashmir, who had limited access to firewood, were expected to be the primary beneficiaries of project-financed planting on communal land. An explicit assumption was that local village-level institutions would mobilize villagers' support for fuelwood planting, in the form of labour, payment for seedlings, tree protection, or other contributions toward reforestation costs, in exchange for which the project would generate tangible benefits for the people involved. The community structures were assumed to be strong enough to enforce the temporary closure of reforested areas to prevent indiscriminate grazing and protect the tree seedlings.

During the first project year the physical targets of the reforestation component were met: fuelwood trees were planted on 500 acres and the first nurseries were established. The project staff reported that the owners and users of private and community land agreed to its allocation for fuelwood plantations, although no formal contract was signed.

For the second year, the project had an increased planting target of 1,250 acres. Other landowners came forward and volunteered their non-arable lands for tree plantations, and the project staff tentatively identified for planting about 750 acres of community and private land and 500 acres of government land. The farmers' response seemed to suggest that significant tracts of community (shamilat) and private lands could be incorporated into the fuelwood production circuit.

THE PRIVATISATION OF THE COMMONS

In 1978-80, a social analysis was undertaken of the progress of the forestry component. The study assessed the socio-economic status of the farmers who had been contacted by the reforestation component; determined the tenurial status of the lands involved in the project in the first two years and estimated the likely beneficiaries; evaluated the procedures used in implementation, particularly the communication patterns between the project staff and the farmers. Attention was also paid to the mechanisms of community decision-

making and to the envisaged procedures for sharing the expected profits from the forestry investments.

The analysis of the tenure system in Azad Kashmir showed that there were three basic categories of lands:

> Khalsa, (Khalisa) or Crown land, is land that is 'reserved', land unassigned and unencumbered by title; the authority over this land is vested in the government. Khalsa land usually consists of 'demarcated' and 'undemarcated' forests.[1]
>
> Shamilat land belongs to the communities and derives its name from the concept of 'getting together'. These lands are used as grazing areas, forests, sites for village public buildings and village graveyards.
>
> Malkiat land is privately owned. Ownership rights are recorded in the revenue register and are validated by it.

While these were the main legal categories for Azad Kashmir land, field assessment of the status of specified land plots discovered, however, significant difference between the legal/formal status of the lands as recorded in the land register and the de facto situation.

Contrary to expectations, what was called shamilat land appeared to be for the most part, not true community land. Over time, cumulative changes in most of Azad Kashmir had resulted in a dual, divergent status to evolve. Although shamilat continues to be considered in principle community land, now much of

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[1] The official definitions of these categories of forest land, given in the 1930 Jammu and Kashmir Forest Regulation Act, N° 2 are:

Demarcated Forest means forest land or waste land under the control of the Forest Department, of which boundaries have already been demarcated by means of pillars of stone or masonry or by any other conspicuous mark, or which nay hereafter be constituted as demarcated forest;

Undemarcated Forest means and includes all forest land and waste land (other than demarcated forest and such waste land as is under the management and control of the Revenue Department) which is the property of the Government and is not appropriated for any specific purpose.'

Generally, the demarcated forests are of higher density and better quality than the undemarcated ones, which are often located between the demarcated forests and the cultivated lands.

it is operated and used as private land. Usufruct benefits from this land are now accessible to selected individuals, rather than to the whole community.

Thus, the sociological study invalidated a basic assumption made when the planting of shamilat was originally planned. This different actual tenure was likely to cause unanticipated consequences for the planting programme, mainly by diverting the intended flow of benefits away from the target population.

How did this major change in tenure come about?

Historically, shamilat land was set apart for joint possession and use by a village as pasture, graveyard, woodlot, or a water source for use by people and cattle. The village's shamilat was not necessarily one consolidated plot, more frequently it consisted of several plots of land located at various distances from the core settlement. The shamilat plots had often both different users and uses. Villagers living at different locations closer to one or another plot of the shamilat land became its more frequent users and sometimes encroachers. Increasing needs and skewed household abilities in using shamilat resources asserted themselves over time. Patterns of differential use and access gradually crystallized, and subtle changes in the actual status of various plots cumulated over time.

Three broad historical stages in the evolving condition of shamilat can be roughly distinguished over time:

Informal Partitioning

Village households whose land directly adjoined the shamilat areas became increasingly associated with the use of specific sections of shamilat, thus beginning an informal allocation of common land among themselves. Within the traditional institution of brotherhood, which allowed each one of a number of peasants linked together by common ancestry to have individual separate possession of the land cultivated, the plots of partitioned farming land were not necessarily equal. Strong group entitlements were gradually eroded by recurrent individual use, and recurrent use evolved into privileged use. In the process, the more remote and smaller farms were excluded from this informal gradual partitioning.

Aggressive Appropriation

Although the land laws formally forbid co-sharers of shamilat to encroach on it for private and exclusive use[2], powerful village households or farmers with land adjoining shamilat nevertheless began to illegally take over segments of community lands and even to cultivate them. Power played a role in the use, control and appropriation of the jointly held land, as it did in reinforcing and expanding inequality in the ownership of disproportionate shares of farming land.[3] Informal entitlements to shamilat were customarily transferred through inheritance or sale of fractions of the privately owned (malkiat) adjacent areas. Thus, these malkiat lands carried with them more or less recognized rights to proportionate fractions of shamilat plots.

While this *de facto* appropriation advanced, shamilat kept its formal status as community land and was not entered in the revenue records as belonging to private households. As a result, the benefitting households did not have to pay land taxes on 'their' shamilat plots.

Formal Privatisation

Since 1974, when the tax on land was abolished in Pakistan, the pressure has grown to have shamilat plots formally entered in revenue records in the names of the households who appropriated them. The goal of these households was, and is, to have such lands validated as privately owned lands. The interested households resorted to various means, many illegal, to change the formal registration of pieces of both shamilat and khalsa lands.

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[2] Land Revenue Act, Sect. 150 A. In principle, according to the law, when a co-sharer of shamilat encroaches upon it and includes it in his cultivated areas, he can be ejected at the request of another co-sharer. However, such grievances and particularly their enforcement, have been rather infrequent.

[3] W.H. Moreland quotes the following description from the revenue records of 1822-1833: The strong and crafty too frequently in past and present times have got the better of the weak and simple: the absence of those entitled to share, the incapacity ... of some of the resident proprietors, has enabled others, on pretence of deposit or management, to obtain and keep possession of shares very disproportionate to their hereditary rights.

Through such processes, the nature of the commons as a property regime has been considerably changed in large areas of Azad Kashmir, with villages progressively losing control, *de jure* or *de facto*, over land resources they previously owned and used. The physical extent of the commons has shrunk, even though the historical process of partitioning, appropriating, and privatizing community land has advanced at uneven speeds in various areas of Azad Kashmir.

The historical cycle described above appears to be continuing. Its creeping advancement is facilitated by regulations and by backdoor influence or corruption which allow the transfer of khalsa (unallocated) land to villages so that it becomes community land.

Against the backdrop of such incremental but profound historical changes in the land-tenure systems, it becomes understandable why the staff of the HFTDP was not able to identify genuine community land for project financed reforestation. On close inspection, it was found that planting reported by project staff to be on shamilat land turned out in fact to be on land under individual private control. Social analysis revealed that tracts of shamilat land that had been offered for planting - and assumed by the project staff to benefit the communities - had surreptitiously changed their tenurial status to become private land. The de facto owners hoped to get 'their' shamilat lands planted at government expense, without making repayment commitments. No community decision-making was involved, and no community woodlot was established. Wherever there were still some genuine communally used plots of land, the communities did not come forward to offer them in support of reforestation, but preferred to save them for other uses.

The community forestry component, based on inaccurate assumptions and lacking from the outset a social structure to sustain it, could not accomplish its 'community' objectives, even though overall the first pilot (HFTDP) did stimulate reforestation work.

Further analysis of the farmers who offered their private (malkiat) land for project reforestation and of the farmers who were in control of the nominally shamilat plots revealed that larger landowners tended to take advantage of the project. The wealthiest landowners, who have the resources to contribute to the costs of establishing and protecting tree stands, had not done so, nor did

they intend to do so in the future. At one of the reforestation sites, the main part of the 100 acres planted in the first year belonged to one influential household of six brothers, only one of whom was 'almost' a full-time farmer, while the others were absentee landlords operating shops and small enterprises in Muzaffarabad. Another landowner, who offered about 125 acres of land for planting in the second project year, flatly refused to contribute any payment; he justified his position by arguing that 'the government of an Islamic country should provide for its citizens'. A third large farmer, who wanted his 56 acres planted, asked for government-paid guards to protect the plantation and to restrict the access and customary rights of smaller farmers to collect grass and tree branches.

The smaller farmers hesitated to accept project planting on their private lands. They were fearful of losing possession or control over their land to the government once it was planted by the Forest Department, or of being deprived of rights to collect fodder and graze their cattle. Most of the smaller farmers interviewed indicated that they might offer small plots for project planting, provided they could be convinced that the Forest Department would not alienate their lands and that they would be able to cut grass for their cattle.

In significant contrast, the larger landowners did not regard tree planting by the Forest Department as a threat to their ownership of land and trees because they were confident of their political power. They tended to manipulate available project opportunities and resources to their own benefit. This was facilitated by the absence of a legal framework that defined the obligations, not merely the rights of the large farmers whose land was being reforested through government contribution. The absence of a **contract** left a huge loophole that enabled large landowners to avoid making contributions[4].

The findings of the sociological analysis led to midstream changes in the forestry component of the Project and generated several lessons of broader validity. The project's management was asked to reexamine the areas identified for fuelwood planting and to stop planting on fictitious shamilat land. During

[4] In a neighbouring province of Pakistan, the N.W. Frontier Province, the Hazara Forestry Act (1936) provides an interesting example of contractual relationships that ensures legal protection for the ownership rights of the farmers, while vesting the right to manage their forests in the Forest Department. This Act also institutionalizes a contractual mechanism of cost recovery, whereby government costs for forestry management and commercial exploitation are covered by a fraction of the proceeds from sold timber.

the following year the project reexamined the 800 acres of allegedly community and private lands that had been identified initially for planting and retained only 400 acres, of which only 25 acres were shamilat land. The intent was to prevent the slide of the pilot project into a full 'giveaway' programme, before a cost-sharing system could be designed. The funds that remained were redirected in the short run to planting on khalsa land. The project's selection of private (malkiat) plots for experimental planting with fast-growing species was oriented toward smaller farms. However, it proved impossible in midstream to maintain priority for reforestation on communal lands. According to the ex-post evaluation report, the fuelwood plantations on shamilat land ended up being the smallest fraction (15%) compared to planting on Khalsa (30%) and on malkiat (55%). Moreover, due to various delays the pilot project initially planned for three years took some six and a half years to complete.

When the follow-up Integrated Hill Farming Development Project (IHFDP) in Azad Kashmir was appraised in 1983, an attempt was made to avoid the earlier errors. The IHFDP appraisal report stated that in the new project 'overcoming the social constraints to systematic hill development programme would constitute the real challenge'. It recognized that most hillsides were controlled under various tenure systems of private land, government forests, and community land (shamilat), and that the land plots under these systems were intermixed. Since a hillside is a natural ecosystem, the new project concluded that it was of little use to implement conservation measures on one part of the hill when runoff from another part remained unchecked at the same time. Consequently, the new project began to pursue agreement (contracts) between the individual owners in each catchment area (or relevant communities) and the government, regarding the definition, acceptance and implementation of 'Hill Management Plans' with some cost-sharing and benefit-sharing arrangements.

The IHFDP has been implemented mainly by government departments, since strong sustaining structures within the farming communities were neither identified nor established in the available time. Some 9,000 acres were to be planted with fuelwood species on hillsides and additional land has been planted to coniferous species within demarcated state forest areas. In parallel, IHFDP under its farm forestry programme, has encouraged farmers to plant trees on their farms. The project has financed the distribution of 12 million seedlings free as an incentive for such planting.

Summing up, the sociological analysis discussed above brought three sets of social variables into the limelight: the complex land tenure system and the processes affecting it; the community as a cluster of non-homogeneous groups, with differential access to 'common' goods and limitations on consensual action; and the behavioural patterns of individual farmers. It bears repeating that no social forestry project can be conceived and prepared without in-depth and timely recognition of at least these three sets of social variables.

DESIGNING STRATEGIES AROUND SOCIAL ACTORS

One of the most critical factors in designing the social strategy of forestry programmes is the adequate identification of the unit of social organisation able to carry out the programme and the definition of the conditions under which this unit can act effectively. Many recent or ongoing forestry projects have lumped together, under the broad umbrella of 'social' or 'community' forestry, different objectives with vague or unfocussed appeals to various heterogeneous or undefined populations.

Operationally, it is not only a challenge but an absolute necessity to disaggregate the broad term 'people' and to identify precisely **who** and **how**: what units of social organisation can and will do afforestation, and which social units and definable groups can act as sustaining and durable social structures for long-term production and management activities.

Such units of social organisation can be either:

(a) natural (existing) social units, such as the individual household or a tightly knit kinship group/subgroup;

(b) groups organized purposively to plant, protect and cultivate trees; and

(c) groups established for other purposes than forestry, but which are able to undertake forestry-related activities as well.

Forming enduring units of social organisation is particularly important in the case of social forestry strategies, given the long duration of a production cycle. Even small self-managing groups enhance the individual productivity of their members; they increase the cumulated impact of the individual contributions and enable members to perform works and achieve goals that might not be attained by each acting separately.

In forestry, self-managing groups acting as economic agents can achieve for their members significant economies of scale in several respects: (a) primarily (but not only) with respect to labour required for tree planting and cultivating; (b) in labour for harvesting and transporting; and (c) groups usually can bargain more effectively than individuals when selling the harvest or when negotiating with authorities. Furthermore, some specific technological needs or constraints may be more easily solved by groups, particularly watching and protecting tree plantations against theft, fire, or destruction by animals. Small, self-managing groups can also act as psychological motivators for the consensual action of their members.

The need to identify or establish social units capable of collective action introduces one more sociological dimension in forestry development projects and into the work of forestry departments. If properly conceived, social forestry projects can become a mechanism for encouraging and forming groups, thus building up the social capacity for development. Helping users to organize themselves into groups and to undertake production and management functions in forestry would in fact restore the balance of the 'participation equation': the users of forests and forest products act as the primary producers and decision-makers, and the forest department will 'participate' in their activities, rather than the other way around.

Establishing a functional social group means, of course, much more than simply lumping individuals together into an artificial entity given the label 'group' on paper. It implies a process of selection or self-selection of the members, the willingness to associate, the members' perception of both self-advantage and co-responsibility, and the establishment of an enduring intra-group structure with well-defined functions.

At the same time, however, social forestry modeled on groups has to address certain complexities resulting from the actor being a group of farmers, rather than an individual farm household: namely, issues of joint dependence over a piece of land and, sometimes, group tenure over trees; issues of group management, labour allocation, and monitoring; and, probably the most sensitive, the issue of benefit distribution. Therefore, organizing and

promoting **groups** as units of social organisation for social forestry programmes means designing clear social arrangements for tenure, management and distribution, arrangements that are known, implemented and adhered to consensually.

The range of different social actors apt to get involved in forestry projects is broad: communities, village governing bodies, farm households, groups of farmers, cooperatives, schools, private companies, public agencies, non-governmental organisations, and so on. Some of these potential actors are analyzed below in light of their sociological advantages or disadvantages for social forestry.

COMMUNITY WOODLOTS: PROGRAMMES WITHOUT PARTICIPATING ACTORS

Many planners and foresters assumed that massive planting of fuelwood could best be induced on communal lands by involving large numbers of people in planting, tree protection, and in sharing the benefits. Therefore, it seemed at first natural to introduce this innovation through the community as the support group. The term 'community forestry' became a buzzword, even though very few bothered to define the community's composition. The emphasis was put on establishing woodlots either on communally owned lands (or lands assumed to be owned communally, as we saw in Azad Kashmir), or on certain state owned lands.

The apparently plausible social assumptions were that communities would influence their members to plant, would mobilize labour and promote self-help, and would collectively protect the young plantations on 'their' land. It was also assumed that they could ensure the wide distribution of benefits among the small farmers who make up the majority of the community. Successful village woodlots in countries such as Korea and China, which had been supported authoritatively by the government, lent credibility to this approach and were assumed to be valid models for other social contexts.

However, when replicated in other countries the community woodlots fared much worse than expected. Azad Kashmir is but one example. Results in Uttar Pradesh, Karnataka, Gujarat and other Indian States, in Niger and other

African countries, and elsewhere have been, and continue to be, similarly disappointing.

Evidence about community woodlots documents that they are not what their name suggests them to be and do not achieve their stated objectives. Over the last 10-12 years, considerable financial resources have been channelled by both international donor agencies and national governments in many developing countries to social forestry programmes that use the community woodlot model. Between 1977-1986, about 50% of World Bank's lending for forestry went to 27 projects which included some form of community forestry. The Bank's lending for social forestry tripled in the 1987-89 period compared to the previous decade. Major funding came also from bilateral donors like USAID, CIDA, ODA, SIDA and others. Yet in most cases, according to evaluation reports, the actual planting accomplished under the 'community' model fell below targets and did not justify the investments made.

The analysis of these projects reveals that their initial assumption - namely, that communities (villages) would be effective actors for implementing 'community forestry' - was not confirmed. This assumption was sociologically naive, lacking understanding of the nature and structure of village communities. Strong empirical evidence supporting this conclusion emerged in the mid-1980s from three large social forestry projects assisted by the World Bank in India (in Uttar Pradesh,[5] Gujarat[6] and West Bengal[7]). None of these three projects managed to achieve or to come close to their targets regarding the establishment of community woodlots. However, they were effective in other approaches and - to some planners' surprise - even surpassed their targets in farm forestry.

In Uttar Pradesh, for instance, village woodlots could be established only on a total of some 136 ha (2 ha woodlots on average) against a project target of 3,080 ha of community woodlots planting. In Gujarat the self-help village woodlots component achieved only two-thirds of the 9,200 ha targeted, while in West Bengal, because of similar low performance, some of the project allocations for village woodlots had to be shifted at mid-term to farm forestry. Summarizing the causes of such failures, a Bank report on the Uttar Pradesh project noted: 'poor villagers proved unwilling to contribute their labour as expected by the project in exchange for rather limited potential benefits from

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[5] World Bank, Uttar Pradesh Social Forestry Project, Staff Appraisal Report, May 1979, processed.

[6] World Bank, Gujarat Community Forestry Project, Staff Appraisal Report, processed.

[7] World Bank, West Bengal Social Forestry Project, Staff Appraisal Report, processed.

a small woodlot, after many years of protection and maintenance ... The social forestry organisation lacked relevant know-how and resources to deal with the sociological and technical problems associated with densely cultivated areas and very small farms' (World Bank, 1985).

At the time these unsatisfactory results became known, a new National Society Forestry Project for India (covering four Indian states: Himachal Pradesh, Rajasthan, Uttar Pradesh and Gujarat) was already advanced in the appraisal process; it included again a significant component of village woodlots (85,000 ha), although this component represented only a relatively small fraction of the total projected planting (708,000 ha). On account of the little interest shown by community members, the model was modified to give considerable management authority over village woodlots to the village panchayats. Of course, this was an administrative substitute for user/producer responsibility, wholly missing the crux of the social forestry strategy.

The slippage of community woodlots into panchayat woodlots did not remedy anything. Subsequent mid-term assessments in 1988 and 1989 again confirmed earlier conclusions. Many of the newly established village woodlots are beset with social, management and distributional problems that prevent the accomplishment of their community fuel supply and poverty alleviation objectives. A Bank staff sociologist concluded in 1989 that no user-supported management system for the protection and maintenance of 'community' woodlots has emerged so far (Salem, 1989). Communities as a whole are not getting involved; instead, the village panchayat (or the state forestry department) takes over the administration of the woodlot, often commercializes the products outside the village, and invests the revenue in other assets (World Bank, 1988). Disappointment among the subsistence farmers with the distribution of benefits from these woodlots saps future interest in maintaining or expanding them.

A 1987 evaluation of the Orissa Social Forestry project found that 82% of the villagers did not know how the produce from village woodlots would be distributed; most of the people did not expect any share from the final output and looked upon such woodlots as another category of reserved forests (Arnold & Stewart, 1989). It is therefore not surprising that in such social forestry programmes 'on village commons and wastelands ... villages have proved most reluctant to manage trees planted as a corporate resource' (Shepherd, 1986).

Convergent conclusions result from observing community woodlots in other geographical contexts. In West Africa's 'bois de village' (village forests) the community system was also found 'ill-suited ... to serve as a vehicle for

reforestation' (Thomson, 1980), and in several other Asian countries its adequacy was questioned as well (Noronha, 1980; Rao, 1984). Often forestry departments were asked to set up the village woodlots and then to hand them over to the village committee. It also appeared in numerous cases that the village committees were uninformed and unaware of what they should do with the woodlots. Referring to several non-Bank financed social forestry projects in India, Sen and Das (1987) concluded:

> One of the most vital problems being faced by the community forestry programme is lack of people's participation. The very mechanism of raising, maintaining and protecting the community plantation ... should be examined carefully ... Villagers are rarely consulted at the preplanting stage .. and selection of site and species is generally done by the local forest officials. The village panchayat or similar agencies offer the land (often with no or half information to their members) for plantation activities by the forest departments.

Similarly, synthesizing the findings of numerous evaluations of woodlot projects on communal lands in India during the 1980s, Arnold and Stewart (1989) provide a description replete with references to the missing social arrangements:

> The communal groups charged with the dialogue with forest departments over the planning of woodlots and with their eventual take over have nearly everywhere been panchayats ... rather than a user group or a body selected by a village specifically for managing the woodlot...
>
> ... Mechanisms for direct consultation by the forest department with villagers have generally not been put in practice ... (Forest Committees) have been formed in an ad-hoc manner, without much if any prior consultation among the various groups in the village about their composition and in many cases were not functioning at all actively ...
>
> The literature reports an almost universal failure to precede woodlot establishment with public discussion. Repeatedly reports record villagers being unaware that the woodlot has been established for the community; it was a [government woodlot] ... Benefit sharing agreements are frequently neither finalized nor

formalized ... Most of the people did not expect any share from the final output.

The absence of the basic sociological knowledge needed to guide social forestry policies and project work is of more consequence than the bureaucratic hindrances that have appeared during the implementation of induced development programmes. However, the weaknesses or distortions during project execution are not the primary cause that renders community woodlots ineffective. In many cases, community woodlots **cannot** be effective because woodlot schemes inspired by the romantic myth of homogeneous communities are misconceived from the outset and because appropriate social actors and social arrangements have not been put in motion.

There are seven basic sociological reasons for which 'communities' as population clusters cannot and should not be treated as ready-to-use corporate actors (units of social organisation or economic agents) for afforestation programmes:

1. Communities and villages are geographical residential units, not necessarily corporate organisations. Physical vicinity alone is not sufficient to engender the type of long-term collective action required for community woodlots.

2. The interests of community members often differ to such an extent that the kind of collective unified action required by a long-term afforestation programme is generally not possible. Usually, communities have become heterogeneous population clusters, stratified and split in factions and subgroups with fragmented socio-economic interests. What is advantageous for one subgroup in not necessarily advantageous for another.

3. Community land is limited and often there is reluctance to make it available for tree planting. Tree block sites are small, costs are high. The poorest households have an interest in not allowing the commons, which to them are a continuous even if meagre source of products, to become closed, inaccessible woodlots. As Jodha's research in India has demonstrated, poor households are more dependent on products from the commons than those that are better off (Jodha, 1986).

4. The tenure status of the common lands is often uncertain and engenders uncertainty about the tenure of planted trees; it is similarly unclear which social body has jurisdiction over the allocation of common lands[8].

5. Authority systems have uneven power over community subgroups. Local community leaders often appear reluctant, or not strong enough, to mobilize the individuals belonging to different subgroups to work for establishing woodlots, or to enforce restrictions to protect the trees.

6. Distributional arrangements to ensure that the products of village woodlots reach those entitled to receive them are usually not thought through at the outset and have not worked in practice. Usufruct rights on commons are often blurred. Clear intra-group rules and guarantees for distribution commensurate with labour contributions are lacking, and this alone is sufficient to doom the community approach. Exclusionary rules against non-contributors are absent as well. The long production cycle for trees weakens the confidence of those planting today that they will get wood eight or more years later, and it favours the lingering suspicion that the authorities will appropriate the wood.

7. Many communities are not organized as joint producers in other respects and thus do not offer a matrix on which additional activities can be grafted. Externally designed programmes, which do not bother to establish grassroots organisations, cannot foster by decree the kind of close interdependence of members required by community schemes.

Because such characteristics tend to be widespread, the poor results have also been virtually general. Results are likely to be poor in the future as well

[8] Michael Horowitz, analyzing rural afforestation alternatives in Zimbabwe, pointed out that the 'important issue where communal lands are involved is correctly identifying the locus of authority over land use allocation.' See Michael K. Horowitz, **Zimbabwe Rural Afforestation Project**, Social Analysis Working Paper, Binghamton, N.Y.: Institute for Development Anthropology, 1982, p. 51.

whenever such corporate woodlots are expected to be sustained by non-corporate communities. Positive results with community woodlots tend to be occasional exceptions linked to the exceptional nature or circumstances in a particular community.[9] It is important to identify the structural, cultural or political conditions that make them possible or replicable.

Anthropologists and sociologists have long called attention to the processes that have changed the internal structure of village communities as social units. As settlements, villages are, of course, units of social organisation. But that is not synonymous with saying that they are units capable of undertaking collective or coordinated action. Although historically various forms of corporate villages have overlapped with kinship units of a corporate form, Eric Wolf noted already a quarter of a century ago that 'corporate peasant villages are growing fewer in the modern world' (Wolf, 1966). Louis Dumont has similarly emphasized that, in India, given its caste system, the very expression 'village community' is not adequate because it conceals the existence of factions and the omnipresence of hierarchies.[10] Dumont did not see the village as a significant unit for social action in India and stressed that what is generally called a 'village panchayat' is actually a 'caste panchayat' (Dumont, 1980).

More recently, in an excellent field study of Indian community-based irrigation systems, Robert Wade engaged Dumont's above point in discussion, defending the opposite view - namely, that the community can act as a unit of social organisation. He argued that what the panchayat does is as important as the panchayat's composition (Wade, 1988). However, even if and when a specific panchayat proves able to mobilize the totality of the village's factions for a certain activity, this would indicate more the particular organisational, administrative or coercive capacities of that panchayat rather than indicating that the village is intrinsically a homogenous unit of social action.

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[9] Matthew S. Gamser reported on an interesting community forestry project in Sudan (Um Inderaba) where the village community (some 600 families) was effective in planting, hand-watering and maintaining the trees against extremely adverse conditions: complete lack of rain and large transient animal herds. It appears that the village committee and the local sheikh were able to aggregate effectively the villagers' activities, while incentives and protection payments were provided together with technical advice from foresters. (See Matthew S. Gamser, *Letting the Piper Call the Tune: Experimenting with different Forestry Extension Methods in the Northern Sudan,* **ODI Social Forestry Network Paper 4a**, June 1987.

[10] Dumont wrote: 'The overall point is that within the village and within the dominant caste itself there is division into units which spring from no traditional principle, and in which each man's adherence is mainly or to a large extent governed by his interests.'

ALTERNATIVE UNITS OF SOCIAL ORGANISATION

The increasing awareness that the community-centred approach is less effective than assumed has led to a perceptible shift in thinking and strategies among foresters and planners. They began to focus on the individual household unit as an alternative to the community-based programmes in social forestry. This is not to say that all interest in promoting village woodlots has now disappeared, or that promoting tree-planting on individual farms is a totally new departure.

Various World Bank-assisted forestry projects - in Karnataka, Kerala, Haryana, and other Indian states, as well as in Mali, Tanzania, Nigeria, Nepal, Haiti and elsewhere - now provide support and incentives for tree planting on small farms. Farm forestry is now a substantial part of the follow-up IHFDP in Azad Kashmir. In the design of India's Jammu and Kashmir and Haryana social forestry projects, village woodlots represent only 11.3% of the total planting programme, while farm forestry represents about 43%, supported by a distribution of about 47 million seedlings free to individual farmers (World Bank, 1982); a similar approach was taken in the Kerala Project (World Bank, 1984). Some of the most spectacular results in farm forestry are being obtained in Gujarat and Himachal Pradesh, demonstrating a receptive response by farmers to project-provided incentives (free seedlings, etc) and technical assistance. During the first three seasons of the National Social Forestry Project in India (1985-88) farmers have planted approximately 500 million seedlings, the equivalent of over 325,000 ha on their private lands, exceeding the already high target by some 18%.

Farm forestry replaces broad joint (community) responsibility for planting with individual (household) responsibility. It moves from promoting joint tenure and ownership of trees to promoting individual ownership. It also vests the management authority over the tree plantation in an individual rather than in a diffuse non-homogenous entity. Land tenure on individual farm holdings is unambiguous. Of great importance is that the divisive problems of intra-group distribution of benefits are eliminated. Thus the correlation between farmers' inputs (labour and cash) and outputs become direct and clear to farmers, understandable, proportionate and less risky.

Trees can be grown on individually-owned land not just in small woodlots but also along linear landscapes such as farm boundaries, internal field borders,

roads and watercourses. Tree planting technologies that maximize the use of interstitial locations and other marginal land-patches are particularly suitable for individual small farmers because they do not compete with existing land uses and other crops. Even small farmers who cannot afford to set aside an arable plot for a tree block can use their hedgerows for planting. Foresters have concluded that since farmers secure most of their fuelwood by lopping branches, trees planted along homestead boundaries can produce several times more volume per tree than those felled from plantations. This has obvious implications for mitigating tree product shortages, since it is easier to persuade a household to plant on its own farm boundaries than to persuade communities to provide scarce land for block plantations.

Since farm forestry is adopted through individual decision making, the spread process is free of difficulties such as factionalism that impede the collective adoption of community forests. Tree planting is incorporated into the farmer's own farming system rather than remaining parallel to it on a remote communal lot.

The farm household is an enduring social unit able to sustain forestry development programmes. Tapping its potential requires a deftly tailored integration of technical, sociological and economic elements as well as operational cooperation between foresters and sociologists in designing and implementing this strategy.

Small Groups

The current growing success of household-centred forestry may obscure the fact that group-centred approaches retain development potential that should not be overlooked because of the ineffectiveness of the earlier community approaches. The challenge is to find social formations between the entire community and the individual farmer which are capable of acting as supporting structures for the development of forestry or other natural resources. The problem is to have a group that is free from the inner conflicts of larger communities, yet able to generate the synergy that makes groups more effective than the sum of their members.

The limitations intrinsic to communities as social actors result from their large size and internal stratification. Homogenous groups of an easier manageable size could prove more functional. In small groups a common interest that links the members can be pursued more effectively by joint action than by individual action. A small group can also enforce rules about contributions (labour or financial) through peer pressure, so as to limit free-rider behaviour.

Coordinated and collective action does not ensue automatically when a set of individuals stand to gain from such consensual action. They must understand subjectively the commonality underpinning their objective interests and be willing to act consensually.

One successful example is a group farm forestry scheme started in the early '70s in West Bengal. A group of unemployed or underemployed villagers, landless or marginal farmers, was given a block of marginal public land for tree-planting. The members were not granted title to the land, but were given usufruct of the land and ownership of the trees they had planted and protected. Under this system there was tight group control over the temptation to change land use or mortgage the land. The area allotted and the number of trees to be planted guaranteed enough wood from lops, tops, dead trees and branches to meet a household's domestic requirement. The protection of planted parcels was organized jointly by the group. Thus the group strategy not only maximizes land use for forestry but also encourages and facilitates collective action for tasks that would be performed less effectively if carried out individually (Bannerjee, 1983).

The target group of this West Bengal scheme was highly dependent on the income generated by their labour and could not be expected to work without remuneration. Incentive payments were therefore made to help meet household consumption requirements during the early stages of the plantation. Incentives were also given for each surviving tree to encourage maximum survival rates.

The operational principle behind group farm forestry is to create a clear link between a well-defined small group and a well-defined piece of land that is converted into a woodlot. There also needs to be a clear correlation between contributions and returns, and authority and benefits must be restricted to members of the group.

Age Groups: School Nurseries

Many traditional societies, particularly in Africa, entrust to subgroups certain maintenance or service functions in the society. Some of these groups are defined by age or gender. They are accountable to appointed group leaders as well as to the overall authority structure.

One of the notable successes in recent years has been the involvement of school-age youths in establishing tree nurseries for social forestry (in Kenya, Malawi, Gujarat, and Haiti). The characteristics of such groups are propitious for certain collective actions: school children form a homogeneous age group, concentrated, organized by virtue of their main activity -going to school - and with a built in leadership system. Although the transitional nature of this age groups limits its participation activities of long duration, it is perfectly suitable for short-term collective efforts such as the production of seedlings. To formalize and expand this group's support to social forestry, it is possible to promote institutional arrangements in the form of a 'partnership between schools, communities and government agencies' (Chowdhry, 1983).

At the outset of a social forestry programme in Gujarat in 1980 there were less than twenty schools with tree-nurseries. The Forest Department decided to encourage schools and private farmers to raise seedlings rather than to expand the state's nurseries. In three years about 600 schools opened nurseries in which schoolchildren, with guidance from foresters and teachers, produced several million seedlings a year. The persuasion/motivation required to generate such action was combined with one economic incentive: a guaranteed price for seedlings; when ready for transplanting, the state forest service buys the seedlings for distribution to local farmers. This economic incentive was backed by technical advice from extension workers to help schools construct and operate small tree nurseries. In addition, many schoolchildren took the seedlings home and planted them around their family homestead, thus extending the educational outreach of the programme from school to the home (Spears, 1983).

Women's Groups

Experience with women's groups in forestry is expanding every year. Since in many cultures women are the direct users and gatherers of fuelwood, they would appear to be the ones most directly interested in producing it; women also possess a good knowledge of the growing requirements of various tree species. Recent evidence from a number of social forestry programmes points

out the major contribution women could make to them (Hoskins, 1979; Molnar, 1988).

Although women have been organized for different productive or household related activities in many countries, little has been done to involve them in group action for the cultivation of woodlots. Even in a country such as Kenya, where women's groups are widespread and effective, a field study reported that out of 100 women's groups active in one district (Mbere), none was directly involved with tree planting (Brokensha *et al.*, 1983). In other districts, however, women's groups have started planting some woodlots for their own use. In Himachal Pradesh in India, multipurpose women's groups called Mahila Mandals frequently include tree planting among their activities (Dioman, 1989).

Establishing women's groups that induce mutual help and cooperation for forestry-related activities is likely to be a more effective social device than if each woman spent the same amount of time and labour on individual farm forestry.

CONCLUSIONS

The alternative type of social units examined above do not exhaust the list of potential social actors for afforestation programmes. The same line of thinking can be continued in order to spotlight other kinds of social units and thus multiply the array of social actors able to involve themselves in forestry development.

In a broad sociological sense, the forest departments themselves are also a form of social organisation created to perform, by using state investments and resources, the functions of conversing, managing and developing forests. As administrative bodies, forest departments are of a different organisational nature than the type of social units - organized population groupings - that have been discussed in this study. But forest departments may play a critical role in fostering and encouraging the formation of such groups among users of fuelwood and in providing them with silvicultural, organisational and economic assistance to produce trees. Foresters, by and large, are still far from knowing how to accomplish the social side of their task, but they must learn to work with people as well as with trees.

In turn, the many nongovernmental organisations that make forestry and environmental conservation their own agenda, may become also the organizers of people's productive **organisations** and help users to act and structure themselves as producers. Identifying or creating social units is a task that requires both informed sociological understanding of what is to be done and methods and skills for social organisation. The point is that such social forms need not necessarily pre-date the development intervention, nor should they all be created from scratch. In order to grow trees on the gigantic scale necessary now, people's capabilities must be enhanced through organisational strengthening, adaption and innovation. Such enhancement itself is part and parcel of the development process.

In conclusion, it may be adequate to stress that social forestry carries with it the connotations of both a philosophy of development and a pragmatic operational strategy. The philosophy postulates the centrality of people in forestry, of users becoming producers. It breaks radically with the stereotype that forest growth is the business of professional foresters alone. The practice of social forestry is wide open to multiple approaches, open to the creation of diverse patterns of social organisation as matrices for action. It is open to imaginative and informed innovations in land tenure, of various forms of ownership or usufruct, of tested or unorthodox tree growing techniques, and of age-old or novel social structures from the household to all kinds of purposively created groups.

There is no single 'best' social strategy available as a universal key to all development approaches in forestry; such strategies span a broad spectrum. Sociological knowledge is therefore instrumental and indispensable for conceiving, designing and implementing any effective approach to forestry development.

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The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

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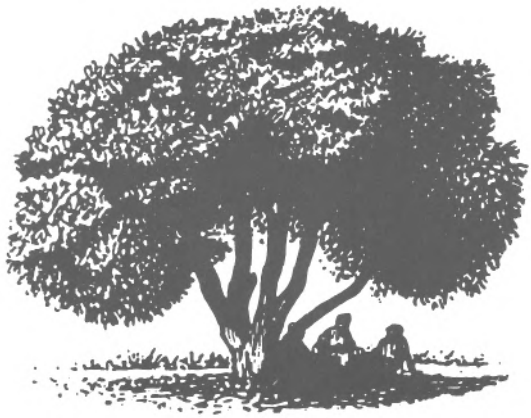
SOCIAL FORESTRY NETWORK



FROM THE FIELD
Shorter Contributions from Networkers

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Network Paper 11f

Winter 1990

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FROM THE FIELD

Shorter Contributions from Networkers

SECOND ISSUE

The second issue of the series 'From the Field' contains a shorter contribution on the current theme of 'woodlots' by Nicola Wilson & Stephen Connelly, together with the most durable of the short articles previously published in the Social Forestry Network Newsletters. These include two early pieces on Forest Policy in Nepal and Ethiopia; two on Nurseries; and an article which describes ***The KENGO Travelling Workshop*** and the follow-up which KENGO organized in 1988.

CONTENTS

HOUSEHOLD WOODLOTS IN THE SUDAN
A Qualified Success

Nicola Wilson and Stephen Connelly

Introduction

This note briefly documents the progress of a small Social Forestry project in the Sahel Savannah zone of Sudan. We think it may be of interest to others working in similar environments for two reasons. Firstly, the project evolved a sustainable strategy for tree planting which may be applicable elsewhere. Secondly, it demonstrated the advantage of allowing local people to define the nature of the project's activities, which resulted in a shift away from community forestry to supporting the planting of household woodlots.

Environment and Problems

The project area is in Dinder District, in the Central Region of Sudan, and consists principally of fifteen villages scattered along the course of the seasonal Dinder River. Annual rainfall is usually quoted as 450mm, but is extremely variable from year to year. The rainy season lasts 3-4 months. Before the droughts of the 1970s and 1980s there was dense savannah woodland over much of the area, but this has now been replaced by very open woodland, and more commonly scrub and bare soil. Gulley erosion is becoming more widespread.

Demands for forest products are heavy. Locally settled people and nomads cut for domestic use (building poles, thorn fencing and fuel), and there is widespread felling for charcoal production, by both outsiders and local people. Woodland is also cleared for agriculture under a bush-fallow system. In addition to restricting growth and regeneration, drought increases villagers' demand for tree fodder and cash from charcoal production, and thus the rate of cutting. The net

result is a degraded forest resource, with no potential for recovery under present conditions, even in years of good rain. This has created serious problems for the local population, who are faced with shortages in essential materials for which there are no other affordable sources.

Project History

In response to these problems, and at the invitation of local leaders, CONCERN (an Irish NGO) began a community forestry project in Dinder in 1986. The principal aim was 'to help local communities to plan, manage and utilize their forest resources, meeting related needs on a sustained and environmentally sound basis'. Given the paucity of existing woodland, and the lack of control over the bush by local communities, this aim was to be met by planting trees, rather than natural forest management.

In cooperation with the local forestry office, an ambitious programme of extension was embarked upon to encourage villages to plant communal woodlots. At that time this approach was popular in Sudan, as elsewhere and indeed CONCERN was under explicit instruction from the Central Forests Administration to pursue this strategy. The opinions and wishes of the villagers were not ascertained at this stage.

However, after two years it had become evident that this approach was completely unworkable. No community commitment had been generated, and where trees had been planted they were untended, unprotected and soon dead. At this point, a farmer requested seedlings to plant his own woodlot, which he did successfully. In the following two years (1989 and 1990) extension activities focussed on this new idea, and it was adopted widely in the other project villages. Individual men and women, and households, chose sites for their own woodlots, carried out all ground preparation, fencing and irrigation, and made all the decisions regarding the number and species of trees they planted. CONCERN's involvement was reduced to the provision of advice, seedlings and motivation.

The final step towards complete local control and self-reliance is to take over seedling production. This began spontaneously in one village in 1990, and interest was expressed in all the project villages.

CONCERN's final involvement, before withdrawal at the end of 1991, will be to train individuals in the establishing home nurseries.

Conclusions

1. Even in a very resource-poor area, in which tree planting involves considerable investment of time and labour, private woodlots can be attractive to villagers where community planting is not. This is because of the direct control by the owner(s) of the benefits from labour invested, and the adaptability of such woodlots to the product requirements and land/labour resources of the individual or household. In contrast, community woodlots offer uncertain returns, lack flexibility to suit individual needs, and require a level of organisation and cohesion which is often not present.

2. Success was achieved through adopting a locally-devised system, which arose independently of the project. Time and money could probably have been saved by stimulating such innovation at the outset and involving local people in project design, rather than by importing a socially and economically inappropriate approach which proved unworkable.

3. Despite great enthusiasm for private tree planting, villagers require much encouragement by project extension staff to maintain their woodlots. This will be true until the first harvest, but should be a decreasing problem as the benefits from woodlots become more widely appreciated.

4. Woodlot size is limited by availability of water and labour. The woodlots planted - averaging around forty trees - can substantially contribute towards household requirements for building poles and fencing. However, they cannot hope to provide more than a fraction of fuelwood needs, nor can they reverse the trend of environmental degradation, except by reducing the need to cut trees from natural woodland. To tackle these larger-scale problems by tree-planting is virtually out of the question given the climatic changes which have occurred in the area, and the consequent ensuing land-use changes.

FOREST POLICY IN NEPAL: Implications for Social Forestry

Janet Stewart

As the deforestation of the slopes of the Himalayas continues, the resulting environmental degradation is directly affecting most of the rural population of Nepal. The cycle is well known not only to the farmers themselves but to foresters, planners and policy makers. Increasing demand for fuelwood, fodder, timber, leaf litter (for animal bedding and compost) and grazing land directly depletes the growing stock as well as removing nutrients from the forest and reducing its capacity to regenerate. As well as this gradual deterioration due to chronic overuse, forest is cleared from ever steeper and more marginal land to make room for agriculture as pressure on the land increases. The wealth of products collected from forest areas make them an indispensable part of the agricultural system as a whole.

In the 1950s, the importance of Nepal's forests was recognized by the Government, and a Forest Department was set up with a structure similar to the Indian Forest Service. The dangers of over-cutting in mountainous areas were recognized, and the role of the Forest Department in the Hills (the broad band of mountainous land, 60m to 3000m in altitude, immediately to the south of the Himalayas) was essentially to conserve the forests, which were already seen as threatened. To give the Government direct control over cutting, all forest land, which has previously been under private or customary communal ownership, was nationalised in 1956. Traditional rights to forest land and products were suddenly superseded by a national forest policy, according to which a permit had to be obtained from the Forest Department for any cutting, whether of fuelwood or timber. Forest guards were employed to ensure that permits were obtained and also

that revenue was received by the Forest Department for all forest products.

Whilst the role of the Forest Department in the Hills was largely conservative, the situation in the Terai, the belt of flat, low-lying land bordering India to the south, was quite different. Malaria was endemic in this region; until the large-scale eradication campaigns of the 1950s and 1960s, the indigenous population was very small and most of the area was heavily forested with the valuable timber species *Shorea robusta* (sal). From the early 1960s, emphasis was given to exploitation of the sal forest, including significant exports to India. In this case the nationalisation of the forests provided the Government with a major source of income.

In the Hills, by contrast, it became increasingly clear throughout the 1960s that not only did the forests provide relatively little revenue, but the policing of forest land by guards was failing to prevent illicit cutting, and deforestation was in fact accelerating. This was due not only to growing pressure as the population increased, but also to the ill-will generated by the nationalisation. It was widely felt that the Government was taking the forest away from its rightful owners. Immediately before the nationalisation came into effect, villagers cleared forest land and brought it hastily under cultivation so as to retain their tenure.

Another major detrimental effect was the breakdown of traditional communal systems of forest protection. Vestiges of these can still be found in some parts of the country but it is certain that they were previously much more widespread. An example is the *'pathi-pathi'* system, by which a watcher was employed by the village to prevent cutting in a protected forest. Each household donates one pathi (4kg) of grain per year towards payment of the watcher. In some areas rules also still exist concerning rights to collect particular products from the forest, and the times of year at which this may be done. By and large, however, these traditional systems broke down following nationalisation. The districts in which they have survived are often those in which a cadastral survey has not yet been carried out, and so the forest is effectively considered to be privately owned; in these areas, such as Solukhumbu in Eastern Nepal, permission to cut will

often be sought from the landlord rather than the Forest Department.

In recognition of the problems associated with State control of forest land, the Government in 1976 introduced innovative and far-sighted legislation whereby the Forest Department could hand over forest land to the *'panchayat'* (the local administrative unit, usually comprising several villages with a total population of 4-5000). A completely new level of land tenure was thus introduced, aimed at encouraging public participation in forestry activities by giving ownership of the resource, as well as responsibility for its management, to local communities. Under the new Forest Act, two types of land are recognized: Panchayat Forest (PF) which is usually bare land ready to be planted (in 1961, the nationalisation had been extended to all uncultivated land, whether or not it had trees on it); and Panchayat Protected Forest (PPF), which is existing forest, usually degraded, which is to be brought under active local management.

There are now several forestry projects working within the framework of this legislation. The first to be successful in involving local communities was the Nepal-Australia Forestry Project based at Chautara, to the North-East of Kathmandu. In 1979 a much larger project, the Community Forestry Development Project, was started with World Bank funding and FAO technical assistance. This project now covers thirty districts throughout the Hills. A sister project has been started to extend community forestry to the Terai, which is also now experiencing shortages of forest products, following the widespread resettlement of hill farmers in this previously densely-forested area. A Community Forestry and Afforestation Division (CFAD) has been set up within the Forest Department to administer the activities of these projects.

The introduction of the concepts of PF and PPF was undoubtedly an extremely progressive move which has made community forestry a realistic possibility for Nepal. In the decade since legislation, however, problems with community participation have unavoidably arisen and these can to some extent be traced back to the earlier forest policies. Firstly, as in so many countries, distrust exists between villagers and foresters. For twenty years forest rangers and officers were seen as police, and it is hard to reverse this attitude. An attempt has been

made to do so by creating a new post, the Community Forestry Assistant (CFA), who works in only five *panchayats* and whose role is largely that of extension agent; but in practice villagers often confuse CFAs with traditional rangers.

The sweeping nature of the land tenure change itself generates further distrust. Villagers fear a re-nationalisation at some future date, after they have sacrificed grazing land to plant trees; they are often also dubious about the possible tenure implications of planting trees privately on their own land.

It has proved relatively easy to establish new plantations on PF land (though protection is often a problem in areas of high livestock pressure). It is now becoming clear, however, that development of systems of communal management, whether of cutting in existing mature forest or distribution of benefits from plantations, is much more problematic. The management of common property resources is always highly complex, and it is rarely possible for outsiders to impose systems. *Panchayats* with community forestry activities form forest committees to manage PFs and PPFs, but these are often inactive, and rarely represent the disadvantaged sector of the community. The committees are encouraged to produce simple management plans, in consultation with the CFA, but in practice these are very rarely implemented. Social Forestry will only succeed in Nepal in the long term if it takes on sufficient momentum to continue after outside project support is withdrawn. For this to happen, the present progressive forest policy must be seen to be consistent, so that local communities become convinced of the benefits to themselves of planting and protecting trees.

Janet Stewart
1986

COMMUNITY FORESTRY AND FOREST POLICY IN ETHIOPIA:
Some Preliminary Thoughts

Martin E. Adams

Introduction

This paper emerges from a brief desk study prior to a three-month assignment in Ethiopia in order to appraise a rural development programme with a large soil conservation and social forestry component. A number of general papers on Social Forestry (SF) were reviewed, including those of the ODI Network. In addition, relevant World Bank, FAO and SIDA reports were skimmed. The outcome of the desk study is a checklist for appraising SF programmes and a brief review of Ethiopian forest policy emerging from the official documents. The paper inevitably raises more questions that it answers.

Background

It is estimated that Ethiopia's closed canopy forest cover has fallen from 40% to 3% of the land area since the beginning of this century. In no other country in Africa is the impact of deforestation more severe. Over 90% of its annual energy supply comes from biomass, but only one third (about 9 million tonnes) from fuelwood and charcoal. Annual demand for wood is estimated at about twice this quantity. Prices of wood fuel in the Capital are probably the highest in Africa, approaching US$ 40m, a third of average per capita GNP. In the highlands, where 90% of Ethiopia's population lives, minimum temperatures are 3-5°C and frost is common in the winter at altitudes above 2,600m. As fuelwood becomes more scarce, animal dung and

crop residues necessarily make up an increasing proportion of energy, with devastating effects on the organic matter content of cultivated soils (decreased water-holding capacity and nutrient status and increased erodibility). Reliance on dung and crop residues for fuel increases the vulnerability of the poor in drought years.

Deforestation in Ethiopia has been recognized as a major problem for decades. One hundred years ago the now ubiquitous eucalypts were introduced under Menelik II. Prior to the revolution (1974/75), the majority of plantations were established on private land in the vicinity of towns for commercial exploitation. In total, these covered about 200,000 ha, an area approximately equivalent to the annual incursions into the remaining natural forest, of which only about 3 million ha remain. Immediately prior to the Revolution, the State Forest Development Authority had yet to make any significant impact. Little more than 100,000 ha had been reserved and the authority was having an uphill struggle preventing the expansion of private land into the reserved area. Under Haile Selassie, the provincial governors were personally appointed and forest exploitation was in their gift.

The literature makes no mention of tree planting by peasants. Under the feudal land tenure pattern, widespread tree planting by share croppers was unlikely. Tenants had no protection from arbitrary eviction and received no compensation for improvements made. Peasants were no doubt aware of the benefits of tree planting. This was evident from the clusters of trees around scattered homesteads in Arssi Region in 1985, although villagisation will probably have removed both houses and timber by now.

On the face of it the dramatic changes introduced by Ethiopia's new leaders in 1975 bode well for community forestry, in particular the establishment of participative, local-level, peasant and urban dweller associations (PAs and UDAs) with responsibility for political and economic affairs. The 1975 land reform abolished without further compensation all land ownership, from the largest to the smallest holding, making all land the collective property of the Ethiopian people. In addition, the law stated that no compensation would be paid for any forest or tree crop on such land.

In order to overcome the lack of an administrative presence in the countryside, the revolutionary authorities required the formation of PAs on the basis of 800 ha units (200 to 400 families). Each PA was charged with administering the expropriation and redistribution of land in their jurisdiction. This included the preservation of forest property. To some extent the proclamation merely legalized events which had already taken place as peasants seized land and forests from landlords.

After the Revolution, the ambiguous position of the State Forests Authority (then called the Forest and Wildlife Conservation and Development Authority - FaWCDA) continued in the countryside. The proclamation by which PAs and UDAs were established did not give the necessary authority to the FaWCDA to control the forests which were nominally in its care. An order instructing the authority to take over all forest areas larger than 80 ha was not recognized by the new regional administrations or the PAs because it was not issued as a legal regulation. Although in theory no one was allowed to cut or remove a tree without permission, forests remained a free good to be used and abused as individual PAs thought fit. This situation was addressed by the Forestry Proclamation of 1980, under which the Natural Resources Department of the Ministry of Agriculture was made responsible for ensuring proper protection, rational utilisation and management of forest and wildlife resources. Each PA and UDA is now required to develop and conserve its own forests and to plant trees within its locality in areas designated as forest reserve. However, effective control remains with the 20,000 or more PAs and UDAs and the destruction of the forest and plantations is reported to be continuing.

Government Policy and Institutions

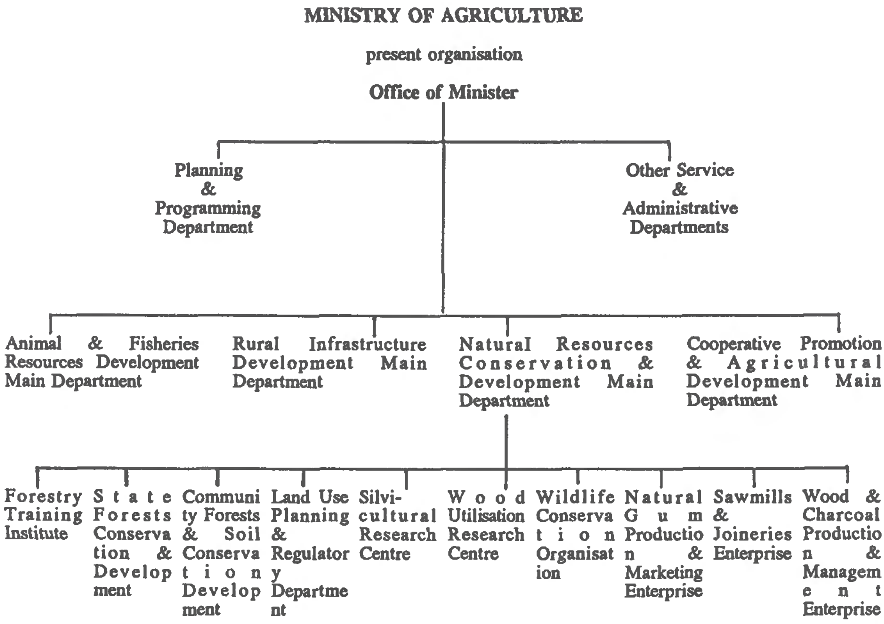
Ethiopia's Development Plan sets a target of 2.9 million ha of plantation (66 ha per daylight hour!) over the 10 year plan period. Investments would represent about 5% of the total planned outlays. The targets require a six-fold increase in current performance (46,000 ha planted in 1984). The strategy for forestry development is simply stated, the establishment of peri-urban woodfuel plantations for the towns and the development of woodlots and agroforestry practices on a massive scale in the rural areas. Priority is to be given to planting

land threatened by erosion. Thus, there is a dual objective - fuelwood production and soil and water conservation.

The planning perspective of government and donors (but not, as yet, the peasants) has been influenced by the FAO Ethiopian Highlands Reclamation Study (1983-85), which defined a 'conservation-based development strategy'. This recognized the futility of conservation measures in isolation. Tree planting and terrace and bund construction on steep slopes would be of lasting benefit only if they were accompanied by improved agricultural practices (so-called biological or vegetative measures) and population control. Further, planners realized that people on the brink of starvation could not be expected to subordinate their acute short-term needs for the possibility of long-term benefits. Hence, the need for food security (basically food-for-work) and involvement of the peasants in planning. For once there appears to have been a genuine effort to make this more than a cliché. An initiative by OXFAM in late 1984 to develop a participative method focussed on service cooperatives has caught the imagination of some major donors. (On average four PAs comprise a service cooperative, the main vehicle for extension, input supply and retailing in Socialist Ethiopia.)

In 1984, the Ministry of Agriculture (MOA) divided the country into eight agro-ecological zones for the purpose of launching a comprehensive agricultural development effort, codenamed PADEP (**P**easant **A**gricultural **D**evelopment **P**rogramme).

The administration in each zone is headed by a general manager and contains representatives for all four main departments of the central ministry (see Figure), which retains responsibility for policy, approval of work plans and budgets and planning. The Natural Resources Main Department (NRMD) is responsible for forestry and soil conservation. It is divided into five departments (each represented at zonal level), three semi-autonomous agencies and a number of service units. Currently there are about 160 graduate foresters and 400 diplomats. The NRMD has inherited thousands of forest guards and other field workers, many of whom live off the forest which they are employed to protect.



Staff of the State Forest Conservation and Development Department (SFD - formerly FaWCDA) are responsible for demarcating, conserving and managing designated state forests. As the parent organisation for forestry in the country, SFD foresters have been increasingly directed by local political authorities to provide advice and material for numerous local tree-planting initiatives, many of which are unplanned and therefore unbudgeted. This work is in addition to their routine responsibilities for state forests. The personnel in the new department of Community Forestry and Soil Conservation have been drawn from the former Soil and Water Conservation Department

(SWCD) of the Ministry of Agriculture and as such they tend to emphasize conservation rather than fuelwood production. The significance of this difference in emphasis can be illustrated by experience obtained on a pilot project in the Borkana Catchment, Wello Region.

One of the major activities of this rehabilitation project (1982-85) was to provide ground cover on the steep mountain slopes and thereby reduce erosion. Reforestation and hillside closure were the means to achieve this objective. In addition it was planned that these areas would supply fuelwood, poles and forage. Both the SWCD and FaWCDA have been involved in reforesting extensive mountain areas formerly used for communal grazing. While the SWCD passed the responsibility for the maintenance of the area to the PAs, the FaWCDA maintained that all areas afforested with food-for-work labour belonged to the Government. In other instances it intended to control trees until they were mature so as to avoid indiscriminate felling.

The Borkana experience also reminded foresters that Eucalyptus is often unsuitable for rehabilitating mountain slopes. The conditions in the catchment range from cool, wet highland to hot, dry lowland and careful choice of species is important. However, either due to lack of planting material or imagination, the same species were planted over an altitudinal range of 1200 meters using the same silvicultural techniques. Not surprisingly, survival rates of trees beyond three years at the lower altitudes were very disappointing. Terracing and reforestation required an average of 350 person days of food per hectare. SWCD staff turned to hillside closure as an alternative means of encouraging regeneration (based on consent rather than fencing). After two years, the revegetation was very impressive, but peasants were not enthusiastic in the absence of an acceptable group plan to manage the resource thus created. They saw enclosure as a threat to their grazing rights. In one instance, grass was cut and carried by compulsory work parties and distributed by the PA executive to their favourites.

Issues to be Resolved

In the absence of information about successful models of participative planning and implementation of community forestry projects, it is necessary to be cautious about predicting the outcome of the spate of donor assisted tree planting projects. So far uncertainty as to who benefits from soil conservation, reforestation and hillside closure has stifled popular involvement. The World Bank, which is in the process of negotiating a US$ 43.0 mil loan to the NRMD, a major portion of which is for community forestry, recognizes the difficulty. It observes that since community forestry is basically untested, several models should be tried with the intention of concentrating on the most successful model during later years of the project. The results of the experiments with cooperative-level planning are awaited with interest. It is vital for Ethiopia that some solutions are worked out and a great deal of thought must be given to devising and testing alternative issues. One thing is reasonably clear and that is the prospect for agroforestry on peasant farms. Households have users rights to the plots they occupy but may be moved if the PA redistributes the land to accommodate more members or a producer cooperative. While families are reasonably secure in the knowledge that they will be allocated some farm land by their PA, there is considerable uncertainty about how long they will be allowed to stay. In the circumstances perennial species are unlikely to feature in the farming system.

This points to another overriding issue, the need to be more careful in defining the purpose for which trees are to be planted. Multiple objectives might be difficult to achieve. The community is expected to participate in four types of tree planting: conservation forestry on eroded slopes; community woodlots for firewood, poles and browse; agroforestry on individual farms and producer cooperatives; and peri-urban forestry for fuel and poles. Species, silviculture, site selection, labour for planting and maintenance and tenurial arrangements probably need to be carefully specified in each case.

CHECKLIST FOR APPRAISING SOCIAL FORESTRY PROGRAMMES

A. VILLAGE RESOURCES

1. Land

Availability of cultivable, cultivated and non-cultivable land; irrigation sources and supply potential; local nomenclature for different types of land and plant associations; length of fallow on different land types; grazing and browsing resources; type and number of animals; seasonal occupance of pastures.

2. Energy Supply and Demand

a. **Local Resources:** reserves of firewood; preferred and available plant species; use of lower grade fuels (straw, crop stalks, animal dung); access to and availability of different fuel types (seasonality, distance travelled); trees planted and/or protected for special purposes; major factors limiting the supply of these species.

b. **Local Demand:** fuel consumption of different income groups for heating, cooking, lighting; efficiency of local heating and cooking technology; inequalities of fuel-related work, access, etc. within the household and the village; use of fuel by local crafts (e.g. brick making, ceramics, etc).

c. **Local Trade:** type and quantity of fuel traded; costs and returns; organisation of the trade and type and number employed; imported and exported fuel and timber resources by type and value.

3. Construction

Local supply and demand for building material; timber for poles, furniture, tools, etc; preferred species; prices.

B. SOCIO-POLITICAL STRUCTURE AND FUNCTIONING

1. Village Level Institutions

Authority structures; relative weight of local and state power; are socio-political conditions stable? Assess the potential of local institutions (local government, field ministries, schools, church groups, women groups, clubs, etc.) for participation in tree planting.

2. Land Rights

Are rights to cultivate, to gather, to graze, etc. relatively secure and clearly defined? In the event of changes in primary rights, have secondary user-rights survived? What are the implications for tree planting? What rights are retained by those who plant trees? Are people clear about their rights? How important are CPRs (traditional or recently established by government decree)? What are the rules and how well do they operate? Does state sponsorship of local politicians undermine or threaten group use of CPRs?

3. Government Institutions

Where does responsibility for social forestry lie (State Forests/Forestry Dept, Agriculture, Social Services, Local Government)? Extension system: extension methods, links between forestry and agricultural field staff, arrangements for training or retraining foresters and field personnel; planning, monitoring and evaluation; budgetary resources; links with NGOs.

C.EVALUATION OF CURRENT PROGRAMME/PILOT PROJECTS

Objectives; means of achieving objectives; results.

Assessment

Did the community participate in programme design? How? Were women actively involved in the process and how did this influence the design adopted?

What was the purpose of the tree planting (fuel, poles, slope protection, etc.). Did the people want to plant trees? Were they coerced? What part did food-for-work play in motivating workers? What was the people's understanding of their future rights to the trees? Was there a group plan for distribution of the produce?

Was the planting on common land? How did the plantation impinge on land use by existing right holders? Was tree-planting at the expense of other forms of land use?

What is the history of relations with forestry staff: before the project, during the project, now? Were foresters specially trained for the working with villagers? What extension methods were used?

Were arrangements made for protection and maintenance? How did they work out?

Did labour requirements for tree planting conflict with agricultural work?

What did people think of the silvicultural methods? What improvements do they propose (species selection, nursery techniques, quantity and quality of seedlings, etc.)?

Arrangements for monitoring and evaluation, follow up, etc.

Martin Adams
1986

AGROFORESTRY IN AFRICA: The Central Role of Nurseries

Paul Kerkhof

Introduction

The following discussion of different types of nurseries draws on a larger study which surveyed 19 projects in 11 countries in Africa. The aim of this study was to look at the experience gained by these agroforestry projects which were chosen to represent a range of ecological conditions and project approaches. The study summarises the main lessons learned, viewed from the perspective of the people directly involved in designing and implementing projects.

Seedling production is a key element in most agroforestry projects. The question of how this is best organised has been a subject of considerable debate, which ranges from the use of centralised and highly controlled nurseries to decentralised farmer-run nurseries.

Centralised Nurseries

Most of the projects in this study have started by establishing centralised nurseries. Some, especially those in very dry areas, have relied on them entirely. The advantage of centralised nurseries is that they enable a seedlings production system to be set up quickly. They also allow the project to control the quality and number of seedlings produced.

The obvious problem with centralised nurseries is seedling distribution. It is often forgotten that, even if farmers consider seedlings useful, they rarely rank them high on their list of priorities. One project found that farmers were unwilling to walk more than about 2 km to collect seedlings. In many projects, however, the average distance between the central nursery and farmers is twenty or more kilometres, and sometimes much further. It is therefore not surprising that the uptake of seedlings has often been disappointing.

The problem can be alleviated by transporting seedlings to villages, schools and other collection points. But this is only possible if vehicles are available at planting time. Even then, there can be problems for lorries and pick-up trucks attempting to use bad rural roads during the rainy season. As a result of these difficulties, large numbers of seedlings are often wasted. It is not uncommon to find that less than half the seedlings grown in a central nursery find their way to the local community.

Group Nurseries

A number of projects have promoted communal or group nurseries at the village level as a way of decentralising seedling production. The techniques used tend to be simpler than in standard forestry nurseries and they are usually much smaller. Most are supported by projects or government agencies and are provided with plastic bags, tools, seed and advice.

Group nurseries can go a long way towards solving the seedling distribution problem. But projects have found that establishing and sustaining them is not always an easy task. It requires a strong extension organisation and above all, an interest in tree growing among the local people.

Some projects have offered incentives for villagers to establish nurseries. One project provided inputs such as water points and donkey carts and paid for the nursery staff. This confuses the issue to some extent as it raises the question of whether people really want the

nursery or are just out to get the benefits provided. Projects therefore face a deliberate choice. If they provide too little assistance groups may not be interested in setting up nurseries; but if they provide too much, the motivation of groups may be distorted so the whole operation becomes unsustainable.

Problems of this kind were common among the projects visited. None were entirely satisfied with the results they had achieved so far. In most projects, group nurseries accounted for well under half of total seedling production, and usually much less. Despite this, however, there was a widespread feeling that group nurseries do play an important role in encouraging communities to learn about tree growing and take responsibility right from seedling production onwards.

Farm Nurseries

It has been generally assumed that farmers need to be provided with seedlings if agroforestry programmes are to have an impact. A survey in west Kenya, however, carried out in 1984 by KWDP, found that as many as a third of households were already raising their own seedlings without any outside assistance.

The costs and work involved are negligible. The seedlings are mainly raised at the beginning of the rainy season so that watering is not required. Plastic bags are not used, there is no root pruning of seedlings and little effort is made to protect the nursery against animals. The seedlings are planted on farmers' own lands or are sold or given to others.

Since then, there has been increasing interest in promoting or assisting such 'farm nurseries'. A number of projects now provide farmers with assistance in the form of seeds, plastic bags, technical advice, and perhaps a watering can. Extremely encouraging results have been reported in some places. In Koro in Mali, for instance, it is expected that the seedling production from nurseries run by individuals will soon exceed that from central nurseries.

The KWDP project in Kenya has made considerable efforts to promote such farm nurseries. It has used films, radio and mass meetings as ways of reaching large numbers of people. It also provides farmers with seeds. The project has suggested a number of ways in which the nurseries might be improved but it seems that few farmers are interested in accepting this advice. They refuse to carry out root pruning, for example, despite the improvement it brings in the survival of seedlings after they have been planted out.

Some projects have used cash incentives to encourage farmers to grow seedlings on their farms. These are then bought at a fixed price and used on the project. But as in any case where money is given, questions arise about the sustainability of the practice.

The discovery that farmers are perfectly able to produce their own seedlings when they wish to is important. It means that centralised seedling production may not always be as necessary as has been assumed in the past. The challenge for projects is to identify ways by which these nurseries can be encouraged.

Paul Kerkhof
1989

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The main research and writing was carried out by Paul Kerkhof for the Panos Institute, London. The study was edited by Gerald Foley and Geoffrey Barnard and was published by the Institute as a book entitled: ***Agroforestry in Africa: A Survey of Project Experience***

For further details about this book and the work of the Panos Institute, please contact:

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LIST OF PROJECTS COVERED IN SURVEY

Type A: Tree growing to increase productivity in high potential areas

1. Projet Agropastoral de Nyabsiindu	Rwanda
2. Soil Erosion Control & Agroforestry Project	Tanzania
3. Promotion of Adapted Farming Systems Based on Animal Traction Project	Cameroon

Type B: Tree growing for fuelwood and other products

4. Gituza Forestry Project	Rwanda
5. Kenya Woodfuel Development Project	Kenya
6. BAT Tree Planting Project	Kenya
7. Rural Afforestation Project	Zimbabwe
8. Gursum Land Use Project	Ethiopia

Type C: Village forestry projects

9. Projet Bois de Village	Mali & Burkina Faso
10. Village Woodlot Programme	Tanzania
11. Reforestation Around Wells in the North	Senegal

Type D: Tree growing to increase productivity in dryland areas

12. Majjia Valley Windbreak Project	Niger
13. Koro Village Afforestation Project	Mali
14. Projet Agroforestier	Burkina Faso
15. Soil Conservation and Agroforestry Project	Zambia

Type E: Projects to promote natural regeneration

16. Hifadhi Ardhi Dodoma Project	Tanzania
17. Turkana Rural Development Programme	Kenya
18. East Pokot Agricultural Project	Kenya
19. Forest Land Use Project - Guesselbodi	Niger

THE ROLE OF NURSERY CENTRES

John Casey

Introduction

The fuelwood crisis and its accompanying problems stimulated the development of social forestry projects, and to the planners the answer was relatively easy - produce tree seedlings of quick growing exotic species which the people will plant. In order to produce seedlings, nurseries are needed and therefore a major component of most social forestry projects has been the establishment of extensive nursery networks.

For most projects, establishing nurseries and growing seedlings was relatively easy and millions of trees were produced, but the planting of these trees by farmers fell considerably short of the proposed targets. Projects have since learnt that nurseries have grown the wrong species, farmers need extension advice, farmers have difficulties collecting seedlings, young trees are susceptible to animal and insect damage and many farmers propagate their own seedlings. Armed with such information planners are now developing new approaches to social forestry projects but is there still a place for government (project) run nurseries?

Strategic Nursery Network

The following discussion of a strategic network of nurseries is based on the author's experiences as a monitoring and evaluation officer with the Rural Afforestation Division of the Forestry Commission in Zimbabwe.

A project may decide to establish a nursery network in an area, but it has been found that most farmers will not travel further than 5 kilometres to a nursery to collect seedlings. An extensive network of nurseries will therefore be required if a significant proportion of the rural population is going to be reached. Such networks would be a cost and administrative burden to governments and thus, more efficient and effective ways of producing seedlings needs to be investigated. One possibility is to offload production onto the local community, by encouraging and supporting the setting up of individual or farmer nurseries, school nurseries, council nurseries, etc. This approach still requires project nurseries but rather than an extensive spread of large centralised nurseries a strategic network of relatively few government or project nurseries should be planned and the role or uses of these nurseries must be broadened.

Nursery Education and Training Centre

A nursery education and training centre (NETC) comprises a seedling production area, parent fruit tree orchard and demonstration site. The seedling production area should not produce vast quantities of seedlings but should be used to demonstrate trees that can be grown in the area. The trees should be clearly labelled with their local name and uses, and the seedling production area should also grow 'difficult' species, species for research, fruit trees and be used to demonstrate seedling production.

The demonstration plot adjacent to the nursery should show how trees could be planted within the farm such as boundary planting and rows of intercropped trees. Once the trees have been established and are growing, tree management practices (coppicing, pollarding) may then

be demonstrated. In addition to this a parent fruit tree orchard should be established with a small area of fruit trees such as mangoes and oranges which can be used as a source of material for budding and grafting.

The NETC should act as a practical learning centre where farmers and others involved in nursery establishment can have experience of new techniques and species useful for their area. A model of a small scale nursery (less than 5,000 trees) based on locally available materials would be an effective extension tool. Field days or practical demonstrations should be regularly held at the nursery for farmers, agricultural extension workers, schools (teachers and students), women's groups and other interested groups.

The NETC should be used to produce specialist trees, demonstrate seedling production (pot filling, sowing, etc), planting and how to set up a small nursery. The centre should also carry packets of seed or even seed-packs (seed + plastic pots) for distribution. The centre should be able to advise on most tree problems and issues and have available quantities of handouts or booklets on seedling production, planting and management.

Staff who run these centres must be competent nurserymen, possess the necessary skills to deal with the public and have the ability to organise and put across demonstrations of techniques in a clear manner.

A NETC should comprise:

- seedling production area
- fruit tree orchard (for building/grafting material)
- demonstration plot (planting and management)
- office and store
- demonstration area (small scale nursery, pot filling, sowing, watering).

The role and functions of NETCs:

- Provision of seedlings especially difficult to grow species and budded/grafted fruit trees.
- All seedlings should be clearly labelled with name (local name), where to plant (ecological zone) and the uses of the trees.
- Provision of seed packs (packet of seed plus plastic pots), and also packets of seed, plastic pots, cuttings, etc.
- Demonstration model of how to set up a small scale nursery.
- Provision of literature/handouts on nursery establishments, sowing, planting, etc.
- Planting area to demonstrate tree-planting, planting models (boundary planting, hedging, intercropping) and tree management (coppicing pollarding). All trees should be labelled.
- Practical demonstrations at the nursery should include:

  1. how to establish a small nursery
  2. pot filling, sowing, watering, root pruning
  3. planting and planting models
  4. tree management.

Conclusions

This suggested network of nurseries would ensure that many low-cost farmer-run nurseries could be established and linked through extension systems to the more experimental training oriented nursery centres. Thus farmers would have easy access to seedlings that meet their needs, and the larger centralised government or project run nurseries could be used as information and resource centres.

John Casey
1989

THE KENGO TRAVELLING WORKSHOP

Peter Karinge

In November 1985, for the first time in Kenya, a group of 44 people from all over the country comprising scientists, educationists, community development workers, NGO project leaders, programme leaders and journalists left their places of work for two weeks to participate in an unique educational travelling workshop to see agroforestry, tree planting and woodfuel conservation projects.

The Travelling Workshop involved extensive travelling, visiting, evaluating and learning from over 20 development projects covering 12 districts in Kenya. Projects visited included Government and bilateral development projects, NGO projects, women's groups, community, school, college and individual development initiatives.

Objectives

The Workshop was organized with the following aims and objectives:

- To expose the participants to the diversity of environmental conservation and development programmes currently being implemented in Kenya through tree planting agroforestry and wood energy conservation projects.

- To expose the participants to the practical project activities being undertaken at the grassroot (community) level by these programmes.

- To provide an educational forum where research, development and aid agencies would have a close encounter with project implementors and appreciate the diverse field realities and challenges which projects face.

Projects

The Travelling Workshop took place over two weeks and visited, among many other the following projects: the Machakos Integrated Development Programme (MIDP), the International Centre for Research in Agroforestry (ICRAF) in Machakos; the Embu-Meru-Isiolo (EMI) Forestry Project; the Integrated Project on Arid Lands (IPAL) in Marsabit; the Fuelwood/Afforestation Extension Project and the ill-fated Euphorbia Project in Baringo; the Kenya Woodfuel Development Programme (KWDP) in Kakamega; the Homa Hills Integrated Development Programme and the Ndhiwa Institute for Rural Development in South Nyanza; the Kenya Renewable Energy Development Projects's Mtwapa Agroforestry Centre and the Baobab Farms at the coast.

Evaluation

Many agroforestry and related projects have been established in Kenya during the last five years (1980-85) through government and other development agencies, as a result of the widespread realisation that the practice enhances environmental conservation and increased resource productivity. It was only timely and logical that project officers of these isolated projects bring their varied experiences together through information sharing and visiting ongoing projects in a forum like the Travelling Workshop.

All too often the evaluation of development projects takes place only among donors and government officials. Meanwhile, project leaders, project workers and key community development workers have not been given a chance to analyze the causes of failures and factors contributing to successes of diverse development projects, so that they can apply this knowledge in implementing their own projects and

contribute to the evaluation and formulation of existing and new projects.

The Travelling Workshop provided such an opportunity whereby participants were able to closely interact with project implementers and beneficiaries and to critically and objectively analyze project activities on site.

There were numerous criticisms levelled against projects and programmes visited. Among them participants cited poor demonstration work, lack of community involvement, poor planning, over-dependence on external support and inadequate technical and financial assistance as major constraints of successful project implementation. They also pointed to the serious lack of communication and co-ordination at the technical and ministerial levels, and went further to recommend the following salient desirable features in project management and implementation.

Recommendations

- The local community should be fully involved from the project's planning through to evaluation stages, being 'part and parcel of the project'.

- Projects should be managed to be self-sustaining after a given time period to avoid over-dependence and abandonment when donors pull out.

- Projects should be tailored to suit local conditions (not the other way round) in order to avoid clashing with people's cultural-economic and environmental set ups.

Conclusion

KENGO was greatly encouraged by the success of the Workshop. It was clearly an experience which should be extended to many more development workers and planners. It is almost pathetic that the

majority of development workers in Kenya have minimal exposure to other development activities and perspectives, thereby limiting their potential development horizons. If development planners, aid agencies, project implementers and politicians alike could appreciate the importance of such exposures and undertake to promote them, the district focus strategy would meet considerable success faster than expected.

Peter Karinge
1986

Update

In June 1988 KENGO followed up their original travelling workshop with an expedition on genetic resources and wildlife habitats. In this case wildlife sites rather than projects were visited, and expedition members were composed of environmentalists, conservationists, research scientists, academics, development agencies, policy makers and journalists. Authorities on each site led discussions and produced papers and resource materials for participants.

The objectives of the expedition were: to increase public awareness on protection of habitats and genetic diversity through the media; initiate and support a process which will lead to the development of a national plan on plant genetic resources and habitat management; sensitize local and national policy makers on the importance of genetic diversity and habitat protection; increase awareness of the need for scientific information on habitats and genetic resources; and identify areas that need further research.

The expedition's final outcome was a Resource Kit built up from the materials produced at each site, together with a set of recommendations of both a general and a specific nature, about environmental issues in Kenya.

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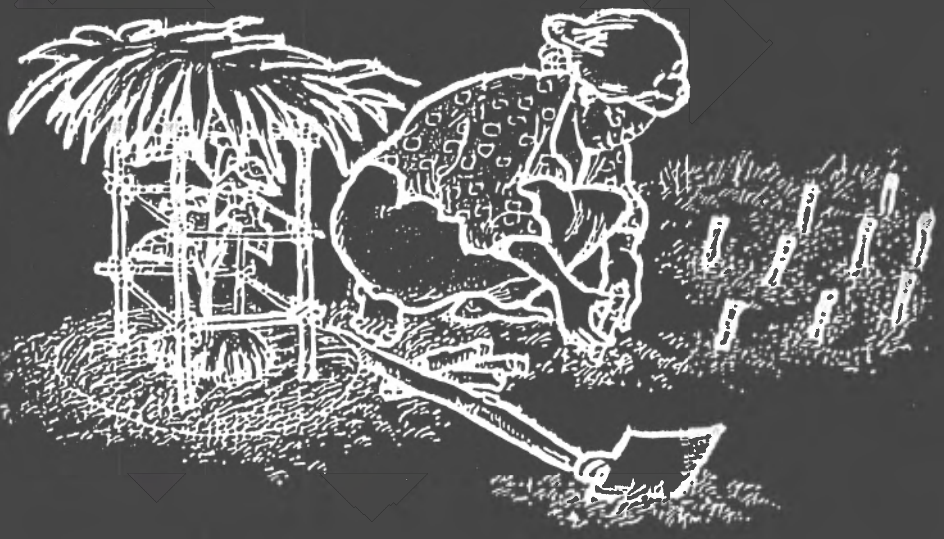
The Social Forestry Network is funded by THE FORD FOUNDATION, the AGA KHAN FOUNDATION and the OVERSEAS DEVELOPMENT ADMINISTRATION.

Social Forestry Network

NEWSLETTER 12

SUMMER/WINTER 1991



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THE SOCIAL FORESTRY NETWORK

The Social Forestry Network, based at the Overseas Development Institute, was established in 1985. The Social Forestry Research Fellows divide their time equally between appropriate research and running the interactive Network. Twice a year, the Network publishes a NEWSLETTER and a set of NETWORK PAPERS. Topics of the paper series have included —

Forest Policy
Forestry Extension
Local Participation in the Management of Natural Woodland
Farm Forestry
Nurseries as Extension Tools
Woodlots

Biennially a Register of Members is published and, in an effort to further increase information exchange, a catalogue of the Social Forestry library collection has also been published. The catalogue is a unique information source giving access to 'grey literature' — project documents, conference papers, consultancy reports — material which is not covered by conventional abstracting services.

The Network currently links about 1700 members, of whom at least 70% are in developing countries — where access to up-to-date comparative thinking about specific forestry issues and current written material is difficult to obtain. Although most Networkers are foresters involved in forestry for rural development, the membership also embraces a wide range of other natural and social scientists.

Membership is free of charge but we do ask our members to send their own publications, reports, notes etc in exchange. For further details or any queries you may have please contact:

The Social Forestry Network Secretary
ODI
Regent's College, Regent's Park, Inner Circle
London NW1 4NS
UK

Editors: Dr Gill Shepherd
Dr Mary Hobley
Edwin Shanks
Layout and design: Ingrid Norton
Printed by Russell Press Ltd., Nottingham,
on recycled paper

ISSN 0951-1849

In this issue

Cover

'While trees are still small, annual crops can be planted close to them.'

Illustration from the *Integrated Farm Management* booklet produced by Studio Driya Media, World Neighbors & other local agencies.

Studio Driya Media
Jl Hariangbanga No 2 Pav
Bandung 40116
INDONESIA

World Neighbors
5116 North Portland Ave
Oklahoma City, OK 73112
USA

EDITORIAL

This Network mailing — the only one we have had the funding to produce between the expiration of our last grant and the start of the new, has been kindly funded by the International Development Research Centre (IDRC) of Canada. We are very grateful to IDRC and would like to express our thanks for their generosity and support.

As a result, this particular mailing stands alone, and we have decided to use it to consult Networkers about some of the changes we think might be appropriate to make. We would greatly appreciate your comments — however brief — on the possible changes.

Appearance

Firstly, we have worked to change the appearance of the Newsletter this time. We hope that the design makes it more accessible to readers and will encourage a greater exchange of ideas.

However, we have retained the format and size of the Network Papers, as we feel it is more appropriate for their long-term use and storage.

We would welcome members' views on this change in presentation of the Network.

Network Name

Secondly, we are interested in your views on the name of the Network.

It has become apparent in some parts of the world that the phrase 'Social Forestry' has been picking up some negative overtones. In parts of India, for instance, 'Social Forestry' has become associated by some people with projects where village land was put under trees without local consultation and at the expense of fodder access for poorer villagers. Several of our members with a good knowledge of India feel that we should change the name of the Network for that reason.

What do you think?

We need a term which covers all types of tropical forestry in which local people are enthusiastically involved. Over the last five years, these have proved to be:

- *Farm Forestry* — *tree-planting privately on farms*
- *Local Forest Management* — *the management of forests near to villages and settlements by local people, with or without foresters, as a complement to agriculture, or even in alternation with it as in swidden-fallowing systems*
- *Management of communally owned areas (CPRs — Common Property Resources)* — *such as watersheds where some trees, in conjunction with other resources such as grazing or water, are managed for local benefits.*

What word or phrase covers all these types of activity? And indeed, do we need to call this kind of forestry by a special name any longer, or has all forestry — as we hope — now recognized that local people are key tree managers and owners, given half a chance?

None of the alternatives are ideal. We do not much like the phrase 'Community Forestry' because it assumes that villagers regularly act communally, which may or may not be the case in any particular area and because the phrase is very much associated with tree-planting in most places, rather than local people's involvement in management of existing resources.

Too many other organisations are using the phrase 'tropical forestry' for Tropical Forestry Network to be a good solution, though this would be attractive otherwise. Some of us here at ODI like the idea of calling the network the RURAL DEVELOPMENT FORESTRY NETWORK, while others are less sure.

We really need your views and somebody's inspiration. Perhaps we need to know, too, whether the majority of Networkers would actually prefer to stick with the old familiar name of SOCIAL FORESTRY NETWORK, rather than change it.

PAPERS WITH THIS NEWSLETTER

Some of the most valuable experience of Social Forestry programmes has been in relation to changes required within forest departments as they strive to develop viable 'out-reach' capacities. This reorientation to farmer-based forestry enterprises almost always involves changes in the working practice of forest staff assigned to extension duties. This in turn, may set in motion a deeper structural and operational re-organisation within the government forest service. The need for amendments to forest policy and legislation has also been highlighted. The seven papers of this mailing are linked by this theme of 'INSTITUTIONAL CHANGE'.

Paper 12a (Gayfer & Shanks) looks at problems relating to the formulation and implementation of an appropriate legislative framework for farm forestry in Northern Vietnam. In many ways the situation in Vietnam is unique, not least because the government has embarked on a process of redistribution of state forest land on a scale and at a rate not matched elsewhere. This case study clearly illustrates the necessity of matching changes in forest policy with the provision of adequate support for local land use planning. Paper 12d (Ayling) provides an overview of the lessons which can be learnt by social foresters from diagnostic approaches to land use research, thereby enabling them to make their programmes more relevant to the needs of small-scale farmers and other land users.

In Paper 12b (Gronow & Shrestha) the underlying rationale of the training programme in Nepal is discussed, showing that conventional methods of instruction used in forester training institutes rarely prepare extension staff adequately for the type of work they are expected to carry out in the field. They can only be expected to facilitate participatory methods of communication, such as group meetings, if they have gone through an intensive process of learning by these means themselves. This paper provides a good example of the way in which such training can be organized. Paper 12f (Garforth), on extension training provided under the Karnataka Social Forestry Programme in India, shares similar methodological concerns, linking these to changes required in curricula at all levels.

Papers 12c (Thapa *et al*) and 12e (Barrow) examine the development of an adaptable *modus operandi* for extension services in two contrasting environments - upland Nepal and dryland Kenya. Perhaps the most important lesson to emerge from these case studies is that it is not possible to set rigid across-the-board guidelines for the way in which local forest departments organize extension work. The types of activities they become involved in and the rate at which they implement them will vary greatly according to the particular needs of local land users.

12a *Northern Vietnam: Farmers, Collectives and the Rehabilitation of Recently Reallocated Forest Land*, by Julian GAYFER & Edwin SHANKS

12b *From Mistrust to Participation: The Creation of a Participatory Environment for Community Forestry in Nepal*, Jane GRONOW & N K SHRESTHA

12c *A Community Scheme to Encourage Private Tree Planting by Farmers in the Hills of Nepal*, B. THAPA *et al.*

12d *Making Forestry Research Relevant to Third World Farmers*, by Ron AYLING

12e *The Challenge for Social Forestry Extension Work in Pastoral Africa*, by Ed BARROW

12f *Seeing the People for the Trees: Implications of Social Forestry for the Training of Forestry Extension Staff in Karnataka, South India*, by Chris GARFORTH

12g *FROM THE FIELD - Shorter Contributions from Networkers*, Czech CONROY, N JAYARAM & N C SAXENA, Donald MESSERSCHMIDT, Robert BISHOP

Errata

The Social Forestry Network would like to apologize to ROBERT WAKE and our Networkers for the error in Network Paper 11c *'Social Forestry in Northern Ethiopia: Turning Felt Needs into a Driving Force'*. We wrongly attributed the paper to Julian Wake of Canada.

ROBERT WAKE can be contacted at: The Maltings, Stradbroke, Diss, Norfolk IP21 5JG, UK

NETWORK ANNOUNCEMENTS

A CALL FOR REFERENCES AND LITERATURE

Kristine K. Schwebach, Research Associate with the Centre for Indigenous Knowledge for Agriculture and Rural Development (CIKARD), is currently compiling an annotated bibliography that focusses on how gender differences are reflected in --

- indigenous knowledge systems
- decision making
- organisations and
- development approaches.

Please send any references or relevant papers to:

Kristine K. Schwebach
CIKARD
Iowa State University
324 Curtiss Hall
Ames, Iowa 50011
USA

ITTO Tropical Forest Management Update

The International Tropical Timber Organisation (ITTO) is funding a project to promote the development of human resources with the purpose of achieving conservation and sustainable management of tropical forests. A regular newsletter, called *'ITTO Tropical Forest Management Update'*, is being published every three months and presents information on tropical forest management innovations, approaches to tropical forest conservation, and training opportunities for forest managers and others. The Newsletter is presently aimed at the Asia-Pacific region but it is hoped to expand the scope of the Newsletter to Africa and Latin America from 1992. The project is being coordinated by ANUTECH, the consulting arm of the Australian National University in Canberra, Australia.

We welcome and encourage contributions by organisations and individuals on topics relating to the above themes. These can be directed to the address below, as can requests to receive the Newsletter 'ITTO Tropical Forest Management Update' (nb participation is not restricted to ITTO member countries).

Dr Frans Arentz
ITTO Tropical Forest Management Update
ANUTECH Pty Ltd
P.O.BOX 4
Canberra, ACT 2601
AUSTRALIA
Tel: +61(62)-495861
Fax: +61(62)-495875

INTERNATIONAL BEE RESEARCH ASSOCIATION

The work of the International Bee Research Association is to encourage the understanding of bee resources.

Within forests there exists a harmonious interdependency between trees and bees which has been perfected over 50 million years or so. Beekeeping allows rural people to take part in the benefits of this symbiosis. While the sustainable use of tree resources is advocated widely, the sustainable use of bee resources is often overlooked.

Beekeeping has traditionally been practised in almost every area where there are flowering trees and honey bees. Today, beekeeping remains well established in some developing countries, but tremendous potential exists for further beekeeping enterprises to be organized as part of Social Forestry projects.

Good examples of beekeeping enterprises are provided by the cooperatives practising in the Miombo woodlands in East Africa. One of these in Tanzania is the Tabora Beekeepers' Cooperative Society. Tabora beekeepers use the traditional methods handed down through generations. These methods are efficient, economic and sustainable. The products, honey and beeswax, are of export quality. This means that rural people gain income from a forest product, harvested in a sustainable way. This, in turn, increases local people's interest in the preservation of their forest resources.

Most multi-purpose trees planted by community forestry schemes can be utilized by honey bees. The nectar and pollen produced by these trees is a valuable resource which, unless gathered by bees, remains unharvested. Beekeeping is a worthwhile activity to encourage, with economic returns available soon after the project is commenced.

Beekeeping and Development is a quarterly journal emphasizing beekeeping as a sustainable and worthwhile form of agriculture. It gives technical information on all aspects of beekeeping - from discussion of trees useful for bees, to making hives and managing bees, to harvesting, sale and applied use of bee products.

Subscription rate is £ 11 per annum.

Information is available to all those who would like to know more. Your contact:

Nicola Bradbear
Advisory Officer for Tropical Agriculture
International Bee Research Association
18 North Road
Cardiff CF1 3DY, South Wales
UK

LUNCHTIME MEETINGS

Social Forestry Network

22 Jan 1991
'Community Forestry or Rhetoric? Some practical implications for the re-orientation of lower level Forest Department staff in Nepal'. Nick ROCHE, OFI, University of Oxford, Oxford, UK.

10 Apr 1991
'Venezuela's Amazon Federal Territory: the Role of Non-Timber Forest Products in Sustainable Livelihoods'. Mary MELNYK, Centre for Environmental Technology, Imperial College of Science and Technology, London, UK.

9 May 1991
'Population Pressure and Forest Reserves: Finding a Social Solution'. Christian GUGGENBERGER, Coordinator, 'Austrovich' Project, Nyarutovu Commune, Busengo, RWANDA.

26 June 1991
'Looking After Our Land: Soil and Water Conservation in Sub-Saharan Africa'. Will CRITCHLEY, Consultant, Free University Amsterdam, with an introduction by Olivia GRAHAM, OXFAM & Camilla TOULMIN, IIED. Joint meeting SFN, IMN, OXFAM, IIED.

Agricultural Research & Extension Network

30 Jan 1991
'From the Transfer of Technologies to the Transfer of Institutional "Blueprints" — Perceptions and Misperceptions in International Agricultural Research'. D. Horton, ISNAR.

21 June 1991
'Seed Supply to Small Farmers: The Changing Roles of Government, NGOs and Farmers' Organisations', interim report from two on-going projects. Elizabeth CROMWELL, ODI Research Fellow, Sondra WENTZEL, ODI Research Associate, and Conny ALMEKINDERS, Development Research Institute, University of Tilburg, Netherlands.

Irrigation Management Network

26 June 1991
'Looking After Our Land: Soil and Water Conservation in Sub-Saharan Africa'. Will CRITCHLEY. Joint meeting SFN, IMN, OXFAM, IIED.

17 July 1991
'Construction Quality: A Cause of Underperformance in Irrigation Projects'. Harald FREDERIKSEN.

Pastoral Development Network

12 Mar 1991
'The Changing Pattern of Livestock Production in Nigeria: Some Insights from the National Livestock Resource Survey'. Roger BLENCH.

18 June 1991
'Degradation in Australia's Rangelands: Any Lessons for African and Asian Pastoral Development?' Mark STAFFORD-SMITH, CSIRO, Alice Springs, AUS.

4 July 1991
'Camel Improvement in Kenya: the FARM AFRICA Programme'. Chris FIELD, FARM AFRICA, Kenya.

'Community Forestry or Rhetoric? Some practical implications for the re-orientation of lower level Forest Department staff in Nepal' Nick ROCHE, OFI, Oxford, UK
Lunchtime Meeting held on 22.1.1991

Nick Roche from the Oxford Forestry Institute presented a talk on one of the most neglected issues within Community Forestry. In his view the concepts of Community Forestry are often brought out in project documents, but the reality of being a 'Community Forester' in the villages is hardly ever really addressed, leaving field workers in a frustrating vacuum. He explored some of the implications of this using his experience gained from working in a particular village *panchayat* in the mid-hills of Nepal.

'Venezuela's Amazon Federal Territory: the Role of Non-timber Forest Products in Sustainable Livelihoods'
Mary MELNYK, Imperial College London
Lunchtime Meeting held on 10.4.1991

The Amazon Federal Territory covers 178,000 km², of which 90% is forested. For the protection and management of the area the Venezuelan Government has recently established a service — SADA Amazonas. One of the first activities of this service will be a study of the contributions of non-timber forest products to the livelihoods of the Piaroa Amerindians.

This lunchtime meeting provided an opportunity to discuss the hypotheses and proposed methods for this research. Case studies will be conducted to compare two contrasting Piaroan villages practising swidden cultivation. Models will be developed to illustrate the factors which influence decisions regarding harvesting and management strategies for both the traditional village system and the one experiencing greater development pressures. And the quantification of non-timber forest products to livelihoods should provide valuable information for assessing policies which aim to promote forest protection and development.

'Population Pressure and Forest Reserves: Finding a Social Solution'
Christian GUGGENBERGER, Rwanda
Lunchtime Meeting held on 9.5.1991

Christian Guggenberger began the meeting with a short video and background description of the forestry situation in the study area. Northern Rwanda is fertile, hilly and extremely densely populated. Forest policies rooted in the past have ensured that extensive areas are still maintained as reserves, although almost a third of these are poorly managed and unproductive. Due to the pressures on the land outside, a process of uncontrolled settlement within the reserves has inevitably begun to take place. A discussion ensued on how the Forest Administration should respond to this situation. Attention focussed on the importance of gaining accurate understanding of the complementarity of on- and off-farm tree production. While some forest reserve land may be released for farmer settlement in return for a commitment to plant appropriate trees on a proportion of it, the better reserves must be better protected, even when granting continuing access for non-timber forest products in great demand such as grass and mushrooms. The Forest Administration itself will need new orientation if the area of reserve land is reduced and staff released from protection duties will need to be re-deployed in extension activities.

The meeting raised many critical questions which will occupy foresters in the coming years as it becomes increasingly apparent that collaboration with farmers is just as important within natural forests as it is outside reserves on farmland.

'Looking After Our Land: Soil & Water Conservation in Sub-Saharan Africa'
Will CRITCHLEY, Free University Amsterdam
Lunchtime Meeting held on 26.6.1991

The meeting, jointly organized by ODI's Social Forestry & Irrigation Management Networks, in conjunction with Oxfam & IIED, provided the forum for the UK launch of a new video and book on soil and water conservation.

Soil conservation projects in sub-Saharan Africa have had a troubled record over the past 30 years or so. However, in the last decade, a number of new approaches have been piloted demonstrating that land users are motivated and capable of taking charge of their environment provided they are sufficiently involved from the outset, in the planning and implementation of conservation activities. The video and book presented contain the main lessons to be learnt from six project case studies: two each from Burkina Faso, Kenya and Mali.

The video and book have been produced for development workers in arid and semi-arid Africa but will be of general interest to a wider audience concerned with environmental issues. The video is suitable for use in workshops and the book as a reference tool. Both are available in English and French. For a copy or further information please contact:
Oxfam Publications, P.O.BOX 120, Oxford OX2 7DZ, UK.

CONFERENCES & WORKSHOPS

International Workshop on Socio-Economic Aspects in Tree Growing by Farmers in South Asia

Workshop held at Anand, India, 11-14 March 91

Organized by the Institute of Rural Management Anand, the Oxford Forestry Institute and the Ford Foundation, this workshop was convened to bring together researchers investigating socio-economic factors influencing farmer decisions about the growing and the management of trees within farming systems. Fourteen of the papers examined aspects of the planting that has resulted from support to farm forestry within India's Social Forestry programmes. The research reported on, focussed in particular on reasons for regional variations in tree growing, markets and marketing issues, and links to factor availability and allocation. Other papers examined spontaneous shifts to greater dependence on farm tree resources, as forest resources in the public domain decline, in Pakistan and parts of India, Nepal, Sri Lanka and Bangladesh. A proceedings volume containing all the papers is under preparation, and will be published by Sage Publications, New Delhi. Further information about its content may be obtained from *Dr Vishwa Ballabh, IRMA, Anand 388 001, Gujarat, INDIA.*

Mike Arnold
Oxford Forestry Institute

The Social Dynamics of Deforestation in Developing Countries

Conference held in Nairobi, Kenya, July 1991

This conference brought together specialists carrying out case studies under a research programme on the Social Dynamics of Deforestation in Developing Countries. The conference was jointly sponsored by the United Nations Research Institute for Social Development (UNRISD) and the Regional Soil Conservation Unit of the Swedish International Development Authority (SIDA).

The UNRISD research programme on the Social Dynamics of Deforestation is examining the national and regional implications of deforestation for the livelihood and living conditions of poverty groups in rural and urban areas. Issues being investigated include how and why deforestation occurs, and individual and collective reactions of people living in and around forests. Interactions with other key actors such as the state, modern commercial interests, non-governmental organizations and different social groups, as well as alternative strategies to deal with deforestation processes are also being examined. Research is currently being carried out in Brazil, Central America, Nepal and Tanzania, along with thematic studies on related issues.

Preliminary findings of the research programme presented at the conference were discussed. These include the fact that public policies of governments and of international organizations have played a major role in deforestation, which has most affected the weaker sections of the population including forest dwellers, ethnic minorities, the landless, women and children. Researchers emphasized that official measures to halt deforestation or to provide alternative sources of income and employment have usually been ineffective. Finally, it was stressed that popular participation and mobilization have proved to be key factors both in protecting forests as well as in maintaining local people's access to forests.

The above research programme is being undertaken in combination with UNRISD's on-going work on Environment, Sustainable Development and Social Change. Publications resulting from these research programmes will be submitted in order that they might serve as inputs to the United Nations Conference on Environment and Development in Brazil in June 1992. More information and a list of UNRISD publications can be obtained by writing to the Reference Centre, UNRISD, Palais des Nations, CH-1211 Geneva 10, Switzerland.

UNRISD
Switzerland

Technical Workshop to Explore Options for Global Forestry Management

Held at Bangkok, 24-30 April 1991

The objective of this workshop, which was attended by senior researchers and policy-makers from across the world, was to contribute policy-relevant technical information to assist current international discussion of initiatives.

Global interest in forest resources has broadened recently to include all forest biomass (tropical, temperate and boreal), and the need for sustainable provision of a wide range of forest services, including forest products, biofuels, carbon stock and sinks, and maintenance of hydrological cycles. While nations have sovereign control over their forests, the global resource aspects of forests are being increasingly recognised.

A number of major international initiatives to improve management of forest resources are under way, including the Tropical Forest Action Plan, Climate Convention, Biodiversity Convention, and Global Forest Instrument. In light of these efforts, policy-makers urgently need the best information and technical assessment of potential site-level, national, and international options to protect and better manage forests.

The main conclusions from the workshop include:

- A need was identified for better information on the extent of forests, including further effort to ensure that appropriate definitions were used for each forest type and objective. Nomenclature for tropical rain forest is extremely variable; this leads to considerable confusion over their extent, biomass and diversity. In considering carbon fixation objectives, for example, it was noted that agroforestry and agricultural tree crops may need to be taken into account. It was also noted that on-farm trees, which are generally not included in figures on forest cover are in many countries as least as important in carbon terms as formal forest areas.

- A collaborative global and regional effort was urgently required, building on existing remote sensing and ground truthing capacity, to reinforce work on monitoring the status of and changes in forests in boreal, temperate and tropical regions. Current data on open forests and scattered farmland trees - which are very important to the total figure - are weak because these formations are poorly identified by remote sensing.

- It was essential in all discussions to acknowledge that trees and forests provided a wide variety of social, economic and environmental functions, both for present generations and for those to come. A comprehensive approach was therefore essential in addressing forest issues.

- Better information on the cost effectiveness of and the social and economic basis for different options for global forest management, and on quantifying the multiple roles of forests, was an urgent research priority.

- Policies and programmes need to be tailored closely to local conditions and circumstances, in particular the socio-economic and institutional setting and constraints.

- There is a continuing need for substantial and high quality technical and financial cooperation in the management of the world's trees and forests.

Workshop Proceedings

'Forests, a heritage for the future'

10th World Forestry Congress
Held in Paris, 16-25 September 1991

The World Forestry Congress addressed the following subject areas:

- The forest, the protective heritage
- Conservation and protection of the forest heritage
- Trees and forests in land management
- Management of the forest heritage
- The forest heritage, an economic resource
- Policy and institutions

The recommendations that emerged from the Congress included the following:

- That all people be involved in the integrated development of their region, and that they be provided the institutional, technical and financial means to do so.
- That land management planning be based on the land's potential and on long-term priorities, in order to determine sites that are best suited to be forested.
- That the needs of all people concerned, particularly those who depend on forests for their livelihood, should be carefully taken into consideration at the planning stage.
- That the continuity of tree and forest management policies be guaranteed, given the need to manage forests on a long-term basis.
- That the designation of certain representative or endangered forests as protected zones continue, and that they be integrated into national or international networks;
- That appropriate silvicultural techniques, the extension of woodlands and the long-term use of wood be used to contribute to absorption of atmospheric carbon dioxide.
- That agroforestry systems, afforestation and reforestation be developed more actively.

To ensure that these recommendations are acted upon certain actions are required from decision-makers including the adaptation of economic and financial mechanisms to the long-term approach required for forest management; working towards harmonious development of international trade in forest products through the prohibition of any unilateral restriction, inconsistent with the GATT; development of cooperative initiatives, at the political level, on clearly identified forestry issues of regional importance; and finally limit all emissions of pollutants that damage forests.

Mary Hobley
ODI

SPECIAL ANNOUNCEMENT
ARGENTINE-CHILEAN INTERNATIONAL CONGRESS ON ARID ZONES
Sustainability of Natural Resources in Arid Zones

The Academia Nacional de Ciencias Exactas, Físicas y Naturales of Argentina and the Academia Chilena de Ciencias del Instituto de Chile announce that the date for the Congress, to be held in Argentina, has been changed from November 1991 to

15 - 18 June 1992

shortly after the UN Conference 'Environment & Development' in Rio de Janeiro, Brazil. Several workshops have been planned. Details will be announced.

Academia Nacional de Ciencias
Avda. Alvear 1711, 4° piso
1014 Buenos Aires, Argentina
FAX: +54(1)-416951

Academia Chilena de Ciencias
Almirante Montt 453
Santiago de Chile, Chile
FAX: +56(2)-332129

Perdurabilidad de los Recursos Naturales de las Zonas Aridas
CONGRESO INTERNACIONAL ARGENTINO-CHILENO SOBRE ZONAS ARIDAS
ANUNCIO ESPECIAL

CALENDAR

JANUARY 1992

6-10 January 1992
INTEGRATING FOREST INFORMATION OVER SPACE AND TIME
Canberra, ACT, AUSTRALIA
Contact:
Dr Brian Turner or
Dr Geoff Wood
ANU — Dept. of Forestry
P.O.BOX 4
Canberra, ACT 2601
AUSTRALIA

13-17 January 1992
REMOTE SENSING AND WORLD FOREST MONITORING
Ambassador City Jomtien, Pattaya
THAILAND
Contact:
Dr Songkram Thamminchа
Co-Chairman IUFRO
Kasetsart University
Faculty of Forestry
Bangkok 10903
THAILAND or
Dr Risto Paivinen
Chairman IUFRO
University of Joensuu
P.O.BOX 111
80101 Joensuu, FINLAND
Fax: +358(73)-1213590

15-17 January 1992
SUSTAINABLE EFFECTIVE MANAGEMENT SYSTEMS FOR COMMUNITY FORESTRY
Bangkok, THAILAND
Contact:
Dr Somsak Sukwong
Director RECOFTC
Kasetsart University
Bangkok 10900
THAILAND

JANUARY/FEBRUARY 1992

IV WORLD CONGRESS ON PROTECTED AREAS
Caracas
VENEZUELA
Contact:
IUCN — The World Conservation Union
Ave. du Mont Blanc
CH-1196 Gland
SWITZERLAND
Tel: +41(22) 649114
Fax: +41(22) 642926
Telex: 22-419 604 IUCN CH

MARCH 1992

SYMPOSIUM ON NON-WOOD FOREST PRODUCTS
Taipei, CHINA
Contact:
H H Chung
Forest Management Division
Forestry Research Institute
53 Nan-Hai Road
Taipei 10728
TAIWAN, CHINA
Tel: +886(2)-311 0061
Fax: +886(2)-314 2234

9-12 March 1992
FORESTRY & the ENVIRONMENT ECONOMIC PERSPECTIVES
Edmonton, CANADA
Contact:
Dr Bill White
Forestry Canada
Northern Forestry Centre
5320 122 Street
Edmonton, Alberta T6H 3S5
CANADA
Tel: +1(403)-435 7359
Fax: +1(403)-435 7315

MAY 1992

17-20 May 1992
4th NORTH AMERICAN SYMPOSIUM ON SOCIETY & RESOURCE MANAGEMENT
Madison, WI, USA
Contact:
Donald R Field
Associate Dean
School of Natural Resources
College of Agriculture and Life Sciences
1450 Linden Drive
Madison, WI 53706, USA
Tel: +1(608)-262 6968

JUNE 1992

WORLD CONFERENCE ON ENVIRONMENT & DEVELOPMENT
Rio de Janeiro, BRAZIL
Contact:
UNCED Secretariat
C.P. 80
CH-1231 Conchès, Geneva
SWITZERLAND
Tel: +41(22)-789 1311
Fax: +41(22)-789 3536

AUGUST 1992

24-28 August 1992
TROPICAL TREES: POTENTIAL FOR DOMESTICATION
Rebuilding Forest Resources
Edinburgh, UK
Contact:
ECTF Conference Secretariat
Institute of Terrestrial Ecology
Bush Estate
Penicuik
Mid-Lothian EH26 0QB, UK

COURSES

Ecología de Poblaciones

Organisation for Tropical Studies & University of Costa Rica
January-February 1992

A graduate-level field course is offered jointly by the Organisation for Tropical Studies and the University of Costa Rica. Contact:

Barbara E. Lewis
Academic Coordinator
OTS
Costa Rican Office
Apartado 676
2050 San Pedro de Montes de Oca
COSTA RICA
Tel: +506()-40 6696
Fax: +506()-40 6783

Applied Legume BNF Technology for Extension Specialists

Thailand
2-27 March 1992

A two-session training course designed for PVOs (NGOs) and extension specialists. Participants will learn to assess BNF problems in the field, design appropriate tests and demonstrations, and provide farmers practical solutions. Contact:

The Training Coordinator
NifTAL Project
1000 Honolulu Avenue
Paia, Hawaii 96779
USA
Tel: +1(808)-579 9568
Fax: +1(808)-579 8516
Telex: 7430315

2nd International Course on Fodder Tree Legumes—Multipurpose Species for Agriculture

University of Queensland, AUSTRALIA
November-December 1992

Six-week short course of lectures and field visits to commercial properties and experiment stations in tropical and sub-tropical Australia. Objectives are to inform participants of the range of fodder tree species available to agriculture, review their environmental adaptions, and examine their role in animal production, soil fertility improvement, and erosion control. Official course language is English. Cost: AUS$ 12,000. Contact:

Fodder Tree Legumes Course Secretariat
UniQuest Limited
University of Queensland
St. Lucia, Queensland
AUSTRALIA
Tel: +61(7)-365 4037
Fax: +61(7)-365 4433
Telex: AA 40315

Flyers

For details of the AERDD—University of Reading 12-week *'Rural Extension for Foresters'* course (13.1.92-3.4.92), and the University of Wales—Bangor short-course *'Advances in Agroforestry: Project design, selection and management of components and system evaluation'* (29.3.92-10.4.92), see flyers enclosed with this mailing.

NEWS OF THE AAU

Within the AAU (Agricultural Administration Unit), based at ODI, there are four research and information exchange networks — the Agricultural Research & Extension Network, Irrigation Management Network, Pastoral Development Network and the Social Forestry Network. Each network publishes a Network Paper series and a Newsletter.

Agricultural Research & Extension Network

The AR&E Network, run by John Farrington, with the help of Kate Wellard, Research Fellow, and Network Secretary Kate Cumberland, published the following June 1991 papers:

22. *Institutional Aspects of Environmental Research and Extension in Kenya: The Department of Forestry and Kenya Energy and Environment Organisations* by Patrick MUNG'ALA & Gilbert ARUM

23. *Inter-Agency Collaboration in the Development of Agricultural Technologies at National and District Level in Kenya* by John MUSYOKA, Rosemary CHARLES & James KALULI

24. *Government and NGO Collaboration in Natural Resources in Zimbabwe* by D MUNGATE & Sara MVUDUDU

25. *Involving Farmers in Rural Technologies: Case studies of Zimbabwean NGOs* by M NDIWENI, Brian MACGARRY, Arthur CHAGUMA & Davison GUMBO

Irrigation Management Network

The IMN, run by Linden Vincent, with Network Secretary Amanda Barton, published the following December 1990 papers:

3b *Interactions Between Technical Infrastructure and Management* by L HORST

3c *Irrigation Allocation Problems at Tertiary Level in Pakistan* by M Akhtar BHATTI & Jacob W KUNE

3d *Sustainable Development of Groundwater Resource: Lessons from Amrapur and Husseinabad Villages, India* by Tushaar SHAH

3e *The Politics of Water Scarcity: Irrigation and Water Supply in the Mountains of the Yemen Republic* by Linden VINCENT

3f *Perspectives on the Middle East Water Crisis: Analyzing Water Scarcity Problems in Jordan and Israel* by R SEXTON

Pastoral Development Network

The PDN, run by Roy Behnke with the assistance of Desiree Dietvorst, Research Assistant, and Network Secretary Jane Horsfield, published the following July 1991 papers:

31a *The Overstocking and Offtake Controversy Reexamined for the Case of KwaZulu* by David R TAPSON

31b *Changes in the Species Composition of Pastoral Herds in Bay Region, Somalia* by Mujeeb N AL-NAJIM

31c *The Impact of Commercialisation on the Role of Labour in African Pastoral Societies* by Patrick M SIKANA and Carol K KERVEN

31d *Traditional African Range Management Techniques: Implications for Rangeland Management* by Maryam NIAMIR

Back copies of papers or further information on the networks can be obtained from the appropriate Network Secretary.

BOOKSHELF

Balanites aegyptiaca

Two Documents

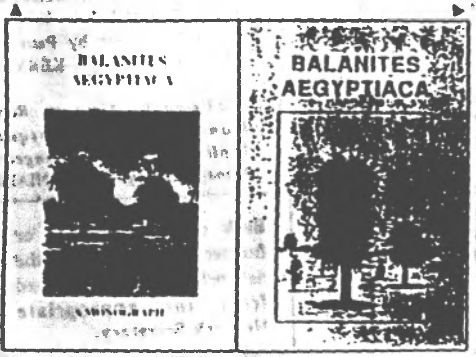
Balanites aegyptiaca is one of the most widespread and versatile tree species found in the dry savanna regions of Africa, occurring in no less than 31 countries from Morocco to Zimbabwe. Historical records show that people in Africa have been finding uses for the tree for over two thousand years, and it continues to play a significant role in many rural economies. It yields an impressive variety of foodstuffs for human consumption, fodder, timber for light construction, implements and tools, and chemical and medicinal extracts for domestic use as well as for commercial production. ***Balanites*** also has great potential in agroforestry as farmers in many places give the tree special protection on land where much of the natural vegetation has otherwise been cleared for cultivation and settlement. In recent years, when the Sahelian region has suffered from several periods of extended drought, ***Balanites*** has earned the reputation of being a 'life-saver' through it's resilience to environmental stress and by providing foodstuffs when other food reserves are depleted.

As part of on-going research on a range of multipurpose tree species for the dry savannas, conducted in association with the University of Maiduguri in Nigeria, the School of Agriculture and Forest Sciences (University of Wales) has recently published two complementary documents on this important tree species.

Balanites aegyptiaca — A Monograph

J B Hall & D H Walker, 1991

The first document is a comprehensive scientific monograph which synthesizes the information currently known about the species with regard to its botanical classification and description, biology, ecology, husbandry and management, its traditional role as a resource and potential role as an agro-industrial resource and market significance. This document will be of use to researchers and professional foresters as a basis for ongoing work on the domestication and management of the species.



Balanites aegyptiaca — A Handbook for Extension Workers

E Shanks & P Shanks, 1991

The second document is an illustrated handbook for extension workers which begins by outlining the tree's many uses, its distribution and position in the savanna landscape. Consideration is then given to the advice that extension workers may give land users on the husbandry of ***Balanites*** including propagation techniques, the selection of good quality seed trees, and the management of ***Balanites*** on various positions on farmland and in natural woodland. The handbook has been published in English, but Hausa and French versions will be available in the near future.

Prices (including postage and packing):
Monograph — £10.00. Extension Handbook — £5.00
Set of two — £12.00

A 10% discount is available on orders of 10 copies or more of either document. ODA has provided a grant for a limited number of copies to be distributed free of charge to organisations in countries where the tree is found.

To obtain copies please send a cheque for the correct amount payable to the 'University of Wales' to:

School of Agricultural & Forest Sciences
University of Wales
Bangor, Gwynedd LL57 2UW, UK.

Common Property Resource Management in India

J.E.M. Arnold and W.C. Stewart, 1991
Oxford Forestry Institute
Tropical Forestry Papers N° 24

This study reviews the state-of-knowledge regarding common property resource management in India. CPRs occur under a wide variety of formal and customary tenure arrangements including panchayat and revenue lands, reserved and unreserved forests and private seasonal agricultural land. During the colonial and post independence periods, CPRs have progressively diminished as they have been brought under government control or privatized. Many traditional forms of CPR management have weakened or collapsed due to increasing population pressure, greater commercialisation, certain public policies, technological change and environmental pressure.

The importance of remaining CPRs is twofold: 1) they provide complementary inputs which are often crucial to the functioning of other components of the agricultural systems of which they are a part; and 2) they are often a major source of support for the poor who generally lack access to the resources necessary to develop privatized common land and who benefit considerably from the employment created by CPR management activities.

The strong thrust towards bringing CPRs under government or private control has often been based on a thesis which confuses degradation due to unregulated use under an open access situation for breakdown in CPR management arrangements. This misunderstanding is compounded by a tendency to overlook the reasons why the alternative management arrangements may themselves not be sustainable or efficient and the bias which can exist within property legislation in favour of private property.

The pressures on remaining CPRs will undoubtedly further erode existing management practices and institutions.

The authors note that some recent interventions, such as most of the social forestry communal woodlots programmes, have contributed to this. Nevertheless, the examination made of surviving indigenous regimes, and of promising new ones, reveals a number of features which appear to define conditions for viable and sustainable CPR management in appropriate circumstances. These centre round control and management by the 'user group', securing their rights of access to the resource and defending these against intrusion, and investment in the particular outputs that the users value and can manage.

For information on how to obtain copies of this publication write to:

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South Parks Road,
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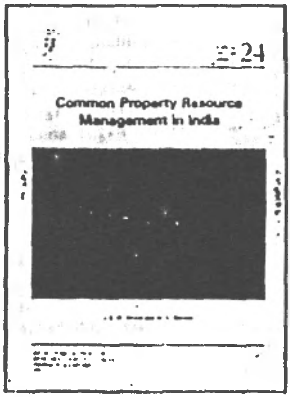


Social Forestry: Communal and Private Management Strategies Compared

Social Change & Development Programme

The Programme of Social Change and Development of the John Hopkins University, Nitze School of Advanced International Studies has produced a volume of Social Forestry Case Studies presented at a conference on social forestry held in February 1991.

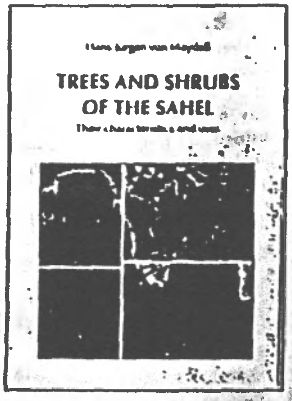
The book examines social forestry programmes implemented in Kenya (CARE — Agroforestry Project), Indonesia (Ford Foundation — Java Social Forestry Programme), Haiti (USAID/Pan American Development Foundation — Agroforestry Outreach Project) and Niger (USAID — Forest Land Use Planning Project). Each case highlights how local people are involved in the management of woodlands in order to sustain basic needs and to protect the environment.

To order, send US$ 12 to: SAIS, Social Change & Development Prg.
1740 Massachusetts Avenue NW
Washington DC 20036, USA.
A 15% discount is available on orders of 10 or more copies.

Trees and Shrubs of the Sahel — Their characteristics and uses

Hans-Jürgen von Maydell, 1990
Published by:
GTZ & Verlag Josef Margraf, Mühlstr.9, D-6992 Weikersheim, BRD

The revised English version of this field handbook (1986, 1990) is now available. It contains detailed information and excellent colour photographs of 113 sahelian species, together with summary tables of the species of most use for different products, an extensive listing of vernacular names, and plates to aid seed identification. Also available in French.



Woodfuel, Women and Woodlots Volume 1: The Foundations of a Woodfuel Development Strategy for East Africa

Phillip N. Bradley
MACMILLAN EDUCATION LTD London/Basingstoke
ISBN 0-333-54378-5

This book by P.N. Bradley is the first volume of two providing an account of the work of the Beijer Institute's Kenya Woodfuel Development Programme (KWDP) which started in 1983, although its origins go back further, to the late 1970s. Its main area of study surrounds the woodfuel crisis in Kenya, which became apparent through general research into the country's energy supply and demand. Throughout its work the KWDP has been encouraged and supported by the Kenyan government and also by the aid agencies of the Netherlands (MBZ) and Sweden (SIDA), who financed the research and development programmes.

This book has been written with three purposes in mind — Firstly, to make known to a wider audience the methods used in the study; Secondly, to describe and interpret the results that the programme has yielded; Thirdly, to set out the principles for putting these findings into practice.

By comparing and contrasting customs relating to wood production through agroforestry and the gathering of woodfuel, two areas which may or may not seem to be related in three districts, the team of investigators draw out interesting parallels and disparities in attitudes —

- to wood supply, as a potential source of energy
- to women
- and to stocks of woodfuel.

Managing Agricultural Research for Fragile Environments: Amazon and Himalayan Case Studies

John Farrington & Sudarshan B Mathema, 1991
Overseas Development Institute — Occasional Paper Nº 11

This book arises from three sets of concerns; that much agricultural development has been insensitive to environmental issues in fragile areas — increased attention to joint management of on- and off-farm resources (especially trees and pasture) is essential to sustainability; that conventional approaches have generally been unsuccessful, and that, although recent participatory approaches to technology development have been successful on a limited scale, substantial problems remain to be overcome if they are to be institutionalized more widely. The book draws on detailed case studies of successful and institutionally innovative approaches to research, dissemination and feedback in two widely-contrasting environments — the hills of Nepal and the lowlands of Bolivia. The case studies are set against a broader overview of the research structure in the two countries. Major conclusions are: • many of the principles of participatory approaches can be institutionalized by the public sector to produce adoptable and sustainable agricultural and agroforestry technologies; • agencies outside government are an important source of research and extension in these areas and governments should find ways of working with them; • in order to be effective, donor involvement should concentrate less on short-term inputs and more on long-term involvement of technical cooperation staff; • scarce government resources can be utilized more effectively if given thematic and geographical focus; • no blueprint to successful institutional design or technology development exists — local solutions must be developed to fit local contexts; • a high degree of decentralisation of day-to-day management is needed if such solutions are to be found; and • the role of international agriculture centres and of national centres in finding solutions for fragile areas has been limited, so collaboration between these institutions focussing on fragile areas, although highly desirable in principle, should in practice be closely limited to areas of likely mutual benefit.

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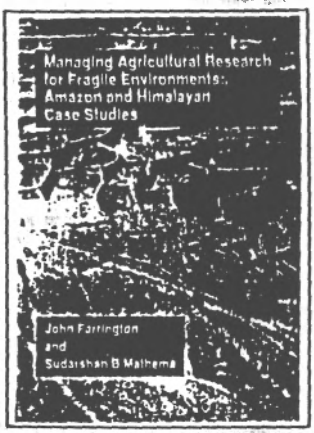

Extension Alternatives in Tropical Africa

Jon Moris, 1991
Overseas Development Institute — Occasional Paper N° 7

In this book Jon Moris analyzes how far agricultural research in Africa has succeeded in producing implementable innovations, how they have been disseminated, and what commonly goes wrong in extension. He considers the organisational, economic and ecological context of agricultural extension, and puts forward alternative organisational forms and essential management requirements and methods for involving farmers. Particular attention is given to assessing the implications of the 'farming systems research' and 'training and visit' approaches to extension reform.

A principle message which emerges from the book is that Africa's extension planners must begin to make hard choices. Many governments currently operate complex networks of service institutions, often with the support of 20-30 donors, which exceed what the local economy can sustain. Africa's peasant agricultural production is especially demanding of external assistance, while providing only a weak resource base to support such activities. At the same time, it is clear that extension functions need not, and indeed perhaps cannot, in the future be confined to crop production alone. Increasing demands are being made to broaden the coverage of extension into areas such as livestock and forestry.

The book positively tackles the key policy questions which arise from this paradox. How might the experience gained from new methods of 'participatory' research and extension be institutionalized in government services? What measures might be taken to increase cost recovery? At what point in a given area or with regard to particular farm enterprises is organized assistance warranted? And what new linkages between organisations are necessary and how should existing systems of extension be changed to increase their impact? The book is addressed chiefly to extension planners within land use ministries in African countries, but it will be essential reading for anyone wanting a well argued critique of the extension experience in tropical Africa.

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Economic analysis of agroforestry technologies: An annotated bibliography

Rob A Swinkels & Sara J Scherr
ICRAF — Nairobi, 216 pp.
ISBN 92 9059 090 4
Price: US$ 6.50 plus postage

In recent years, agroforestry has gained considerable popularity as an approach to land-use planning, and agroforestry research and development projects are attracting increasing support, particularly in small-scale farming areas. However this enthusiasm needs to be accompanied by a critical analysis of the real costs and benefits of adoption of specific agroforestry technologies.

ICRAF has published two previous annotated bibliographies on economic studies of agroforestry technologies (1983, 1985) but little empirical work had been completed at that time. Recent years have seen a notable increase in the number and sophistication of studies on economic aspects of agroforestry.

Thus, ICRAF has decided to publish a new, comprehensive overview of the existing literature. The present work covers 230 studies, fully annotated and with indexed descriptors of agroforestry technologies, analytical methods, study sites, data sources, and other aspects.

This bibliography will give researchers, extensionists, and development workers access to a range of approaches, methods, and experiences related to the collection and analysis of economic data on agroforestry. It should also provide a basis for the comparative analysis of the economics of specific agroforestry technologies.

LETTERS

Forest Extension with Women in Tanzania

The recent Social Forestry Network paper on *'Farmers' Responses to Communal Woodlots in Tanzania'* (Network Paper 12c, Shanks 1990) refers to a small project called the Morogoro Women-focussed Afforestation Project (MWAP) in Tanzania. I myself worked on this project for three years, and wish to make some additional comments about our experience. MWAP was set up in 1987 to test various strategies for helping women to benefit more from community forestry extension work and increasing their participation in forestry activities. At the outset, several assumptions were made by the local forest authorities about the direction of MWAP's work, none of which turned out to be correct.

The first was that working with women meant concentrating on fuelwood production, since fuelwood collection was said to contribute substantially to deforestation and was regarded as a heavy and time-consuming task for women. Our interviews and observations revealed that women did not perceive fuelwood collection to be a major problem (in spite of it taking 6-12 hours a week on average) compared with other duties such as cultivation. Tree planting for fuel had very low priority for both women and men in the Morogoro area as long as it could be collected freely from the surroundings of the villages. Where fuel had to be bought (such as in the Uluguru Mountains above Morogoro town) people had usually already established their own small woodlots or boundary plantations, and the demand for further 'private' tree planting in these areas was very high.

It was further assumed that working with women automatically meant working with women's groups to establish communal woodlots; women's groups were to be found in all villages associated with the women's section of the ruling party. This also proved to be difficult. Few women's groups existed in reality and people were wary of joining communal undertakings for the reasons mentioned in the recent network paper — insecurity of tenure over the land allocated for tree planting and a lack of trust in both village and forest authorities.

MWAP, therefore, began working with a variety of alternative extension approaches including helping villages with existing natural forest areas to develop management plans for the sustainable use of these; supporting local tree growing through on-farm and school nurseries; concentrating on households rather than groups; and agroforestry for the production of timber and fodder.

Those interested in the experience of MWAP will be able to find out more in a number of short articles to be published at the end of this year. In addition, several extension items for use in Tanzania have been produced, which may be of interest to people working elsewhere:

- an audio-visual slideshow about women and forestry extension in general in Tanzania (in Swahili and English);
- a book with reproductions of all the slides, speaker's notes to the slideshow and questions to discuss (in English and Swahili);
- a video produced by filming the slideshow (in English);
- a handbook for forestry extension workers in Tanzania on how to include women's aspects in community forestry extension work (in Swahili).

For more information about these extension items contact either: FAO, Rome; The Regional Soil Conservation Unit, SIDA, P.O.BOX 30600, Nairobi, Kenya; or The Community Forestry Section, Ministry of Lands, Natural Resources and Tourism, P.O.BOX 1289, Dar-es-Salaam, Tanzania.

Maria Berlekom
c/o Regional Soil Conservation Unit
SIDA — Nairobi, KENYA

The Implications of Cernea's Azad Kashmir Study for Creating Social Institutions

The World Bank project in Azad Kashmir experienced difficulties as Cernea (1985, 1990) ably demonstrates, because it was based on a historically dated perception of *shamlet* lands. It was based on a perception of them as being communally owned, whereas many of them had been privatized by the time of the project. These difficulties may have been further compounded by the impact of the project's own activities on this privatisation process. It is possible that some *shamlet* lands were not completely privatized at the time the project began, and that one of the consequences of project activities was to hasten their privatisation. It is possible, that is, that the planting of trees on any remaining de facto *shamlet* lands helped to bring about, or accelerate, a change in their status, a change that wealthier and more influential farmers were able to take advantage of (cf Carpenter 1990:76; Jodha 1986).

The principle involved here, namely that planting a tree on a piece of land can change its tenurial status, is a well known one which has been used and abused by farmers and foresters alike the world over. The difficulty in anticipating and providing for this when designing development projects is due to two problems.

The first problem is the one that is posed in taking a communal pasture and replacing it with a communal forest, namely the problem of creating a new institution. This presents development planners with a problem far tougher than most others they face. As some of the more perceptive observers of the field have said (e.g. Murray 1985), it is a challenge that is best avoided wherever possible. There are countless examples of institutions for the common management of resources that have evolved traditionally and that work well; there are very few examples of institutions created by development planners for the same purpose that have not failed completely.

The second problem is that in creating the new institution, something crucial tends to be left out, namely the need for sanctions against behaviour that maximizes the short term good of the individual to the detriment of the long term good of the group. This often is left out simply because development planners do not realize that it was present in the pre-project situation. Prior to the World Bank project in Azad Kashmir, for example, the village poor would have been able to make use of some of the *shamlat* lands, regardless of their actual jural status. A variety of traditional institutions would have served to prevent the wealthier and more influential villagers from using these lands completely for their own benefit. Under these circumstances, the wealthy would have welcomed the World Bank project as a way of circumventing these traditional institutions, while attaching minimal blame to themselves (cf Shepherd 1990:3-6).

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Murray, G F, (1987) 'Land Tenure and Agroforestry in Haiti: A case study in Anthropological Project Design' in: *Land Trees and Tenure*, J B Raintree (ed), ICRAF-Nairobi / LTC-University of Wisconsin, pp 323-328.

Shepherd, G, (1990) 'Forestry, Social Forestry, Fuelwood and the Environment: A Tour of the Horizon', *Social Forestry Network* Paper 11a, Overseas Development Institute, London.

Michael R. Dove
Visiting Fellow
Programme of Agrarian Studies
Yale University -- CT, USA

POSTBAG

We plan to feature letters more actively in the future, publishing a selection of your letters on a wide variety of general forestry-related subjects.

We would also welcome more specific comments on past network papers, as in the examples in this Newsletter.

EMPLOYMENT OPPORTUNITIES

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PROGRAMME OFFICER
Asia Programmes — Rural Poverty

SUMMARY DESCRIPTION:

Working with the Foundation's Representative for India, Nepal and Sri Lanka and other programme staff, the incumbent of this post will formulate programme objectives and strategies and develop, monitor and evaluate grants in the area of Rural Poverty. Primary responsibility will be for the management of the Sustainable Development Programme in India, Nepal and Sri Lanka which has three components: 1) the development of institutional capacity in farming systems research and extension in Eastern India; 2) support for innovative research into sustainable agriculture and sustainable development generally; 3) support for research and training, with a policy emphasis on national and international issues in environmental and natural resource management and environmental economics and law. The work will focus on developing institutional capacity in government agencies, universities and NGOs and will be conducted in close liaison with the Programme Officers responsible for the Foundations's Water Management and Community Land Management Programmes.

REQUIRED QUALIFICATIONS:

Demonstrated understanding of the theoretical and practical issues posed by Sustainable Development in the context of less-developed countries. Graduate study in relevant social or natural sciences with demonstrated interdisciplinary orientation. Substantial prior working experience in less-developed countries (preferably in South Asia) and strong analytical, organisational and writing skills and a capacity to think strategically in a complex situation.

LOCATION: New Delhi, INDIA
TARGET DATE: January 1, 1992

PROGRAMME OFFICER
Asia Programmes — Urban Poverty

SUMMARY DESCRIPTION:

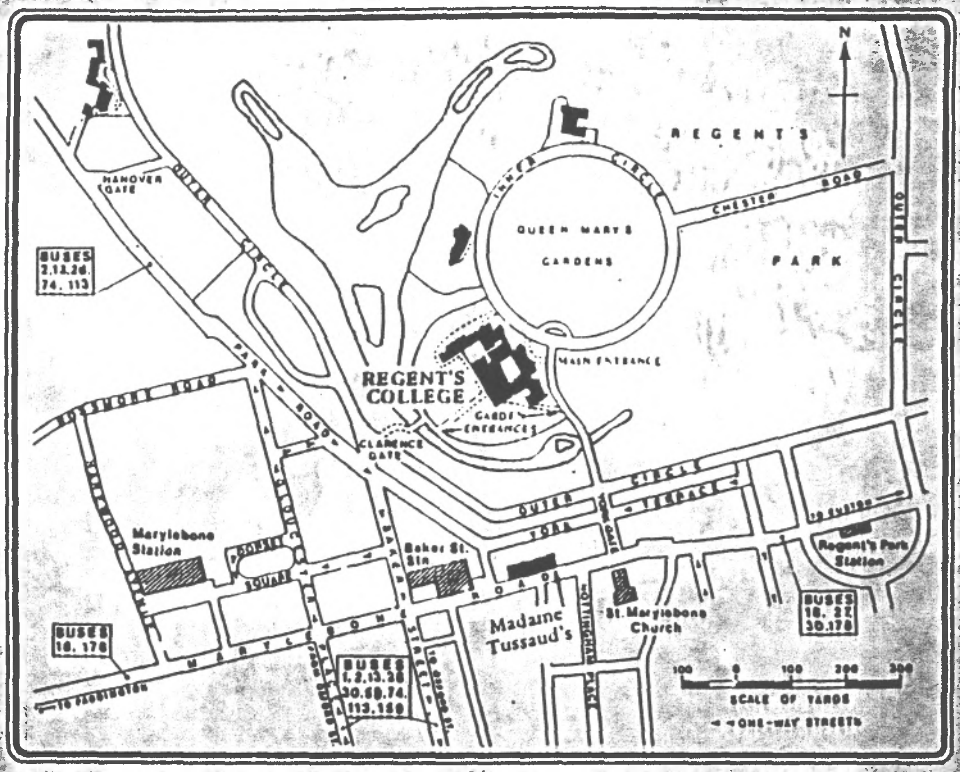
Working with the Foundation's Representative for India, Nepal and Sri Lanka and other programme staff, the incumbent of this post will formulate programme objectives and strategies and develop, monitor and evaluate grants in the area of Urban Poverty. Primary responsibility will be to work as a member of a two-person team in the management of the Reproductive Health Programme in India and Nepal which has three components: 1) support for community action and experimentation in health service delivery; 2) research into behavioural and attitudinal aspects of reproductive health; 3) development of expertise in health policy / health economics and financing. The current challenge is to integrate these components within a programme targeted on poor women in Maharashtra and Gujarat.

REQUIRED QUALIFICATIONS:

Demonstrated understanding of the theoretical and practical issues posed by the problems of reproductive health. Graduate study in relevant social science and prior field experience of working with government agencies, NGOs and local communities in a less-developed country (preferably in South Asia). Strong analytical, organisational and writing skills and a demonstrated capacity to think strategically in a complex situation.

LOCATION: New Delhi, INDIA
TARGET DATE: January 1, 1992

Your contact at FORD:
Joan C Carroll
Manager of Employment



Overseas Development Institute
Regent's College

The OVERSEAS DEVELOPMENT INSTITUTE (ODI), founded in 1960, is an independent, non-profit making research institute. ODI's specialist Agricultural Administration Unit (AAU) was established in 1975. Its mandate is to widen the state of knowledge and flow of information concerning the administration of agriculture and environmental management in developing countries. It does this through a programme of policy-oriented research into selected subject areas. The dissemination of this research and the exchange of ideas and experience between countries is achieved through the four Networks on:

Agricultural Research & Extension
Irrigation Management
Pastoral Development
Social Forestry

Each of the networks has between 600 and 1800 members, drawn from a wide range of nationalities, professional backgrounds and disciplines.

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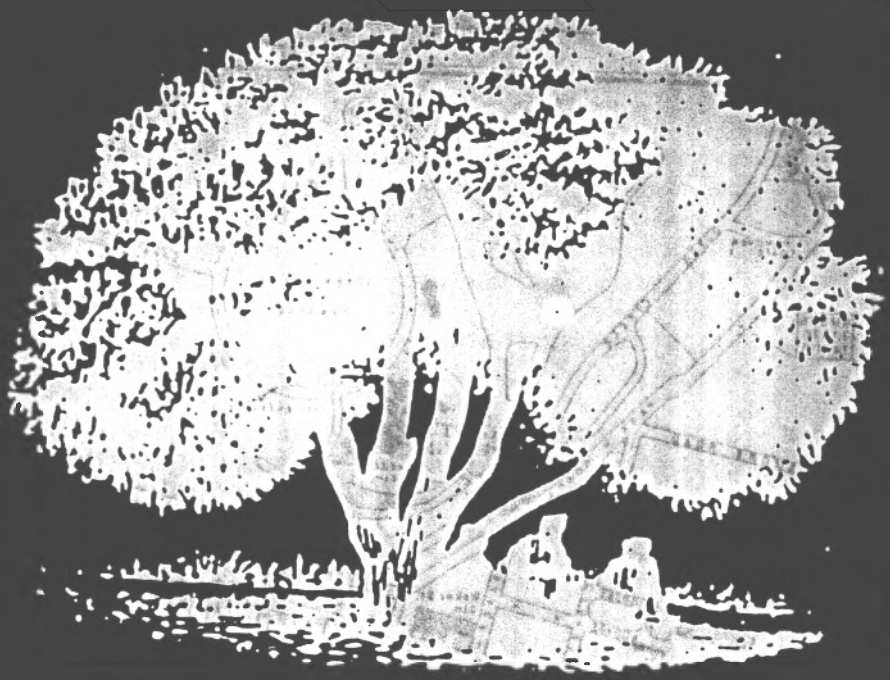

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, P.O.BOX 8500, Ottawa K1G 3H9, CANADA

odi

SOCIAL FORESTRY NETWORK

NORTHERN VIETNAM: FARMERS, COLLECTIVES AND THE REHABILITATION OF RECENTLY REALLOCATED HILL LAND

Julian Gayfer & Edwin Shanks

Network Paper 12a **Summer/Winter 1991**

Julian Gayfer was formerly an Agroforestry Officer with the Sweden / Vietnam Plantation & Soil Conservation Project. He is now with the Koshi Hills Development Project in Nepal.
Edwin Shanks is a Research Associate of the Social Forestry Network at ODI, Regent's College, Regent's Park, Inner Circle, London NW1 4NS, UK.

NORTHERN VIETNAM: FARMERS, COLLECTIVES AND THE REHABILITATION OF RECENTLY REALLOCATED HILL LAND

by
Julian Gayfer & Edwin Shanks

SETTING—CHANGES IN LAND USE POLICY IN VIETNAM

Between the 1950s and 1980s the Vietnamese government followed a Marxist-Leninist model of social and economic development. Under this system government intervention in agricultural and forest production was made through organisations known as 'state enterprises' and 'cooperatives' operating within the rural communes[1], within which the collective organisation of work and distribution of most land resources was given precedence. Since the early 1980s, however, the government has made a series of policy moves which are greatly altering the relationship between farmers and these formal collective organisations.

Policy now focusses more on the needs and economic potential of the individual land user and certain free market activities receive political backing. It is intended that the cooperatives should have less direct control

[1]. Definition of the terms 'enterprise', 'cooperative' and 'commune' is here required. **Enterprises** are state run organisations concerned with production, marketing, material supply or a combination of these. In the agricultural sector they commonly take the form of estates, control over which is closely linked with District or Provincial administrations. **Communes** are geo-political units, containing a number of settlements, more-or-less conforming to historically well-established realms of control based on strong local kinship ties. Within a commune there may be between 2 and 4 cooperatives. Through the **cooperatives** the state sought to build on collectives relations of production which long existed in the traditional communes. However, as argued by Fforde (1990) it is not possible to treat them as well-defined units with common interests. Furthermore, the traditional communes always had important corporate functions with regard to the regulation of land use, elements of which persist today; in the present situation the cooperative can be regarded as a 'formal' sub-system operating within a much broader set of 'non-formal' relations aimed at both private and communal land management.

Social Forestry Network Paper 12a (ODI, Regent's College, Regent's Park, London), Summer/Winter 1991.

over the use of land resources in future, taking on instead an administrative and service support function for which they are required to act as self-sustaining economic units. These changes have come about through recognition that the lack of incentives provided to farmers under collective systems of work, combined with inappropriate capital-intensive techniques employed by the cooperatives have continued to suppress agricultural production in recent decades (Bloch & Osterberg 1989).

This reform process includes changes in the official system of land tenure, as embodied in a new Land Law of 1988. Under the new system land is made available to farming families and organisations on the basis of 'allocations' for periods of up to 15 years for agricultural land and from 30-60 years for forest land. As indicated by Sargent (1991), the significance of this is not that it represents a move towards privatisation of land (as indeed the concept of 'private land' was officially abolished in an earlier decree of 1982) but that under the system of allocations individual land users are treated identically and equal to cooperatives and state enterprises by law. For planning purposes land is officially classified into five categories: agricultural land (covering both paddy and certain hill land), forest land (most hill land), residential land, specialized land and unused land. The classification may refer to intended land use rather than actual use.

The role of the Provincial and District administrations in this process is to oversee the demarcation and certification of the newly allocated land, to ensure that the policy is implemented in a way that results in secure access rights for the land users involved, alongside providing technical advice and services that enable allocated land to be utilized. Equity is a major concern with regard to paddy land (through the allocation of a minimum family holding) whereas forest and hill land is currently allocated solely on the basis of a household's capacity to develop it. As the state is also reducing its monopoly control over the marketing of forest products, individuals, cooperatives and state enterprises alike are having to adjust to a higher risk market environment.

In the region of the Red River Delta in Northern Vietnam large areas of denuded hill and forest land are being relinquished by the state for the purpose of reforestation by farmers and cooperatives. In this situation, the state forest service is inevitably having to develop new extension capabilities and a variety of social forestry programmes have been started. This paper examines the problems and potentials of tree growing on this

recently reallocated land, focusing on the experience gained by a social forestry programme undertaken by the joint Vietnam/Sweden Plantation and Soil Conservation Project in the Provinces of Vinh Phu, Hoang Lien Son and Ha Tuyen since 1986.

ORIGINS OF THE SOCIAL FORESTRY PROGRAMME

Social Forestry in the region had its origins in the evolution of a forest development programme which began in the late 1970s with the construction of a pulp and paper mill. The mill initially utilized standing stocks of raw material including bamboo from the homegardens and plantations of *Styrax tonkinensis* and *Mangletia glauca* harvested from the mountainous areas fringing the delta. Subsequently, as from the early 1980s, the enterprise responsible for procuring material for the mill began establishing new plantations in the more accessible lowlands and along transport arteries as a means to ensuring future supplies closer to the mill. This geographical shift into areas characterized by a lower proportion of hill land to paddy land, higher population densities and more degraded hills made large scale planting operations more rational from the point of view of mill access. However, it was more problematic with respect to the availability of large tracts of spare land for tree planting and the latent demand for wood within rural communities.

The social forestry programme was started in 1986 for several reasons: to increase the supply of wood products on the market thereby improving the economy of rural households involved in tree growing; to supply the pulp and paper mill; but the most important reason given at the time was to reduce pressure being put on the newly established 'industrial plantations' by local people through the illicit cutting of trees and collection of leaf litter for fuel (Folkesson & Gayfer, 1989).

The objective was to provide an ample supply of tree seedlings over and above those required for the industrial programme. Those people who were in need of tree products would then be able to grow their own trees rather than plundering the industrial plantations. It was recognized that the simultaneous strengthening of state policy for the allocation of land potentially gave individual households access to land on which to grow these trees. Nursery production has been subsidized so that tree seedlings reach the farmers free-of-charge or at minimal cost. The number of

seedlings produced annually under social forestry has grown rapidly from 1 million seedlings in 1987 to 16 million in 1991.

These stated objectives indicate a range of possible client groups. In practice, however, the programme has concentrated on promoting a specific 'planting technology' (monocropping with timber tree species — *Eucalyptus spp, Acacia spp*) on specific 'planting sites' ('bare hills' in the lowlands at the edge of the delta) rather than on identifying particular groups of farmers to work with. This approach stems from the close association of the social forestry activities with the large-scale industrial programme and the rigidity of planting guidelines set at central, provincial and project level.

This paper begins by examining the impact of the programme on the use and economy of the hills. Following this, a number of wider questions are raised to ascertain the appropriateness of the current approach to social forestry against the backdrop of the wider, longer term implications of land reform.

THE PROBLEM OF THE BARE HILLS

Physically and ethnically there is considerable variation over the three provinces covered by the forest development programme. Moving from areas of lowland at the edge of the delta dominated by wet rice cultivation (2-3 crops/year) and the Kinh people, through a midland zone which has been subject to in-migration of people from the delta in search of new land to farm for many years, to extensive mountainous areas rising up to 3,000m where 'minority' groups such as the H'mong, Tay and Nung practice fallowing, or shifting cultivation (Table 1).

This paper looks at the lowland and midland zones as this is where the social forestry programme has been most active. The land use system and agricultural landscape of this area can be divided into three: • wet rice land; • a settlement zone including the homegardens which borders the paddy land; • above which rise low hills which were formerly forested but are now in many places devoid of tree cover. It is in many cases misleading to call these hills 'bare' because even though they may now be denuded of vegetation and in some localities suffering from a continuing loss of soil material and fertility, they may still be of great value to some households.

Table 1 Land Use Zones in the Forest Development Area of Northern Vietnam (Ha Tuyen, Hoang Lien Son, Vinh Phu Provinces)

Edge of delta	High Pop. density	Extensive paddy rice areas (2 crop / year and high yields	Hills important for staples eg cassava and as a grazing and fuel scavenging resource
Middle zone	Medium pop. density	Restricted paddy rice areas (often 1 crop only) and average yields	Sufficient conditions to allow farmers to invest and experiment in tree/crop and livestock production for domestic use and marketing
Mountainous zone	Low-medium density	Paddy areas very small Low yields	Hills critical for staples eg hill 'dryland' rice, terraced wet rice, maize and cassava

It is in the lowlands closest to the delta that they are most degraded. This results from the intensity of use under high population pressure in excess of 400 persons/km^2 in places, the continual drain of nutrients down on to rice land and the presence of exposed lateritic hardpan on some hills. Here, the current planting model of monocropping hardy tree species is perhaps the most rewarding first step towards rehabilitation; although as yet little attention has been given to the problem of how these sites should be further developed in a way that meets short term production needs of farmers alongside the state's wider goal of improving the environment. Simply planting up all of these low hills will meet neither requirement as trees alone will not conserve or significantly improve these sites.

Further from the delta the hills increase in area proportional to paddy land, and in steepness of slope. There remains a workable soil in many places together with areas of fallow regrowth of grasses and shrubs associated with continuing crop cultivation. Lower population density (in the order of 90 persons/km^2) means that more households have access to these hills and

there is wider scope for different techniques and combinations of tree, crop and livestock production.

The critical factor affecting current household demand for or actual use of hill land in any one locality is the relative importance and availability of hill land for the production of stable food crops vis-à-vis the area and quality of paddy rice land/capita. Although other factors such as access to markets and grazing resources are important, it is not surprising that a recent study (Lindstrom, 1991) found that at a time of uncertainty over and underdevelopment of local markets decision-making by the majority of households follows a low risk, food subsistence strategy.

There are, of course, important local variations between districts, between communes within a district and even between settlements within a commune itself. At the household level the diversity continues in respect to length of residence in an area. There are notable differences in the desired use of the hills between those households long established in an area, maintaining large productive homegardens together with large family paddy holdings, compared with households new to an area who have small immature gardens and limited access to paddy land.

DEGRADATION OF THE HILLS

In Annex 1 an account of social and political change in Vietnam and its implications for use of forest land is given. Comparable accounts of forest depletion from the hills are told by farmers throughout the region. Following the collectivisation of land resources in the 1950s, state organisations, in particular the forest enterprises, were given the mandate to intensify logging of valuable timber from the hills. Prices set by the state for the timber covered little more than logging and transportation costs and recurrent expenditure. Little direct re-investment in reforestation took place. This established a pattern of extraction to meet external needs, after which many communes seemingly lost their traditional collective mechanisms for protecting and managing the forests. The absence of any effective property rights to hill land led to a situation where land became liable to short-term exploitative practices and random clearance of the remaining trees for fuel, construction purposes and agricultural cultivation then occurred (Fforde 1989). This process was aided by the fact that many enterprises had control over areas of land that were too large for them to manage effectively.

Within some communes attempts at reforestation were carried out as part of national tree planting movements and later district directives. Often the first rotation (usually *Eucalyptus exserta*) proved successful producing building material for a school, clinic or office within the cooperative. After harvesting, the site was generally left and households removed all stumps and even roots for fuelwood.

FACTORS GUIDING USE OF THE HILLS IN THE PAST

Examination of past patterns of use of these hills reveals five important characteristics which may be used to guide future management:

- First, from the point of view of local people, not all hill land designated as such should be 'forest land'. There are in effect different types of hill land including land within the village which has long been under the control of the traditional commune or cooperative; land outside the village; hill land formerly belonging to the state now being allocated with trees on it; land allocated without trees.

- Second, whilst production units such as enterprises and cooperatives sought to use hill land for large scale monoculture including forest plantations and tea estates, the value of such hills to households is that they provide alternative and multiple uses including livestock, crop and tree products. For families within a society traditionally based on wet rice cultivation, hill land was principally seen as a supply zone providing households with fuelwood and grazing, cassava for pig feed and a source of green manure or composted material for the rice fields.

- Third, State attitudes to forest land were (and still are) based on the principle that this is a resource that should be developed and used in an 'economic way' (implying monoculture) rather than remaining 'bare' and being used in an unplanned, 'uneconomic way' (multiple use) by small scale subsistence oriented farmers. Household access rights to hill land outside of the homegarden were commonly on a short term, periodic basis as a share in contract production with the cooperative for

cassava or tea cultivation, or as a 'loan' of land for one cropping season.

- Fourth, it is likely that hill land has always been a specially important resource to poorer households and that the absence of effective regulations governing their use provided the flexibility in the system that catered for this. That is, as a source of grazing land for those households who did not have adequate alternative supplies (for example, residues from rice land), and as a source of food security through the collection of wild produce before deforestation and temporary crop cultivation since.

- Fifth, with a traditional pattern of nuclear settlements, use of hill land has been influenced by the distance from settlement with close areas being used more intensively. Protection has been and is still a major discouragement for the use of hill land far from the village. A trend encouraged in the early 1980's, now becoming increasingly popular through the land reforms, is for families or part of families to move out from the main residential area to build new or second homes on hill land.

These points suggest that any solutions to the problem of the bare hills cannot be purely technical in nature. Of equal importance is that land allocation is taking place through a coherent process of land use planning which incorporates needs other than tree growing. The magnitude of the land tenure changes taking place today lies in the fact that past systems of predominantly informal short-term access rights for a larger number of households are being replaced by longer term formal rights of tenure on an individual basis for fewer households.

Past systems of multiple use are also being replaced, at least in those places where tree planting is taking place, by one of single use under mono-cropping of trees. In this respect, it is important to note that the official land classification, as embodied in the new Land Law, has no way of clearly expressing the existence of multiple use hill land (Fforde, 1989). Reading of the Land Law suggests that agroforestry practices are permissable both on forest and agricultural land yet guidelines from the respective authorities on the way in which such land can be developed appears to prevent, at least at the outset, multiple use approaches by farmers.

SOCIAL FORESTRY AND LAND ALLOCATION—OPERATIONAL AND CONTRACTUAL LINKAGES

When the allocation process started in the early 1980s many households and cooperatives were at first reluctant to take over the hill land being relinquished by the state and the forest enterprises. They were suddenly given access to large areas but, in the absence of clear guidelines on how to distribute and manage it, and with little technical or financial assistance, the initial result of allocation was in many cases accelerated forest degradation (Bloch & Osterberg, 1989). Investment in the land was not encouraged by the fact that no guarantees were given about the period of allocation. Some successes were recorded with the issuing of Forest Owners Certificates to a small number of households, although these generally dealt with areas referred to as 'forest gardens' consisting of planted or often secondary forest close to a residence.

Recognizing these problems, the state strengthened the system of allocation in the Land Law of 1988. This created a framework for longer term rights of usage which can be more specifically targeted on individual land users. It was in this context that the social forestry planting programme began to provide the materials and technical support to enable farmers to actually establish trees on newly allocated land alongside continuing support for cooperative planting.

So there are, in fact, several distinct processes going on here. The first is the allocation of forest and hill land to individual households through direct entitlement, or to the cooperatives and enterprises who in turn make production contracts with farmers. To give some idea of the rate of distribution, in Vinh Phu province only one third (62,000 ha) of the land considered suitable for forestry (179,000 ha) has been allocated so far (Sargent, 1991). Land allocation is taking place in many areas independent of the social forestry programme.

The other decision-making process involved is that whereby farmers enter the social forestry programme itself. That is, by making use of the incentives (seedlings) provided to establish trees on newly allocated land. Involvement in social forestry is in many cases subject to rules concerning the planting prescription, planting date, stocking and the length of time trees should be maintained on the plot, harvesting regulations, the

distribution of revenues and forest tax payment. In theory, then, farmers are having to operate according to two separate, but in many ways interchangeable agreements: the first relating to the basic allocation of land, the second relating to the particular conditions set for the establishment and management of a social forestry plot.

What results from this is that the present situation with regard to the variety of users of forest and hill land and their tenure status (a summary of which is given in Table 2) is a complex yet fluid one which continues to be modified by the land allocation programme.

DIRECT ENTITLEMENT OF LAND

Forest and hill land may be allocated directly to farm households from the state. This results in the signing of a formal title deed to the land known as a Land Tenure Certificate (LTC). Responsibility for assigning land in this way rests with the People's Committees — the political wing of government as opposed to the executive wing. In theory, the involvement of the cooperative management in this extends only to providing administrative support for processing the certification.

The allocation of small parcels of land to a large number of households following the procedure of the General Department of Land Management is proving to be a lengthy procedure with high administrative costs. It also places a heavy work load on Agriculture and Forest Department staff. In consequence, direct entitlement of this sort is taking place only very slowly (Que & Gayfer, 1991). Where they do occur, direct allocations of forest land tend to ratify land held under forest owners certificates with very little new allocation occurring. Hill land classified as agricultural land is generally being kept under cooperative management who in turn are trying to negotiate user contracts with households. Progress on individual entitlements is mostly confined to paddy land.

Significant areas of hill land were allocated to households on an informal basis before certification really got under way and even since that process has been running. Provided that the survey measurement of these plots proves accurate, ownership of these plots can, in theory, be rubber-stamped retrospectively as titled land. However, a recent study suggests that farmers may not always welcome issuing of a certificate as this may make them liable for tax payments on the land or its produce which they can escape by remaining outside the formal system (Que & Gayfer, 1991).

Table 2 Users of Forest/Hill Land and their Tenure Status

Users	Tenure	Use
Farm Households	LTC issued or process started	Forest garden Bare hill for planting
	Forest Owners Certificate (Convert to LTC)	Forest garden
	Traditional claim	Forest garden
	Joint venture with Cooperative (various terms)	New planting on bare hill
	'Borrowed' land (from Cooperative)	Short term food crops
	'Contract' land (from Cooperative)	Agricultural use in annually renewed production contracts
	'Poached' land (from state enterprise)	Short term food crops
	Common access within commune or cooperative area	Grazing, fuel and litter collection, other forest products
Cooperative	LTC issued or process started Recognition of boundaries between cooperatives and enterprises (in some cases disputed)	Forest plantations using own or state investment — may involve sub-allocation to households
Commune	Delegation of management duty from provincial and district authorities	Selected natural forest areas
State enterprise & enterprise workers	LTC issued or process started	Forestry: planting and harvesting — may involve sub-allocation to enterprise workers or groups of workers
Other units eg Prisons, Army	LTC issued or process started	Forestry, agriculture or military activities.

INDIRECT ALLOCATION THROUGH CONTRACT WITH THE COOPERATIVES AND STATE ENTERPRISES

The alternative is for land to be certified under the name of the cooperative who in turn make contracts with farmers for tree growing. For forest land these contracts tend to be for a period of between 30 and 50 years. Cooperatives are handling these contracts in different ways, but in most cases responsibility for management operations from planting to harvesting rests with the farm household involved.

In some communes the land is planted with trees through collective labour before the individual contracts are drawn up; this appears to lead to fuller coverage of a given area of hill land with trees. In other places land is contracted out first, in which case the household is itself responsible for planting; this approach results in a more piece-meal pattern of planting. The exact terms of the contracts made between cooperatives and individuals thus vary greatly according to the status of the land on allocation (Folkesson & Gayfer, 1989):

- The farmer has 50% of the harvest and the cooperative 50%; the forest tax will be paid from the cooperative party; planting, tending and protection done by the farmer.

- Farmers have 25% of the harvest for protection; planting and tending done by the cooperative through collective labour.

- Farmers have 70% of the harvest and the cooperative 30%; the tax will be paid by the cooperative; planting and tending done by the farmer.

- Farmers have 60kg of rice per protected hectare and 20% of the harvest.

- Farmers have 80% of harvest in return for tending and protection; seedling supply and planting by the cooperative.

According to current state policy, cooperatives are meant to have less direct control over the distribution and use of land in the future. Even so,

a majority of the resources currently provided by the social forestry programme are reaching farmers through this contract system with cooperatives. Where there is such a support programme, cooperatives are concerned to play a leading role in land allocation and subsequent land use. Where there is none the cooperatives are more inclined to let families get on with it themselves. In this way the cooperatives must themselves be regarded as a major 'client' of the programme; a situation in which they can be said to have both a positive and negative influence. Cooperatives are at an advantage for three reasons:

- They can take over larger areas of land and implement reforestation activities quickly.

- They are able to merge the incentives provided by the social forestry programme with the requirements set for land allocation in one single contract agreement with farmers.

- And lastly, because of this, they still represent an easier means of investment for Provincial authorities in order to achieve ambitious tree planting targets.

On the other hand, the possible longer term implications of this for the legal status of the land, the degree of security a household has over it and its value to that family, also need to be recognized:

- First, and most important, is the fact that forest land allocated through contract with a cooperative cannot be included in a household's land tenure certificate. This is the critical difference which distinguishes the two currently operating systems of allocation.

- In effect, this means that the trees have two sets of owners or managers, whereas the current Land Law protects only the rights of the certified user. Individual farmers who are under contract are thus vulnerable to arbitrary changes in the direction of cooperative policy (Bloch and Osterberg, 1989).

- The cooperatives are also under increasing pressure to operate as self-sustaining economic units. It is obviously in their interest to establish contracts with the most prosperous farmers who are likely to fulfil their part of the agreement. Thus a joint venture with a few

well off farmers is a better way to nurture a cooperative's investment in forestry than taking the risk of dealing with a large number of poor families for any one piece of hill land.

- Whilst a cooperative tends to favour a uniform plantation producing a marketable product (eg sawn timber, pulpwood) at the end of a 10-15 year rotation most families would look for a more flexible approach. Yet where households are sub-contracted by cooperatives it is normally the preferences of the latter that decide the planting model. There is therefore a danger of inadvertently encouraging cooperatives to tie up large areas of land in a form of monoculture that could be sub-optimum in terms of the variety, volume and frequency of products that a family requires from such a piece of hill land (Gayfer, 1989).

Households involved in forestry work in association with forest enterprises are covered similarly in the Land Law. As enterprise workers they are not able to receive land tenure certificates. The enterprise itself, with the director as signatory, is formally allocated the land of the enterprise from which they may then allocate portions to enterprise families or groups of families in production contracts. To date these families have not been actively involved in the social forestry programme; however, with growing restrictions on direct state investment in commercial plantations a growing number of requests for support under the social forestry programme is to be expected.

FARM HOUSEHOLDS AND SOCIAL FORESTRY

At this point it should be noted that reliable data is not available on the number of farm households actually involved in social forestry, or on the number or size of the plots they are establishing with trees. The only data which is available is on the total number of seedlings produced by the tree nurseries which can be roughly converted into hectares of land planted; the value of this, however, is limited because it does not permit us to form an accurate picture of the impact of the programme with regard to the dynamic changes taking place in land tenure. As noted by Fforde (1990), the considerable difficulties associated with field work in Vietnam, which also result in inadequate data, confines us to a theoretical analysis of many issues.

Nonetheless, what is evident is that it is only a minority of farm households that are receiving allocations of land for tree planting in any one commune: between 5 and 15 households out of an approximate number of between 300-500. The official criteria for the allocation of forest/hill land includes **proximity of residence** and the **labour power within the household unit**. Efforts are made in some communes to allocate land to those households situated adjacent or close to the hills, to which they have had preferential access rights in the past. However, this is not always possible — there are different types of forest land, more or less distant from the village and currently under different uses. In order to plant up distant and less clearly owned areas a household must have the ability to shift its resources to claim a plot; so of these two criteria, labour emerges as the most important. The availability of labour is critical in two ways:

- First, it theoretically determines both the number and size of plots a household can take over.

- And second, even after the initial allocation of land, the ability of a household to actually establish a plot usually entails mobilizing extra labour to do the work of preparing the site, planting the trees, providing protection and so on.

Prohibitions formerly existed on hiring labour on a wage basis. It remains to be seen to what extent it will emerge as important in farm level forestry, but it is likely to increase as is the case in other sectors of the rural economy. At present, most of the extra labour required is still brought in on the relatively informal, non-monetized basis of labour exchange within and between households (Huan & Gayfer, 1991). This represents a legitimisation of these informal patterns of transaction which have been maintained throughout the era in which formal collective relations of production were officially regarded as the norm.

The households currently involved in social forestry are also those prepared to take the risk of doing so. This is partly an economic risk. There is evidently widespread uncertainty on their part as to the exact terms of the contracts they are now establishing with the cooperatives in those cases of indirect allocations. This is over matters such as the future markets for timber products, who will handle marketing (the individual or the cooperative), the length of contract over the land, and the levels of forest tax which will be applied to the harvests. Even where direct allocations exist farmers are vulnerable to uncertain wood markets and marketing

channels. There are also concerns that establishment of family timber/pulpwood plantations (promoted by the current social forestry extension programme) may not represent the best long term investment for the family versus other alternative uses of hill land such as tea.

But what is perhaps more important is that it is also a social risk these farmers are taking. They are people who are confident in their ability to establish new terms of production with other cooperative cadre, the Agriculture and Forest Department and the People's Committees. They are individuals who generally have the power to influence the course of decision-making at commune level at a time when the politics of land use are in great flux.

It seems clear that whatever the risks involved, gaining access to land through social forestry may in itself be a sufficient reward for any household. Farmers now recognise the economic value of hill land particularly at a time when pressure on limited rice land is increasing through population pressure and the production problems of soil erosion from hill land as associated with water control, deposition and change in water quality. Tree planting represents one of the easiest options (contrasted with the effort required to dig tea ditches) by which to 'claim' a site both in terms of consolidating an allocation through cultivation in Year 1 or as a means to register an interest in the land which may then be ratified at a later date by a formal allocation.

In the following section two examples are given of this diversity of ways in which land allocation policy for tree planting is interpreted. These are followed by two further examples from the Forest, Trees and People (FTP) Project where support for tree planting was channelled through the cooperative as a part of the development of hill land.

FARMER INITIATIVES ON THE NEWLY ALLOCATED LAND

One of the most striking features is that in response to land allocation many farmers have long term objectives to diversify production on the social forestry plots, thus gradually turning them into mixed species 'forest-gardens'. This point is well illustrated by the following examples.

Example 1 — Diversification of the Social Forestry Plots: views of a farmer in Luong Vuong Commune, Ha Tuyen Province

This farmer is a retired school teacher who clearly has the necessary time, learning, interest and economic resources to invest in social forestry. In 1988 when news reached him about the forest land allocation policy he made an application for land to plant trees. In the first year after receiving land he went to the AFD nursery to get 4000 seedlings, but very few of these survived due to late planting and the poor quality of the stock.

In 1990 he took on the responsibility of managing a tree nursery producing 100,000 seedlings under direct contract with the Yen Son AFD. He has set this up in his own home-garden. AFD provides the consumables and organises the distribution of seedlings according to the District plan for social forestry. In return the farmer receives 20 dong per seedling produced, obtains seedlings for his own social forestry plantings free-of-charge, and uses cast-off consumables to produce extra tree seedlings for cash sale.

Only ten households in the commune have been allocated forest land so far. This farmer has two separate plots which he has planted with the timber tree species provided through the social forestry programme. At present he does not know where the market will be for the timber, or even whose responsibility it will be to develop the market linkages. The first stipulation has been to reforest the bare hills, for which he is under contract to keep the trees on the plot.

But this farmer has much more ambitious and long term plans for the plots. These included planting other tree species, particularly fruit trees, establishing a living-fence of rattan around the plot, as well as bringing in colonies of honey-bees to make use of the Eucalyptus nectar. The farmer has already begun to diversify the species on the plot by direct sowing the Candle-nut tree ('Trau'—*Aleurites montana*).

Example 2 — Promoting Natural Regeneration of Indigenous Trees: a plot managed by Mr Ngung, Doan Hung District

Mr Ngung settled in this northern part of Vinh Phu Province in the early 1960s, having moved from the lower delta area. At that time the extensive areas of hill land in the commune (probably greater than 50% of the land

area) were covered with semi-natural forest. The pattern of forest depletion since then has been similar to that in other communes. From 1980 farmers cultivated cassava on the hill land but after the mid-1980s the productivity of the soil began to decline and cultivation has since been less intensive.

Mr Ngung has control over a number of agricultural plots scattered in different parts of the commune, including rice-paddy, a home-garden, and areas of hill land on which he grows cassava, beans and groundnuts. He manages 2 ha of Eucalyptus plantation on hill land established under the social forestry programme. In addition, he has an area of hill land on which he has been conducting an innovative and profitable experiment involving the natural regeneration of indigenous tree species.

The regeneration plot is approximately 2 ha in size. When he began managing it in 1987 it was covered with thick fallow regrowth of grasses and shrubs. Similar fallow land can still be seen on adjacent hills in the commune. The plot also contained Fan Palm trees (**'Cau'** —*Livistonia saribus*) the management of which is subject to cooperative regulations prohibiting their removal. The cooperative receives a share of the revenue gained by the farmer on the sale of products from the palms.

After taking over the plot, Mr Ngung saw that the fallow regrowth contained saplings of several valuable indigenous tree species. He has since managed the plot specifically in order to promote the growth of these trees. Management is primarily for timber and the plot contains about 2500 stems. In addition he is able to gather fuelwood from the stem prunings and from numerous coppice shoots which continue to sprout from under the trees. This fuelwood covers the needs of his own household as well as providing cash income.

These indigenous trees are entirely under his own control: he can decide when to harvest them and where to market the produce. Even so, he took over the land before the current policy of certification really got under way, so he does not have a contract/lease to the plot for a definite period with the cooperative, he is also uncertain about the level of forest tax which will be applied to the harvests or whether tax will be applied at all. But his long term interests in the site are apparent in the fact that he intends to plant a more permanent boundary of bamboo.

A similar pattern of reforestation, through natural regeneration, could be adopted with minimal inputs in many parts of the midland zone. In many

existing plantations now receiving protection natural regeneration of indigenous tree species will also increase and there is considerable potential to gradually convert these plots into mixed species plantations.

In comparison with the social forestry planting model, natural regeneration is a cost-effective means of establishing a plantation. It is rewarding to the farmer precisely because it allows them to grow trees without being heavily dependent on external inputs (nursery consumables and tree seedlings — even if they are subsidized) or tied to external rules and regulations (production contracts). It is potentially, therefore, a far more 'sustainable' form of reforestation of the bare hills. However, natural regeneration depends on having a good stock of nearby seed-trees and seedlings within the fallow plots. These are not present in all places, specially on hill land within the delta where deforestation is complete.

COOPERATIVE MANAGEMENT AND THE DEVELOPMENT OF HILL LAND

Under the umbrella of the Plantation and Soil Conservation Project, a small research project on people's participation in forestry was carried out between 1986-1990 as part of the FAO Forest, Trees and People (FTP) network (Gayfer, Folkesson & Olsson, 1990). FTP enabled research centre staff to work closely with a small number of communes on a broad range of tree based activities. The experiences of FTP Vietnam have provided an insight into the stresses and strains taking place within rural communes as a result of the reforms and the questions this raises for channelling of project support to households and the future of communal efforts. At the outset FTP worked through the cooperative structure which that time represented the focus for government support and planning in rural areas.

Example 3 — Attempting to develop a bare hill through farmer participation in a multiple use design: Cam Phu Cooperative, Ba Vi District

Towards the edge of the cooperative lies Go Qieu hill. Formerly a cooperative *Eucalyptus exserta* plantation, this 5 ha site had been used for rough grazing following harvesting of the main crop of *E. exserta* in 1980. Subsequent coppice growth of both the Eucalyptus and some scattered *Acacia auriculiformis* persisted although in poor condition, and was

irregularly cut by families living in the area. Cassava cultivation on the lower edges was abandoned in 1986. Grazing appears to have been the major concern, a fact reflected in the cooperatives actions in the early '80s when some Eucalyptus plantations were reportedly clear cut to create grazing sites (Froberg & Olsson, 1989)

In early 1989 the cooperative identified the hill for development as part of FTP's support to the rehabilitation of hills through agroforestry/soil conservation practices. FTP decided to try to develop a physical framework on the hill using Project support to the cooperative. The farmer responsible for a particular parcel of land within the frame would then make his own design in accordance with the long term objective of using the hill in a productive way whilst supporting the restoration of soil fertility and reducing erosion on the site. To do this he could draw on his resources and a package of project help aimed at offering the farmer a choice from which he could select and experiment, depending on his particular product requirements. At the time this seemed a sensible approach, using the cooperatives' capacity to organise and start things off and yet providing some flexibility in management to farmers.

A meeting was convened on the hill involving Project staff, cooperative management and twenty families drawn from a settlement close to the site. Discussion was limited since the approach of the Project in trying to draw out individual farmer land use plans did not reflect the underlying social reality of the cooperatives' intentions to determine one complete land use plan for the hill.

Work started with the division of the hill into family plots, size being determined by family labour. Plots radiated down from the top to the bottom of the hill thereby giving families a gradient of land quality. These vertical boundaries were marked by planting of *Eucalyptus camaldulensis*. Across the slope and roughly following the contour a series of bands were formed by sowing *Tephrosia candida*, a leguminous shrub. This created five vertical zones ranging from Zone 1 — poor stony ground at the top of the hill to Zone 5 — agricultural land at the edge of the paddy.

In further discussions, it was agreed that Eucalyptus would be planted in Zones 1 & 2 at 3 x 3m spacing, with the cooperative paying labour for hole digging. *Acacia mangium* seedlings would be provided to the farmers who could decide where to plant within their plots using their own labour. Other technical options for the farmer for using the land allocated to him

including grass growing (natural or establishment of new varieties), Tephrosia and agricultural crops eg beans, cassava.

Despite the potential opportunity for a diversity of farmer actions uniformity has prevailed and moreover the interests of the cooperative appear to have dominated. Eucalyptus at the standard spacing now covers zones 1-4 with, in some cases, seedlings directly competing for space with coppice growth — even though *E. exserta* is regarded locally as a better construction wood. Guinea grass was planted by all farmers, including those without cattle, in zones 3-4 leaving zone 5 for food crops. *Acacia mangium* was mixed by farmers with the Eucalyptus in zones 1 & 2 and also added to both the vertical plot boundaries and Tephrosia contour hedges. Some variation between farmers does exist in terms of growth of the various components and way in which they have used extra resources eg Tephrosia seed to thicken plot/zone divides.

The cooperative were slow in deciding the terms of allocation and whereas a 10 year user contract with farmers was initially broached, this may now have been extended up to 30 years. The land will no doubt be formally allocated to the cooperative with the resulting agreement with families specifying a 50% division of products from the planted eucalyptus (8 year rotation) for the cooperative as a return on their investment. It is uncertain whether this is just for the first rotation. All other products—Acacia, coppice, grass, food crops etc remain 100% with the family.

The cooperative see the future of the hill both in the short and long term as a eucalyptus plantation. This complies with their policy of turning poor agricultural land into more economic forest plantations. The system of land classification seems in this case to be only a minor influence on land use planning within the cooperative since their approach is one of 'when the crop yield drops (hill) land becomes forest land'.

It is difficult to solicit farmers views on the way in which the hill has been developed or its long term use. It is likely that most who have been offered the chance to participate with the cooperative would accept the conditions set as access to such land is useful and moreover a refusal or conflict of view with the cooperative management may jeopardise other relations that the family may wish to preserve/engender with the cooperative over other questions of support.

The cooperative feels that on degraded hills direct investment by the

cooperative to the farmer — payment for hole digging, free seedlings etc, in accordance with a cooperative land use plan — is the only effective way of utilising such sites. They expect little farmer interest in the guinea grass or *Tephrosia* on the hill as farmers lack the 'management skills' and are only interested in rice production not hill crops. This contrasts with an earlier view from farmers who expressed interest in growing fodder on the hill. Subsequent grass growth (natural and planted) on the now protected hill has been impressive and plans exist to manage this resource through a cut and carry system rather than return to the traditional system of uncontrolled grazing.

Example 4 — Establishing and Managing a Soil Conservation Model: Phu Dien Cooperative, Phong Chau District

Qua Trung hill lies towards the centre of the cooperative and is close to a residential area. In 1986 coffee was replaced by cassava and in 1989 the cooperative identified the 4 ha site for FTP activities with plans for the establishment of an agroforestry/soil conservation model. This involved a mix of mechanical — Fanya Juu ditches, cut-off drains, central waterway — and vegetative methods. The latter in the form of contour rows of *Tephrosia candida* and *Acacia mangium* spaced at 8-12m intervals down the slope with cassava fields between.

The cooperative used its own investment and project materials to establish the basic outline to the model in terms of the mechanical structure. Farmers were identified on the basis of those within brigade No 6 (in this case synonymous with a settlement area) who wanted land on the hill and were prepared to support the soil conservation objective of the cooperative. Land was then allocated by the cooperative according to the number of persons in each family.

Acacia mangium seedlings and *Tephrosia* seed was provided by the project and in turn passed on to the 38 families by the cooperative for planting. This was carried out using their own unrewarded labour. Subsequent performance varies considerably between families, some have added their own *Tephrosia* seed and through dense sowing formed a strong and effective barrier to soil wash. Moreover *Tephrosia* hedges have also been used to mark vertical field divisions rather than the traditional ditch boundary which in itself represents an erosion hazard. In other cases there appears to be no apparent interest in the *Tephrosia* and hedges are both

poorly stocked and damaged. In general the *Acacia mangium* trees have not been cared for.

At the site, there are a number of uncertainties over who is responsible for what, which may be having a negative impact on its development. These are:

- Responsibility for ditch and waterway maintenance. The cooperative feels it is difficult to organise farmers as a group for this as in this way they would expect payment. Conversely the farmers do not appear to be in any natural grouping that would encourage them to cooperate independently on this matter.

- Harvesting decisions for the *Acacia mangium* apparently rest with the cooperative although the products are the property of the farmer.

- It is unclear whether cutting decisions for the *Tephrosia* rest with the cooperative or the farmer. With *Tephrosia* production, objectives may vary between the two parties with the cooperative favouring management of the hedge to maximize on-site effects (barrier and soil enrichment function) whereas a farmer may be more concerned with off-site benefits such as seed supply, fuelwood and litter collection for composting and use on the paddy fields.

These examples illustrate current doubts concerning the role of cooperatives in the rehabilitation of hill land. In some instances there is the need to initiate activities that demand group action and responsibility such as whole hill soil conservation systems and the management of areas of natural forest. It is, however, unclear whether cooperatives can represent a community in this way given their historical relationship with households and the current uncertainty concerning their overall future in Vietnamese society. Closer investigation is needed of both possible alternative social units (eg commune, hamlets, kin groups, interest groups) alongside an appraisal of the way in which cooperatives are adapting to their service role.

SUMMARY

What emerges from this analysis is that the most important decisions about who is actually involved in social forestry are being made within the sphere of local commune/cooperative/farmer politics; that is, at the interface between the formal decision-making processes of cooperative management, and the aspirations of individual households as realized in less formal affiliations which also operate within the communes. Evidence of this is to be found in the great variety of contracts made between farmers and the cooperatives which result from the differing status of the land allocated, as well as the independent bargaining power of the 'individual' with respect to the 'collective'. This is an extremely complex situation characterized by great local adaptation of the general models provided by the state for land allocation and reforestation. This indicates that the external agencies involved have little say in how the resources channelled through the social forestry programme are actually used.

According to the original objectives of the programme the clients were supposedly those individuals or households who were illicitly using the trees grown in the industrial plantations. The reasons why people encroach the industrial plantations are well known, they do so in order to gather fuel, to graze animals or cut wood for sale, and the detrimental effect of these activities on the performance of the plantations and fertility of the hill soils are also understood. What is less widely appreciated are the reasons why some people have to rely on these insecure resources in the first place. It has also been assumed that they automatically have access to the necessary land, labour and capital, and to the incentives provided by the social forestry programme itself, to begin tree growing elsewhere as an alternative. In fact, this is not the case for many households.

The programme provides an effective 'start-up' package which allows farm households to occupy newly allocated plots of land. The planting of trees confirms ownership after which farmers can, if they choose and if given the opportunity, embark on the long term task of turning the plots into productive farm holdings. This is helping to overcome the earlier reluctance farmers and cooperatives had about the re-allocation of uneconomical state land, and it is clearly an incentive which should be maintained in some form in the future.

In response to the allocation of long term rights over hill land farmers are themselves thinking hard about how to use these areas most effectively. In

places this is resulting in creative experimentation by innovative farmers as they exploit the opportunities now open to them (Littooy, 1989). This is a spontaneous process being carried out by farmers and cooperatives themselves which is yielding a range of diverse agroforestry models. In view of the fact that many farmers are inclined to turn single species social forestry plots into mixed species forest gardens, it is essential that the state extension service responds to this message. This will entail coming to grips with the wider production objectives and free market activities long associated with the homegardens — a sector of land which was never collectivized and for which institutional support is almost entirely lacking.

However, the current clients of the programme are a minority of richer farmers and cooperative cadre who have the necessary labour power, initiative and understanding of how to play the system to do this. The potential long term rewards for these families are very great, and the programme is providing them with the means of taking this risk, thereby maintaining a trend established by the industrial planting programme of removing access rights for some households. Neither do such activities stop when land allocation takes place; people are either forced to encroach the new plantings or they shift their activities elsewhere, and the consequences of this displacement to other areas of land have not been fully considered. Because of the pressure on land resources it is evident that this is part and parcel of a deeper process leading to increased economic differentiation between households and income groups in the rural areas.

Moreover, owing to a large demand for trees the programme has more or less been confined to arranging for tree seedling production and distribution. This demand stems from both the farmers themselves and from ambitious state reforestation targets. Agriculture and Forest Department staff have been preoccupied with modifying the nursery system to carry a large number of seedlings and their involvement in the process and problems of land allocation to farmers for social forestry purposes has been limited. Stemming from a state drive to re-green the 'bare hills' such issues are being by-passed at most administrative levels.

Some communes are attempting to get to grips with such problems by setting aside areas of hill land for uses other than trees. But in general, there seems little recognition that such great changes in land tenure may also demand a fundamental re-thinking and re-negotiation of the commune and district land use plans. Formerly, land use planning in Vietnam was chiefly concerned with setting production targets for districts and

collectives, a philosophy maintained in the social forestry programme given the emphasis which has been put on seedling production alone. As noted by Sargent (1991), as a result of land reform the individual land user needs greater freedom of choice to decide what to do with the land they are allocated; this choice needs to be built into the plans if they are to act as an incentive rather than a block towards improving land management.

At this point in time it is essential that the various facets of social forestry in the region are closely monitored and evaluated before embarking on an increased scale of activity. This will also enable the necessary resources to be devoted to the development of the extension service and focused research programme, both essential if the policy of land reform in association with social forestry is to be given a chance to fulfil its promise of rehabilitating vast areas of forest land in Northern Vietnam.

However, it is likely that many of the most important decisions will continue to be made at commune level. The scenario presented in this paper bears similarities to problems encountered in social forestry programmes begun in India a decade earlier, which sought to plant trees on land officially categorized as 'wasteland' but which was, in fact, a key resource for poorer households (Arnold, 1990). However, a critical difference between the two countries lies in the fact that the coexistence of landed and landless farmers has not been significant in the evolution of the current land use system in Northern Vietnam whereas it has in many parts of India. The considerable power of the traditional communes and modern day cooperatives in Northern Vietnam to re-direct resources provided by the State to suit local needs, has rested precisely on the fact that they have been able to assure secure if limited access to land to all families; resulting in what Fforde (1990) has labelled a situation of 'aggravated shortage' involving a familiar pattern of simultaneous shortages and slacks created by the central plan coexisting with an extensive development of unplanned activities aimed at the free market. Given this historical precedent it is perhaps doubtful that the local power elites, whether they continue to align themselves within the cooperative structure or not, will allow the current land reform process to result in widespread disenfranchisement of the poorer members of the communes.

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ANNEX 1 Social and Political Change and the Use of Forest Land in Northern Vietnam

Period	Social & economic policies	Impact on forest land
Pre 1945	Semi-feudal colony — Households were independent production units gaining access to land through tenancy, private resources or share of communal land	Forest clearance by large landlords for plantation crops eg tea, coffee, yet in general a low level of exploitation as low population pressure Communal land — protected sacred forests Private land included rights to trees within cultivated area
1945-54	War against the French — family remained the basic economic unit. Systems of land rental and tenants rights fixed to assist middle and poor peasant families	Unknown
1953-57	Land reform — break up of large land holdings Fields and implements handed to households	Stimulus to an increase in rural production Suspected increase in private tree planting

1958-80	Collectivisation movement — establishment of rural collectives Downgrading of basic socio-economic role of the family, replacement by cooperatives Production units of between 300-500 households divided into work brigades	Nationalisation of most forests. Large areas of forest land put under management of state enterprises, resulting in over cutting and state funded reforestation programmes of varying success. Within cooperatives forest was cut to sell the wood and create land on which food or other industrial crops could be grown Tree planting movements. Problems with 2nd rotations of cooperative plantations. Family efforts concentrated in homegardens 'Commons' situation on most hill land in the absence of effective property rights. Land degradation problems exacerbated by influx of migrants from the delta region.
1981-87	Modification of the cooperative management system, start of a movement back to 'family farming' Introduction of the family orientated system of output contracts (Order 100) Brigade often acted as an intermediary between cooperative and household	Investment in forestry still channelled through the cooperative or enterprises Status of District authorities grew and resulted in cooperatives having to comply with district instructions for logging and planting Process of 'giving out land and forest' started some forest land transferred from enterprises to cooperatives and in limited cases to households. Forest owners certificates assigned management responsibilities to families under the guidance of the Forest Protection organisation.

1988-89	Family restored as basic economic unit — Downgrading of cooperative to a service support role (Degree 10). Land law based. User rights can be granted to households for forest land for periods of up to 60 years.	Family investment in forestry outside of the homegarden now officially encouraged. Provincial and District authorities link reafforestation efforts to land allocation and target those cooperatives who have the ability to organize households and can provide part investment in planting. Growing economic problems particularly in enterprises provoke further cutting of remaining forest by both enterprise workers (to generate private income) and farmers as cash income needs increase.
1990-91	Authorities push ahead with land reform — Despite legislation detailing procedures to be followed, most allocations are made outside of the legal framework avoiding the slow and costly methods approved by the responsible state authority. This raises doubts over the planning processes that have been used at the local level and the long term effect of such developments.	The effective 'privatisation' of some plantation areas is restricting access of other households for fuel collection and grazing. Cooperatives continue to play a leading role in reforestation receiving allocations of large areas of hill land and sub contracting families to follow cooperative planting prescriptions. Apparent reluctance by authorities to allocate areas of natural forest. Commune management often ineffective and unregulated cutting continues in many areas. Enterprises experiment with long term production contracts with workers and groups of workers.

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, CANADA

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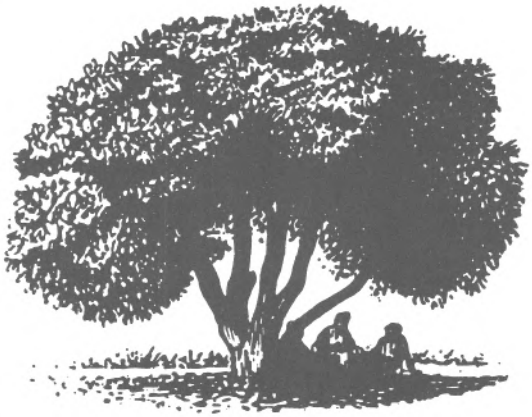

FROM MISTRUST TO PARTICIPATION: THE CREATION OF A PARTICIPATORY ENVIRONMENT FOR COMMUNITY FORESTRY IN NEPAL

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Network Paper 12b **Summer/Winter 1991**

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An earlier version of this paper was presented at the *National Workshop on Planning for Community Forestry Projects*. FAO/RWEDP, State Planning Institute and State Forest Department Uttar Pradesh, Lucknow, India, 17-21 October 1990. This version draws on a paper 'From Policing to Participation: Reorientation of Forest Department Field Staff in Nepal' Research Report Series N°11, HMG Ministry of Agriculture-Winrock International.

FROM MISTRUST TO PARTICIPATION: THE CREATION OF A PARTICIPATORY ENVIRONMENT FOR COMMUNITY FORESTRY IN NEPAL

Jane Gronow
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INTRODUCTION

Community forestry development in Nepal is a process which enables communities or more exactly forest user groups to direct the establishment and sustained management of their local forests for their own benefit. The essence of this process is the real transfer of control over the forests, from the government represented by the Forest Department to all the actual users of the local forest.

Community forestry is not synonymous with village-level reforestation directed by government departments or projects. In such activities the people's role is passive. For the purpose of this paper:

> "Participation is considered to be an active process meaning that ... the group in question takes initiatives or asserts its autonomy to do so." (Rahman, 1981:3)

Government Policy on Community Forestry

Community forestry development in Nepal has the status of a government policy, enshrined in legislation and supported primarily by foreign aid. The community forests themselves can be created from new plantations established on government land or from areas of existing government forest. The local **users group** can then apply for legal control.

Community forestry was introduced in response to the failure of previous forest policies over two decades to bring about the protection and sound

Social Forestry Network Paper 12b (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

utilisation of the forests. The Private Forest Nationalisation Act, 1957, brought all forests under government control. The Forest Act of 1961 provided legislation for state administration of the forest. This latter Act defined forest categories, covering description, registration, and demarcation of forest. It also defined the duties of the Forest Department, listed the forest offences and prescribed penalties (Mahat *et al.*, 1986:227).

By the mid-1970s it was clear that nationalisation had caused many individuals to clear their private forests to retain ownership of their land.[1] Furthermore, the legislative changes had caused the local *Talukdars*[2] to be replaced with small cadres of government forestry staff located in distant Range and Divisional Forest Offices. The *talukdars* had zealously administered the communally used forests for the hereditary and autocratic Rana regime (1847-1951), a system that although unfair was effective.

> The legal basis of local control of trespass or for management was suddenly eroded... Long after Nationalisation, and even after the forests in some areas had been destroyed, bureaucratic capacity for conservation and protection was not instituted. (Shrestha, 1987:9)

Local people soon became forced to resort to illegal and often destructive use of the forests. Indigenous systems of forest management had appeared in some places (Fisher *et al.*, 1989) to compensate for the lack of state control. Feudal control had also remained in particular places. Increasing population, felling of forests for profit and granting access to forest as a reward for political allegiance had also taken their toll.

State control of the forests failed largely because the institutional capacity to implement it did not exist, nor indeed was the policy itself wholly sound, with many forests especially in the Middle Hills being solely for

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[1] The 1957 Nationalisation Act often had no real impact in a district until the first Cadastral Survey mapped and registered land ownership in the 1970s.

[2] '*Talukdars* had responsibility for local forests in the Middle Hills during the Rana period. They were able to fairly effectively administer the forests and provided a reasonable amount of protection and control. The forests under the charge of the *Talukdars* were used only for fuelwood, fodder, small timber, grazing, collection of leaf litter, and other such activities. The local population collected what it needed from the forest without paying any fees, although some sort of gift (*theki*) in return to the functionary had become customary' (Mahat *et al.*, 1989:226)

local rather than national use. By the mid-1970s the policy makers had accepted that the participation of local people was also needed in the management of those forests on which they were dependent. In 1976 innovative legislation was passed to enable the government to promote community forestry.

When the above legislation was first implemented it was intended that community forests would be managed by the local *panchayat* [3]. However, subsequent amendments provided for management by **user groups**—those who actually use or would use a particular forest.

Legally before a user group can use a community forest it has to submit an Operational Plan for that forest. The plan is prepared by the users of the forest: not by professional foresters or natural resource planners. Sufficient time has to be allowed for all members of the user group, weak and strong, to reach a consensus on the future management of the forest: this process seldom takes less than three months. The users regard their plan as 'rules for our forest' detailing, for example, access to the forest and forest products as well as protection and decision-making. The plan is sanctioned by the District Forest Officer (DFO) and, until the recent political change, by the local *pradhan pancha*.[4] An executive forest user group committee is then elected by the user group members to oversee the implementation of their plan.

Progress in Community Forestry Implementation

If the description of community forestry development given above is taken as a yardstick it has to be admitted that progress across the various districts of Nepal so far has been disappointing. Progress has been made in establishing new plantations, but only rarely have people participated in the planning decisions for establishment of nurseries and plantations or management of forests.

There have, however, been pockets of success in the past four years, for

[3] A political/geographical unit of a partyless system of Government of Nepal, superseded since April 1990 by a multi-party system.

[4] Chairman of the village (or town) panchayat.

instance in Kabhre Palanchok and Dhankuta districts where user groups have been enabled to take on the management of both forests and nurseries with encouraging results. The progress made in these two districts leads us to believe that the concept of community forestry is viable and can be promoted under the appropriate conditions.

Conditions Needed for People's Participation

Experience from various community forestry projects indicates three key requirements for success: empowerment of people to reach judicious and egalitarian consensus; decentralisation of decision making; and creation of a participatory environment.

The Master Plan for the Forestry Sector (1988) provides a policy framework for implementation of community forestry. It recognises the importance of devolving decision-making and benefit sharing to forest users. However, villagers will begin to participate in the development process only when they believe that:

a) the outsiders encouraging them to participate are doing so in the villagers' best interests, in a spirit of respect, commitment and support (and are acting within a government remit);

b) they have equal rights to take part in decisions about the resources and that consensus can be reached; and

c) they have secure rights to the resources and will therefore receive any and all benefits that accrue.

If these conditions are fulfilled villagers will begin to become involved in the community forestry process, to analyze, to discuss, to interact, and to plan. In short this can lead to the villagers taking control of the process and the resources.

To date very few of these conditions have been met. A study by Koirala (1985) showed that 80 per cent of villagers were unaware of the changes in forest legislation, while 92 per cent voiced scepticism as to who would be the ultimate beneficiaries of the community forestry programme.

Many development workers feel that we can expect initiatives from the people themselves to bring about a change in their situation. There are documented cases in Nepal of villagers developing management systems in response to depletion of forest resources even when they had no legal authority over the land (Gilmour, 1988).

There is another point of view, put by Wignaraja (1984:8), that:

> A truly participatory development process cannot be generated spontaneously given the existing power relations at all levels and the deep rooted dependency relationships. It requires a catalyst or initiator who can break this vicious circle, who identifies with the interests of the poor and who has faith in people... Through a process of awareness creation, initiators mobilize people into self-reliant action and assist in the building up of collective strength.

Both points of view are valid — in a real crisis the people will take stopgap action. However, the presence of a facilitator can encourage the building of group consensus for long-term resource management.

The role that a facilitator can play in bringing about participation is further clarified by a villager in this quotation (from a dialogue with members of the Bhoomi Sena Movement):

> We need outside help for analysis and understanding of our situation and experience but not for telling us what we should do. (Rahman, 1981:8)

Usually projects facilitate one time participation and then forget the users. If participation is to be sustained beyond the life of the project, a participatory environment has to be created which entails changing attitudes as well as behaviour amongst the users and Forest Department staff. This requires on-going support to build the confidence of the participants until they reach a stage where democratic attitudes and participatory behaviour become a way of life.

It is not the role of the facilitator to convince or persuade. Yet this is precisely the task often given to a forestry extension worker, to persuade the people of the importance of forests, as though farmers were not already well aware of this. As Werner and Bower (1982:2) say:

> Community participation' too often has come to mean 'getting those people to do what we decide (emphasis in original).

The Forest Department as Facilitator

Local facilitators can be very effective to create awareness in the villages. Because of their background they are often both committed and credible. They are able to identify with the interests of the villagers. A disadvantage of using such facilitators is that they may have strong allegiance to one section of a community, whereas a facilitator has to be willing to encourage all sections of the community.

Grass roots facilitators should be encouraged, but if community forestry is to be institutionalized then the Department's district-level staff have to be more firmly committed to this approach and have to take a more active lead in its implementation. It is only they who, by handing over their authority, can ultimately create the faith in community forestry policy which is needed to bring about local participation. As Roche (1989:9) says:

> Change will only be effective if there is a desire to change from the bottom as well as the top.

The need for field staff to take part in community forestry development as facilitators has been recognized in Nepal at the highest levels:

> Rangers and assistant rangers role is to facilitate this (community forestry development) process (**Operational Guidelines**, 1990).

Although community forestry has been recognized for over a decade now, the District Forest staff admit that they have not generally been successful in facilitating a community forestry approach. One DFO wrote:

> Even we community forestry workers (the District Forest Controllers, Community Forestry Assistants,[5] Forest Rangers,

[5] In the Hill Community Forestry Project there are separate extension staff for community forestry - ranger-level men and women. Called Community Forestry Assistants,they have invariably been involved only in reforestation work.

> etc.) have not had appropriate training and are not motivated to take part in this process. (Budhathoki, 1987:26)

In recent times the role of the field staff has been far removed from that of the catalyst described above. Most staff have continued their 'policing' role: trying to maintain some control over the forests, at times apprehending villagers (often the poorer) and harassing them. Their 'community forestry duties' were concerned with planning and carrying out reforestation work by hiring labour. In their policing and development work they were 'tree-oriented and not people-oriented' (Agarwal, 1986:112).

Until the role of the field staff is changed to one that is more people and service-oriented there seems to be little possibility that they will be able to facilitate community forestry development. As Chand and Wilson (1987: 23) assert:

> One of the main constraints to the active participation of communities in forest management is the lack of active support, extension and encouragement from the District Forest Office.

Stimulating community forestry development demands the highest level of competence and dedication, including the ability to develop strategies and be self-reliant in the field. It is not possible to do this work as 'just another job'. The field staff must believe in community forestry and be committed to active participation as facilitators.

Conditions Needed for Field Staff Participation

Under what conditions might the field staff begin to change their role and become motivated to participate in community forestry? Our experience[6] suggests very strongly that, prior to such change, the field staff need to believe that:

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[6] The observation is based on the authors' (a forester and trainer respectively with thirteen years combined field experience of community forestry in Nepal) close work with the district-level staff of the Department of Forest. They have helped develop training manuals, run reorientation workshops and have supported attempts by field staff to form user groups.

a) policy changes have resulted in a new role for them and old operational systems must now be superseded, *ie*, the time is ripe to participate in community forestry programmes;

b) they will receive recognition for their new work, *ie*, they are empowered to 'take initiatives';

c) they will receive the support they need to help them develop new approaches, credibility and acquire new skills;

d) they will be recognized as active participants in decision making.

Few of these conditions exist at present: many rangers remain unaware of the policy changes and ignorant of the concepts of **user group** and **operational plan**.

The bureaucratic environment that is preventing interested field staff from fulfilling their new role has many parallels with the problems experienced by local people in becoming forest managers:

- Lack of awareness of policy changes
- Lack of security and incentives
- Lack of responsibility and authority
- Existing value systems and vested interests
- Lack of faith in the hierarchical Forest Department bureaucracy
- Lack of meaningful support.

It is interesting to note that no policy maker or adviser has proposed to retrain the villagers. Indeed all seem to agree that the process of involving villagers in the community forestry programme is 'participatory', which is 'about working with them, listening to their problems and needs, and helping them to help themselves' (Malla, 1987:83). It is also an accepted fact that everyone should 'develop communities to be more self-reliant' (*Master Plan*, 1989:9) and that decision-making responsibility should be devolved to the village users.

It is equally interesting to note an inconsistency in the way the decision-makers approach the parallel issues of villager and field staff participation.

The former is gradually being tackled with well thought-out participatory approaches, the latter still with crude imposition:

> Retrain the entire staff of Ministry of Forest/Forest Department to their new role. (*Master Plan*, 1989)

> In order to orient their (most of the field staff) activities more towards community forestry, fundamental changes will be needed in their present role and attitudes, and these changes will have to be brought about by training. (Malla, 1987:58)

Changes in the field staff's attitudes are certainly needed, but achieving these must involve more than just retraining. Modifications are also necessary to their working style, from directive to stimulative—indeed in the very environment in which they work.

People concerned with broader development issues tend to agree with this latter approach:

> When we consider the issue of the organisational structure of Research and Development and extension networks, or the attitudes of the individuals who comprise these networks, a more fundamental change is likely to be needed than a mere 'retraining' of these individuals. (Agarwal, 1986:174)

Traditional training concerns itself with teaching new skills. It is subject-matter focused and does not concern itself with the trainees' attitude and commitment to the task. We suggest that traditional 'chalk and talk' training courses cannot engender the required levels of change, dedication and competence because they do not confront these issues. Conventional training courses perpetuate the field staff's passive stance towards community forestry. The teacher/pupil framework of these courses does not value the experience of the pupil, only of the teachers.

> Conventional training methodology — delivering a prepackaged basket of knowledge or skills through lecture and instruction — cannot be used for the purpose of sensitizing people for participatory development work. (Wignaraja, *ibid*:8)

Conventional training also reinforces the pervasive 'extension agent-ignorant villager' attitude. If the field staff are taught in a manner that

emphasizes acquisition of knowledge they will set up their relationship with the villagers in the same way: directing and informing them rather than stimulating and empowering them.

> The way we teach can either break down or build up people's self-confidence and community strength... (Werner *et al.*, 1983)

THE REORIENTATION PROCESS

The alternative to re-training is reorientation, the process of **enabling the field staff actively to participate** in community forestry development. Reorientation which encompasses change in value systems and attitude is different from retraining; it tackles the fundamental issues, not just acquisition of knowledge.

The aim would be to create an environment in which reorientation is possible by:

a) changing Government forestry policy away from policing and towards participation, leading to a change in the field staff's tasks;

b) changing the value systems and hierarchies government officials and projects advisers impose on the field staff;

c) establishing relationships of respect and trust between policy-makers and field staff and devolving more decision-making responsibility to the field staff;

d) promoting experience-sharing, reflection and confidence-building among the field staff;

e) helping the field staff to identify problems and define new approaches; and

f) supporting the field staff and applauding their efforts.

We believe that these changes will enable the field staff to:

- take initiatives, change their attitudes and develop commitment to community forestry; and
- participate in community forestry by developing new relationships with villagers and subsequently institutionalizing their new roles and working styles.

If conventional training courses are to be rejected as an inappropriate and inadequate strategy for reorientation, what strategies are appropriate for this process? The participants need to be seen as 'active and creative, as agents in their own right, not simply as respondents to stimuli' (Bannister and Farnsella, 1986:viii). We conclude that three different strategies are necessary: **participatory workshops, field support** and **institutional changes**. In the following pages, these three orientation strategies are discussed in detail.

Participatory Workshops

The first reorientation strategy is the running of participatory workshops.[7] In these workshops there is no teacher/pupil relationship, rather it is accepted that everyone has something to contribute to the learning process. The objective is to encourage people to learn from their own experience. If the field staff are to be active in the field then they have to be allowed to be active in the classroom.

> It seems obvious that to bring about participatory development we need a participatory approach to training. (Bhasin 1989:17)

In Nepal, as far as we knew, there was no precedent for conducting this type of workshop in forestry. Our ideas and approaches were therefore borrowed from other disciplines. In 1986 a manual (see Gronow, 1987) for conducting such a workshop was prepared and used to conduct workshops with field staff in Dolakha District. In 1988 workshops were conducted in districts in East and West Nepal and the manual (see Gronow and Shrestha,

[7] These have also been referred to as Reorientation Workshops and Start-Up Workshops (Gronow *et al.*, 1988).

1988) revised—as it should be for every new situation.

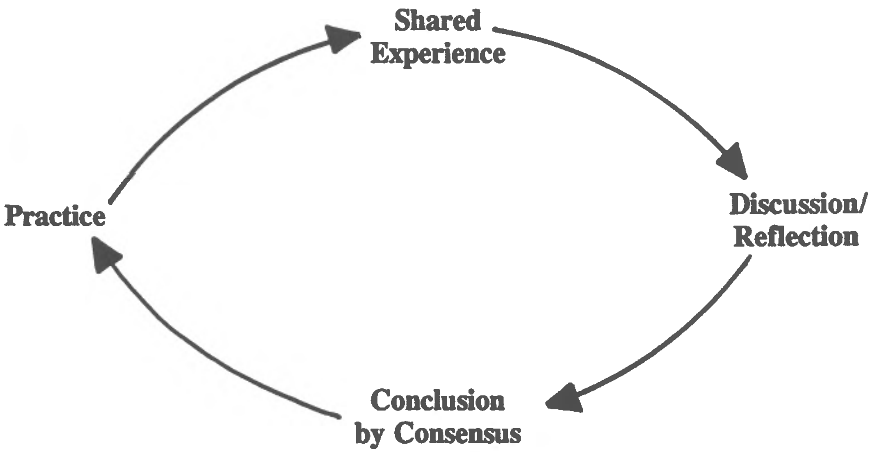
The major goal of these workshops is:

> To begin the process of reorienting the participants towards their new roles; that of facilitators of community forestry development and subsequently to help them develop their own approaches, strategies, and work programmes to meet their goals. (Gronow *et al.*, 1988:3)

The District Forest Office is taken as the focal point at which to attempt reorientation. In the past training has often been held centrally in Kathmandu, with only one or two people from each district being invited to attend — it has then been impossible for the trainees to go against the tide and use their training when they return to the field. Ideally therefore all the members of one District Forest Office — officers and rangers together — should take part in the one workshop.

☐ *Workshop Methodology:*

The workshops emphasize learning from experience. This model can also be successfully used at District Forest Office staff meetings, seminars of local leaders, and during extension work in the villages. The model is useful in any situation where open discussion or team building or reaching a consensus is needed.



The 'experience' shared in the workshops was that of the participants while working as forest officials. It was accepted that:

> Learning is not something which can be 'injected' into the participants; it has to emerge from their own experiences to be useful, real and practical. (Wzorec, 1986:4)

The workshop facilitator and participating senior officers also had to make the effort to listen to and understand the perspective of the field staff participants.

The participants came with a wealth of experience, insights, problems and ideas. In addition, role playing, case studies, field trips and the workshop methodology itself provided new experiences. Since agreement by group consensus is a key factor in forest management, the workshops were designed to show the participants how consensus can be reached — by actually experiencing it. In this way the workshops had relevance to what the participants would do in the villages.

'Reflection' enabled the field staff to re-evaluate their attitudes, values and role. Some specific topics on which the participants were invited to reflect critically were reasons for forest destruction, the villagers' ability to manage the forests, the villagers' role in community forestry and the use of extension materials.

Reflection was encouraged by the facilitator posing problems, challenging inconsistencies and using the Socratic method of questioning.[8] Invariably in the open but challenging climate of the workshop prevalent attitudes gave way to more honest ones. In the workshops it was ultimately agreed that forest destruction was due not merely to ignorance and over population and that it was the villagers' and not the Forest Department's role to manage the forest. The field staff slowly began to accept the villagers' ability to take the leading role in community forestry.

The participants were then encouraged to draw 'conclusions' from their analyses. Coming to a conclusion is important to produce a sense of consensus, commitment to change and increasing self-confidence. It also

[8] By which the respondent comes to his/her own realisation.

helps people feel they are learning. Conclusions were reached for example on the nature of the community forestry process, field staff role and extension guidelines. The field staff conclusions provided them with the conceptual framework within which they could begin to work.

The participants were encouraged to commit themselves to putting their conclusions into 'practice' both during the workshop by role playing, in field trips and back at work through work plans. This commitment was enhanced by having as many members of the District Forest Office present as was possible.

☐ *Workshop Facilitator's Role:*

The role of a workshop facilitator is essentially the same as that described earlier by Wignaraja. Just as the facilitator in the village must have 'faith in the people', must not impose, must try to 'create awareness and help people analyze their situation' so must the workshop facilitator.

Throughout the workshop the facilitator should provide a role model for the participants' subsequent work in the villages: of stimulation not direction.

To help ensure the success of the workshop the facilitator must also be responsible for:

a) encouraging the breakdown of hierarchical structures by helping everyone to take initiatives: officers and field staff equally;

b) encouraging those taking part to be active and expressive. The facilitator has to create and maintain a non-threatening learning climate; to validate the participants' experiences, *ie*, help them believe their experiences were valuable. This again has parallels with the role the field staff will play in the community. This climate can be created by:

- keeping each person involved and active by having a common agenda and engaging in small group work;

- ensuring involvement of everyone in decision making so that each participant feels committed to carrying it out;
- giving and receiving feedback;
- dealing with conflicts constructively, so that no one feels that they have been excluded;

c) sustaining self-motivation throughout the workshop; this is not done by 'carrot and stick' methods. To accommodate different learning styles the facilitator needs to use a variety of methods, *eg*:

- large/small group discussion
- games
- case studies
- role playing
- lectures
- brain storming
- interview
- field visits
- model building.

The lack of skilled workshop facilitators will hinder efforts to promote this learning model. To date all the Start-Up Workshops[9] have been facilitated by project staff[10] but this is unlikely to be the long-term solution.

In the short-term advisers can make a valuable contribution to reorientation, but only if they are prepared to commit themselves to working alongside the Forest Department and the villagers. **Projects will not help the field staff by setting up parallel institutions from which they demonstrate how to bring about development — with none of the constraints of working in the Government system.**

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[9] The Start-Up Workshops are those that are conducted before the field staff have begun user group work. Follow-up Workshops are conducted after the field staff have begun to stimulate user groups. These are experiences gained after the Start-Up Workshop.

[10] Hired directly by the donor agency or the contract team.

Too many advisers are unfit to help in field staff reorientation unless first reoriented themselves: professionals are often arrogant, assuming a false superior knowledge and superior status (Chambers, 1983:6). Occasionally the value systems of the advisers are as described by Hancock (1989):

> In ... Nepal, the extent of foreign involvement in the national development effort is so great that, in some schemes, it is genuinely difficult to discern whether the real beneficiaries are even intended to be the Nepalese poor, or whether, in fact, the whole exercise has been designed around the needs and interests of expatriate corporations.

☐ *Workshop Content:*

The focus of the workshop should be on those taking part rather than on particular subject matter. As far as possible the participants should be involved in identifying the workshop objectives and topics for discussion and planning the methodology and logistics. Because the participants themselves help identify their learning needs and set the goals, the content is usually highly relevant.

The facilitator does, however, need to be prepared when a topic is suggested. Session guides covering topics which from experience almost all participants want to discuss, are included in the manual and are adjusted for each workshop depending on the demands of the participants. Each guide suggests the purpose, learning objectives, activities, resources and time needed to discuss a topic.

As an illustration, the following are the topics discussed at one of the workshops: the participants decided that the name of their workshop would be 'A New Direction in Forest Protection and Development'. They went on to cover:

1. **Introduction to the workshop**
2. **Community Forestry concept**
3. **How does Community Forestry work?**
4. **The Community Forestry Development process — How does it start?**

5. **Involvement and confidence building of women and disadvantaged groups**
6. **Involvement of NGOs and other government agencies in the process**
7. **Review of field trip**
8. **Review of community forestry management workshop papers**
9. **Interviews with a local assistant ranger and local forest committee**
10. **Koshi Hills Development Project and the present Koshi Hills forestry situation**
11. **Developing a work programme**
12. **Problems, support systems**
13. **Workshop evaluation**

The process of Community Forestry Development has tended to be the central theme of all the workshops, drawing together all the other topics.

☐ *Workshop Evaluations:*

We observed that while the participants find the workshop methodology strange at first, they soon begin to take part, working hard and keenly.[11] Of the 6 instances where officers and rangers/assistant rangers were together, the officer imposed his view in only one instance. In general the advantages of an officer being present out-weighed the disadvantages.

From evaluations carried out by workshop participants, several issues emerged. Participants felt that weak points of the workshops included: too little variety in activities and our tendency to impose. The later workshops benefited from the evaluations made by participants of earlier workshops and from the services of a Nepali facilitator.

The main indicator of success is that officers and field staff have been asking for Follow-up Workshops. Also several District Forest Offices have run staff meetings, nursery foremen training, user group assemblies and seminars of local leaders following the workshop approach.

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[11] To date the authors have been involved in running 16 Start-up and one Follow-up workshop.

In all the workshops, field staff defined new roles for themselves and a willingness to go and try out their new roles was generated. We learnt rapidly, however, that the workshop experience was insufficient to enable field staff to begin work in villages on their own. **We cannot emphasize enough that although the workshops can bring about a decision to participate, to actively do so the field staff need follow-up support.**

Field Support

Once the workshop is over, the reorientation process should continue in the field.

The field staff have repeatedly said that working on their own presents difficulties with regard to security, credibility, confidence and political pressure. Their youth in relation to some influential villagers, low official status and the negative reputation of the Forest Department make them feel insecure. The villagers' somewhat justified lack of faith in the Department works not only against their participating in community forestry but also against the field staff's attempts to adopt the new role of facilitators.

Without a role model, the field staff initially also find it difficult to develop the skills needed to initiate and maintain dialogue with the villagers. Without help it is difficult to develop strategies. The type of moral and practical support provided at the workshop now has to be provided in the field until the field staff's role reorientation is complete and instituted (both in the villages and at the Forest Department).

In the districts in which we conducted workshops, project advisers provided support in the field. Advisers can play a useful short-term role here, when competent to do so. In the districts where they are available the Assistant District Forest Officers can also provide support.

The need for intensive field support to staff should only be short-term, until skills develop and until the villagers have faith in the rangers. However, if this field support is not forthcoming the reorientation process goes no further than the end of the workshop.

Institutional Change

> A major challenge over coming decades is bureaucratic reorientation (Korten and Uphoff, 1981) including a change from authoritarian to participatory styles and a shift in responsiveness from orders from above to demands from below. (Chambers, 1983:212)

The working environment in which field staff find themselves must also be conducive to their new role. It will be difficult for the field staff to adopt a service-oriented role when the value system they work within encourages them otherwise. Change in the value system of the Forest Department needs to come from the higher levels first—the senior officials and senior project advisers.

Furthermore, the present hierarchical working style of the Forest Department is not suitable for sustaining community forestry development. An example of one area in which change is needed is field staff meetings. These are at present often in the style Chambers (1983:211) describes:

> In meetings subordinates are upbraided, cajoled and given orders. They are asked for reports of targets achieved, not for problems encountered. Poor performance of deviant initiatives are rewarded by punishment of posting. Promotion comes, if at all, through compliance or through working in headquarters. Real problems of implementation or impact are repressed; appearances of achievement applauded. Senior Officers do not learn from their subordinates and subordinates do not learn from their rural clients.

A more appropriate style of working would be stimulative and supportive rather than directive and punitive.

In the long-term the Forest Department needs to build up its own capacity to support its field staff. The level of support need not be so intense as that given at the beginning but it is necessary if reorientation is to be sustained. This will require institutional changes in working style and in setting up staff meetings and follow-up workshops.

Another change that is needed if the field staff's commitment is to be sustained is that good work should be recognized. At present field staff

rarely receive recognition for their commitment to supporting community forestry user groups. Furthermore, policy makers have to demonstrate as strongly as possible their commitment to this approach as a long-term strategy. The problem of the field staff's inadequate remuneration needs also to be considered.

The users also need to get used to making desicions by consensus. Different extension strategies are required to build their confidence. Regular users' assemblies and users' committee meetings, if properly conducted in a participatory way, can inculcate the necessary environment for participation. User group networking activities can strengthen users' position and enable them to put pressure on the Forest Department to be more people oriented.

Progress in Field Staff Participation

In districts where workshops have been held and where follow-up support has been available to field staff we have witnessed very encouraging progress. But where follow-up support has not been provided there has been very little field staff activity.

A case in point is the example of Bhojpur and Dhankuta Districts. The DFOs have played very positive roles, and three project staff have provided a high level of post-workshop support in the field. Since the workshops, almost all the field staff in these districts have involved themselves in user group related activities. With many dedicated and capable staff in these districts, we observe that there are signs of institutional change as well.

The District Forest Officers have become the role models; they have changed their working styles and priorities and are supporting their field staff by running lively staff meetings, deputing Attached Officer to the field, and providing moral support to their field staff. In these districts a significant level of support is also being received by the Forest Department from local forest user committees. As hoped for, field staff's trust and participation in community forestry have led to villager trust and participation. It remains however, to be seen whether or not the changes can be sustained in these districts.

CONCLUSIONS

It is now publicly accepted that widespread people's participation in community forestry will only follow on from widespread support by the Forest Department. It has not yet been recognized that the very kind of participatory methodology advocated to bring about villager participation is needed to bring about field staff participation: open discussions, a climate of trust and devolution of responsibility as well as authority.

There is no consistency in the way in which the villagers and field staff are dealt with. Thoughtful participatory methods are proposed for dealing with villagers yet retraining and directives are proposed for dealing with field staff. Full reorientation of field staff requires more fundamental changes than retraining. Conventional training courses which are subject matter-based cannot address the field staff's own problems, cannot recognize the need for officials and advisers to change too and cannot provide experience of participatory development.

We feel that reorientation is possible only through a deliberately sympathetic approach to field staff. Our experience suggests very strongly that there is no other way of enabling the field staff to become dedicated to community forestry and become professional in their job than for those in positions of authority to trust them, support them and treat them professionally.

A reorientation process based on participatory workshops and field support can bring about necessary changes as is evidenced by the cases of Dhankuta and Bhojpur Districts. But it is an ambitious process that will not be easy to replicate across the country.

Even when field staff reorientation has been brought about through workshops and field support it can only be sustained by long-term institutional change within the Forest Department. All concerned with community forestry should be mindful of a statement from *Foreign Aid and Development in Nepal* (Banskota, 1983:63):

> The Pilot Phase emerges where money, manpower and materials are poured in to such an extent that initial results are 'forced' to be encouraging.

Community forestry is a bold and innovative policy that holds the promise of benevolent systems of forest renewal and utilisation for all. If this promise is not fulfilled the policy will have failed in the main not because of the villagers' shortcomings but for the same reason that nationalisation of forests failed; because the institutional capacity to implement it never existed.

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, CANADA

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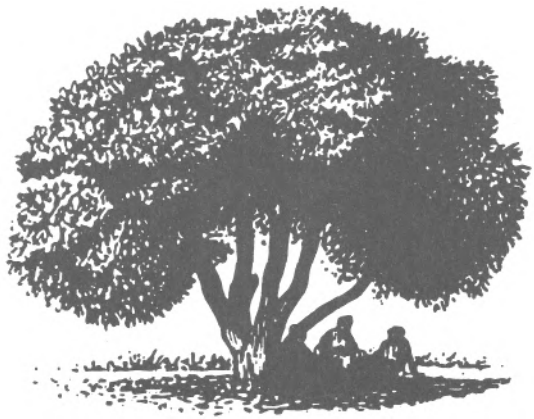

A COMMUNITY SCHEME TO ENCOURAGE PRIVATE TREE PLANTING BY FARMERS IN THE HILLS OF NEPAL

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Network Paper 12c **Summer/Winter 1991**

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A COMMUNITY SCHEME TO ENCOURAGE PRIVATE TREE PLANTING BY FARMERS IN THE HILLS OF NEPAL

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INTRODUCTION

In recent years in Nepal several government institutions and bilateral aid projects have set out to support tree growing on private farm holdings. However, such programmes are often restricted to the distribution of tree seedlings and the level of success in terms of seedling survival and establishment has been less than satisfactory. The main constraint almost all organisations face is in finding an appropriate channel to involve farmers, especially poorer farmers with limited land resources, in such programmes. The lack of the necessary skills and experience to provide effective extension follow-up is also a problem.

In this context, the Pakhribas Agricultural Centre (PAC) is one of the organisations in Nepal which has approached private tree planting in a structured manner. The innovative approach adopted by the Centre in planning, designing and implementing a private planting programme through a community self-help group is considered to be unique in the country. Based on the case study of Salle village, this paper documents the process involved in implementing such a programme and tries to identify factors that may determine its success.

The survey in Salle Village was carried out after tree planting work had got underway through local initiative with the support of PAC. In the survey an attempt was made to explore people's ideas and attitudes towards the problems and prospects of private tree planting. The changes that have occurred in the farming systems as a result of tree planting are highlighted. Although some principles have emerged from this study, the enormous variation in socio-economic, agronomic and ecological conditions makes it difficult to transfer the experience directly to other communities. An

Social Forestry Network Paper 12c (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

understanding of local conditions is imperative. Through a better understanding of the farmers' strategies towards tree growing, it should be possible to develop more appropriate innovations which may improve the lives of hill farmers. The implications for planning future extension programmes aimed at private tree planting are discussed.

THE SURVEY

The survey was conducted in Salle village during September 1989. A sample of 44 households was taken. One informant from each household was interviewed, usually the household head, some of whom were women. Interviews were conducted both individually at their residence and in groups consisting of 5-6 farmers. Their fields were also surveyed. It should be noted that all villagers were previously known to the field investigator and one of us had previously spent considerable time in the village and had established good rapport with the people.

The interviews were based on a checklist which was used as a basis for informal discussion, through which general information on problems associated with private tree planting, details of local knowledge and suggestions made by the farmers to improve private tree planting were gathered. A structured questionnaire was also used to obtain quantitative data on demography, farm size, trees on private land and livestock ownership. Seedling production and distribution records were obtained from the register maintained at the PAC, Forestry Section and from the village nursery being operated by the villagers themselves.

SALLE VILLAGE AND ITS SURROUNDINGS

Salle village is in Hattikharka Village Development Committee—VDC (formerly Panchayat), in Eastern Nepal. It is an area of steep terrain, falling from an exposed ridge at 2200m elevation down to 450m. The soil in the area is acidic, with high organic matter in the topsoil. The climate is monsoonal, with 80-90% of the annual precipitation (1400 mm as recorded at the nearest meteorological station) occurring between June and September. Frost can be expected from the first week in December to the third week in February. The population of the sections of Salle village included in the survey is 1332, comprising 226 households with an average

of six persons per family. The population is predominately Magar (84.2%) and the Magar dialect is widely spoken.

There are three major types of land use in the village—the area occupied by each is given in Table 1. Human settlement and cultivated land is largely confined to areas below 1800m; above this, at the top of the village, lies about 30 ha of upland grassland locally known as *Nagi*. The cultivated land is predominantly *Bari*—non-irrigated land, on which the main field crops grown are potatoes and maize, although recently wheat has started to gain popularity. A limited range of fruits and vegetables are grown around the homesteads. The village does have a small area of *Khet* (irrigated) land on which rice is grown.

Table 1 Summary of Land Type Distribution

Land Type	Average land-holding per household (ha)	Range (ha)	% of Farmers with Land-Type
Khet	0.23	0-1.2	38
Bari	1.30	0.25-7.5	100
*Nagi**	0.61	0-2.0	30

* Non-cultivated land

The average farm size is 1.5 ha. This figure stands much higher than either the national average (0.4 ha) or the 0.5 ha reported by Conlin and Falk (1979) for the Koshi Hills. Despite this, it is doubtful if subsistence level nutritional requirements are met by local production. Empirical evidence suggests a strong dependence on other sources of income such as working on the farms of other's, wage labour on nearby road construction works, raising and selling small stock (pigs, poultry, goats), portering, or joining a foreign army service.

The village has reasonable access to markets, an opportunity which has recently been further improved by the construction of the Dhankuta-Basantapur road. Despite this, the penetration of development institutions in the area is limited. A primary school was established in 1970 and recently a Water Supply Project has provided water to the school. The rest

of the village obtains drinking water from local *Pandhara* (springs).

Livestock play a critical role in the farming system. Almost every household maintains a range of animals including cattle, buffaloes, sheep, goats, pigs and poultry. In addition to manual labour, livestock provide virtually all the draught power required for crop production. They are also the primary means of processing crop residues, fodder and bedding materials into compost which is vital for maintaining the fertility of crop land. Sales of livestock and their products are an important source of farm income.

Trees on private land also play an indispensable role in the farming system and their management is closely interlinked with that of livestock. Since proximity and access to natural forest is almost non-existent, every household depends on private trees for fodder, fuelwood and timber. The species found most commonly are given in Table 2.

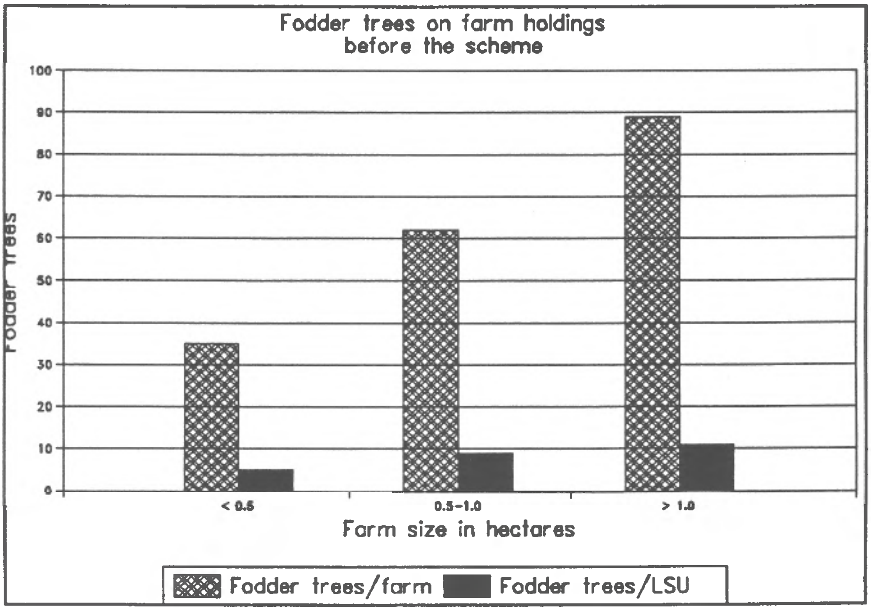
Table 2 Common Farmland Trees and Shrubs before the Scheme

Species	Average N° of Trees/Farm	Range	% of Farmers with Species
Alnus nepalensis	258.2	10-500	100
Ficus neriifolia	31.6	4-70	100
Leucosceptrum canum	15.4	7-40	100
Prunus cerasoides	15.1	2-30	100
Saurauia napaulensis	6.2	0-25	92
Ficus auriculata	4.3	0-15	85
Dendrocalamus & *Bambusa* spp (Clump)	2.0	0-5	74

It appears that livestock population density decreases as the size of land holding increases and farmers with large farms have more fodder trees per livestock unit (LSU) than those with small farms (Figure 1). These figures are considerably higher than those reported by Wyatt-Smith (1982) for the Tinau and Phewa Tal areas and Hopkins (1983) for the Eastern hills in general. The number of fodder trees per farm depends largely on the availability and proximity of forest fodder. The limited access to natural

forest in Salle may partly explain such large numbers of fodder trees per farm.

Figure 1 The Number of Fodder Trees in Relation to Farm Size



THE INCEPTION OF COMMUNITY TREE PLANTING ON PRIVATE LAND

Hattikharka VDC is one of seven VDCs in the Local Target Area (LTA) of the Pakhribas Agricultural Centre where research and extension activities, across various land use disciplines, have been concentrated for over twelve years. Since 1977, a forestry trained extension worker has been working with farmers to encourage individual planting of fodder and fuelwood trees on their own farmland. As a result, many farmers have planted trees within their farms the tangible benefits of which are now becoming apparent.

In late 1987 the call for tree planting in Salle village became stronger. A group of farmers contacted the Forestry Section at PAC seeking advice and

help for planting trees on about 30 ha of *Nagi* land at the top of their farms. The land is privately owned by 68 households and was used previously by both the owners and other villagers as open grazing for their livestock which are now stall-fed. One owner in particular (Mr. Padam Bahadur Sinjali) had become especially enthusiastic about tree planting, and it was he who had been the prime mover in urging his neighbours to get together for the present scheme. He has been the instigator, PAC the facilitator. Although the initial scheme was primarily for planting trees on *Nagi* land, now farmers both who own *Nagi* land and non-owners (by planting trees on their cultivated *Bari* land) are participating actively in the scheme. The scheme is of special importance because it was initiated and organized by the farmers themselves.

EXTENSION APPROACH

Home Visits

Following a request from the villagers, a programme of home-farm visits by the staff of the Forestry Section was launched. The purpose of these visits was to discuss with the farmers their particular problems, needs and opportunities. Further discussions were held with farmers in small groups, in which female farmers in particular were encouraged to participate. These occasions were used to establish rapport with villagers as well as to create awareness regarding legislation governing private tree planting. Similar discussions were held with the local school teachers and pupils and booklets on private forest legislation were distributed.

On-Site Meetings

After the home-farm visits there followed a series of meetings on the *Nagi* land where tree planting was proposed between the forestry staff and the farmers. One member of each household (usually the household head) attended the meetings. As a result of these meetings it was agreed that: i) a farmers' committee should be set up; ii) that the area should be planted over a period of two years; and iii) that there should be collaboration between the village and PAC for advice and help in establishing the village tree nursery. Representatives from PAC expressed the continuing commitment of the Centre to supporting the scheme.

Formation of Farmers' Committee (Community Self-Help Group)

Mr. Padam Bahadur Sinjali was unanimously chosen by the villagers as the Chairman of the committee. Five other farmers, including two women, voluntarily agreed to assist him as committee members. These members included farmers with and without access to *Nagi* land. The rest of the villagers were considered as general members. The role and responsibilities of the committee, as agreed by the assembly, were as follows: i) that it should convene on a monthly basis on the first Saturday of every month; ii) that it should be charged with the development of a village level programme for tree planting in consultation with other villagers; and iii) that it should be the point of liaison between villagers and PAC.

Planning Undertaken by the Self-Help Group

A number of monthly meetings were organized during the first half of 1988 by the committee to formulate the future programme. The staff of the Forestry Section were also invited to attend. Many issues were raised and discussed during these meetings. The plan of action set out by the committee and the villagers included the following:

- The construction of a village nursery with contributions (labour) from each household
- Organisation of seedling collection and transportation from PAC to the village
- Fixing a nominal charge for the seedlings
- Preparation of a simple plan for the plantation
- The development of local rules and regulations for protection and management of the plantation area.

The Planting Work

One member of the community was selected to work as a nurseryman for which PAC help was requested. After completing his training at the Centre in 1988, the nurseryman went back to the village and constructed the nursery with the help of the villagers. The site for the nursery was

provided by the nurseryman himself and excavation, the collection of bamboo poles and soil and preparation of *Bhakaris* (shade) was done by the villagers. The polypots and water pipe were provided by PAC.

A total of 18,000 seedlings were produced by the nursery over two years. Since this number was not sufficient to meet the local demands an additional 42,000 seedlings were provided by PAC. All collection, transportation, distribution and planting activities were organized by the committee and carried out by the participants themselves. As agreed previously between the committee and the villagers, individual farmers were charged 15 paisa for fodder tree seedlings and 10 paisa for other species. The amount collected was set aside as a community fund which currently amounts to Rs 2,036 (including income from other sources). To prevent any misuse of the fund, a joint account with the committee chairman and ward chairman as signatories has been opened in the bank. In future, it is planned that the nursery will also sell seedlings to neighbouring farmers and use the funds to pay the nurseryman and finance other forestry needs.

Protection and Management of the Plantation

The committee, in consultation with other villagers, has developed and implemented a number of local rules and regulations for the protection and management of the plantation area which is unfenced. A summary of these rules and regulations, as extracted from the meeting minutes maintained by the committee over the period of two years, is as follows:

- Each household is to practice a stall feeding system.
- A *Kanzi Ghar* (animal pound) is to be constructed with help from each household.
- Animals found grazing on the plantation area are to be brought and kept in the *Kanzi Ghar*. A fine of Rs 50 per cattle or buffalo, Rs 15 per sheep or goat and an extra fine of Rs 5 per night per animal is to be charged to the owner. An additional fine of Rs 10 is to be charged for each plant damaged.
- Non-owners may cut grasses from *Nagi* land without payment, in consultation with the owner. However, anyone found guilty of stealing grasses from the plantation area is to be fined Rs 10

per load (*doko*).

- Each owner of *Nagi* land must provide a watchman in rotation. A member of the household is to collect the rain coat (purchased using the community fund) and walking stick from the committee chairman's house at 8 am in the morning and to return them at 6 pm in the evening on her or his duty day. Absentees are to be fined Rs 35 per duty day.

- All owners of *Nagi* land have to contribute labour for the construction of fire lines.

- Anyone found guilty of setting fire to the plantation area is to be fined Rs 500. An additional fine of Rs 10 is to be charged for each plant damaged.

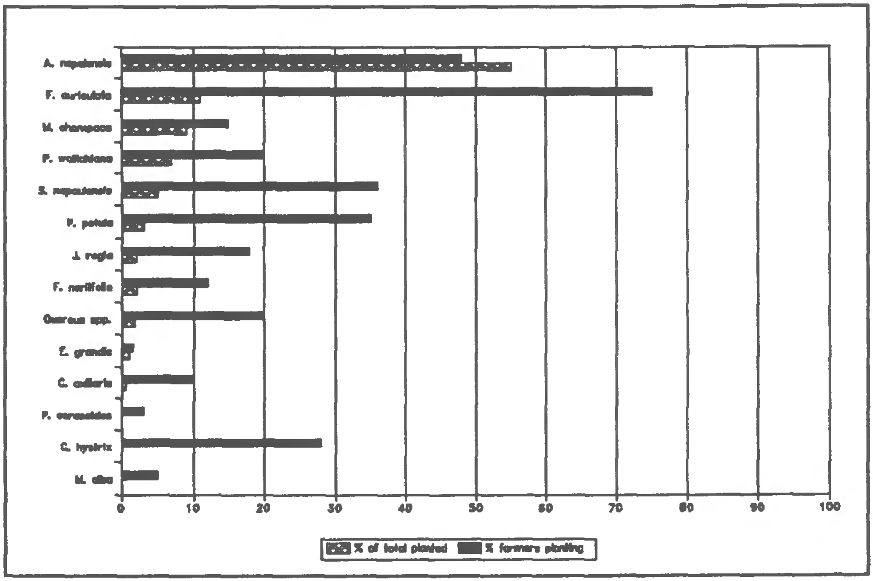
TREE PLANTING AND ITS EFFECT ON THE FARMING SYSTEMS OF SALLE VILLAGE

This section analyses the main factors relating to tree growing including the choice of species, preferred planting sites, survival rates, and the motivating factors and production objectives which led farmers' to become involved in the scheme. Changes that have occurred in the farming system of Salle village as a result of tree planting are also highlighted.

Choice of Species

Over the two year planting period a total of 59,000 trees of 14 different species were planted by the farmers. The species and numbers planted are presented in Figure 2. Of these, *Ficus auriculata* (good for fodder) alone accounted for more than half of the total trees planted (76%) but a large percentage of the farmers (56.7%) favoured *Alnus nepalensis* (a species good for fuel and timber). These two were by far the most preferred species, although this is only a rough way of judging farmers' preferences because their choice is largely restricted to the type of species available in the nursery at planting time. However, we are confident that the seedlings raised were in accordance with the farmers' demand.

Figure 2 Species and Numbers of Trees Planted

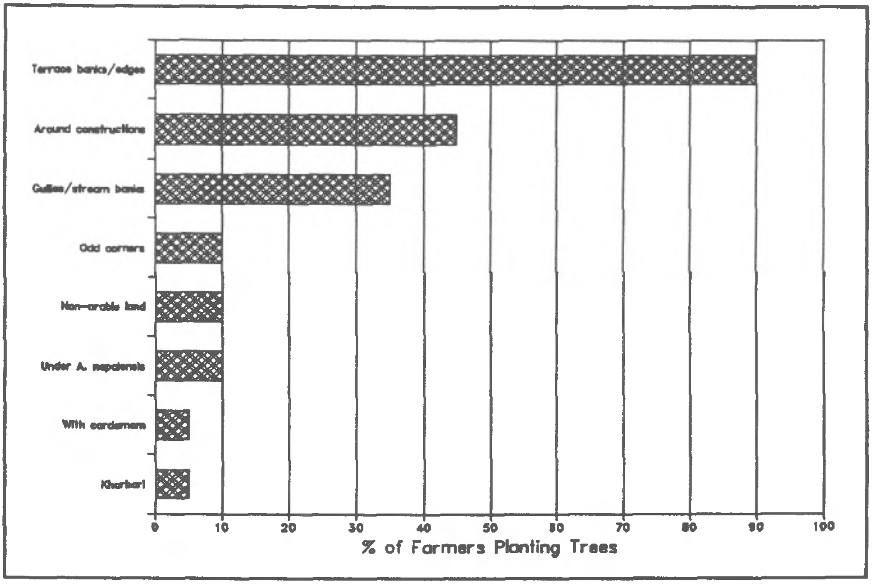


Of the total trees planted by the farmers interviewed, the number of fuelwood and timber trees was approximately 40% more than the number of fodder trees, which matches closely with the figure reported (42%) by Malla (1988) for the Pakhribas Local Target Area. This clearly reflects the prime requirement of the farmers for fuelwood and timber and their reason for choosing *A. nepalensis*, an indigenous fast growing species with multiple use.

Preferred Farm-Sites for Tree Planting

Two main types of land have been used by the farmers for tree planting — *Nagi* land and cultivated farmland. Within the constraints imposed by what will grow on a particular site, farmers were remarkably consistent in the choices they made about where to put particular categories of tree. Species such as *Alnus nepalensis, Michelia champaca, Pinus wallichiana, Pinus patula, Juglans regia, Quercus glauca & lamellosa* and *Eucalyptus grandis* were planted on the *Nagi* land and other species (mainly fodder trees) were planted on the cultivated farmland. Within the cultivated farmland, eight different sites have been used for tree planting (Figure 3).

Figure 3 Farm-Sites Chosen for Tree Planting



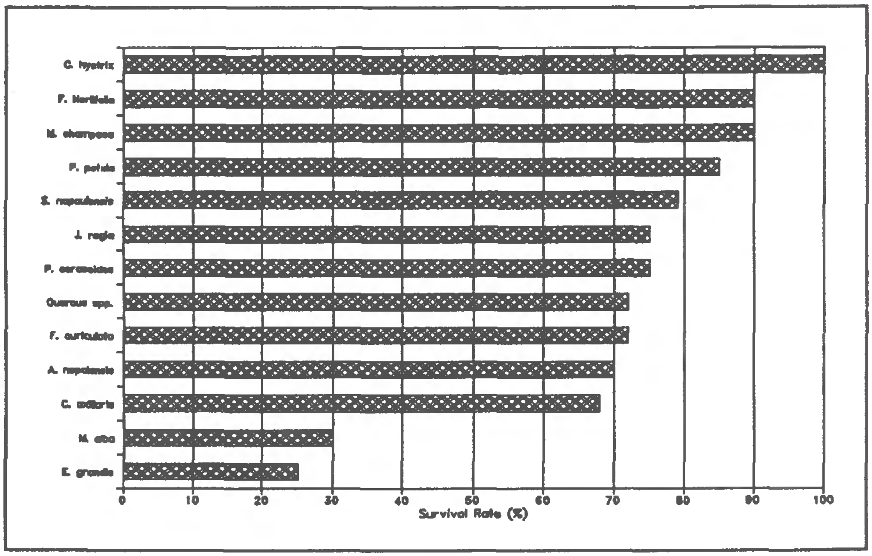
Three main sites have been used by the majority of farmers for tree planting: along the terrace edge and banks; around the house and cattle shed; and along gullies and stream banks. A few farmers have under-planted fodder trees in previously established blocks of *Alnus nepalensis* and in combination with cardamom plantations. This practice is likely to expand in the future as the land available for tree planting becomes more and more scarce. Research to investigate suitable management options for such combinations would thus be worthwhile.

Survival Rates

The results of the survival counts (aggregate of two years) are presented in Figure 4. These figures, however, should be treated cautiously because the results include the seedlings planted in 1989 monsoon, which at the time of survey had not faced the critical seasons of winter frost and spring drought. The overall survival rate, irrespective of species, was 72.3%.

Seven different reasons for seedling mortality were mentioned by the farmers (Figure 5). On both *Nagi* land and cultivated fields the principal

Figure 4 Tree Survival Rates



single reason given was frost. This again has important implications for research. On cultivated farmland the second most frequently mentioned reason was livestock damage; although grazing is restricted on the *Nagi* land, it is apparent that the farmers do allow their animals to graze on the cultivated fields during fallow periods. Effective protective measures are not adopted which suggests that improved extension services could considerably increase survival rates.

Farmers' Objectives for Planting Trees

The farmers were asked for what purpose they had planted trees, in response to which several reasons were mentioned and these were subsequently grouped under eight headings (Figure 6). The need for fuelwood, timber and fodder is apparent. Thus the primary motive was to attain self-sufficiency in these basic needs. However, it is interesting to note that 90% of the farmers plan to sell trees for cash in the future. This suggests that access to markets and the existence of the road network has to some degree influenced the tree planting activities in the study area. This has important policy implications, especially in relation to the farmers' security of rights and freedom to cut and sell trees. Some farmers also seem aware of the need to plant trees for conservation of the farmland and

to protect land from further degradation.

Figure 5 Reasons for Seedling Mortality on Cultivated Land

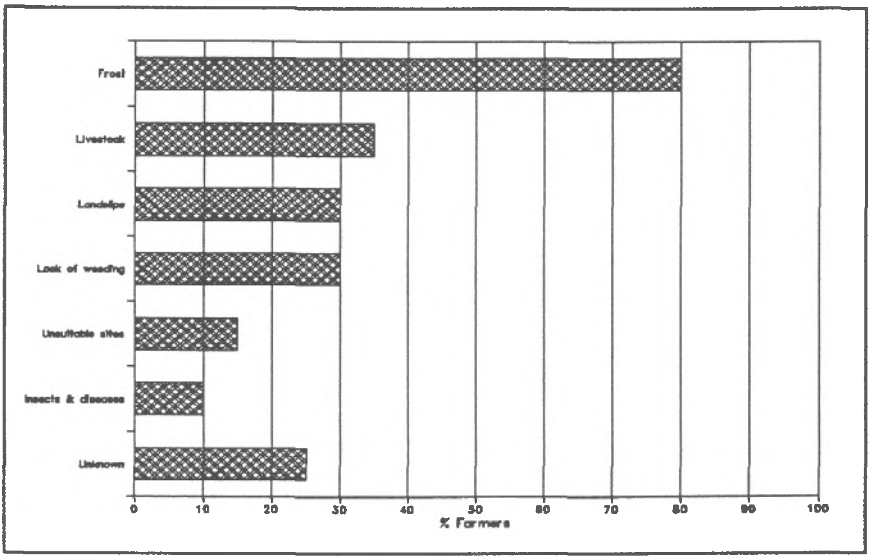
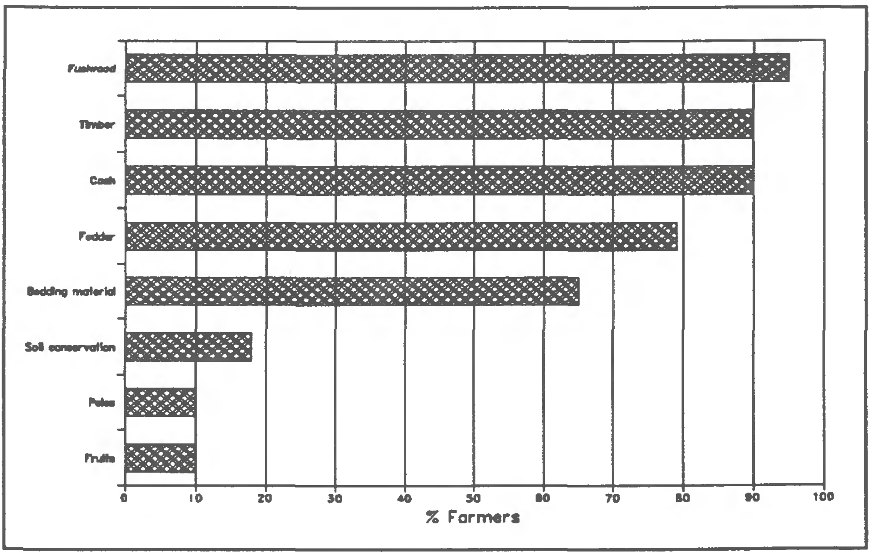


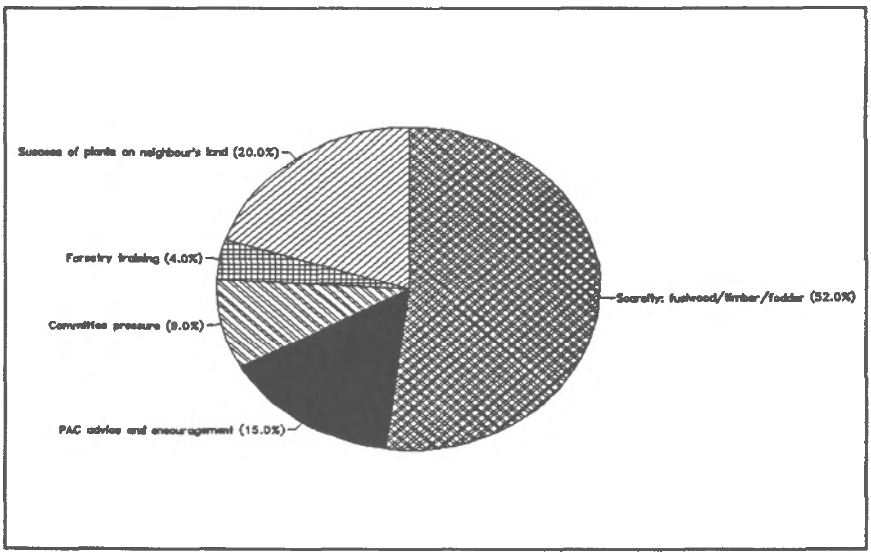
Figure 6 Farmers' Objectives for Planting Trees



Factors Motivating Farmers to Plant Trees

In response to the question of what actually inspired farmers to plant trees, a number of reasons were given which are presented in Figure 7. While the scarcity of fuelwood, timber and fodder was an obvious motivating factor, the trees planted previously by individual farmers have certainly played an important role in encouraging other farmers to plant trees. The long-term involvement of PAC with the farming community was yet another contributing factor. Some farmers mentioned that they planted trees because of the committee pressure; although it is not known whether these farmers planted just to be cooperative or were eventually convinced and planted willingly. Training was mentioned least.

Figure 7 Factors Motivating Farmers to Plant Trees



CHANGES IN THE FARMING SYSTEM

To document the details of changes that have occurred in the farming system of Salle village as a result of tree planting is beyond the scope of this paper and will be the subject of a separate study. However, over the period of two years the major changes which have become apparent are in relation to farmers' strategies for fodder provision.

Within a short span of time many farmers in Salle village have adopted stall feeding systems for their animals. Various authors have concluded that stall feeding of livestock is a necessity in the hills of Nepal and should be more widely adopted (Sharma & Pradhan, 1984; Hopkins, 1983). However, attempts to promote stall feeding systems have failed in many places. Thus it would be useful to study what farmers found attractive about stall feeding and identify factors that determine the success of this effort.

Of the total farmers interviewed, 33% said that they have enough fodder from their private land to feed animals throughout the year. The rest of the farmers (67%) have achieved fodder sufficiency by reducing animal numbers on their farm (Table 3). This clearly indicates that the farmers are very selective in choosing the type of livestock they own. Although the average buffalo holding per farm decreased from 3.9 to 3.0, the percentage of farmers keeping buffalo increased from 76% to 95%. One notable point here is the large reduction of cattle (33.3%) as well as the reduction in the percentage of farmers keeping cattle. Table 3 also indicates that almost 50% of farmers do not have cattle, the only source of draught power in the hills of Nepal. Although there is a tradition of pairing oxen or borrowing from neighbours, how these farmers are meeting their requirements for draught power is not known. In the case of sheep and goats, a massive reduction was observed.

Table 3 Livestock Ownership Pattern Before and After the Scheme

Livestock Type	Before Scheme		After Scheme		% Change	
	Average holding (ha)	% of farmers owning	Average holding (ha)	% of farmers owning	Average holding (ha)	Farmers owning
Cattle	2.4	85	1.6	57	-33.3	-33
Buffalo	3.9	76	3.0	95	-23.1	+25
Sheep	3.6	28	0.2	4	-94.4	-86
Goats	4.3	52	1.9	42	-55.8	-19
Pigs	1.4	100	1.2	92	-14.2	- 8
Chickens	15.9	100	16.9	100	+6.3	0

Source: Field survey (1989)

The farmers' criteria for choosing a particular type of livestock is not known. Further study to investigate this would be worthwhile. One reason for a large percentage of farmers keeping buffalo may be associated with productivity. The major reduction in sheep and goats may be associated with their browsing habit and the difficulties being faced by the farmers in stall feeding them. It should be noted that the survey work was carried out immediately after the earthquake of 1989. The desperate need for cash and the easily saleable nature of livestock such as sheep and goats could well be another reason. These figures therefore may not give a true picture, however, the trend is clear.

When asked what farmers found most attractive about stall feeding, several advantages and disadvantages were mentioned (Table 4).

Table 4 Advantages and Disadvantages of Stall Feeding

Advantages	% of farmers	Disadvantages	% of farmers
More manure	95	More fodder required	77
Healthy animals and more milk	19	Forced to reduce number of animals	19
Protection from leech	19	More bedding material required	100
More children can go to school	47	More tethering required	5

The most striking point arising from Table 4 is the increased number of children attending school since the adoption of stall feeding systems. These children were previously engaged in herding animals. The adoption of stall feeding has eliminated this need which in turn has encouraged parents to send their children to school.

It was noted that no significant changes have occurred in the allocation of farm labour. All the farmers interviewed said that the labour requirements for fodder collection have remained static. The argument is such that even

under the previous free grazing system, at least one member of the family had to be engaged in herding animals full time, which was regarded as an inefficient use of labour.

Currently, children collect fodder during the morning before they go to school and adults do so either during morning or afternoon. Farmers believe that farm labour is better utilized now. This contradicts the commonly held belief that more labour is required for stall feeding animals. One reason in this particular case could be a reduction in animal numbers thereby reducing demand for fodder and labour. Further investigation is required to verify this argument.

DISCUSSION AND CONCLUSIONS

Based on the case study of Salle village, several features stand out as important or supportive of self-sustaining tree planting by farmers in the hills of Nepal. The fundamental prerequisite is that farmers must themselves recognise that tree planting is to their own benefit. Outside interventions by government institutions or projects can only affect their decision to plant trees either by demonstrating tree planting where farmers do not recognise this already or by removing constraints to planting such as the provision of seedlings, technical information and advice on government forest legislation.

Farmers in Salle Village are certainly aware of their dependence on trees. They clearly perceived the problems associated with a declining supply of forest products and have reacted to this by increasing the number of trees on their private land. However, many government policy makers still believe that farmers lack such awareness or any knowledge regarding the management of trees on their land. Programmes based on such a misconception are almost bound to fail.

The Salle Village experience shows that if private planting schemes are to be successful, local groups with a common interest must be identified and contacted. This can be difficult, but experience is now showing that farmers often do group together to manage natural resources and these groups can provide an ideal point of entry into the local community. Salle Village provides a very good example of these sort of groups. Thereafter, the way in which such groups are approached is of immense importance and considerable time may need to be spent with farmers exploring their

needs and opportunities to ensure that their requirements are met. This demands skills of communication in which many Forest Department staff are still lacking, thus highlighting the need for a greater concentration of resources in the retraining of Forest Department Staff and technicians in the form of participatory workshops, seminars and meetings (Gronow & Shrestha, 1988; Gibbon & Schultz, 1989, see also Network Paper 12b).

In the hill farming systems crops, livestock and trees are strongly interdependent. Interventions in favour of tree production will only be successful if they can be integrated in the farming systems by the farmers. The choice of species and timely availability of seedlings are essential to any acceptance of tree planting by the farmers. The issue is of immense importance because it demands a major shift in emphasis from the present practice of raising whatever species are available to the ones most preferred by the majority of farmers. This can be a problem to many of the government institutions whose main objective is planting large areas of government land primarily with pines. The encouragement and promotion of private nurseries, as in the case of Salle village, may help eliminate this problem.

Experience from Salle has also shown that adequate extension follow-up visits may be required until the farmers have achieved confidence in tree planting. In Salle village, a few farmers initiated the practice and their success and social status was instrumental in convincing others. Getting tree planting started is inevitably a slow and difficult process. In Salle it took sustained, systematic extension over two planting seasons for farmers to be receptive to trees.

There appears to be considerable interest in private tree planting by farmers in the hills of Nepal. However, this would probably be much greater if the legal aspects were clarified and adequate information on such matters widely disseminated. At present there are many forest regulations regarding the harvesting and transportation of trees from both government and private land. Many of these regulations are difficult to interpret due to frequent amendments which pose constraints on farmers who wish to market their trees. These regulations should be simplified to encourage private tree planting on a wider scale.

In Salle, despite the good relationship which has developed between the farmers, the Ranger and the District Forest Officer (DFO), some farmers still fear that their plantation might be taken away by the government.

Whenever farmers had doubts about their ownership of the trees and their right to dispose of them as they wish, this feeling of insecurity was an obstacle to planting. This was demonstrated by the fact that only 62% (42 farmers) of the total participants registered their private forests at the District Forest Office.

There is an argument that increased private planting may widen the gap between rich and poor by encouraging the larger farmers to sell products for cash, while continuing to use common resources for their own subsistence purposes (Malla & Fisher, 1987). Criticisms levelled against the private planting programme are that it is cash oriented rather than aiming to supply subsistence fuel, fodder and timber, and that only the big farmers are benefitting from the programmes. Contrary to these assumptions, the Salle experience has shown that the primary motives of the farmers, whether big or small, is to attain self-sufficiency in meeting their basic needs for fuel, fodder and timber. Interest in markets, and therefore cash, tends to develop later.

In this paper we have shown how a private planting programme can be effectively designed and implemented in cooperation with the farming community. The Salle experience has demonstrated that a private planting programme is not just the distribution of seedlings, it goes far beyond this. The scheme is now emerging as a model covering the range of activities which private planting involves. It has not only stimulated interest among farmers in neighbouring VDCs but has also provided a greatly needed training and motivation resource for several organisations of both national and international interest. This innovative idea could well be extended in other areas. However, in considering the scheme and the possibility of similar developments elsewhere, it is important to bear in mind:

1. The long-term involvement of PAC with the farming community;

2. The prior development of individual private plantings and the visible demonstration effect of these trees;

3. The presence of an enthusiast who stirred his fellow farmers over several years before they agreed to act;

4. The homogenous ethnic groups;

5. The physical help of PAC in training and seedling provision to enable planting to go ahead quickly once the interest had been established;

6. The rapport that developed between the farmers and PAC forestry staff;

7. The likely need for continued support and extension follow-up albeit at a relatively low level.

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Acknowledgments

The continued support of **Mr C Borman**, Director, PAC, during the course of this study is gratefully acknowledged. The keen interest and support of **Mr J C Baral**, DFO, Dhankuta, both at field-level and with administrative procedures is highly appreciated. We have received many comments from individuals, both from PAC and outside, and to them we express our sincere thanks.

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, CANADA

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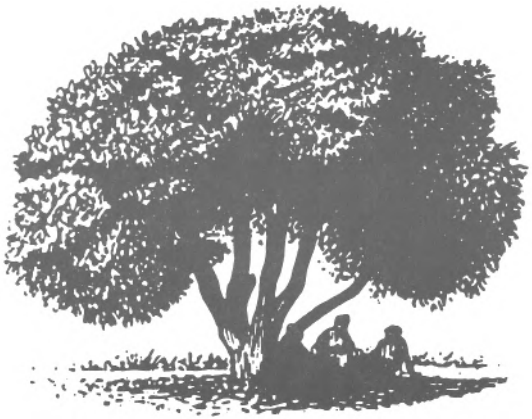
SOCIAL FORESTRY NETWORK



MAKING FORESTRY RESEARCH RELEVANT TO THIRD WORLD FARMERS

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Network Paper 12d Summer/Winter 1991

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by
Ron D. Ayling

Many developing countries, crippled by large national debts, are unable to initiate and sustain tree-planting programmes on the scale needed to tackle the high rates of deforestation taking place within their borders, even with international assistance. Fuelwood plantations, because of high establishment and maintenance costs will do little to reverse deforestation and environmental degradation (French, 1986). Effective reforestation strategies must have the support of villagers and small farmers on their own terms. The promotion of multipurpose trees and shrubs to meet people's immediate needs is often considered the key to effective action (Postel and Heise, 1988). But conventional approaches and methods have often produced the euphemistic 'limited success'. Introduced technologies of 'best bet' species have not been enough.

Researchers and other development workers involved in agroforestry initiatives or broader aspects of 'Social Forestry' often have the same clients as the agricultural community.

This paper looks at some of the lessons of agricultural research in the development and promotion of technology and suggests steps that 'social foresters' should consider in order to make their programmes more relevant, or as relevant as possible, to the needs of small-scale farmers and other land users.

THE TRANSFER-OF-TECHNOLOGY MODEL

Agricultural research as developed in western industrialized societies and introduced into Third World countries has often followed the 'transfer-of-technology' or 'top-down' model (Chambers and Jiggins, 1987). Research is carried out on experimental stations under controlled conditions with high levels of inputs and the results are presented to farmers for adoption. This model is successful where farming conditions are similar to those of

Social Forestry Network Paper 12d (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

research stations—fertile soils, unlimited water supplies, low risk—and where farmers have good access to capital, inputs, markets and information. These resource-rich farmers are usually articulate and often capable of forming politically powerful lobbies to influence research agendas (Farrington, 1989).

In the early 1960s, recognition of wide-spread poverty, hunger and malnutrition resulted in international efforts to raise farm productivity and increase food self-sufficiency in developing countries (Pearse, 1977). New varieties of high-yielding food grains, particularly wheat and rice, accompanied by energy-intensive inputs (fertilizers, mechanized equipment, irrigation systems) did increase food production in some areas of some countries. In Pakistan for example, production of both cereals rose by over 60% between 1965 and 1970 (Eckert, 1977). Modifications of the photo-period sensitivity of some varieties made shorter growing periods possible, permitting double and even triple cropping in some instances (Lipton, 1989). Other biological improvements included the increased tolerance to moisture stress, better disease and pest resistance, and higher nutrient-use efficiencies.

But many small farmers have not benefited as much as expected from these so-called 'green revolution' technologies. While a few make some gains (and continue to do so), rates of adoption vary widely within and between countries. In many cases the poorest farmers have become poorer, often being forced into debt and eventually off the land. These packaged technologies are often too expensive and/or too difficult to obtain for many farmers in high-risk environments (Richards, 1985) although social and political constraints also often limit adoption.

The evolution of agricultural research for poorer farmers, those at the lower end of the social ladder, is instructive (Table 1). The responses to poor or non-adoption typically follow a top-down approach (Chambers and Jiggins, 1987). Extension services were to be improved and intensified in order to overcome 'farmer ignorance'. Cropping systems research began to focus on crops and conditions found on small-farms. On-station research designs were modified to reflect small-farm complexities. But yield differences between farms and research stations persisted, and were considered the result of farm-level constraints. There were attempts during the early 1970s to change farming conditions to make them more like those of research stations. But farmer adoption of researcher technologies only marginally improved.

Table 1: Responses to Non-Adoption of Agricultural Technologies (Chambers & Jiggins, 1987)

1.	Extension Services: improve and intensify extension efforts to overcome 'farmer ignorance' (1950s-60s)
2.	Cropping Systems Research: change research agendas to focus on the crops and conditions of small-scale, resource-poor farmers but excluded farmer criteria and end uses for selection (1960s)
3.	Recognition of Complexities: modify research designs to reflect complexities of small-scale farming (early 1970s and interest in intercropping research)
4.	Constraints Research: change farming conditions to make them more like those of the research station (early 1970s yield differences between farms and research stations were due to farm-level constraints)
5.	Farming Systems Research: attempt to understand 'holistically' farming systems and develop both on-station on-farm research (late 1970s and 1980s)

CDR AGRICULTURE

A surprisingly recent observation has been that small-scale farmers operate under conditions quite different from those of research stations (Chambers & Jiggins, 1987). They have less control over the physical conditions of their farms (less flat land, less fertile soils, less or no irrigation), less access to inputs (credit, chemicals, draft power, improved seeds and information) and their farming practices involve complex interactions (multiple crop-animal-tree relations and sequences).

Chambers (1988) calls this complex, diverse and risk-prone farming or 'CDR agriculture', complex in farming systems and diverse in environments. Risk reduction is a major preoccupation of CDR farmers. They often depend entirely on family labour and may own, rent and/or share all or portions of the lands they work. They struggle to meet both

consumption and production goals often under marginal conditions. Not surprisingly, their priorities are different from those of the research station.

Farming systems research which developed during the late 1970s was an attempt to understand small-scale farming 'holistically'. Both on-station and on-farm research was initiated. Unfortunately much of this work was (and often still is) researcher designed and driven, focusing on the farm, failing to fully consider the whole economic system being exploited by the farm family.

Farmers do not just farm. In many instances, farming — raising crops and/or animals — is not even the most important activity. Income generation is often an important objective, income earned from non-farming activities and from off-farm employment (Arnold, 1987). A major limitation to most farming system research has been to underestimate the importance of non-farming activities, thereby failing to understand why farmers often reject 'improved' technologies (Behnke and Kerven, 1983).

In East and Southern Africa, Low (1988) found that additional family income sources came fom the making of handicrafts, beer brewing, trading, teaching and wage employment, all of which served to reduce labour available for farming. Zinyama (1988) discovered that shortages of family labour was a major constraint to increase crop production on communal farmlands in Zimbabwe. Many males were away working in urban areas or on large commercial farms and their wives, the actual farmers, had social and family commitments in addition to farming.

When one compares the physical, social and economic circumstances of resource-poor farmers with those of research stations, it is little wonder that station-based technologies are frequently irrelevant and unacceptable.

New interpretations of limited or non-adoption of agricultural technologies stress the need to involve farmers and farm families as much as possible in the research process, to attempt to understand their objectives and views (Farrington, 1989). Similarly, foresters working with small-scale farmers need to know what their clients want (if anything), what their objectives and goals are, how and why they use trees, how they make a living — to develop what Diane Rocheleau calls a 'user perspective' and see the issues through the farmers' eyes (Rocheleau, 1987).

PARTICIPATORY RESEARCH

Rural people, typically, have too little involvement in most projects. Their first opportunity usually comes at the implementation stage, long after research topics, solutions and farmer collaboration have been assumed or taken for granted (Hoare & Crouch, 1988). Failure to consider their views and needs right from the start should cause little wonder at the 'limited success' of many projects. Even in farming systems research where one expects a good deal of farmer participation, farmers often end up as passive players, reduced to the status of labourers or, at best, contractual, lesser partners (Farrington, 1989).

'Participation' obviously has a different meaning to different researchers (Table 2). A distinguishing feature of the different forms of participation is the attitude of researchers (Biggs, 1989). Reviewing nine national agricultural on-farm research programmes, he found that most started with methodologies which limited farmer participation to set roles in the consultative mode. With experience, several eventually developed flexible and cost-effective methods to involve farmers as collaborative partners. There were few examples of collegial participation although components were found in programmes of Zambia's Adaptive Research Planning Team and in activities of Zimbabwe's Farming Systems Research Unit.

In a global survey of some forty-one farming systems research projects, Lightfoot & Barker (1988) noted that the type of trial management was a key factor in determining the degree of farmer involvement. In researcher-managed and researcher/farmer-managed trials, the role of the farmers varied from a nominative one to one of consultation. They found few examples of farmer-managed trials and even in these, researchers often continued to make management decisions.

Biggs (1989) suggests that the level of participation depends on the primary research activity to be carried out. Where technical problems are poorly understood and research resources are scarce, collaborative and/or collegiate approaches can be effective, low-cost strategies. Supporting farmers' research efforts can shift some of the costs of research from the formal institution to the farmer, helping to address such problems as maintaining research sites in isolated areas and the high turnover of field staff.

Table 2 Types of Farmer Participation (Biggs, 1989)

a)	Contractual—	researchers contract with farmers to provide land, labour or services — farmer involvement is minimal and there is little if any interest in indigenous technical knowledge (ITK) or informal research
b)	Consultative—	researchers consult farmers about their problems, determine priorities, take most of the decisions, design trials and surveys — farmers evaluate technologies; ITK & informal research recognized as important but on-farm research seen as extension rather than a research activity (used by CIMMYT & IRRI in their cropping systems programmes)
c)	Collaborative—	researchers & farmers collaborate as partners in the research process; diagnosis & assessment is continuous to help on-farm & on-station research each year; emphasis is given to tapping ITK to better inform researchers & to actively learn from the informal research system; wide variety of different types of meetings held with farmers for different reasons
d)	Collegial—	researchers work to strengthen farmers' informal research & development systems; major emphasis is given to activities to increase ability of informal systems to do research and farmers have major say in running research sites

Some national agricultural programmes have promoted farmer participation successfully. Ashby (1987) found that farmer collaboration in the design of fertilizer trials in Columbia was cost-effective and led to conclusions about the technology which were different from trials where researchers had more active roles. Farmers also pre-screened a large number of crop varieties, giving researchers opportunities to understand the basis for selection. She also found that when diagnostic work focused on trying to

understand the informal, farmer research system, the practices being followed by a minority of farmers were at the 'leading edge' of farmer experimentation — something frequently lost by diagnostic and design exercises which focus on 'representative farmers'.

Most importantly, one of the main advantages of early farmer participation is to strengthen the 'demand-pull' on the research agenda (Farrington & Martin, 1988). Without farmer involvement, can researchers' priorities really reflect what farmers need and want?

In Indonesia, plant breeders, without consulting farmers, developed a dwarf coconut palm which produced more fruit, matured earlier and was easier to harvest than the traditional variety although it was not as long-lived. The farmers however, grew coconut palms in homegardens. While their traditional tall palm grew above all other plants and caused little shading, the shorter 'researcher-designed' plant competed with space reserved for bananas and other crops. Earlier and increased fruit production was also of little value to the household. More useful for the family was the more limited production over a longer period by the local variety. The shorter variety was even more difficult to guard from theft (Hoskins, 1987).

In an agroforestry programme in South-East Nigeria, researchers found that the 'limited success' of two systems of browse tree cultivation, alley farming and intensive feed gardens, was also largely due to the absence of farmer participation early in the research process (Francis & Atta-Krah, 1989). There was little diffusion of the technology beyond the original participants to other farmers even though all farmers had identified fodder supply as a major farming constraint. Most farmers were unable to adopt and utilize the technologies being promoted, even though based on 'perceived needs'. This was related more to sociological and institutional arrangements within and between households which determined access to and allocation of resources, and not to any flaw in the technology.

EXPERIMENTING FARMERS

Small farmers and other rural land users often have considerable information and expertise to complement the formal research system. Where people earn some or all of their living from the land, they are usually successful managers of their environment — able to make a living

from understanding and manipulating diverse, varied and complex ecological relationships (Richards 1985). While they may be income-seeking, rational and risk-averse, they are also innovative, experimental and adaptive (Biggs & Clay, 1981). Experimenting by farmers is a common practice to solve problems, adapt technology and even to satisfy curiosity (Chambers, 1989).

Bunch (1989) found that in Central America some farmers experimented with ridges of compost and Napier grass along contour ditches to check soil erosion, tried different plant spacings and numbers, and also looked at non-toxic methods of pest control and alternative uses of native plants. Lightfoot (1987) observed that many farmers in the Philippines maintained several lines of sweet potato and that their breeding objectives were quite different from those of researchers. Richards' well-known work documents the practices of Mende farmers in Sierra Leone in rice breeding, selecting varieties for specific characteristics, the evaluation of new of unfamiliar lines, experimentation on marginal sites and conducting quantitative input/output studies (Richards, 1985). Rocheleau *et al.* (1989) record the traditional practices of some Kenyan farmers in applying plant biomass to cattle pens (boma mulching) to produce compost. And Clawson (1984) notes that intercropping principles are well-established in many small-scale farming systems, especially where soils are poor and rains unreliable. In fact, he suggests that the more adverse the environment, the more farmers tend to value experimentation.

Researchers in India considered it too costly and impractical to attempt to replicate the numerous and varied conditions under which rice farmers operated (Maurya *et al.*, 1989). By adopting a decentralized and collaborative approach, where new material closely matched traditional varieties and by allowing farmers to carry out trials using their existing practices, technology testing and adoption by farmers was simple and inexpensive. The farmers' simple split-plot comparisons permitted the rapid screening of a wide range of varieties and the release of several lines in a much shorter period than would have been possible under normal station conditions.

There are few detailed examples of farmers and other rural people deliberately experimenting with woody species, although a certain amount of spontaneous tree planting does take place where there are traditions of settled agriculture. Even if people may not plant trees, they often protect and manage certain natural ones for particular benefits (Foley and Barnard,

1985). Shepherd (1989) found for example, that farmers on the slopes of Mt. Kenya were "deeply committed to trees and to tree-planting". As plots became consolidated, species diversity increased and their location and use on farms changed.

In an informal survey of farmers in North-Eastern Zambia, Rocheleau (1987) found that trees play an important role in the land-use system, including those planted or retained in fallow fields and outlying croplands. People had considerable knowledge and experience of indigenous and exotic, wild and domesticated species. Some had expertise in horticulture, including layering and grafting techniques. Many were well informed on site requirements, management potential (tolerance to coppicing or pollarding), relative growth rates, and leafy biomass production. Farmers also experimented with mounding of grass and woody plant material to improve soil structure and fertility and to check erosion. She found that the survey results highlighted the differences between researcher-defined and farmer-defined research topics, and by learning first what people already knew about trees, the research programme was altered to reflect people's real needs and concerns.

Homegardens or compound gardens are good examples of indigenous experimentation at work. They represent creative management for diversity, stability and continuous production. Labour efficiency is enhanced and risk is minimized. Such gardens are dynamic farmer 'research' sites.

In Tanzania, the results from years of trial-and-error experiments allow farmers on the slopes of Mount Kilimanjaro to propagate and manage a large number of species for a variety of products and functions (Fernandes *et al.*, 1984). And in Kathema, Kenya, Rocheleau and co-workers found that women collect several species of wild food and medicinal plants for propagation and domestication in their homegardens (Rocheleau *et al.*, 1989).

DISCUSSIONS AND CONCLUSIONS

There are obvious advantages to first finding out what local people know about trees before deciding on research agendas. As permanent rural residents, they are usually better informed about many aspects of indigenous species of trees, including their flowering and fruiting habits,

their growth and management. They are also more knowledgeable on their uses than urban-trained and urban-based researchers. Farrington & Martin (1989) caution however, that such indigenous knowledge has its limitations. It is usually restricted to the local pool of techniques and genetic materials, and many genetic possibilities are not explored. It is also slower and more limited than formal research in its classification, storage and retrieval of information. Information is usually distributed by word-of-mouth.

Nevertheless, by learning first from people, many programmes would be more relevant to local interests and needs, and less wasteful of time and scarce financial resources.

Farmers and villagers should also be involved, as early as possible, in research activities, and not just as hired labourers. On-station experiments designed and run solely by researchers cover only a few experimental variables at a time. Trees require time and space to grow and only a few experiments with a few replications can be handled effectively (Rocheleau *et al.*, 1989). On-station trials also cannot take into account the numerous distinct environments and socio-economic conditions found on small farms and in rural communities. Furthermore, because of the long-term nature of tree crops, the large number of species and varieties to choose from, and their potential for multiple benefits and interaction with other farming activities in production and protection roles, it is imperative to involve rural people at an early stage to help overcome these limitations. Rocheleau (1985) stresses that self-correction in tree crop programmes is essential if years of research efforts are not to be lost. Technologies and designs must be subject to change based on farmer response, and this flexibility must extend to species choice and management.

More importantly however, there is the danger that technologies developed only within the confines of research stations will ignore the social, cultural and economic dimensions of rural life and be unacceptable to farmers. But by learning from and developing opportunities to work with local people under 'real life' conditions, forming partnerships of mutual respect, relevant research may be developed and the 'limited success' typical of many forestry projects avoided.

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, CANADA

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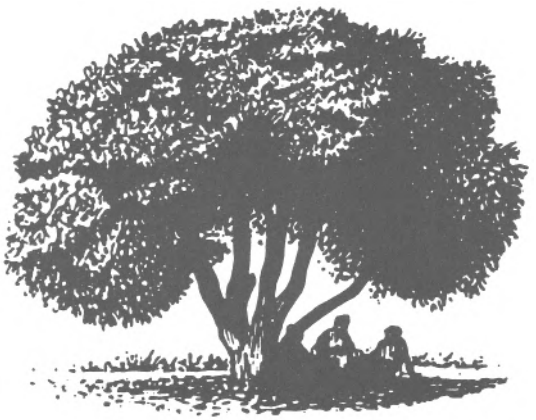

THE CHALLENGE FOR SOCIAL FORESTRY EXTENSION WORK IN PASTORAL AFRICA

Edmund G C Barrow

Network Paper 12e **Summer/Winter 1991**

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THE CHALLENGE FOR SOCIAL FORESTRY EXTENSION WORK IN PASTORAL AFRICA

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TREE PLANTING OR SOCIAL RESPONSIBILITY?

Pastoral societies, where people live in fragile and vulnerable ecosystems, have adapted well to an often harsh environment. They have over time gathered a vast repertoire of local knowledge about their resource base, its weaknesses and strengths, its utilisation and management. This was a form of farmer (pastoralist) participatory research before any such research existed. It is complex and based on a whole range of survival and insurance measures that help mitigate against the inevitable hard times due to drought and disease etc and the vagaries of climate.

However, there is now a general consensus that almost all the development interventions to date have not helped the impoverished pastoralists at all. Pastoralists have survived despite development schemes, not because of them. As development planners have seen the schemes of range managers and economists fail, they are now coming to welcome socio-anthropological inputs (Baxter and Hogg, 1987).

Over the past three decades, pastoral societies have suffered from droughts, famines, political interference, physical insecurity, armed aggression and increasing impoverishment. They have become enmeshed in the cash economy and in international markets, in both of which their positions have been so weak that they have been grossly victimized. Ignorant interventions by governments and NGOs have more often than not made things worse. Thus considerable tracts of their grazing and much of their water has been alienated (Sandford, 1983).

Why is this? Projects are planned and implemented without an adequate understanding of the pastoral system, because:

- They are often based on western ideas of the pastoral situation where the local knowledge system is basically ignored, and

Social Forestry Network Paper 12e (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

- What pastoralists say they do, ie the ideal behaviour, compared to the actual and observed behaviour may not be sufficient for effective planning since the observed behaviour and a fuller understanding of the pastoral system is precluded (Fry and McCabe, 1986).

Many projects tend to centre around curing the ailment, rather than preventing the problem, as this may be easier to quantify. In this sense tree nurseries and planting are the priority together with related extension packages. The wider issue of natural resource management is often not given the attention it deserves because of the lack of a conceptual model combined with the difficulties of carrying out such work in a way that can show measurable results. Where there has been success, a strong sociological and people oriented link has usually been established.

Yet what is the result? It is commonly acknowledged that since the UN Conference on Desertification, little has really changed for the better and where there has been success it has often been limited in size and scope. This is exemplified by the disappointing progress in village woodlots in the Sahel where between 1975-82 over $160 million was spent on various community forestry programmes. By 1982 the achievements were about 20,000 ha of 'not doing very well' plantations (at a cost of approximately $8,000 per ha). People do not see themselves as benefitting from such tree planting programmes (Eckholm *et al*, 1984).

There is a strong need for change in the purpose, practice and personnel of forestry departments who have been too much concerned with 'policeman' and production aspects. Successful community forestry demands that foresters move out of forests and help people and this requires a genuine popular participation in decision making (Eckholm *et al*, 1984).

As is noted by Kerkhof (1990) in a review of nineteen agroforestry projects in Africa, one of the principal lessons is the importance of mobilizing communities and being able to react to their needs and priorities, even if that means a change in project design. Techniques must fit into the local context and meet farmers' needs for low-risk and low-investment strategies. Unfortunately research institutions, development agencies and government bodies tend to ignore or at best assume this most important and vital variable to the development of the arid and semi-arid lands, namely the people who live there, and the local participation implicit.

Too often the talk and jargon by project planners and implementers is of participation, awareness and social responsibility, yet the practice is one of tree nurseries and tree planting in virtual isolation from the people. This is because development strategies are primarily oriented towards the more easily definable and countable projects, for example the number of health facilities constructed, veterinary vaccinations carried out, school enrolment, land put under irrigation, trees planted, food for work completed, water structures installed and so on. Such development inputs tend to offer alternatives to pastoralism rather than strengthening the pastoral system to produce more for the local and national economy in terms of livestock sold and improved food security. Yet nowhere in this shopping list is the prime target seriously tackled, that of range and woodland management and utilisation combined with the people who actually live in and manage such lands. It is in these areas that the traditional knowledge base is strongest as it relates to trees.

But the argument then reverts back to the traditionally held attitude about the people who live in these dry lands which states that they are 'backward', 'primitive', 'nomadic', 'conservative'. Such peoples are often minorities and relatively powerless in the political structure and therefore they have very little real say in policy issues that govern the dry areas. Then because they are 'backward', development is planned and implemented for them, usually by outsiders who are often not familiar with the area.

The traditional approach to extension is, basically, one of an extension package delivery service, which may work quite well in the higher potential areas, but does not work so well in the dry lands, especially the pastoral areas where the people are more dispersed and less settled. Furthermore in trying to get the message across one can often miss out a great deal of very valuable local information on the issue. Thus a more participatory approach is to be strived for where we learn about the existing situation, the potentials and constraints, the problems and possible locally identified solutions at which point various technical messages can be used as discussion points for possible and viable solutions to be implemented. The extension agent then plays a catalytic and facilitative role in this process NOT a domineering one. The target group have now been directly involved in the process. They have identified the problem areas and have helped identify possible implementable solutions and are therefore more interested and motivated to carry out such recommendations since they feel more responsible.

Because of the importance of trees in the dry lands, people living there often possess an extensive knowledge about individual tree species and their management. Building on traditional knowledge and uses of trees offers one of the most effective ways of stimulating new tree growing (Eckholm *et al*, 1984).

It is in such pastoral areas that a strong natural resource management and conservation policy is needed, based on local participation. But, because of the vastness of the land areas involved, the mobility of the people and the size of the problems such work is often talked about but rarely carried out in any real holistic fashion. In promoting people's participation, the local people are given the chance to define their own objectives and help in activating social processes involved in decision making and adoption of solutions (Raintree and Hoskins, 1990). This can help planners and implementers understand the existing system. Currently the role of extension is strongly supported in policy documents, yet physical and logistic support is often weak.

This paper attempts, in the context of people's participation in the development process in the drylands, to show why and how this can be achieved in a real and meaningful way. In a real way by trying to help create social responsibility for natural resource management, not just around settlements and discrete tree planting but as part of the wider management system in the drylands. In a meaningful way through a participatory action oriented dialogue with the local people. The Turkana forestry extension programme is looked at as a case study that could form a basis to be adapted in other dry and pastoral lands in Africa.

DRYLAND VERSUS HIGH POTENTIAL AREA DEVELOPMENT

Too many people think that the dryland and pastoral areas are just an extension of other, usually higher potential, land types and so try to advocate similar or related development packages. Yet the dryland areas are significantly different and increasingly so as rainfall decreases. It is because of this that people living in such areas have adapted land management practices to help them survive and indeed thrive in such areas. However the emphasis is on livestock and not crops which are more susceptible to the vagaries of climate.

Likewise land management tends, because of necessity, to be large scale and expansive to incorporate wet and dry season grazing. As a result the livestock management strategies of the pastoralists do not necessarily lead to environmental degradation, except in areas close to settlements. It is the people of such areas who have the environmental ethos in terms of environmental conservation and sustainable land use as compared to outsiders since knowledge of the environment is vital to their livelihoods. This is linked to their understanding and knowledge of the local resources.

However, the alienation of grazing land for dry land agriculture in many areas has forced pastoralists to use land far more intensively than under traditional management strategies. By changing the nature of the relationship through external intervention, which has developed over generations between the environment, livestock and the human population, pastoralists are now confronted with entirely new environmental problems. Under these conditions the traditional ethic of individual maximisation of livestock can potentially lead to over grazing and environmental degradation.

Environmental degradation is also related to policy and tenure. Although in the high potential areas of Kenya such traditional rights are taken into account during demarcation, they are essentially ignored in the drier areas for instance. Many of the government demarcated group ranches in Maasai, Kenya and other areas are not based on either ecologically or sociologically viable grazing units as a result such ranches are in a precarious state now, and their ecology at risk.

Given the vastness of many dryland areas (eg Turkana district, Kenya, is about 70,000 km^2 in size), it makes good sense to lay emphasis on sustained conservation and utilisation of the natural resources as opposed to tree planting exercises, through conservation and management of existing trees; natural regeneration of trees; and building on existing viable and valuable natural resource management strategies.

There are characteristics of dryland silvo-pastoral systems which are related directly to drought resistance in pastoralism and to the resilience of the system. For example in Turkana, Ellis *et al.* (1988) noted the following important factors:

- availability of large diverse ranges
- access to productive dry season ranges, including trees

- high mobility and low to moderate stocking rates
- high to moderate stock units per person
- use of wild fruits and tree foods
- low labour input rainfed or flood sorghum gardening.

PEOPLE, TREES AND THE DRYLANDS

Pastoral people have usually evolved well managed and basically sound ecological strategies which enable them to live in harmony with their environment, yet utilize the vegetation on a sustainable basis through exploiting different vegetation types (grazers, including cattle, sheep and donkeys, and browsers including camels and goats). Such silvo-pastoral systems make best use of the vegetation both in time and space through a transhumant system of wet and dry season grazing and may be combined with the setting aside of specific dry season grazing reserves. Such a system of resource management is made more complex, by a variety of necessary social controls concerned with sharing, flexibility and mobility. This is well-illustrated by the Turkana management system.

The Turkana have a well developed traditional knowledge of their flora and its uses (Morgan, 1980). Trees are especially valued. This knowledge reflects the life styles and the extent of their dependence on woody vegetation:

- Dry timber for woodfuel and charcoal
- Building timber for houses, fencing and thatching
- Food for livestock particularly in the dry season
- Wild fruits and foods for people
- Veterinary medicines for a variety of livestock diseases
- Human medicines for a variety of diseases
- Making of household utensils
- Amenity for shade to act as a meeting place
- Variety of cultural values, water purification, ceremonial.

Because of the importance of woody vegetation in Turkana, people have developed their silvo-pastoral system further especially in the drier central parts where the existing vegetation resources are relatively more important.

Within the *ere* (or wet season grazing area) a herd owner may have an *ekwar* which refers to an area of riverine forest to which the owner has usufruct rights (Barrow, 1987). Given the vital importance that the riverine woodland plays in the district, the *ekwar* is an integral and vital part of the *ere*. In the dry season it is often access to fruit and fodder trees that restricts movement. Certain important trees (eg *Acacia tortilis*, *Hyphaena coriacea*, *Cordia sinensis*, *Zizyphus mauritiana*, *Dobera glabra*, *Faidherbia albida*) are particularly protected by custom (Barrow, 1987). But *ekwar* ownership is not definite, rather it is based on the owners ability to use his *ekwar* over time and his social network to support his *ekwar* rights (Storas, 1987).

PARTICIPATION AND RESPONSIBILITY

Participatory extension can play a vital role in understanding and building on the traditional knowledge base, but the use of such knowledge is not a panacea for all development problems. However it is now encouraging that this bottom up approach is gaining increased recognition in that local problems and issues are being identified, diagnosed and remedied by or with the people and their holistic view of the situation (Leach and Mearns, 1988). There are a number of important positive reasons for incorporating local people in project planning and technology development processes:

- building on and preserving indigenous skills and knowledge rather than causing their extinction, eg articulating the management practices of Turkana silvo-pastoralism;

- giving people control over, and involvement in, the process of change in their lives, eg by encouraging responsibility in tree management, natural regeneration and sustainable use of the *ekwar* along the riverine woodlands in Turkana;

- giving people a better understanding of the technology and management practices, eg helping people to cope with a changing pastoral socio-economic situation through, for example, more efficient use of wood;

- ensuring that the innovation of a programme is appropriate and meets the people's needs, eg that tree planting or natural regeneration fits in with the Turkana silvo-pastoral system (adapted from Falconer, 1987).

This in dryland areas implies that the real work should centre around the conservation and sustained management of the existing resource together with planted trees. Therefore extension approaches should be designed to try and utilize local knowledge as a basis for a rational social forestry policy in such dry areas. Likewise issues, such as woodfuel supply and building timber, must be seen in the context of multi-purpose woody biomass management and socio-economic issues.

Building on the existing system through a participatory extension approach allows for a real and sustained improvement as it relates to the natural woodland areas, by shifting responsibility to the local people of the area and involving them directly. However, the extension facilitator must recognise the importance of the existing natural vegetation in the process, and particularly the trees. It is often too easy to emphasise what one is familiar with, ie tree nurseries and tree planting, rather than the wider less definite issue of sustainable natural resource management.

The importance of a participatory extension approach for social forestry in the arid and semi-arid areas has been stressed because the people in such areas often possess a lot of valuable knowledge about natural resource management which should be used as a basis for improvement, identifying constraints, potentials, problems and possible solutions. Further, local people recognize the importance of the natural resources and, in particular, the trees to their livelihoods. As such this cuts across sectoral boundaries and so needs to be dealt with in totality not as sectoral components. A participatory approach allows for this.

However, it is also recognized that the people living in the dry lands do not necessarily have all the answers to the problems that they encounter. It is at this point that the role of the technical input or extension message becomes important. It must be understood that the role of such an extension message is to help give the people a choice as to how they may solve the problems that have been identified. On another level such extension messages might be developed from what the people already know, but is actively re-enforced and disseminated to a wider audience.

The ideal extension system would be one of a cross sectoral integrated approach to extension. Such integrated extension can work at the local level provided that the parties concerned are motivated and interested. But it appears to be more difficult to achieve the higher one rises in the sectoral ladder. Thus if integration of extension work can be realistically carried out at the local level by such motivated and interested staff and projects, it should be promoted for the benefit of the people, the programme and the cooperating sectors. However this is not always possible, especially in the dryland areas where the areas covered are often very large with a mobile people and relatively few extension agents compared to the area they have to cover.

Secondly, though trees might be the main interest area, the sectoral extension agent has to be prepared to be involved in other sectors and where possible help out in terms of advice, and reporting back to the relevant sector concerned. In such cases the extensionist may become a generalist. This then could link into the creation of a more generalist mobile extension team who would then be responsible for the broad extension work and involve the different sectors and disciplines where and when necessary. This approach has been used in Turkana district, Kenya to varying degrees of success, but has not been institutionalized properly.

Here the Turkana extension approach is presented as an example that could be adapted to suit other dryland areas and situations (eg non-forestry including livestock development, range management etc). The details of the approach are not as important as the general guidelines for the process.

A CASE STUDY OF THE FORESTRY SECTOR OF THE TURKANA RURAL DEVELOPMENT PROGRAMME

Introduction

This case study presents an adaptation and generalisation from an on-going social forestry extension programme in Turkana District, northern Kenya. It shows how it is possible to expand extension activities over a relatively large area (Turkana District is 72,000 km^2) thus reducing dependence on tree nurseries and discrete tree planting activities. Using the strength implicit in Kenya's District Focus strategy for Rural Development (see Annex 1) combined with the administrative organisation within the District (divisions, locations, sub-locations, villages) and existing traditional

institutions it is possible to design and implement a participatory social forestry extension programme. The programme outlined here, to be carried out over a period of between 2 and 6 years, would in most cases require external funding. However, this is not unrealistic given the current horizon of donor funding in the drylands.

Since 1985 the Forestry Department has conducted seven District and six Divisional workshops on natural resource management, each lasting a week. This has now developed into an on-going series of day-long village-level workshops. By early 1990, 136 such workshops had been carried out with an attendance of nearly 7,000 people (see Table 1). These workshops are meant to elicit the Turkana people's own knowledge about tree management and to encourage awareness about some of the problems that face the woodland resource.

TABLE 1 ANALYSIS OF WORKSHOP ATTENDANCE AT DISTRICT, DIVISIONAL AND LOCATIONAL LEVELS

	7 District Courses 1985-1986	6 Divisional Courses 1986	98 Locational Courses* 1986 ongoing	Total	%
Chiefs	64	39	31	134	2.6
Party Leaders	35	24	285	344	6.7
Elders — men	31	60	2,002	2,093	40.9
Government staff	68	89	506	663	13.0
NGO staff	9	9	246	264	5.1
Women		13	1,087	1,100	21.5
Facilitators	64	36	416	516	10.1
Totals	271	270	4,573	5,114	

Notes:
1) *—There have been a further 38 workshops held for which there are no attendance details, representing an additional 1,786 people at an average of 47 people per course, which makes a total attendance of 6,900 people.
2) Chiefs refer to government administration chiefs.
3) Party leaders refer to political party leaders, eg politicians, councillors, etc.
4) NGOs refer to the staff of non governmental organisations.

5) Facilitators refer to the staff and people who helped facilitate the seminars.

District Workshops

A series of District workshops (one week in duration) were carried out in order for the programme to gain a broad insight into the land use issues that exist in each District. The number of such workshops required depends on the size and population of the District: for example in Turkana there were 7 courses. At this level the participants were selected from the local leaders (chiefs, assistant chiefs, councillors), elders (normally selected by their chiefs), women (leaders of women's groups), teachers and extension agents.

In all these extension workshops a series of broad topics formed the basis for participatory discussion (see Table 2) centring around identifying land use values and potentials as well as problems and constraints. These topics were chosen beforehand to make replication easier in each District. They were first discussed in small groups to encourage all the people present to participate in an agreed language; then in a later plenary session where a consensus was reached and recommendations decided upon. This was combined with a number of field visits to view, illustrate and discuss the various issues first hand. Annex 2 provides an outline for a sample workshop.

The forestry extension staff were the main facilitators and catalysts of this series of extension workshops. They were assisted by extension staff from other government services or NGO's, depending on their availability, in an attempt to make the programme more integrated. Hence staff from range management, agriculture and education were particularly important. But due to the fact that there were not enough facilitators to carry out such a district wide extension programme, emphasis was also put on incorporating local leaders (elders, chiefs etc) into the process. At the District and Divisional levels they received basic awareness training, and were then asked to help run the ongoing series of village and location level workshops in their respective areas. Here it is important to note again that such a participatory approach is a two-way interaction and dialogue where the extension agent is a facilitator and a contributor, not controllers or instructors, and not assuming the attitude that the 'extensionist knows best'. At the group level a secretary was chosen who documented the discussion and recommendations reached.

TABLE 2 SUBJECT MATTER FOR PARTICIPATORY DISCUSSION AT THE DISTRICT AND DIVISIONAL WORKSHOPS

Discussion areas	Some details of topics to be discussed.
Government rules	Chiefs, Agriculture and Forestry Acts, understanding of and application in Turkana. Conflicts. Use of permits.
Traditional rules	Important and not so important trees. Rules governing use of such cutting and pruning practices. Forest and tree ownership, *Ekwar*. Rules of Reserved grazing in context of natural resource management. Integration of traditional rules with policy. Conflicts.
Fuelwood and charcoal production	Methods of charcoal production, who and for whom? Export. Use of permits. Fuelwood sources and access.
Timber for building and other uses	Regulation of timber use in building. Trees that need and do not need a permit. Alternative building materials especially in settled areas.
Clearing woodland for various uses	Particularly in the context of agriculture and specifically to irrigation schemes. Traditional Turkana sorghum gardens and trees. Conflict between trees and irrigation schemes.
Tree planting	How to encourage, who should plant, how many? Where emphasis on tree planting should be placed. Methods and species to use. Issues of protection of young seedlings.
Natural woodland management	How to improve. Natural regeneration. Problems near settlements.
The role of extension	Type of extension. What should be discussed and encouraged, who should be responsible and involved in such extension.

Divisional Workshops

These followed the same procedure as the District series, but were held at divisional level and made more specific to the issues of that particular division. The participants included most of those who attended the District series combined with additional people from that division. It was sufficient to hold one one-week course in each Division.

At this level greater emphasis was given to problems of the division as well as providing some basic extension training to the participants so that they could help the foresters carry out village-level seminars.

Locational and Village-Level Workshops

Selection of participants at this level was more ad hoc, and was often the responsibility of the local chief, assistant chief or elders. Such workshops were for one or two days only, held in the village or location concerned, under a tree or at a primary school for example.

It was not possible to go through all the topics covered in a one week District type workshop in one day. However, the material can be divided into three one day workshops at the village-level. Once again the discussion topics were made more locational or village specific, as were the field visits. At the village-level it was usually the forester or one of their assistants who acted as secretary to document the observations and recommendations of the group (see Annex 2 for workshop details).

Sample Costs of such a Programme

It is difficult to give an accurate assessment of the costs involved. The example given here from Turkana is based on 1989 costs. Also, it only itemizes the direct costs of the seminars and not the hidden costs of extensionist salaries etc since they normally are part of the recurrent budget if the project is implemented through government channels. Obviously these figures will vary considerably and depend on local situations, overheads etc. The example given here would be at the more expensive end.

a) Costs of a week long residential workshop, together with necessary fuel and logistics:

• 40 participants/five days full board and lodging	$ 1,300
• transport costs (for field visits)	$ 300
• Other costs (reporting, incidentals)	$ 200
Total	$ 1,800

b) Costs for village-level one day seminar for forty people

• food and preparation costs	$ 200
• fuel and other incidentals	$ 150
Total	$ 350

This presupposes that the costs of a simple mobile kitchen (including stoves, kitchen equipment, plates, mugs etc.) set up have already been met (approximately $700). Thus depending on the budget, and the spread of the project, this can give an idea of what it will cost to carry out such participatory extension programmes.

In-Service Training and the Involvement of Schools

The advantage of such an approach at district, divisional and village-level and a methodology that is replicable is that the recommendations and findings coming out can be compared and contrasted with other areas in the project. Likewise they can be used to check and counter check other workshop findings, as well as forming a basis for future project activities, a firm basis for implementing solutions, setting a research agenda and helping to affect policy.

This approach was also used with other target groups, for example, as part of in-service teacher training courses in the district. This has resulted in the production of a forestry handbook for teachers in Turkana District based on the contribution of about 500 teachers, as well as the initiation of primary schools tree management competitions. Within the Forestry Department there have been extension training courses for tree nursery headmen and forestry patrolmen which help to reinforce the main thrust of the extension work with the people. In order to try and show that the woodland resources of Turkana District need to be treated in a holistic framework, the forestry programme has had extension input into a variety of livestock, agriculture, and water development programmes.

BUILDING ON LOCAL EXPERTISE AND RESPONSIBILITY

Popular Contact with the People on Social Forestry Issues

First and foremost, however, such an approach gets the programme staff really in contact with the local people. This may be a naive statement, but then how often do projects really get in contact with their 'target group'? The size and variety of representation at all the extension workshops held in Turkana is given in Table 1. As noted in a subsequent extension monitoring and evaluation exercise (Barrow, 1991), this process has had a significant multiplier effect in that those who attend forest seminars appear to be spreading the message on a significant scale. The percentage

of respondents who had one or more extension contacts increased from 32% in 1988 to 43% in 1989. Table 3 indicates that the source of forest extension also varied considerably, though chiefs and elders were the most important sources followed by assistant chiefs, councillors and foresters.

TABLE 3 SOURCE OF FORESTRY EXTENSION

SOURCE	% OF TOTAL	
	1988	1989
CHIEF	73	83
ASSISTANT CHIEF	70	59
ELDER	64	70
COUNCILLOR	15	54
TEACHER	3	13
FORESTER	33	53
DISTRICT OFFICER	25	40
MISSIONARY, CHURCH GROUP	15	25
OTHER EXTENSION STAFF	32	40
OTHER PEOPLE	2	7

(Barrow, 1991)

TABLE 4 TOPICS COVERED IN TURKANA FORESTRY EXTENSION

TOPIC	% OF TOTAL	
	1988	1989
TREE PLANTING	70	96
TREE PROTECTION	88	94
TREE CONSERVATION	77	84
TREE REGENERATION	1	22
CHARCOAL ISSUES	8	37
WOODFUEL ISSUES	2	40
TREES FOR BUILDING TIMBER	3	26
FORESTRY AND PERMITS	20	75
TREES FOR FOOD	76	72

(Barrow, 1990)

Likewise the subject matter discussed varied (see Table 4). Tree planting, protection and conservation were the most important topics

(respectively—55%, 69% and 60% in 1988 to 95%, 93% and 84% in 1989), followed by forestry permits and trees for food for people and livestock (16% and 59% in 1988 to 74% and 71% in 1989). Discussions centring on tree regeneration, charcoal and fuel issues, and trees for building increased considerably between 1988 and 1989 (1%, 6%, 2% and 2% in 1988 to 22%, 37%, 40% and 26% in 1989).

Awareness and Responsibility Creation

The workshops created a heightened awareness about a whole range of social forestry issues ranging from tree planting to protection of young natural regeneration. This raised awareness led to an increase in numbers of trees planted. Table 5 summarizes these results.

TABLE 5 SUMMARY OF RESULTS OF FORESTRY EXTENSION

RESULTS	% OF TOTAL	
	1988	1989
PLANTED 1-4 TREES	17	29
PLANTED >5 TREES	35	32
TALKED TO 1-20 PEOPLE	41	34
TALKED TO >20 PEOPLE	18	17
PROTECTED YOUNG REGENERATION	13	78
PROTECTED LARGE TREES	24	76
PLANTED TREES AND TALKED TO PEOPLE	37	48
TALKED TO PEOPLE—PLANTED NO TREES	24	30
PLANTED TREES—NOT TALKED TO PEOPLE	15	13

(Barrow, 1991)

The number of people planting trees increased from 52% in 1988 to 61% in 1989 and the largest increase took place amongst those who planted between 1 and 4 trees (17% to 29%). Observation and Forestry Department records suggest that trees are primarily planted around the homestead on an individual basis and associated with settlements. However, it was often difficult for respondents to separate trees planted by themselves and those planted as a result of an institutional intervention such

as food for work and paid tree planting.

Other effects of the forest extension work carried out are more qualitative and reflect attitudinal changes which are difficult to quantify. In 1988, 13% of people indicated that they protect naturally regenerating young trees. This figure rose to 78% in 1989. The figures for protecting mature trees were similar—24% in 1988 to 76% in 1989. More people planted trees and talked to people about forestry (37% in 1988 to 48% in 1989). While 24% planted no trees but did talk to people in 1988, rising to 30% in 1989. The figure for those who planted trees and did not talk to people was similar, 15% in 1988 and 13% in 1989.

These results indicate that forestry issues and subjects are discussed on a wide scale, which shows a considerable increase in awareness. Informal sources, including discussions with missionaries and NGO staff, substantiate this view on a district wide basis. Likewise many people say how many more trees there are now in Turkana, through both planting and natural regeneration. Aerial photographs taken in the 1950's (Aldev, 1956:210) indicate that there were fewer trees then than at present (Barrow, 1989, personal photography) yet the population of the District headquarters, Lodwar, has increased many times. Forestry Department observations and records indicate an increasing amount of natural regeneration especially near settlements, though the number of tree seedlings issued has not increased dramatically. However, some of this improved regeneration is linked to a period of average and above average rainfall for the area (Meteorological Department records).

The large increase in protection and conservation of young and mature trees is indicative of the increased awareness of their management. Protection of mature trees is likely to be related to Turkana usufruct rights to trees or their *ekwar* (Barrow, 1987). This may relate to increased effectiveness on the part of forest patrolmen. The conservation of young trees may also reflect an increased understanding of the importance of natural regeneration in replacing mature and old trees in the production system.

Because of the vast areas involved and their relatively low productivity, extension packages for dry pastoral regions have to be cheap to implement. Activities such as tree planting using micro-catchments are expensive and should only be used where there is an acute problem such as may occur around settlements. Grazing control is a more important element in the

pastoral lands. However, for such interventions to be successful, there has to be strong social commitment and responsibility. This is usually easier where the traditional social structure is strong. Where such controls have been effective the impact on regeneration has been substantial. For instance, the chief and the elders of Lorugum in Turkana District implemented a simple grazing control programme in the denuded area around Lorugum, as a result of a famine feeding camp. After a period of controlled grazing there has been spectacular recovery of *Acacia tortilis* woodland over an area of 300 km^2, where the young trees now vary in size from a few centimetres to over 3 metres in height.

DISCOVERING Important Local Knowledge

The issue of tree ownership in Turkana District was described in the extension workshops, especially through listening to the views of chiefs and leaders. In discussions on natural woodland management, the subject of *Ekwar* emerged, more or less by accident, as an important issue in relation to riverine woodland management and ownership. As noted by the participants of a number of forestry extension seminars (Forestry Department, 1989):

> "In the past people used to protect and conserve trees in certain areas which were owned by them *Ere* or *Ekwar* and all the trees in those areas could not be used by others. Groups of trees in areas near settlements may be guarded and owned by certain individuals. No stranger to the area had any rights over these trees. Migrants herding livestock and in search of fodder in times of shortage, could not enter an area and utilize the forage there without prior permission from the elders. Such an approach might be made through some relative living in the area or otherwise, the chief. Traditionally the ritual was completed by slaughtering a goat for the benefit of the elders."

Since the riverine woodlands of Turkana represent the richest areas of trees and vegetation, *Ekwar* ownership is centred around the user rights to the produce of these trees. It is in the interests of the owners to manage the trees of their *Ekwar* in a sustainable conservation-based way to ensure that it continues to be productive.

The system of *Ekwar* has important implications for the Forestry and Range Management sectors in their conservation and extension work in the

district. The *Ekwar* owners represent a discrete and known target group with whom to work, not only for the forestry sector but as a basis for an environmentally sound management system. Such indigenous natural resource management strategies should be given positive re-enforcement through extension and policy intervention. Interventions that weaken tenure rights over *Ekwar* can serve to reduce the system's resilience and therefore make it more susceptible to increased pressures due to for example drought.

One other informal but important finding from the series of workshops was the recognition that the elders have a very important role to play in natural resource management. Traditionally such elders, as they move from their homes to the meeting tree, act as forest patrolmen in the monitoring and control of the natural resources. Such a practice could be strengthened by the Forestry Department.

Research and Development Activities Resulting from the Workshops

This process focusses on the active participation of the target group in using the existing natural resource management system and has implications for both research and development programmes. As control is shifted from the project to the people themselves, it becomes more difficult to predict research and development needs.

In terms of extension, the participatory process must be clearly understood by extension agents and research officers alike, and the needs of the target group should be used to develop a research agenda. However, the people must take the overriding responsibility for the management of their natural resources, and by inference the problem areas that research should address. External agents can not do this for them.

Often, because of the lack of suitable and appropriate techniques for dryland silvo-pastoral systems, projects have to incorporate some form of research programme, often against their will since results may be inconclusive and may only generate the need for more research. Traditionally such research was carried out on-station and it often proved difficult to translate the findings into practical recommendations for farmers. Now there is a stronger move to a more farmer participatory research, which this approach supports.

People's Recommendations as Basis for Locally Adapted Policy

Based on the District Focus Strategy (see Annex 1) and at the request of participants (about 7,000 people) from the workshops, the Forestry Department has produced a draft forestry policy and guidelines for Turkana District (Forestry Department, Turkana, 1989) under a variety of headings as shown in Table 6. Such a policy has the added strength in that it emanates from the people, they have been involved in the process and can now see their recommendations articulated in a policy context.

TABLE 6 SUMMARY OF DRAFT TURKANA FORESTRY POLICY AND GUIDELINES

Heading	Comments
Present Government Rules	Charcoal, permits, relations to traditional rules, understanding, conflicts.
Traditional Rules	Articulating potentials and values in present system, eg what species can be used for what and how, role of *Ekwar*.
Charcoal/ Fuelwood Issues	Who should produce, charcoal export, access and problems of fuelwood; controls.
Building Timber	Species and management, access to, relations to usufruct rights; controls.
Agriculture	Clear felling of trees in irrigation scheme as against traditional Turkana sorghum farming (agroforestry practice). Trees and crops.
Tree Planting	Role of tree planting and natural regeneration in natural resource management. Who plants and why? Means of increasing numbers of trees.
Extension / Education	Role of extension in natural resource management. Participatory process.

Likewise such ideas may also be in line with other government sectors including range management, agriculture and administration. The question still to be addressed is how such official policies can be sufficiently flexible to incorporate local knowledge. Can they be adapted to include such values and management systems? The need to institutionalise and articulate local knowledge with current policy is often as much a challenge as the

extension approach itself.

Any pastoral development project must, if it is to have a chance of success, take account of the system of property rights which exist and the ways in which they are changing. Thus to influence the future usefully one must have some knowledge of the present. Yet many pastoral development projects ignore, or are based in ignorance of, indigenous systems of property rights.

This example of the forestry extension and training policy in Turkana is aimed at trying to combine the very important traditional, cultural and usufruct values that the Turkana have for trees and forestry together with important so called modern values (eg tree planting) and articulate this in present day development and policy frameworks. This, then, gives an idea and an example of how we can affect policy and thereby improve the process, and can also be linked to a more realistic interpretation of, for instance, Forest Acts, as they relate to drylands.

Adaptability of the Model

It is very difficult, if not impossible, to develop a standard extension package for pastoral lands where physical and social conditions vary greatly. Extension activities in these difficult farming areas should take account of farmers' reasons for caution and apparent conservatism. Given such diversity of conditions, to what extent and how can such participatory approaches be adapted to other dryland areas in East Africa and the Sahel, or to other disciplines? The approach to extension used in Turkana was developed with expansive, large scale management systems in mind, hence the pastoral bias.

The approach aimed to link the institutional (Forestry Department) and administrative divisions with a participatory process based on awareness and responsibility amongst the target population. So while the 'nuts and bolts' (discussion topics and technical content) may differ from place to place, the method allows for real participation and a means to articulate such participation in policy.

Learning from the Turkana approach it may be possible to make some short cuts. The district level seminars are important in attempting to lay the basis for the extension programme through gaining the support of as many politicians, civil servants and important elders as possible. Likewise, they

provide an overview of land use issues which may then be made more specific at village-level. The divisional workshops are, however, not such a vital part of the process as they tended to be repetitive of the district workshops. They may be left out in favour of the village-level workshops.

Sustainability of the Extension Programme

Sustainability of a project beyond the project cycle is the key to long term success of a programme in terms of enhancing institutional capacity, sustaining the development objectives and sustaining the responsibility of the people. All too often projects are started up with countless reviews and more planning, but rarely is sufficient thought given to the problem of sustainability.

Virtually by their nature, most projects will create problems relating to levels of recurrent expenditure. If implementation of a project means that the recurrent budget of the local implementing agency or ministry has to be substantially increased (for example, improved water supplies usually imply the need for improved maintenance services), then such issues have to be realistically addressed at the planning stage to ensure that the government sector budget accommodate this.

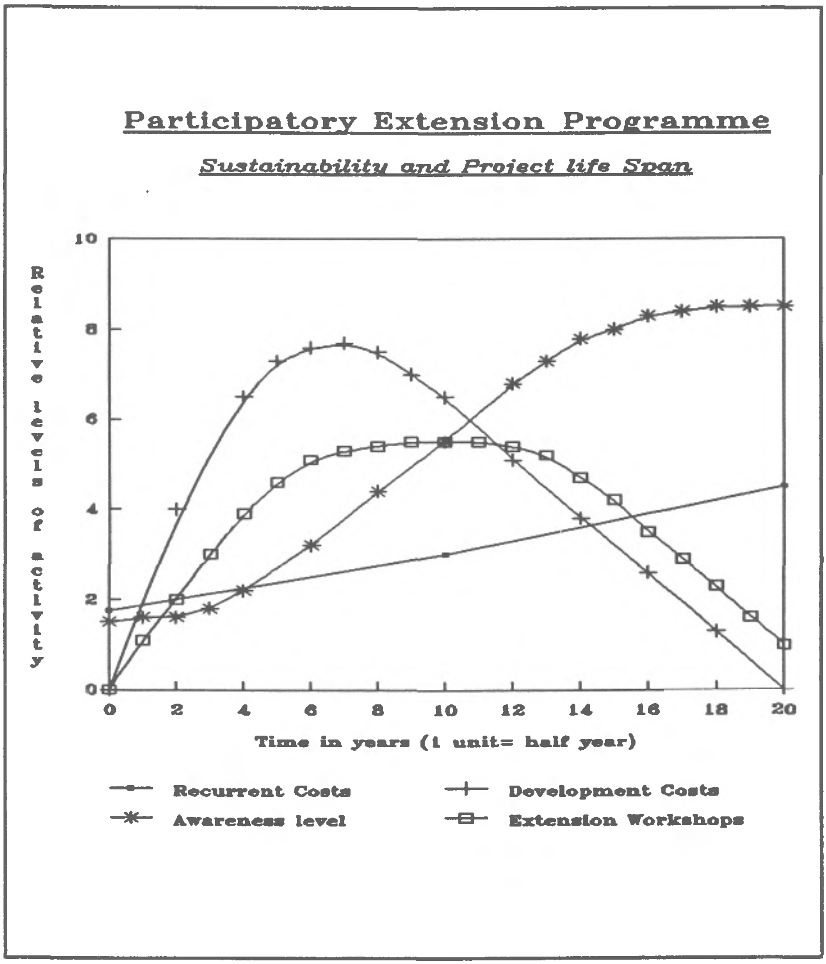
If a project is primarily concerned with trying to help the target population become more aware and responsible, then it can be justified having an increased development budget for a certain period of time to allow for an extension programme to be undertaken to raise such awareness and responsibility. This may be planned for on the understanding that the extension programme will be gradually phased down to a level that the recurrent budget can handle over a period of time.

Commitment and motivation on the part of those carrying out the project has to be sustainable. If there is a high turnover of staff then such commitment may not be so strong. Lack of real and lasting commitment is often a cause for project failure. However, in this context participatory extension programmes that try to shift responsibility to the target population may not need the same degree of long term commitment for sustainability since the level of awareness and responsibility will have been significantly increased amongst the target population who will then place demands and so pressure for the provision of services etc.

Based on experience gained from the Turkana programme, the factors

affecting the long term sustainability of the programme are presented in Figure 1. Two of the four lines on the graph represent costs—development and recurrent. One represents the extension activity curve and the other reflects the level of awareness of the local population concerning the objectives of the extension programme.

FIGURE 1 SUSTAINABILITY AND PARTICIPATORY EXTENSION PROGRAMMES



For instance, in the Turkana example, recurrent costs (government department costs in the project area) normally include staff payments and some contribution to transportation and the purchase of tools and materials. This budget normally increases gradually with time, though much of that increase may be related more to inflation than a real increase. This model assumes that towards the latter end of the programme the government service is capable of taking up some part of the extension programme. The development costs on the other hand are initially very high due to the initial capital investment (for transport, purchase of equipment etc.), the costs of the initial training workshops which are more expensive than the one day village-level seminars. Then after two to four years the development costs start reducing since the emphasis is on village-level workshops. This results in an increased level of awareness as a result of extension and so a decreased need for investment, but an increased need for follow-up in terms of implementation of the recommendations made by the people at the village and district levels.

In terms of the project cycle there is an initial set of district (or project area assuming it is quite large) one week workshops which take place in years 1 and 2. If it is decided to have the divisional one week workshops these can take place in year 2 or 3. The emphasis is on the village-level workshops which build up their level of activity in years 2 and 3 and reach a maximum level of activity from years 3 to 6. After year six there is a gradual reduction from years 6 to 10 to a level that can be sustained by the recurrent budget. There may need to be some follow up on the village workshops in terms of some district wide workshops in years 6 or 7.

During late 1990, a number of political decisions between the Government of Kenya and the donor (NORAD) have meant that donor funding to the Turkana Rural Development Programme (TRDP) has ceased. This has consequences for the forestry sector in terms of sustainability in that the extension programme will no longer receive any donor funding, and will have to rely on the Forestry Department's recurrent budget. In this situation there are a number of points of interest:

- The funding has ceased at about point 14 on Figure 1 (ie after about 7 years) and this represents an already downward trend in terms of the extension programme and project funding;

- The awareness and responsibility created has significantly increased over time and may have already reached an optimum;

- By the time donor funding was withdrawn (about October 1990) probably over 7,000 people (elders, women, etc) had attended the workshops. This is a significant proportion of the adult population of the district.

Therefore in terms of budgetary sustainability and the future activities to be carried out by the Forestry Department:

- Foresters should follow-up and build on the already created awareness and responsibility amongst the people at divisional and location level. In such a large district this will depend on access to transport. Success will also hinge on staff interest and motivation; continued liaison with other groups including chiefs and staff from other government departments and NGOs to help in this process; and by concentrating on the problem areas close to settlements and where transport is not so crucial.

- The District Forestry Officer should follow up at the District Development Committee level on the draft District Forestry Policy for Turkana to ensure that the recommendations coming from over 7,000 elders, leaders, and village people are articulated at the District Development Committee level (DDC) in terms of policy under the District Focus Policy.

CONCLUSIONS

The evidence presented in this case study shows how local knowledge can be successfully incorporated into the development and change process. This requires, not radical changes in the development process, but rather a change in attitude on behalf of those concerned, both in research and development. In large expansive pastoral systems in the fragile drylands the

cure is often very expensive and fraught with problems and failures; prevention is the more realistic and long term option. Prevention through awareness creation about and responsibility for the sustained management of natural resources. This is likely to have a greater long term impact than discrete, though often photogenic tree plantings.

While it is necessary to have some objective measure of success, information on physical accomplishments may be misleading, since such development is as much, or more of, a social process than a technical one. Where one objective of a project is that of increased social responsibility for natural resource management it is very difficult to give accurate measures of success or failure. However, one important overriding criterion is that of project sustainability beyond the life of the project. This is also linked to replicability both in the project area and other areas (Kerkhof, 1990) and to flexibility which is particularly important in the drylands.

Development projects tend to compartmentalize life in arid and semi-arid areas. This cannot be done, the threads are too interlinked. If development programmes took into consideration the traditional way of regulating the use of resources, the risk of ecological damage could be reduced (Storas, 1987) and pastoral areas could significantly improve their productivity and contribution to both the local and national economy yet retain ecological stability. For instance, with District Focus in Kenya these linkages can be made. Do other countries and areas have similar or related policies?

Only if people's needs and priorities are put first can true support and participation be secured, and without this there can be no long term sustainability of initiatives beyond a project cycle. In order to build upon this basis, what is needed is the development of grassroots institutional structures combined with a management structure that is flexible enough to solve such problems as may arise in the future without external assistance (Leach and Mearns, 1988).

There is now an extensive literature on the importance of taking indigenous technical knowledge as a starting point in rural development, and on the need for farmer participatory research as a basis for appropriate interventions. Indigenous technical knowledge requires a social context for its successful implementation. One condition which is a prerequisite for the development and dissemination of indigenous technical knowledge is community stability (Farrington and Martin, 1987). This may be disrupted

firstly by the penetration of a cash economy, which often leads to sacrifice of the common good for short term individual gain. Secondly, population pressure on resources and incipient land degradation may exceed the capacity of local institutions to mediate the process of environmental change through the vehicles of indigenous technical knowledge (Leach and Mearns, 1988).

As Leach and Mearns (1988:79) pointed out:

> A major constraint to the implementation of effective agro-forestry is the way in which institutional and disciplinary boundaries dissect rural livelihood systems. This vertical segmentation governs all aspects of land development (research, training, extension, land legislation, administration and allocation of funds). Within each bounded discipline (agriculture, forestry, livestock management) interventions have traditionally been geared towards single outputs. This is inimical to the principles of agroforestry systems.

Development planners often quote traditional conservatism as one of the major stumbling blocks to the successful implementation of development projects. While it is certainly true that many traditional societies are weary of change and slow to involve themselves fully, it is a natural reaction to innovation, especially if it involves radical change. People will only incorporate innovations into their life styles that they fully understand and see the real value of. There are always going to be constraints to development. Therefore planners and implementers should be optimistic and work on the advantageous factors to design and implement development projects. One of the strongest advantageous factors in pastoral areas is the traditional knowledge of the people. Unless properly used this knowledge is in danger of being lost.

Development strategies in dry lands can not be copied from high potential areas, the differences are too great. The traditional livestock and resource knowledge must be used as the basis for improvement through learning, awareness and extension. This takes time and effort on the part of the implementing agencies, as well as a change in thinking for many. But if the people living in these areas do not see the need for change and improvement in their lifestyles then real change will not take place.

Development in dryland areas more than anywhere else does not depend on techniques, infrastructures, it is about people and how they manage their lives and their lands. Development agencies have a very important role to play in this catalysis, to make people aware of their responsibilities, and to provide them with the tools to improve and change their own life styles so that the land, with its limited resources will continue to sustain them.

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Extracts from Kenya's District Focus Rural Development Strategy (1987)

"The responsibility for planning and implementing rural development has been shifted from the headquarters of ministries to the districts. This strategy, known as the 'District Focus for Rural Development' (Republic of Kenya, 1987), is based on the principle of a complementary relationship between the ministries with their sectoral approach to development and the district with their integrated approach to addressing local needs. Responsibility for the operational aspects of district-specific rural development projects has been delegated to the district. Responsibility for general policy and the planning of multi-district and national programmes remains with the ministries.....The objective of this strategy of shifting increased responsibility to the districts is to broaden the base for rural development and encourage local initiative in order to improve problem identification, resource mobilisation and project design and implementation." (page 1)

"Public participation in support for rural development requires an informed citizenry. The District Development Committee must maintain a programme of public information to explain the district focus strategy to the general population..... The public information programming should be based on the experiences gained in various rural development activities around the district and elsewhere in the country". (page 7)

"A major objective of the District Focus strategy is to increase communication between the local community and government officers working in the districts. Divisional, locational and sub-locational development committees identify opportunities and problems in their local areas, the types of projects that are needed in their communities, and ways to maintain and increase the utilisation of the completed development infrastructure..." (page 8).

"An understanding of cultural values and norms is an essential element in facilitating rural development in Kenya. Discussions will be held at all levels on practical issues in relation to cultural values and practices as they affect project planning, implementation and evaluation". (page 45)

Sample District and Divisional Workshop Timetable

Day 0: Course participants arrive in the afternoon.

Day 1: Official opening by district dignitary or official.
Introduction and broad objectives of the course.

Discussion of current government and traditional rules and regulations concerning the use and management of trees in the settled areas in particular. Are they pleased with these rules or do some need to be changed? Are people keeping the rules or breaking them? Why? (Use an example eg how do they get materials for building)? This session will try and discuss what are the present rules, how effective they are and why, and what can be done to make these rules stronger and respected?

Afternoon: Field visit to woodland areas to look at different woodland types and uses. This trip will try and make the participants see the present and potential problems with particular reference to fuelwood supply. Two issues will be taken up in the discussions. First, that of fuel and charcoal. Where do they get their fuel? Is there enough? How can the situation be improved? Why is charcoal now produced and it was not done long ago? What can be done about this? How can we control charcoal production? Second, the broader issues of woodland management will be tackled. Are these trees owned? If so by whom and for what purpose? How do people get access to timber for building fuelwood etc.? How can we improve this situation so that trees are not going to be wastefully cut down?

Day 2: Group discussions on: a) fuelwood and charcoal production; b) timber for building, making of timber goods; c) clearing of woodland for, in particular, agriculture. Here each group will make summaries of their discussions that the whole course can then discuss in plenary.

Afternoon: field visit to area where little natural regeneration of trees (in this case *Dobera glabra*) occurs. The group will be

shown the control (not fenced) and reserved (fenced) areas of the trees and will be expected to look into ways of improving the natural vegetation. Why are there no young trees? What can be done about this? Are there any differences inside the fenced off area as opposed to where it has not been fenced off?

Day 3: Field visit to an area where agriculture is practised (in this case an irrigation scheme and the surrounding area). A brief talk before departure to ensure that the participants observe as they drive along the road and get them to note any changes. Where do they see most trees as they drive along? Count the number of bags of charcoal. The whole group will stop to discuss degradation of vegetation around the irrigation scheme area. How can it be prevented? How can we improve the situation? At the irrigation scheme, stop along the main canal and embankment to look at the natural forest and the irrigated land. What has happened? Which is the better situation for people and livestock? How do the people traditionally cultivate? Can trees be incorporated into irrigated agriculture and if so how? What are the benefits of this? Is there profit in clearing trees away from irrigated land and rainfed shambas?

Visit to rainfed fields, going through the same series of discussion points as for the irrigation scheme. Visit agricultural plots beside the river where a lot of clearing has taken place - why have people cleared right up to the edge of the river?

Summary session, before departure, on the days findings.

Day 4: Field visit to tree planted sites in surrounding area.
Who plants? How are they managed and owned? What part does tree planting have in woody management? How can planted trees be used for the benefit of the people?

Concluding discussions to come up with a list of rules and regulations to help in the development of the final version of a woody management policy for Turkana district, and any other recommendations, that will help in implementing this policy under the chiefs authority act.

Day 5: Participants leave in the morning after breakfast

Location and Village Workshop Guidelines

1. General

Planning for these courses should be along the following lines:

a) Where will the course be held?

b) Selection of participants: consult the participants of the district courses to help in selection of village elders, women's leaders, teachers etc. Each course should have a maximum of about 30 participants.

c) When will the courses be held.

d) Make a list of facilitators (who have attended both the divisional and district courses) together with their duties.

2. Course Content

The content will be taken from the chiefs and leaders and divided up into 3 one-day courses or one two-day course as follows:

1st course:
Present Government laws; traditional laws; field visit to an area of woodland to discuss the laws and importance of trees, their problems.

2nd course:
Discuss the importance of trees under different topics (eg charcoal, building material and so on). How can we conserve trees on a sustainable basis? Problems and solutions about trees. Visit site where trees have been cut. Trees and agriculture.

3rd course:
How can we increase the numbers of trees? Planting of trees,

methods, what to plant and where. Visit possible sites, discussion and try and get people to be responsible on their own (without payment) for tree planting and natural regeneration.

3. Methods To Be Used

a) Participatory approach to ensure active involvement.

b) Divide the participants into 3 groups for ease of discussion. All the points, observations and recommendations can then be brought together at the plenary session in the afternoon.

c) Use the standard set of questions as the basis for discussion.

d) Make sure that all the facilitators understand this standard set of questions.

e) Facilitators should ensure that they facilitate, but not teach, at these courses unless it relates to technical issues (eg tree planting).

f) Someone should take notes of what is being discussed as this will then form the basis for a course report.

g) The morning session will centre around a brief introduction, followed by a discussion on the relevant subject matter and then a field visit where extensive discussion should take place.

h) The plenary session in the afternoon will be for summing up what has happened during the day and someone should take notes in point form of any recommendations, observations etc.

Acknowledgments

I am grateful to ICRAF (with NORAD funding) to enable this research fellowship to take place and so the production of this and other papers which will, it is hoped, be of use to the development process in the arid and semi-arid areas. I am also grateful to the Director General of ICRAF who commented on an earlier draft of this paper. None of the work described in this paper would have been possible without the motivated foresters and other extension staff, who made this participatory extension programme possible in often harsh and difficult conditions. It is likewise hoped that this paper will in some small way be a credit to the Turkana people and their intimate knowledge of their natural resources and the means by which we can learn from such knowledge and hopefully be in a position to affect policy.

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, CANADA

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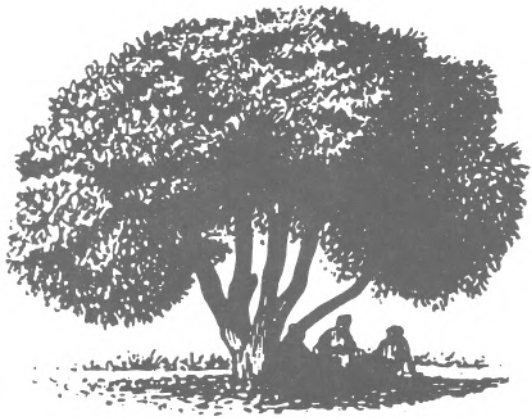

SEEING THE PEOPLE FOR THE TREES: IMPLICATIONS OF SOCIAL FORESTRY FOR THE TRAINING OF FORESTRY EXTENSION STAFF IN KARNATAKA—SOUTH INDIA

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Network Paper 12f **Summer/Winter 1991**

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This paper is based on information gained while the author was working with the Karnataka Forest Department (KFD) under assignment from the Overseas Development Administration (ODA—UK). The views expressed are those of the author and do not necessarily coincide with those of the KFD or ODA.

Social Forestry Network Paper 12f (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

SEEING THE PEOPLE FOR THE TREES: IMPLICATIONS OF SOCIAL FORESTRY FOR THE TRAINING OF FORESTRY EXTENSION STAFF IN KARNATAKA—SOUTH INDIA

by
Chris Garforth

INTRODUCTION

Social Forestry brings people, rather than trees, to the forefront of forest policy and programmes. It is people's needs which, in theory, determine tree planting and harvesting priorities. People are seen as partners in the planning and management of forest resources, rather than as a harmful influence to be controlled or excluded. Most States in India now have social forestry projects, and in those that do not, elements of social forestry exist within such initiatives as the National Wastelands Development Programme and the National Rural Employment Programme. Nepal's new Master Plan for the Forest Sector envisages much of the existing forest in inhabited areas being turned over to those who use it.

This shift in policy from looking after trees to working with and through the users of tree products implies considerable changes in the jobs which forestry staff are expected to do. This in turn suggests that changes may be needed in the training which forestry staff receive, in terms both of content and of method, and in both pre-service and in-service training. Some would go further and argue that the hidden curriculum of the internal procedures of their employing organisation acts as a powerful constraint on the way they interact with their 'clients': foresters will only learn to work with rural people in a participatory manner, in a way which stresses listening and consensus and compromise, if the same processes are adopted in the internal workings of their own departments (Gronow and Shreshta, 1990).

Both within central government in India and within State Forest Departments, there is intensive debate on the future direction of forestry education and training at all levels, to which an important impetus was given by a conference on the subject in 1988 organized by the Society of Indian Foresters. This paper contributes to one part of that debate: the implications of the shift towards social forestry for the training of field level forestry staff in the State of Karnataka.

SOCIAL FORESTRY IN KARNATAKA

In Karnataka, forest cover varies tremendously from the dense natural forest which survives in parts of the Western Ghats to very sparse cover in the drier, lower lying areas in the east of the State. Concern over continued degradation of tree cover led the Karnataka Forest Department to launch a Social Forestry Project (SFP) in selected districts in 1983, although initiatives to encourage people to plant trees, and the afforestation of public land to meet the needs of local residents, had been going on for some time. Indeed, one of the administrative complexities facing forestry staff is that 'Social Forestry' activities are funded under a variety of government programmes, which in turn have very varied funding and reporting arrangements vis-à-vis central government and external donors or lenders.

With the inception of the SFP, a separate cadre of social forestry personnel was established, within a new Social Forestry Wing headed at headquarters level by a Chief Conservator of Forests. In the field, the structure of the Wing parallels that of the Territorial function of the Department. Within a Division, a Deputy Conservator of Forests (DCF) is responsible for social forestry while the territorial DCF continues to be responsible for the management and protection of the natural and plantation forest belonging to the State government. They each have their separate complement of Assistant Conservators, Range Forest Officers and Foresters (Fig 1). In the Social Forestry Wing, a new designation of Forest Extension Workers (FEWs) has been created which is exactly parallel to that of territorial Forest Guards. FEWs receive the same initial training as Forest Guards and are still referred to as 'Guards' by many people both within and outside the Department.

The main innovation in terms of staffing has been the recruitment of 'motivators'. These were originally intended to be locally recruited men and women who would work in their home community as a link between KFD and rural people, a link to inform KFD of local needs, interests and requirements, and to make KFD services, inputs and advice available within the community. In practice, because of the minimum qualifications laid down and the general preference for competitive applications, most motivators are working outside their home communities. They come from a wide range of backgrounds. Few have any forestry or agricultural training before they are recruited. They are employed on a part time basis and do not hold regular KFD posts.

Figure 1 Parallel Structure of Social Forestry and Territorial Wings in Karnataka Forest Department

PCCF		
CCF (SF)		CCF (General)
Conservator (Circle)		
DCF (SF)		DCF (Territorial) (Division)
ACF (SF)		ACF
RFO (SF)		RFO (Range)
Forester (SF)		Forester (Section)
FEW		Forest Guard (Beat)
Motivator		

Social Forestry in Karnataka is seen as comprising two rather separate strands: • **Farm Forestry**, under which individuals are encouraged to plant trees on their own land, and • **Community Forestry**, where trees are planted on public land to meet specific local needs for fuel, timber, artisanal inputs (such as bamboo), fodder and green manure. Farm forestry ranges from the planting of a few fruit or fuelwood trees by a landless family in the yard of their home, through the use of field bunds for raising timber or fodder species, to monocropping commercial species on farmland. Tree planting on private land has a long history in some parts of the state and the SFP has given added impetus. In other areas, particularly where natural forest cover remains quite high, farm forestry still fails to catch the imagination of most landholders. In the early years of the SFP, farmers could have 1500 free seedlings from KFD for planting on their own land: this has been reduced progressively to 150 in order to achieve greater equity.

Community forestry makes use of roadsides, canal banks, wastelands which have traditionally been used for grazing and for collection of firewood, the foreshores of irrigation tanks and several other categories of **'public access'** land. Although the land is owned by the state or central

government, a complex network of rights of access and use usually exists over it. In practice, community forestry involves the KFD in planting trees, with varying degrees of consultation with local people over the species mix, and in looking after the plantation for up to five years, after which the trees are handed over to the community for management, harvesting and distribution. In keeping with KFD's use of the Working Plan as the basic tool for forest management, a management plan is prepared for each community plantation before the community takes full responsibility for it. After the handover, KFD staff continue to provide technical advice and support as and when it is needed.

A key feature of both facets of the SFP is the decentralisation of nurseries. Farmers are recruited to establish **'kissan'** nurseries in which they raise seedlings for distribution to farmers in the vicinity, and to stock community plantations. KFD supplies the inputs and pays the nursery owner for each seedling he or she distributes. One of the tasks of the field staff is to identify suitable people to operate these nurseries and then to give them technical and administrative support. In some cases, nurseries have been established by schools and local voluntary organisations.

A complicating factor, from KFD's point of view, is that development planning and funding in the State is increasingly being decentralized to representative bodies at **'zilla parishad'** and **'mandal panchayat'** level. The zilla parishad, an elected body for an administrative District, now has the power to decide how development funds will be spent. This includes the allocation of money under some of the schemes and projects which involve social forestry activities. Often schools, clinics and water supplies have a higher political profile than tree planting. Social forestry staff have to work hard to make sure that forestry receives what they would regard as a fair share of the available resources. Decentralisation is proceeding further, with mandal panchayats (a mandal typically consisting of around 9 villages) also having funds allocated to them for spending on locally determined projects.

Although the designation **'extension worker'** is given to one particular category of staff within SFW, all social forestry staff within the District can properly be thought of as engaged in extension, or as change agents. This is especially true of the three categories of staff with which this paper is concerned — Foresters, FEWs and motivators — at least in terms of their duties as set out in job descriptions. In practice, however, many staff have a more restricted view of what their job entails.

Figure 2 Structure of Local Administration and Social Forestry Wing, at District and Sub-District Level

LOCAL ADMINISTRATION		SOCIAL FORESTRY WING	
Level (Number)	Representative body	Staff	(Number)
District (19)	Zilla Parishad	Deputy Conservator of Forests	(12)
		Ass. Conservator of Forests	(14)
Taluka (172)		Range Forest Officer	(112)
		Forester	(248)
		Forest Extension Worker	(340)
Mandal (2469)		Motivator	(1305)
Village (26306)	Grama Sabha		

Motivators' duties as set out in the Project Implementation Manual (PIM) include preliminary consultations with the community about the local potential for community forestry, gathering feedback about local demand for tree products as an input into community plantation planning, assistance with micro-planning and transfer of technology before, during and after planting. However they tend to see their job as the identification of potential kissan nurserymen and women, visiting households to tell them about the schemes under which they can get free or subsidized seedlings, collecting information on seedling requirements each year and technical support of kissan nurseries and of households who take seedlings.

Forest Extension Workers, in addition to the technical support and supervision of motivators, are expected to assist in publicity campaigns, and in micro-planning, hold preliminary consultations with the community about the local potential for community plantations and collect monitoring and evaluation data. In practice, much of their time is taken up with the technical aspects of community plantations, supervising the labourers hired by the Department for site preparation, trenching and planting work and the maintenance of plantations. The working relationship between FEW and motivators varies from District to District. In Hassan, FEWs said they spend the 8 months of the year which are relatively slack as far as work in community plantations is concerned accompanying motivators on their visits to households, while motivators say that they report to their RFOs through the FEWs. In some other Districts, FEWs are seen as responsible for community plantation activities while motivators concentrate on kissan nurseries and private (farm forestry) planting and see themselves as reporting directly to the RFO.

Foresters are to help RFOs identify suitable sites for plantations and nurseries, give technical advice to farmers, prepare maps of chosen sites and supervise FEWs and motivators in their area. They are generally responsible for the technical quality of social forestry work as well as being involved in general publicity and extension. Given the small size of this cadre, they cannot visit a high proportion of farm forestry clients on an individual basis. They can, however, influence the technical competence of FEWs and motivators through training, whether this is done through pre-arranged in-service sessions or ad hoc skills training during supervisory visits in the field.

TRAINING FOR SOCIAL FORESTRY IN KARNATAKA

Training for Foresters and FEWs is conducted by the KFD at three institutions: the Guards Training Schools at Kushalnagar and Bidar, and the Foresters and Guards Training Schools at Tattihalla. More senior staff receive initial training outside the State: RFOs at one of the Ranger Training Colleges in other States, ACFs at one of the State Forest Colleges and DCFs at the premier forest education institution — Indira Gandhi National Forest Academy (IGNFA) at Dehra Dun — after undergoing a rigorous selection procedure for recruitment into the Indian Forest Service (IFS).

Foresters and FEWs enter the SFW through one of two routes. The first is by transfer from territorial or wildlife or other duties (as Foresters or Forest Guards); the second is by being posted to the SFW on completion of initial training. However, as the posting of trainees is not decided until their training ends, there is little difference in terms of training between the two routes. In both cases, their main preparation will have been the regular 12 month or 6 month course received by Foresters and Guards respectively.

Five features of training at the three KFD institutions are significant for their ability to prepare staff for people-centred forestry. First, the syllabuses are enshrined in legal instruments, which limit the freedom of individual trainers to modify them. Second, there is no cadre of trainers: regular forest officers are posted to the institutions as instructors as just one stage in their career within the forest service. Average length of service as instructor at Tattihalla is between two and three years. Third, newly posted instructors receive no induction training either in the subject matter which they are to teach, or in training skills. This means that their own theoretical background may be out of date, and that they tend to rely on training methods they experienced during their own initial training. Fourth, the status of the trainees is that of 'men under discipline', their daily timetable leaves little time for self-directed learning, they are in uniform, drill is a regular feature and compulsory sport a daily activity. Fifth, there is no one on the staff of the institutions with any background in social sciences or extension.

The essence of social forestry, then, is that foresters' success in getting trees planted depends much more on their ability to work with, encourage, teach, persuade and support people than on their technical expertise. The tasks facing the three categories of field staff are similar to those of other rural 'change agents', whose work involves motivating and enabling individuals, households and communities to make changes in the way they use land and other natural resources. These include:

Education, for example in helping people develop a fuller understanding of the interactions between trees and annual arable crops.

Training, when they are instructing someone in a specific skill such as pruning or planting out a seedling.

Interactive process skills using them in their work, such as listening, questioning, negotiating, reviewing, discussing.

Recruiting individuals into the KFD's programme, whether as nursery owners, as recipients of seedlings or as supporters of the idea of community plantations;

Solving problems, which may be technical (plant protection, silvicultural), or concerned with administrative, marketing or distribution aspects of the programme;

Participatory planning, which includes situation analysis, identifying needs, selecting appropriate objectives, sifting through alternative courses of action, monitoring the implementation of the selected course of action and evaluation to complete the cycle. The emphasis here is not so much on the elements of the planning cycle themselves as on the participatory nature of the activity. Particularly in community forestry, the process by which the plan evolves is more important to the future of the forestry endeavour than the technical or economic soundness of the plan;

Publicity, which some see as 'selling' the idea of social forestry as well as providing clear information to the public on KFD's programmes;

Advice & Information given to those who may be considering the possibility of planting trees as well as to those who have already done so.

Given the traditional role of forestry staff in Karnataka, the above tasks represent a fundamental change. They do not in any way devalue the technical expertise of foresters and Guards. Indeed, personnel may require a larger (or at least different) repertoire of technical knowledge and skills in moving from territorial to social forestry because of the wide range of site and social parameters they will encounter. But in addition to their technical expertise, they require a different set of **attitudes** towards rural people and their use of forest products, additional areas of **knowledge**, particularly in the social dimensions of forestry, and new **skills** in working with people.

KFD staff recognise these training needs. At a workshop on training methods held at Tattihalla in September 1990, participants were asked to suggest training objectives for the extension component of initial training for FEWs and foresters. Their list included trainees' ability to:

COMMUNICATE with people in simple, effective language

MOTIVATE people to take up farm and community forestry activities

LIAISE between rural people and the Forest Department

GUIDE people in planting and maintenance activities

BEHAVE acceptably among rural people

Current initial training for field staff does not match these objectives, either in content or in methods. Social forestry has been added to the Foresters' and Guard/FEWs' courses, as a separate subject. For the Foresters, it occupies 25 hours out of a total of 750 hours — a mere 3% — which they complete in two one hour sessions per week during their first term. The remaining 28 sessions each week are taken up with scientific and technical subjects ranging from civil engineering and surveying to silviculture and nursery techniques. Extension is treated as one topic within the social forestry syllabus. Much of the social forestry component is taken up with technical issues, such as the selection of species for various 'models' of planting (roadside, tank foreshore, artisanal, etc.) and very little time is devoted to social and procedural issues. There are no practical sessions on extension or communication skills, even though considerable emphasis is given to practical work in the more technical areas of the curriculum; nor are there any learning activities designed for the development of problem solving or team work skills.

These points can be illustrated by considering the list of subjects to be taught to FEW/Guards (Fig 3) and Foresters (Fig 4), and the syllabus for the social forestry component of the Foresters course (Fig 5), as laid down by KFD in 1987. These are compiled from information supplied by DCF Social Forestry Training, Tattihalla, in September 1989.

Figure 3 Components of FEW / Guards' Initial Training

1.	Forest Protection	10.	Forest Utilisation
2.	Soil Science	11.	General Silviculture
3.	Forest Mensuration	12.	Social Forestry
4.	Silviculture of Species	13.	First Aid
5.	Wildlife Management	14.	Study tour: tour journey and tour examination
6.	Forest Engineering	15.	Field Botany: identification
7.	Forest Survey	16.	Field practical works
8.	Forest Law	17.	Quiz
9.	Accounts & Office Procedure		

Figure 4 Components of Foresters' Initial Training

1.	Forest Engineering	12.	Wildlife Management
2.	Silvicultural Systems	13.	Forest Management
3.	Elementary Mathematics	14.	Forest Law
4.	General Silviculture	15.	Social Forestry
5.	Botany	16.	First Aid
6.	Forest Utilisation	17.	Statistics
7.	Surveying and Drawing	18.	Silvicultural Species
8.	Soil Chemistry, Soil and Water Conservation	19.	Survey and Engineering Practicals
9.	Mensuration	20.	Botany practicals
10.	Accounts & Office Procedure	21.	Tour, examinations & journal
11.	Forest Protection	22.	Quiz test

Figure 5 Syllabus for Social Forestry Component of Foresters' Course (from 1987)

1.	Introduction, terminology
2.	Need for social forestry, objectives and scope of social forestry
3.	Different components of social forestry: farm forestry, extension forestry, recreation forestry, afforestation of degraded forest
4.	Agro-silviculture, agroforestry, social security plantations, school forestry, urban forestry
5.	Afforestation of railway lines, high tension lines, canal banks, roadsides of different types of roads, major and minor irrigation tanks and ponds, degraded hillocks, C&D lands, saline and alkaline soils, sand dune stabilisation, Gomal lands; community planting — locality factors, method of soil preparation, choice of species and nursery and planting technique
6.	Raising of woodlots, windbreaks and shelter belts; tree crop husbandry
7.	Development of fodder blocks, and important fodder species (grasses and trees)
8.	Impact of social forestry on rural economy, employment and health
9.	Organisation and planning in implementation of social forestry
10.	Benefits of social forestry
11.	Methods of motivation, extension servicing to social forestry
12.	Concept of Pavitravana, Devarkadu, Nakshatravana, Rashivana, Navagrahavana
13.	Kissan nurseries
14.	Wood energy saving devices
15.	Re-using wood
16.	Non-consumable energies

The situation for motivators is different in a number of respects. They receive no formal pre-service training. At some time after appointment, they take part in a one week orientation course on social forestry held either at Tattihalla or at a new Social Forestry Training Centre at Kadugodi, on the outskirts of Bangalore. The content of this course covers a range of technical subjects (see Fig 6), with extension presented as a discrete topic in a one and a half hour session. The course is taught largely by visiting lecturers from various government departments and from the Universities of Agricultural Science at Dharwad and Bangalore. While this brings the motivators into direct contact with highly qualified experts, it makes it more difficult to integrate the subject matter in a way which would assist the participants in their future work. There is also a tendency for subject matter to be presented in an academic style: the session on extension is more likely to present motivators with a standard annotated list of extension methods and a standard model of the adoption and diffusion of innovations rather than a discussion of how one might establish an extension programme in a mandal. Some recognition is given to the fact that motivators already have some experience before coming to the course, by having sessions where participants talk about situations and problems they have faced in their work. At present, however, these are conducted as formal reporting sessions, rather than as an opportunity for sharing ideas on possible strategies for enhancing their work. This reflects the trainers' own lack of experience in social forestry work and their lack of exposure to learner centred and interactive modes of teaching and learning.

THE WAY AHEAD

The relevance of training to the new demands of social forestry can be improved in at least five areas:

Clarifying the Aims and Objectives of Training

The first step is to establish that the aims and objectives of initial training have changed. No longer is it sufficient for a new entrant into the Forester or Guard/FEW cadre to be technically competent and to have developed a prescribed set of attitudes towards the protection of trees and the pre-eminence of the Department's interest. The overriding aim is that trainees should be able to perform the tasks expected of them, whether they are posted to territorial or wildlife or social forestry duties. With both regular KFD staff and the motivators, a balance has to be struck between technical competence and knowledge, and human relations, communication and process skills. Motivators are called on to advise on species selection for farm forestry, and to give support to those who run local nurseries. To that

Figure 6 Social Forestry Orientation Course for Motivators, Forest Extension Workers, Progressive Farmers, etc. Tattihalla

Day 1	11.30	Introduction to and need for Social Forestry
	14.30	Nursery techniques, raising and maintaining different types of nurseries
	16.15	Vegetation pattern in Karnataka as a basis for tree planting raising different types of plantations, their techniques and maintenance
Day 2	9.30	Agroforestry, importance of windbreaks, shelterbelts, recommended species
	11.30	Watershed management and its relevance to social forestry
	14.30	Species for different soils and their economic benefits
	16.15	Wood saving devices
Day 3	9.30	How to organise extension works in the villages for rural development and motivation
	11.30	Micro-planning
	14.30-17.30	Practical knowledge about nurseries and plantations
Day 4	9.30-18.00	Field visits
Day 5	9.30	Silvipasture and its utility in social forestry
	10.45	Role of banks and voluntary organisations in the promotion of social forestry
	11.30	Discussions
	14.30	Feedback and valediction

Fig 7 Additional Areas of Content for Forester & Guard/FEW Training

A.	**RURAL SOCIETY AND SOCIAL FORESTRY**
•	Structure of rural society (economic and social differentiation, leadership, gender, family types, landholding pattern)
•	Problems facing rural communities, and alternative approaches to tackling them
•	Processes of social, technological & economic change at village level
•	Trees and tree products in the local economy, including a historical perspective—eg how the present situation has evolved, tree planting & management practices in the past and now
•	Gender issues in the use of trees and tree products
•	Rationale and objectives of social forestry - meeting local needs - reducing pressure on diminishing forest resources - boosting rural income earning possibilities
•	Planning and administrative structures and procedures at village, mandal and zilla parishad level
B.	**EXTENSION AND COMMUNICATION**
•	Nature and objectives of extension work
•	Planning extension programmes at village or mandal level
•	Directive and non-directive extension; the need for participation at all stages
•	Principles of communication (ie what it is, and how to do it effectively—basic principles)
•	Non-verbal communication
•	Listening and questioning skills
•	One-to-one communication, including: - training in a technical skill or operation - problem diagnosis/situation analysis on a client's farm - giving advice
•	Communication with and within groups, including: - situation analysis, problem census techniques - discussions (leading, guiding, summarising), within formal (Village Forest Committees) and informal settings - negotiation - micro-planning procedures - method and result demonstrations
•	Use of visual and audio-visual aids

extent at least they need some basic technical training. However, much of that can be provided by a period of attachment to KFD nurseries and plantations. The week long induction or introductory course could then concentrate on the other set of objectives. Given a clear statement of the duties each cadre is expected to perform, one could use the common classification of training outcomes — knowledge, attitudes and skills — as a basis for building up an agreed set of training objectives (see page 7, above). Clear objectives will, in turn, help in the selection of content and of methods.

Adjusting the Content of Training Curricula to give more Emphasis to Social and Extension Issues

An initial review of training objectives in KFD identified two main areas of content on the human and social aspects of forestry, the first of which is more concerned with knowledge and understanding, while there is a strong element of skills within the second. These are set out, together with a list of possible topics within each, in Fig 7.

The administrative separation of social forestry within the KFD is mirrored in the treatment of social forestry as a separate curriculum area. In future projects and programmes, such as the Western Ghats Forest and Environment Project, social forestry principles are likely to permeate the work of the whole Department. But even without this development, there is a strong case for integrating social forestry across the whole training curriculum. If it continues to be treated as a separate subject, within a curriculum based on the management of large scale natural forest and plantations, social forestry will continue to be seen as a departure from the norm rather than a fundamentally new way of approaching the development and utilisation of trees.

Using Social Forestry as a Cross-Curricular Theme rather than Treating it as a Discrete Topic

Accepting social forestry as an organising principle, as a major theme which should permeate the whole curriculum, would lead to a review of all course components within the initial training of Foresters and FEW/Forest Guards. All the subject areas listed in Fig 3 and Fig 4, for example, could be adjusted to give due emphasis to farm and community forestry. Forest engineering examples and practicals could be based on the requirements

within community plantations. The list of species discussed in the silvicultural systems component would need to include species which have not been at all significant in the management of either natural forest or KFD plantations. The notion of silvicultural requirements of a species would have to be adjusted to take account of social and economic demands for tree products. Similarly, the topic of forest protection takes on new dimensions in small plantations in populated areas, or in roadside planting, which are absent in traditional approaches to protection of large tracts of mature forest: the threats and the pressures are different both in nature and degree, and solutions must be sought through consensus and participation rather than policing.

Broadening the Repertoire of Training Methods

A fourth step is to review the teaching and learning methods used. The lecture mode dominates all classroom sessions at present. Information is delivered through the spoken word and via the blackboard (rarely through handouts); trainees are expected to record it and learn it. The reliance on lectures is understandable: it is how the trainers themselves were taught, and it seems efficient in terms of the amount of information presented to a relatively large group of trainees by a single trainer. Lectures have their place: they can be an effective means for achieving certain aims, such as exposing trainees to the relevant corpus of forest law, or offering a conceptual framework within which trainees can structure their understanding of new subject matter. Even here, however, learning would be enhanced by an element of interactive and self-directed learning activity: review exercises, for example, and case studies in which trainees are required to apply legal provisions to real situations.

There are two strands to the argument that a wider range of methods is needed. The first is that the lecture method is not appropriate to all the objectives of extension worker training. Trainees will not develop communication skills, or problem solving methodologies, or negotiation skills, by being told about them in a lecture. They will not learn how to draw up a plan for tree planting in an area from a formal presentation of the planning cycle. The second strand lies in the notion of the hidden curriculum: extension workers will tend to use training and communication approaches in their work that they experienced in their own training. If all their classroom experience has been of formal lectures, they will internalise a model of teaching and learning in which an expert delivers information to a set of recipients; they will tend to see themselves in relation to their

rural clients in a similar way to how they see their teachers in relation to themselves. The hidden message behind current training methods in KFD is that teacher-centred approaches are the most appropriate. This is diametrically opposed to the principles and rhetoric of social forestry, which begins with the local situation and local needs, of which the forestry extension workers will be much less informed than the rural people they work among. For both sets of reasons, then, trainees need to experience learner-centred, participatory training methods, in which the trainer is essentially a guide or a change agent rather than a dispenser of facts and knowledge.

A shift in training methods requires a change in the way in which resources are used, and suggests additions to the current range of resources and materials. This does not necessarily mean an investment in new technology, although a video would certainly be useful as a means of allowing trainees to see and learn from their performance in carrying out extension tasks, and provision of OHPs would enable trainers to prepare visual material beforehand and build up a stock of transparencies which could be left at the institution when the present incumbents are posted elsewhere. Even the humble blackboard can be used in a more interactive, participatory manner: trainees' contributions to a discussion can be written up, for evaluation and comment by others; or an analysis of a topic can be built up from trainees' responses to the trainers' questions.

In short, teaching and learning materials are needed which—

- draw participants into active collaboration
- exercise and stretch their problem solving and analytical skills
- acknowledge that participants have relevant knowledge and experience to bring to their training
- encourage them to apply the knowledge gained in training to real situations
- allow them to evaluate their own learning.

One type of material that meets these requirement is the case study, of the kind that has been developed for use within extension training at Reading (Wilson-Jones and Smithells, 1985). These are open-ended, short case

studies which present trainees with a situation and then pose a set of questions or problems for them to resolve. In doing so, the trainees will be using the information contained within the study and their own knowledge derived from previous training and from their field experience. At two workshops for trainers held in Karnataka in September 1990, it was shown that the use of case studies can—

- stimulate exchange of experience among participants
- encourage application of theoretical knowledge and procedures to the solution of problems based on real situations
- develop skills in social interaction, group discussion and cooperation
- acknowledge and use participants' own experience and knowledge as an important learning resource
- show that there is often no single 'correct' solution to problems in the field
- encourage participants to integrate different areas of knowledge in analyzing a complex situation.

In the same workshops, participants wrote case study material based on information gathered from short field visits (Garforth and Clarke, 1990, 9: 15ff); these case studies have been used in subsequent training activities.

There are already opportunities for a greater focus on social forestry in training and for more trainee-centred, interactive methods. Forester and FEW/Guard trainees have an extended field visit on their pre-service courses, of up to four weeks. They visit a wide range of forestry sites and activities, including community plantations, kissan nurseries and farm forestry. A requirement of the course is that they keep a detailed journal of their visit. This encourages them to analyze what they see and to relate it to what they have learnt, and the generally high quality of the journals testifies to the ability of the trainees. However, even when reporting on visits to social forestry sites, the journals are completely silent on social and extension issues. They analyze the technical aspects of these sites — species selected, layout in relation to topography, soil conservation — in considerable detail but have failed to ask questions about the process by

which the social forestry activity came to be undertaken. Who initiated the activity? What groups or categories of people in the community were involved? Through what stages did the discussions or negotiations go? What was the role of KFD in the whole process? Have there been any conflicts or differences of view over whether trees should be planted or how the produce should be distributed? What are people's attitudes towards the trees? In what ways has the management or husbandry of a community plantation been different from what would have been done in a commercial plantation?

Another opportunity exists with the induction courses for motivators. Here the participants have already been in post for some time — up to four years in some cases. They have a wealth of experience of field level extension. They have encountered difficulties and achieved successes. They have developed strategies for dealing with a variety of situations. The course could be an opportunity for them to analyze their experience, to compare it with others', to try out new approaches, to increase their confidence in dealing with the situations they face. The many years of combined experience which the participants bring could be regarded as the most valuable learning resource available to them. A course that gave due recognition to that resource would proceed through a series of student-centred activities, with tutors acting as resource persons, providing specific inputs of information as appropriate, but essentially playing the role of facilitators as participants pool their skills and insights in the completion of the task in hand.

The Training of Trainers

The challenge of adjusting content and developing new training methods and materials highlights the fifth requirement: training of the trainers. Although some of this training should be devoted to updating and enhancing knowledge in those subjects for which they will be responsible, the main need is for them to develop their own abilities and confidence as trainers. Developing a cadre of trainers or instructors is not really possible under the present arrangements for transfers and promotions within KFD; the relevance of postgraduate courses in teacher training is therefore limited. However a short induction course for staff who are posted to the KFD training institutions could be provided.

This need has been recognized by KFD. In the later years of the SFP, staff from the Social Forestry Wing have followed courses at UK institutions

with a strong emphasis on extension and training methodology — at Edinburgh and Reading Universities and at Wolverhampton Polytechnic. The benefit of this training, however, is spread throughout the Department rather than being concentrated in the training institutions. In the longer term, establishing a link with a teacher education institution within Karnataka would enable induction courses to be held on a regular basis for newly posted trainers.

CONCLUSION

Reviewing objectives, adjusting content, integrating social forestry and extension issues across the curriculum, developing more interactive and collaborative learning methods and the materials that go with them — these represent a fundamental change in the way KFD staff at all levels are prepared for their responsibilities. The recognition by KFD senior management that such a change is needed is an important step. Implementing the change will become easier as more senior officers are exposed to content and methods that are relevant to KFD's training objectives. As people-centred forestry increasingly permeates the work of the Department, so too must forestry training seek to develop skills in working with people as much as competence in dealing with trees.

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, CANADA

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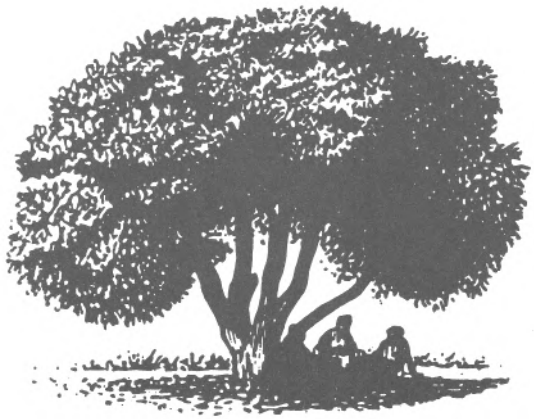

FROM THE FIELD
Shorter Contributions from Networkers

Robert V. Bishop
Czech Conroy
Donald Messerschmidt

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AGROFORESTRY OFFERS A PROMISING FUTURE

by

Robert V. Bishop

The Republic of Palau seems to be caught in an increasing dependence of imported items such as food and building materials. This has not always been the case. For thousands of years, Palauans were able to feed themselves in a sustainable way. They were healthy, active, lived long and cooperated to build large public projects. This changed upon contact with the western world.

This change quickly became apparent to me as Peace Corps Volunteer assigned to a farmers' cooperative. The cooperative sprung out of an ambitious experiment in homesteading. It had a history of production problems—uneven, either too much or too little, and limited selections. Most of the farmers were growing introduced vegetables, increasingly abandoning not only traditional crops but traditional and sound crop production practices. Analysis revealed those farmers which combined vegetables with tree crops had a higher and more steady income. So I began looking at ways of combining vegetables and tree crops in a more integrated way. I began this by relating Palauan mixed cropping practices with reading about other systems in other countries such as Indonesia, Philippines and Malaysia.

Apparently the indigenous system of agriculture knowledge is lost, slipping away or closely guarded. Traditional education was devalued, ignored and discouraged by formal educators. And younger people are increasingly disinterested in agriculture resulting in less opportunities to pass knowledge.

I was fortunate enough to have had the opportunity to observe some old abandoned villages on the west coast. It was noticeable that certain trees keep appearing near the stone platforms—like football fruit, some species

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Social Forestry Network Paper 12g (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

of Eugenia, Polynesian almond, and beetle-nut. Meeting houses, bathing places, residences, were often surrounded by useful trees. Moreover, there seemed to be more of a pattern or pairing of trees than today. Further mapping of these sites will yield more valuable information.

These trees were not just for food but also for medicine, ceremonies, magic and to tell times of the year and month, and possibly other cycles. As I mentioned, most of this knowledge seems to be slipping away. Some of this knowledge may be regained from documents of the foreign administrators. Spanish and German documentation seem particularly promising. Presently, I have arranged for two German students through the programme to translate some of these documents.

On the basis of this material we aim to interview some elderly people to verify, validate and hopefully expand the knowledge. It will provide us with a starting point to ask intelligent questions and mitigate some of the constraints of guarded knowledge and 'know-it-all'.

Palau's taro patch system, in my opinion, is a unique agroforestry system. Traditionally, it is tended by women and has been sustainable for hundreds of years. Although the system somehow differs from village to village, all the patches I have seen utilize trees/shrubs. Trees and bananas are planted or allowed to grow on the perimeter and footpaths between the patches. These trees are mainly used for green manure and mulching. But trees are also used for medicine (especially to stop bleeding), ceremonies, 'guava' for food, and sometimes 'telentund' (*Leucaena leucocephala*) for firewood.

The taro patch system may offer us an agroforestry system we can use as a model. It is generally easier to introduce new elements into a familiar system than to introduce a whole new system. Also it is easier to introduce elements from a familiar system into another. For instance, the element of green manure exists in the taro pattern system, introducing it to upland farms is made easier as it can be pointed out that it works in the taro patch. However, one constraint we face is that the knowledge of taro production is closely guarded, and generally past from mother to the most industrious daughter. On the whole the taro patch is reserved for women and based on my own experience it is physically the most demanding food production system in Palau.

My first experiment in agroforestry involved trying to halt the erosion on steps of a garden. I planted a single line of giant ipil (*Leucaena*) about 12

inches apart with a line of lemongrass below. The giant ipil did not halt the erosion and was no good for coppicing. However, the lemon grass, after it was established, stopped the erosion but did not improve the soil.

Fortunately, I had two important opportunities to improve my knowledge of agroforestry. The first was a study visit to the Philippines, sponsored by UNICEF, and the other a in-country agroforestry training course, sponsored by the United States Forest Service and the Republic of Palau.

In the Philippines, I visited the Sloping Agricultural Land Technology Project at the Baptists Rural Life Centre in Mindanao, and the World Neighbor's Soil and Water Conservation Project in Cebu. I learned the hands-on approach and brought back some treated seeds. To ensure survivability of the seed, I distributed half of it to the local experiment station. The introduced trees seem to grow faster than the local varieties. If resources become available, we would like to test this, as promoting familiar trees would be simpler.

At the local college—Micronesian Occupational College—we started a joint Sloping Agriculture Project focussing on terracing and alley-cropping trees. *Acacia villosa*, *Fleminga congesta*, and lemon grass were planted. They seem to be compatible with local conditions. *A. villosa* was preferred because it breaks down faster. However, experiments with pigeon pea resulted in its preference due to its fast growth and regrowth. We are encouraging the planting of at least two types of alley-crops, in case one crop is wiped out due to external factors such as pests. The experiment received favourable responses from students.

Our vision for the future is that we hope to develop an agroforestry system for the uplands, which builds upon traditional knowledge but also incorporates elements of other viable systems. We would first focus on fully utilizing the land around the house. Only when this land is fully under control would we recommend outward expansion. Tree crops would be the centre of the system in the initial years with food and cash crops spaced between the tree crop. As the tree crop matures, short-term cash crops may be phased out. In the wetlands, the taro patch system would hopefully be modified to include more green manure and food crops, thereby reducing time used in collecting and transporting green manure.

To achieve our vision of the future, we need not only concern ourselves with the technical aspects but also with the socio-economic aspects. We

have to encourage young people to participate actively in the family food production. We need to encourage self-sufficiency, empowerment and cultural identity. We need to return to traditional agriculture's promotion of social accountability and self-reliance and move away from the scientific agriculture's promotion of individualism and specialisation.

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THE CONTRIBUTION OF FARM FORESTRY TO RURAL LIVELIHOODS: A CASE STUDY FROM EASTERN GUJARAT

by
Czech Conroy

PHYSICAL, SOCIAL AND ECONOMIC CONDITIONS IN THE SURVEY AREA

The area selected for this research was the Panchmahals District of Gujarat State, India. The Sadguru Water and Development Foundation has been working in this District since 1976, in the two Talukas of Dahod and Jhalod. Tribals constitute 92% and 85% of the populations respectively in these Talukas, which are among the very poorest of the tribal areas of Gujarat (SWDF, 1989).

Nearly all of the tribal people are cultivators and the overwhelming majority own land. There is very little landlessness. The main crops are maize, paddy, wheat and gram. Most agriculture is rainfed, with irrigation covering only 4-10% of the cultivated land. Much of the area is hilly and only about half of the land is suitable for arable farming. As a result, most farmers are only able to grow one crop a year, and during the rest of the year there is heavy seasonal migration. There is no substantial off-farm employment in the area, and 50-70% of the working age population (women as well as men) migrate to other parts of Gujarat. The main types of work found are as labourers in building construction and road works in the cities of Baroda, Ahmedabad and Surat; and as agricultural labourers, mainly in Kheda District (Cohen, 1990:9).

The area used to be heavily forested. During the last few decades, however, the natural forests have gradually disappeared. Although twenty five per cent of the area is still classified as 'reserved forests', remote sensing has shown that only about three per cent of this land has tree

Social Forestry Network Paper 12g (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

cover. In many so-called forest areas an almost desert-like landscape exists, with not a tree to be seen for miles (Jagawat, 1988:2). Trees are also few and far between on privately owned land.

SWDF initiated a social forestry programme in 1982, encouraging tree planting as an appropriate land use system on private marginal land that was not well-suited to agriculture. Virtually all of the trees planted in 1982 and 1983 were Eucalyptus. Since then SWDF has encouraged participants to plant other species as well, but Eucalyptus remains the favourite species overall, for both men and women. The programme had expanded greatly by 1991, when 3,842 people from 16 villages were expected to plant four million seedlings (SWDF, 1991:13).

FUELWOOD

Before planting Eucalyptus villagers had relied primarily on dung as a fuel, but also on fuelwood collected from outside the village. Some had also bought fuelwood. In addition, agricultural residues were used, and still are, to some extent, but none of the villagers mentioned this as a source of fuel. In a survey of women in Shankerpura and three other villages, Grant (1989) found that people (primarily women and children) used to have to spend 6-8 hours every two or three days to collect 20 kg of fuelwood: mainly from forest lands as much as 10 km away.

All villagers in this survey area are now self-sufficient in fuelwood; but nearly all of them still use some dung to light the fire. They also use some dung every day during the crop-growing months to heat their plough blades so that they can sharpen them again. The large amount of dung that is no longer used as fuel is used as fertilizer instead—a positive externality (environmental and agricultural) arising from the social forestry programme.

MARKETING

It is clear that the situation in the two survey villages is markedly different from that found in certain other parts of Gujarat and elsewhere in India. The main reasons for this seem to be as follows.

The fact that Jhalod is only 10-11 km away from the two survey villages, and is frequently visited by villagers, makes it very easy for them to visit one of the wood traders to check prices: whereas small farmers elsewhere may be further away from organized wood markets.

Knowledge of market prices may be a necessary condition for obtaining a good price for trees, but it is not sufficient. If producers have to sell to middlemen they may be obliged to accept prices that are only a fraction of the market price, even if they know what the market price is. Two factors that have forced small farmers in other parts of India to sell to middlemen or retailers have been state regulations, and difficulty in finding buyers.

Regulations

One important difference between the survey area and other Indian states is that no permits are required in Gujarat for the felling or transit of three species of trees: Eucalyptus, Leucaena and Casuarina. Where permits are required small farmers tend to have difficulty in obtaining them, and this is one of the reasons why they sell to middlemen, at a low price, rather than directly to buyers.

In Uttar Pradesh, for example, farmers need to obtain a transit permit from the Forest Department, which in turn requires them to obtain a land ownership certificate from the Revenue Department (Saxena, 1990b:17). Saxena notes that "[f]ew farmers are able to get these certificates", and that they therefore sell the standing crop to a trader who 'deals' with the bureaucracy (ibid).

Shah (1988) noted a similar situation in West Bengal where "a plethora of rules, regulations, laws and procedural formalities ... [relating to the cutting and selling of trees] have to be completed before a transaction is finalized" (p 14). This stimulates 'rent-seeking' tendencies among traders who seek huge fees for these specialized services.

Finding Buyers

A second factor that has forced farmers elsewhere to sell to middlemen is the difficulty that they have had in finding buyers to whom they can sell their wood directly. In the survey villages, however, many buyers come directly to the producers during the season.

There are two possible explanations for this difference. One is the fact that there is a large market for Eucalyptus poles within the 'catchment' area (10-20 km) of the villages. The other is that there is a high probability of a buyer being able to find a seller in the two villages.

ATTITUDES TOWARD EUCALYPTUS AS A CROP

In various other parts of India many farmers have been bitterly disappointed with the benefits that they have derived from growing Eucalyptus, and a large proportion have stopped growing it and have reverted to annual crops instead (Haydock-Wilson and Trivedi, 1988:1; Saxena, 1990a:4). No such disillusion with Eucalyptus was found in the survey of farmers in Jhalod: indeed, Eucalyptus remains their favourite species. The reasons for this appear to be the following—

Firstly, most farmers in the other areas mentioned above had planted Eucalyptus primarily on good agricultural land where they had previously been growing annual crops. The opportunity cost, therefore, was the profit that they would have otherwise made on standard cropping cycles. Thus, they would only have been satisfied if the profit they made from Eucalyptus was greater than that which they had foregone. Nearly all the farmers working with SWDF, on the other hand, planted their trees on marginal land and on field boundaries. Thus, their opportunity cost was lower, and almost zero in some cases.

Secondly, most of the other farmers, especially large farmers, had undertaken farm forestry primarily as an income-generating activity (FAO, 1986; Saxena, 1990a:7; Saxena, 1990b:2-3). In contrast, farmers in the survey villages planted trees as much for direct use as for sale.

Thirdly, farmers elsewhere in India had unrealistically high expectations of the prices that they would get for their wood (see, for example, Saxena, 1990b:14). Farmers in the survey villages, it seems, did not have such unrealistic expectations, and hence have not been disappointed. Related to this is the fact that the planting of Eucalyptus in the Panchmahals District as a whole has been far less intense than in certain other parts of India, and hence the local market for poles has not been saturated. Saturation might yet occur, of course, but people interviewed by the author, including an official of the Gujarat Forestry Department, thought this unlikely.

Fourth, poor farmers in other parts of India have had difficulty in marketing their wood, whereas those in Shankerpura and Gamdi have not.

Fifth, in some areas the growing of Eucalyptus has resulted in technological externalities, such as lower water tables and reductions in yields of annual crops adjacent to Eucalyptus plantations (Saxena, 1990a:16-17; 1990b:14). Such externalities are barely present, if at all, in the survey villages. The water table has risen in the area due to the construction of check dams to capture a greater proportion of rainwater and recharge the groundwater. The reason that yields of annual crops adjacent to eucalypts have not declined may be that any removal of nutrients by the eucalypts has been counterbalanced by increased applications of fertilizer. These increased applications have been made possible largely because Eucalyptus has replaced dung as a rule, enabling farmers to use the dung as fertilizer instead.

SUMMARY

This study has shown that trees play several important roles for the people surveyed. They are used directly for various purposes, primarily for fuelwood, house construction, and making agricultural implements. They are also sold, providing a valuable additional source of income for these poor people, and often used as insurance substitutes.

Nearly all of the people interviewed had also used some of their trees for renovating and extending their existing houses and/or constructing new ones. If they had not had their own wood they estimated that they would have had to spend Rs 17,370 on average to purchase an equivalent amount.

As a result of SWDF's social forestry programme all households have become self-sufficient in fuelwood, which has given rise to two major benefits. First, people (especially women and children) no longer have to spend large amounts of their time collecting fuelwood and dung, often over several kilometres; and second, this has released large amounts of dung for use as a fertilizer so that soil nutrients are maintained.

Finally, nearly all respondents had used their trees to make ploughs, yokes and samars, their main agricultural implements. Although less wood was required for this purpose than for the other two, they regarded this as the most important direct use of their trees.

As well as using their trees directly in various ways, people have been able to sell them, thereby obtaining a significant new source of income—a mean income of Rs 6,085 per household. This income is spent on a wide range of things, both consumption (eg food and clothes) and investment (eg bullocks, jewellery), and has enabled households to increase their assets and improve their standard of living.

This study has also shown that the absence of an insurance market, combined with imperfections in the credit market, has forced people to rely primarily on the sale and mortgaging of assets as their insurance substitutes. Various options are used, but the sale of trees was the one cited most frequently. When respondents were asked to rank loans and assets as options for coping with contingencies, the sale of trees was the only option mentioned by all of them, and they all gave it as either their first or second choice. On the basis of both of these criteria, it is clear that trees have become their most important option for dealing with contingencies.

This is quite a remarkable change, given that the farmers only started planing trees on a large scale in 1982 and 1983. Partly because of the trees and partly because of other improvements to their standard of living, the less favoured insurance substitutes, such as land sales and seasonal migration, appear to have largely ceased.

POLICY IMPLICATIONS

The marketing situation, in which the small farmers interviewed are selling their trees directly to buyers, at reasonable prices, is different from that found anywhere else in India, as far as the author is aware. The usual situation is one of the producers selling to intermediaries at a fraction of the market price.

There can be little doubt that one important factor in the survey area is the absence of state regulations on the cutting and transit of Eucalyptus trees, which has helped to avoid the kind of exploitative, rent-seeking behaviour by middlemen that occurs in other Indian states. This finding supports the case (see, for example, Chambers et al, 1989:195; Saxena, 1990a:34) for the rescinding of such regulations in other states.

Eucalyptus is the most widely used tree, and is still the tribals' favourite species overall. It does not seem to have given rise to the negative

environmental and agricultural externalities that have been experienced elsewhere; nor has there been a collapse in the markets for its products. These findings show that Eucalyptus can be a very beneficial species for poor farmers in certain circumstances. It would be unfortunate, therefore, if government agencies in India sought to discourage its use indiscriminately on the basis of ill-founded generalisations about its harmful effects.

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Acknowledgments

I would like to thank Mr and Mrs **Jagawat**, of the Sadguru Water and Development Foundation for their support and for sharing their extensive knowledge of the local people with me. I would also like to thank **Beena Jagdishchandra Shukla** for being such a good interpreter, **Ajay Kumar Pandey** for briefing me on forestry aspects, and the rest of the SWDF staff for making me feel welcome, **Dalpatbhai Noorjibhai Damor** for the information he supplied and **Savsingbhai Mitiyabhai Damor** for organizing most of the interviews.

I would also like to thank **Robert Chambers, Melissa Leach, Simon Rietbergen** and **N C Saxena** for their valuable comments on the report, **Gill Shepherd** for her advice, and **Richard Palmer-Jones** who supervised the dissertation on which the report is based.

Finally, this study would not have been possible without a Travel and Study Award from the **Aga Khan Foundation**, to whom I am extremely grateful.

INTRODUCTION TO A COMPARATIVE STUDY OF FOREST USER GROUPS IN NEPAL

by
Donald Messerschmidt

The Yale University/Institute of Forestry Project in Nepal has recently begun comprehensive research on forest user groups. This short article describes the project's ongoing research on user groups in support of national forestry development and improvement in the institute's community forestry curriculum.

PURPOSES OF THE STUDY

The purpose of the IOF forest user group study—the first of its kind on a national scale—is to:

1. Examine the many examples and processes by which forest user groups are mobilized, organized and supported by government foresters, donor assisted projects and NGOs.

2. Identify indicators or factors that foster 'success' of forest user group development in different contexts.

3. Provide findings of fact and recommendations to guide future forest user group development by government field foresters, project staff and NGOs.

4. Provide new, more relevant and timely materials to IOF faculty for improving the community forestry curriculum as taught to IOF students at the Ranger and Officer level, and to government department and project in-service and community forestry orientation training programmes.

Social Forestry Network Paper 12g (ODI, Regent's College, Regent's Park, London) Summer/Winter 1991.

RESEARCH METHODS: RAPID APPRAISAL

The five member interdisciplinary team is using the processual RA approach devised at Khon Kaen University, Thailand (KKU 1987). This research methodology relies on sets of protocols agreed upon by the team for field work planning, local rapport building, group interviewing and team debriefing. The heart of the research system in the field is a series of semi-structured interviews with villagers (the forest users and local managers) and with district, project and NGO forestry staff. Interviews are combined with a variety of rapid diagnostic tools (RDT) and other observational techniques which allow the villagers to participate actively in the research. Data analysis is enhanced in the field by team debriefings in which the team members organized their notes and related them to a pre-determined, but flexible, matrix of topics and indicators. Further debriefings are held at critical junctures during the research cycle, such as at the end of project site or district tours.

The researchers are attempting to define 'success' in terms of the **cost-effectiveness** of the effort (time, energy and budget), **replicability** (spread effect) and long-term **sustainability** of user group development styles, after donor assistance is over. Much of what we count as 'success' relates to local **user satisfaction** with the results and with the condition of the resource over time. The researchers examine these issues from many sides by using the time tested RA methods of 'triangulation', examining an issue from several perspectives at different times, in various settings, and 'probing', asking in-depth questions about topics important to the subject. The old style survey questionnaire format is avoided.

As background to the field interviews, but mostly in debriefings, the researchers analyze their findings according to four indicator categories (Parker *et al*, 1988)[1].

1. **Institutional** Relating to the process of user group mobilisation, formation and continuing support.

[1] We have borrowed and adapted Parker's evaluation matrix (1988:21, Table 2) to our own need for rating and ranking forest user groups.

2. **Social** Residence patterns, community organisation and history. To include information about leadership patterns and history of forest use, abuse and management.

3. **Economic** Incentives which support forest protection and restricted access management. Analysis of pressures on the forest that affect management. Impact of nearby markets, urban areas and roads on management options. Analysis of whether such economic factors serve as incentives or disincentives to user-managed forestry.

4. **Technical** —including legal aspects. Analysis of the nature of the forest, its species, condition and the existence of both scientific silvicultural prescriptions and indigenous technical knowledge about management. For example, is there a management plan? Does it include legal rules as well as management prescriptions? Did villagers help to write it?

SOME TENTATIVE FINDINGS

It is too early to give concrete findings or suggest fully-formed recommendations, but several very tentative notions are beginning to emerge, some of which appear self-evident. For example, 'successful' forest user group development seems to be strongly correlated with:

- The pre-existence of an indigenous or traditional forest management system in the community
- Good representative leadership that fosters user participation in, and satisfaction with, decision-making
- Strong local feelings of forest resource 'ownership' and pride
- Homogeneity of values and desires regarding forest management, products and benefits. Socio-cultural homogeneity of a community may also play an important role.

An additional and interesting finding is beginning to emerge that the place and role of women and of lower castes on local forest management committees appears in some communities to be an important indicator of the maturity, strength and success of the user group. The involvement of these typically much-seen but little-heard from categories of people, who are often the principal forest product harvesters and users, seems to increase in direct relationship to the maturity (age, condition and productivity) of the resource base and the concomitant increase and sophistication of the group's management needs and options.

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This issue of the Social Forestry Network is funded by the INTERNATIONAL DEVELOPMENT RESEARCH CENTRE — IDRC, CANADA