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COLLECTIVE MANAGEMENT OF HILL FORESTS IN NEPAL:
THE COMMUNITY FORESTRY DEVELOPMENT PROJECT

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INTRODUCTION

The forests, and the products of these forests, have always been of central importance to life in the middle hills of Nepal, a region where villagers are unusually isolated, even today, by the terrain. Fuel and timber production, fodder supplies and tree litter for composting are but the most important of the outputs which require continued existence of forests and forest trees. The rapid reduction in forest cover that has accompanied the pressures of an expanding population on the land base has resulted not only in growing shortages in such important inputs to the household and rural economy, but also in widespread soil erosion, flooding and damage.

Early attempts by the central government to halt this deteriorating trend were based on measures to bring all forest land under government control. In the late 1970s, however, this was reversed in a vigorous new initiative designed instead to enable, encourage and support local level control, management and creation of forest resources. In doing so, the government hoped to be able to build upon the tradition of communal management of forests, and of other resources and activities, among the peoples of the middle hills.

In those parts of the hill zone where there are integrated area development projects, this new approach to forest management is being pursued through these projects. In the rest of the hills and mountainous region zone, about one half of it, the new approach is being developed through a project of the Community Forestry Afforestation Division of the Forest Department in the Ministry of Forests--the Community Forestry Development Project.

The present paper reports on progress made in initiating and institutionalizing communal forestry in the hill areas through this project, which is supported by technical assistance from the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Development Programme (UNDP) and by a loan from the World Bank (IDA). During the initial phase covered here, the project has been operating in 400 panchayats in 29 administrative districts, spread throughout the middle hill areas of the four regions of the country (see Map).

The subject of the paper is therefore not a case study in the usual sense of the term. Its focus is not on a single population group, or a small number of groups. Instead, it encompasses an initiative by a government to provide a widely applicable framework for developing productive local forest management systems suited to present needs, which would build upon local traditions and practices for forest resource management.

The newness of this initiative needs to be underlined at the outset. The project became operational less than five years ago, and its early years were devoted to evolving and setting in place the necessary

institutional and physical infrastructure. Transfer of forests to local control only began to take place on a substantial scale in 1983/84. What can be reported on here is thus necessarily confined to the experience gained in the initial formative stage of this potentially very large and far-reaching attempt to establish a sound, sustainable system of common property resource management.

HISTORICAL BACKGROUND

The Forest Resource

The hill areas of Nepal contain an unusually wide variety of forest types, reflecting both the wide variations in altitude, climate and terrain, and the fact that the botanic zones of the eastern and western Himalayas meet and merge within the country. Stainton (1972) identifies 6 zones, 13 sub-zones, and 77 forest types. In general, within the range of altitudes which are populated, fir and oak predominate at higher altitudes, gradually giving way to chir pine, and species of Prunus, Castanopsis, Schima and Alnus at medium elevations and sal (Shorea robusta) at lower elevations.

The natural diversity of the forests has been further modified by prolonged and often heavy local human intervention--which varies considerably both in intensity and purpose from one area of the hills to another. In the East, for example, pressures on the forest have been heavier than in the West. Different mixes of products drawn from the

forest reflect variations in such factors as the role and management of animal husbandry, type of house construction, and product preferences.

Changing Patterns of Use of the Forests

The agricultural economy of Nepal has always depended on the farmer's use of a variety of complex economic strategies to exploit the available natural resources. While the principal source of income has always been crop production from arable land, the need for manure and draft animals as well as the need for additional income through the sale of livestock products has meant that the farmer has always depended heavily on fodder for livestock and forest products for fuelwood, compost materials, construction, cottage industry, food, ritual materials, etc.

Thus, forest and pasture land resources have traditionally been an indispensable component of the subsistence systems used by Nepalese farmers to maintain their livelihood. So long as there was (and in many parts of Nepal there still is) a relative abundance of these natural resources, the traditional methods of exploiting these resources did not pose a severe problem. The management systems controlling the use of these resources were thus primarily concerned with rights of ownership, protection and distribution of benefits.

Many villages of Nepal had systems in which forests and pasture lands were considered community property (such as the kipat system in eastern Nepal) that could only be used by noncommunity members through

payment of fees or other commodities. Likewise, many villages (such as in the Far West) had, and have, communal systems of gathering and harvesting that ensured fairly equal distribution and ease of access of products such as fodder, composting materials, etc. Some communities, like the Sherpas in Khumbu, even had strict rationing systems to control the use of construction timber since trees regenerated so slowly in their high altitude ecosystem. In addition, a tradition of temple and monastery forests ensured that there was no cutting of trees growing near religious structures except for religious purposes. However, for most of the Nepalese hills, the main factor that limited the amount of deforestation was the relatively small population and the lack of any commercial exploitation. In these demographic conditions, it was labor and not resources that limited agricultural productivity (Campbell, 1978).

In hill areas of Nepal, agricultural production has been constrained by the lack of good arable land, limited availability of irrigation water, little organic fertilizer, and the high intensity of labour required to terrace fields, build irrigation channels, and transport manure composts. Under these conditions, a farmer could only intensively cultivate a few fields. This meant that where possible the average farmer supplemented his main production with labor efficient methods such as slash and burn agriculture in forest lands. In fact, it is clear that many poorer farmers who did not have access to any irrigated lands used this method extensively, as did some hunter-gatherers (e.g., the Chepang and Raji) and some high altitude pastoralists (e.g., Gurungs and the Pabai of the Far West). Since these

field were cultivated for only one or two years, they usually remained unregistered and therefore untaxed. Many communities in Nepal allowed their own members to cultivate as many of these fields as they could physically manage. Similarly, extensive herding of cattle and sheep in forest and alpine areas was carried out. Again, so long as the population was small and resources exceeded the amount of labor available to exploit them, this kind of extensive agriculture and grazing did not product severe ecological repercussions since the fields could be left fallow to regenerate naturally and the carrying capacity for grazing was not exceeded.

As the population dramatically increased from 1850 to the present the resources-to-labor equation reversed, such that throughout most of Nepal at present land rather than labor has become the limiting factor. This has resulted in a shift to more intensive farming in which most cultivation is carried out on terraced fields. It has also resulted in a reduction in the number of livestock per family and a shift from cattle to buffaloes, sheep to goats. While these agricultural trends are ecologically beneficial, they are unfortunately offset by the increasing use of marginal lands for cultivation without sufficient fallowing, and by the continuing practice of a number of economic strategies for utilizing forest and pasture resources which considerably exceed the carrying capacity of the environment.

The pressures on their resource base which are now so pronounced in much of the hill areas are thus of relatively recent origin. In large part, although there are important exceptions and the rate of degradation varies enormously, people are only now becoming exposed to these

changes and their consequences on a scale which puts pressures on them to adapt their practices to the new situation. Under these circumstances it is hardly surprising that communities have not evolved widespread methods of resource conservation of common lands which are able to withstand present pressures.

Forest Legislation

In 1957 the government nationalized all nonregistered forest and waste land in an attempt to curb the process of deforestation and forest degradation, and to put forest under more active management in order to increase its productivity in face of growing demands for fuel and fodder and other forest products. Under the Forest Act of 1961 the definition of forest land was extended to include all land adjoining forest areas and left fallow for two years (Manandhar, 1982).

The desirable objectives of this move proved very difficult to implement. Effective government supervision of thousands of patches of forest scattered through remote hill terrain, accessible only with extreme difficulty, turned out to be not possible. Regulations which required people to obtain permits from forest rangers to collect each load of firewood, and written agreement from a distant Forest Office (at times over two days walk away) for house timber, were difficult for households to obey and nearly impossible for the authorities to enforce. Consequently, in most places people had unavoidably to resort to technically illegal collection of forest produce.

At the same time, nationalization initially had the unforeseen effect of further weakening existing forest conservation and management. Where previously communities sought to protect local forest resources against exploitation by outsiders through their traditional management systems, now they had no legal authority to exercise in order to do so. Furthermore, they now tended to view the forests as government property rather than their own, which seriously eroded motivation to protect local forest resources. Thus, nationalization apparently inadvertently "hastened the process of deforestation" (Manandhar). Ironically, this alienation of official control also led some communities to intensify protection of their forests from the depredation of outsiders-- including, at times, the forest department itself.

The forest legislation also tended to weaken the understanding of hill forestry as a component of hill agricultural systems. For example, the regulations specifying that any field left fallow for two years could be alienated by the state discouraged fallowing.

In recognition of these negative consequences of the existing legislation, in 1978 the Government took a radically different initiative, and promulgated new regulations to enable substantial amounts of public forest land to be handed over to local communities to control and manage. Under these regulations the Forest Department could enter into agreements to transfer forest to village panchayats. The village panchayat, which is the lowest level of political and administrative unit, comprises nine wards usually encompassing several villages with a total population of 2,000 to 4,000 persons, and is composed of elected representatives from the constituent wards. These in turn elect a

chairman, the Pradhan Panch. The village panchayat is the principal mechanism through which local development activities and funds are channeled.

The 1978 Panchayat Forest and Panchayat Protected Forest Rules (as amended in 1980) define the categories of forest which could be transferred to local community control as follows:

- (a) Panchayat Forest: "Any governmental forest area or any part thereof, which has been rendered waste or contains only stumps, may be entrusted by His Majesty's Government to any village Panchayat on prescribed terms and conditions for reforestation in the interest of the village community, and such forests shall be called Panchayat Forests."
- (b) Panchayat Protected Forests: "Governmental forests in any area or part thereof may be entrusted by His Majesty's Government to any local Panchayat on prescribed terms and conditions for the purpose of protection and proper management, and such forests shall be called Panchayat-Protected Forests."

The new law also made provision for the establishment of Religious Forests to be managed by temple trusts, and for Contract Forests which could be awarded to either individuals or groups.

Up to approximately 125 hectares of bare land could be handed over to each panchayat for afforestation to create a Panchayat Forest, and up to approximately 500 hectares of existing forest for management by the panchayat as a Panchayat Protected Forest. It has been estimated

that, provided sufficient forest land is available in each panchayat, a theoretical maximum 1,835,000 hectares can be handed over in this way amounting to almost 45 percent of the existing state forest area (Manandhar).

NATURE OF THE RESOURCE: PEOPLE-FOREST RELATIONSHIPS

Introduction

Early in 1982, a wide ranging survey was carried out to provide information about prevailing patterns of forest resource use, particularly fuelwood and fodder, in relation to local farming systems in different regions of the country, for use in the design and implementation of the Community Forestry Development Project. Information was collected from a sample of 900 households and 180 ward leaders, with the random sample stratified equally between the four regions in which the project is operated, and further subdivided by the length of time the panchayats had participated in the program. Important features of the people-forest relationship which emerged can be summarized as follows:²

Dependence on Supplies from Public Forests

Fuelwood. Mean annual fuelwood consumption was found to be 640 kg per capita, varying considerably by region and source. The consumption

level of the Central region was only half that in the East, with use in the other two regions lying in between (Table 1). Cost was an important determinant of consumption. In the East only one-third of the fuelwood came from public forests, while this source accounted for over three-quarters of supply in the Far West. On average, 360 kg of per capita fuelwood consumption was coming from public forests, which thus provided just over half of total fuelwood supplies. With growing fuelwood shortages, more agricultural residues were used for fuel--but very little dung except in the Kathmandu Valley and the Terai. Kerosene was used almost exclusively only for lighting, and was thus not an alternative to fuelwood.

Fodder. Livestock feed was reported everywhere to be insufficient, with an average of four months of shortage, peaking in March-April. Of the 60 percent or so households who owned large animals, three-quarters grazed their cattle for much of the year while two-fifths grazed their female buffalo--stall feeding accounting for the rest of the feed supplies. Of the hand harvested feed, which was the main source for most households, 17 percent was tree fodder. Of this, less than a quarter was reported to come from public forest--with only one-third of households using public forest for tree fodder at all.

Other products. Timber and poles for building (and bamboo in the East) and land harvested grass for fodder were important additional forest

TABLE 1 Fuelwood Consumption by Source of Supply

<u>Variable</u>	<u>Value</u>	<u>East</u>	<u>Center</u>	<u>West</u>	<u>Far West</u>	<u>Project*</u>	<u>Hill NEPAL*</u>
Kg/Household	mean	4,966	3,198	4,472	3,926	4,126	4,074
	median	4,329	2,600	3,900	2,808	3,444	3,355
Kg/Capita	mean	829	484	743	548	656	640
Kg/Public Forest -Percentage	mean	273	234	377	436	327	328
	mean	33	48	51	80	51	53
Kg/Private -Percentage	mean	205	62	113	27	103	97
	mean	25	13	15	5	15	14
Kg/Twigs & Bushes -Percentage	mean	298	129	251	64	195	181
	mean	36	27	34	12	29	27
Kg/Purchased -Percentage	mean	54	58	2	19	31	33
	mean	7	12	0	4	5	6

SOURCE: Campbell and Bhattarai

products, followed by green matter for livestock bedding and compost. Usage of products such as forest vegetables, fruits and herbs was very low, though the proportion of households using some amount is probably quite high.

Thirty-six percent of the ward leaders reported the existence of some form of collective system for protecting an area or areas of local public forest. More than half of these had come into existence since the 1957 nationalization of forests, indicating a strong continuing interest in communal solutions to forest-related issues, despite nationalization.

Management systems seem to have developed in areas where some shortage of fuel and fodder had emerged, but not where the shortages have reached the point that they could no longer be met from the remaining resource even if it would be managed more effectively. Commitment to management was found to be much greater where villagers have access to forest rich in desired species, such as sal (Shorea robusta) or Oak. Where the forest contained species that are less sought after for fuel and fodder, e.g., chir pine (Pinus roxburghii), villagers are much less willing to adopt the harvesting restrictions necessary to preserve the resource.

The finding that little fodder comes from public forests contrasts with earlier assessments, and with the apparent importance of tree fodder use in explaining past trends. However, it is consistent with two other findings from the survey--that livestock numbers are decreasing in the majority of villages, and that private tree fodder sources are of increasing importance. Private planting of fodder trees was the most frequent response given when villages were asked what method for overcoming fodder shortages they would suggest (by contrast only 7 percent proposed planting fodder trees on public land). Apparently, as public sources of fodder have diminished over the last half century, there has been a major shift to stall feeding and private fodder trees (Campbell and Bhattarai).

Private Tree Growing

Each household was found to own an average 28 trees of various kinds, and 31 seedlings under 5 years of age. Ownership was highest in the Western and Eastern regions. Three quarters of all households own some fodder or fuel/timber trees. Although, as is shown in Table 2, the numbers of both these kinds of trees are roughly equal, the greater importance of fodder trees is reflected in their wider distribution (65 percent of households compared with 36 percent with fuel/timber trees), and their prominence along with fruit trees in people's preferences for additional trees.

Natural regeneration accounts for most fuel/timber seedlings and half of fodder seedlings. Most of the rest are acquired by transplanting naturally occurring seedlings either from elsewhere on the owner's land or from the forest. Nurseries were found to be beginning to contribute to supplies, particularly of fruit, bamboo and particular fodder species which were not readily obtained from natural regeneration. On average, households expressed a wish for an additional 30 trees. Clear species preferences are evident, involving a large range of species across the different regions and uses.

The 1982 survey thus disclosed a number of factors of considerable importance to the design and implementation of a program designed to encourage and support collective management of local forest resources. Private trees are an important source of supplies of forest products--the predominant source for some outputs, notably tree fodder. Public forests remain the main source of other products, such as timber, and

TABLE 2 Private Tree Ownership by Region

<u>Type</u>	<u>East</u>	<u>Center</u>	<u>West</u>	<u>Far West</u>	<u>Hill Nepal</u>
Fodder	13.5	9.4	16.7	8.6	12.1
Fuel/Timber	12.8	9.2	17.8	7.4	11.9
Fruit	2.2	2.2	1.6	3.9	2.4
Bamboo clumps	5.3	.9	1.3	.03	1.7
<hr/>					
Total Trees	33.8	21.7	37.4	20.0	<u>28.1</u>
Total Seedlings	53.0	27.0	36.0	10.0	<u>30.8</u>

SOURCE: Campbell and Bhattarai

overall continue to be the mainstay of forest-based activities. Despite the earlier nationalization of the forests, there continues to be widespread interest and willingness to take collective action to maintain remaining forest resources--and to extend them; 85 percent of those surveyed were prepared to make common grazing lands available for tree planting. The basis for strengthened local forest management remains very much alive in the existing systems.

DECISION MAKING ARRANGEMENTS

Pre-Existing Local Forest Management Systems³

The size and geographical proximity of the user group is very important in ensuring cooperation in forest management. Common forest

use by adjoining villages and households was found to create strong group cohesion, even where groups are multicasite in composition. In all the forest management systems surveyed, areas of forest are managed by a group comprised of just those households that traditionally use that area for fuel, fodder, or composting material. The management entity is thus almost always much smaller than the panchayat, and sometimes cuts across panchayat boundaries.

Group rules governing management of the forest differ considerably between groups. The basis for group rules used in various traditional management systems are listed in Table 3. In general, they protect forests and control use by limiting access to the forest to certain periods, in order to permit its protection and regeneration through closure during the rest of the year. Different groups vary in their decision regarding the length of time during which the forest would be open to member villagers for specified product collection, the number of times in the year collection would be permitted and when these times would be. These differences reflect the villagers' perception of the extent to which the forest could be safely subject to cutting and collection. As has been noted already, effective management systems are to be found only in those areas where enough accessible forest remains to enable villagers to meet their fuel or fodder needs through this system of limiting access and harvesting to only specified periods.

Systems of spatial control have also been adopted in some traditional management situations. Within these systems, areas are delineated which can be harvested at the specified period. Sometimes these systems cover the whole resource over the period of one season, and

TABLE 3 Control Systems Used in Traditional Forest Management

<u>Basis of Group Rules</u>	<u>Examples</u>
1. Harvesting Only Selected Products and Species	<ul style="list-style-type: none">- Trees: timber, fuelwood, food (fruit, nuts, seeds, honey), leaf fodder, fibre, leaf mulch, other minor forest products (gums, resins, dyes, liquor, plate leaves, etc.)- Grass: fodder, thatching, rope- Other Wild Plants: medicinal herbs, food (tubers, etc.), bamboos, etc.- Other Cultivated Plants: upland crops (maize, millet, wheat, potatoes, vegetables), fruit, etc.- Wildlife: animals, birds, bees, other insects, etc.
2. Harvesting According to Condition of Product	<ul style="list-style-type: none">- Stage of growth, maturity, alive or dead- Size, shape- Plant density, spacing- Season (flowering, leaves fallen, etc.)- Part: branch, stem, shoot, flower
3. Limiting Amount of Product	<ul style="list-style-type: none">- By Time: by season, by days, by year, by several years- By Quantity: number of trees, headloads, baskets, number of animals--By Tool: sickles, saws, axes- By Area: zoning, blocks, types of terrain, altitude- By Payment: cash, kind, food or liquor to watchers or village, manure- By Agency: women, children, hired labor, contractor, type of animal
4. Using Social Means for Protecting Area	<ul style="list-style-type: none">- By Watcher: paid in grains or cash- By Rotational Guard Duty- By Voluntary Group Action- By Making Use of Herders Mandatory

their main function is to ensure that all members of the community have equal ease of access to both the nearby and more distant areas. In other cases, a rotational system is used which allows a particular resource, such as fuelwood, to regrow before it is again harvested.

In most of the villages with effective management systems, forest watchers are employed by the user group to help discourage breaches of the management rules. These watchers are paid in grain by every household except the most poor. The effectiveness of the forest watchers varies with the strength of social sanctions against forest encroachment, though each village has some system of fines for villagers who enter the forest illegally. Villagers were found to be generally quite willing to pay the forest watchers with household grain, but generally expressed reservations about increasing the number of watchers, and hence the burden on households, should the area of communal forest be increased.

Most traditional management systems tend to be very conservative, allowing access only to a few products. If the amount of a resource is too small to be adequately shared, or if the community perceives that it may be difficult to control the harvest if it is opened, communities prefer to stop collection of the resource altogether. For example, in an oak forest managed for leaf litter, all cutting of fuelwood will be banned, even though some trees are over mature or unproductive.

Where there is or has been a strong leader in the locality, this was found to have been important in starting management systems. However, willingness to participate in a cooperative forest management system generally rests mainly on motivation arising from growing

shortages of fuel, fodder, and composting material as forest resources diminish. Awareness of the problems created by deforestation is widespread and well understood. However, there was found to be considerable variation in villagers' perceptions of the prospects that remedial action could be undertaken, or if undertaken would be successful.

Deterrents to successful cooperation in favor of forest management include local factionalism, where opposing factions seek to extend their power base by discrediting a forest management initiative by an opposing faction. Where factions compete to be seen as more progressive in their approach to forestry the reverse could be the case.

Proximity to markets for forest fuel products also tends to undermine management. Where firewood could be sold nearby by high prices, it is hard to prevent poaching, which makes forest management particularly difficult in panchayats near market centers.

Conflicts between livestock and forest management are perhaps the most common constraint. Meeting fodder requirements is a main objective of traditional forest management, but grazing is one of the principal causes of degradation of forest through the prevention of natural regeneration. The most effective systems of forest management were found to be in areas where animals are largely stall-fed or under the supervision of herders throughout the year.

In addition, access to forest resources was found to differ markedly with location. The poorer members of the village tend to live in the higher and more remote parts of the village, and consequently are likely to depend more on forest grazing and slash and burn agriculture to survive.

Though existing forest management systems, varying as widely as they do in their form and effectiveness, are not in themselves adapted to the more intensive management needed now, their functioning in a specific area can provide important information about needs to be addressed and about particular constraints that need to be accommodated.

As has been noted elsewhere, "the most important lessons to be learned from traditional management systems are that community management of forest resources is possible if the right social unit is self-selected, the objectives are widely understood, and the benefits equitably distributed. In addition, the principles of social control and product distribution encoded in these traditional systems can be successfully incorporated in expanded management programmes." (Pelinck and Campbell, undated.)

The Community Forestry Development Project

Introduction

The project was established to help the Ministry of Forests, through the Community Forestry Afforestation Division of its Forest Department, support the three main elements of local management of forest resources: managed Panchayat Protected Forests (PPF), planting of Panchayat Forests (PF), and production of seedlings for private planting. In addition, it was to develop and distribute more efficient wood fuel stoves, in order to help people who are short of fuelwood.

This program was to be achieved through the establishment of forest nurseries in all participating panchayats, the financing and training of locally recruited Panchayat Forest Foremen to run the nurseries and Panchayat Forest Watchers to help protect the plantations and managed forests on behalf of the panchayat (in keeping with the tradition of forest watchers in many existing local forest management systems), and the establishment and deployment of a new cadre of forestry staff, Community Forestry Assistants (CFA), to provide technical assistance and advice at the panchayat and village level. An important function of the latter is to help panchayats carry out much of the preparatory work needed to have public lands handed over to them as Panchayat Forests and Panchayat Protected Forests.

In addition, the project was to help build up the necessary institutional base to service and support this infrastructure. As well as providing training for forest service field staff and panchayat workers, the project has developed a system of information and extension materials for communication and training at the village level, a system of field trials to provide basic technical information on choice of species and forest management prescriptions, and a monitoring and evaluation network to provide a rapid feedback of information about both physical performance of such project activities as nursery production and plantation establishment, and also about people's needs for project inputs and their responses to what it is delivering.

During its first five years (1980-85) the project was to extend its operations to 340 panchayats in 29 hill districts. Physical progress has been generally on schedule. By July 1984 the project was working

in 381 panchayats and had 430 nurseries operational. Over 8,000 hectares of Panchayat Forest had been planted, more than 1.5 million seedlings distributed for private planting and 227 Panchayat and Panchayat Protected Forests had been handed over.

Within these aggregates, performance of individual components, and areas, has of course varied. Farmers' uptake of seedlings for private planting far outstripped expectations. In contrast, the handing over of existing forests as PPFS, and the development of collaborative management plans, has lagged behind the ambitious initial targets. Although almost half of the panchayats now participating in the project have had PPFs handed over to them, most of these still lack legal agreements for their management and harvesting. Moreover, of the 227 PFs and PPFs which had been handed over by July 1984, 197 were transferred in the last 12 months. In the remainder of the paper, we look at the experience with PPFs more closely, as it encompasses the main issues that have had to be tackled in strengthening collaborative forest management in the hill areas of Nepal.

Establishing Panchayat Protected Forests

The process of establishing and operationalizing a Panchayat Protected Forest involves three principal components. One is the procedure whereby the panchayat applies to the government to hand over an area as PPF and the government effects the transfer. The second is the setting up and functioning of the Panchayat Forest Committee which

will have the responsibility for managing the PPF. The third is the management plan which constitutes the legal agreement between the government, the panchayat and the people within the panchayat who comprise the user group or groups involved.

Within the Forest Department, responsibility for assisting the panchayats in preparing an application and for carrying out the necessary enquiries and management plan preparation, rests with the District Forest Controller, who will entrust most of the on-the-ground work to the Community Forestry Assistant. Authority to approve the handover of a PPF is vested in the Regional Director within whose territory the District and Panchayat falls.

The Panchayat Forest Committee, in addition to its general supervisory and supporting role towards all community forestry activities, has to ensure equitable distribution of products from the PFs and PPFs to all households in the beneficiary group. The following guidelines⁴ have been laid down to encourage participation by all sections of the user group in the committee and specify their duties:

- (i) Users Group--The committee must represent the primary group of people who use or will use the forest area--the people who call the present grazing land or PPF forest their own. Where appropriate the formation of subcommittees of users' groups, or even separate committees within the Panchayat.
- (ii) Nonpartisan--The committee must represent different social and political groups within the local area. The life of a forest is longer than political terms in office. This important common

resource must have stable long-term management. Committees are encouraged to elect as Chairman someone other than the Pradhan Panch of the Panchayat to represent the users group and strengthen the nonpartisan character of the committee.

- (iii) Flexible Membership--The composition of the committee and the number of members to be included must remain somewhat flexible to adapt to different circumstances. There should be a minimum of 10 persons, one of which includes the local Ward Leader, and a maximum of 25 as determined by the villagers concerned.
- (iv) Equitable--Although the villagers should be allowed to form their own committee, the CFA should try and assure that it is representative of all communities involved, as well as of both sexes, so that women are also included. He should remind the villagers that women are usually the primary collectors of forest products, and so must be included.
- (v) Democratic--The formation of the committee should take place by election of the full Panchayat Assembly held in users wards. A decision can only be taken if the quorum constitutes a majority of the total members.

The procedures for developing and agreeing upon management plans for the areas of PPF and an appraisal of the resource it contains carried out by the Community Forestry Assistant, and an iterative process of dialogue by him with the users, panchayat officials, and Forest Committee to arrive at a management system which best meets their needs through application of sound, practical silvicultural and harvesting practices.

The great diversity of forest types encountered throughout the hill region make it difficult to lay down straightforward management prescriptions which can be widely followed. Fortunately, natural productivity is usually good. Furthermore, most of the desirable species are hardy, capable of regenerating vigorously as coppice shoots, and able to survive heavy and sustained cutting and grazing pressure. Possible choices for management of each are summarized in Table 4. The focus in all, in contrast to the single (timber) product focus of traditional forest management systems, is on sustained production of multiple outputs.

PATTERNS OF INTERACTION

Implementation by the Forest Department

The release of state forest resources for local community management represents a radical departure from traditions of government forest management taught to all forest officers in Nepal (as well as in most other countries). Giving up exclusive control of such a large natural resource--albeit actual field control over the scattered and degraded forests has been more nominal than real--has not come easily to officers charged with the conservation and exploitation of this resource. Despite notable exceptions, resistance to authorizing the large-scale turning over of this resource was widely encountered during initial years.

TABLE 4 Possible Choices for Management of Selected Community Forest Types

Forest Types	Timber	Poles	Fuel	Tree Fodder	Grazing	Compost	Other
1. Scattered mature Sal forest	xxx	xx	x	x	x	x	
2. Heavily lopped small size sal forest		xxx	xx	xx		xx	Plate making
3. Katus-Chilaune coppice bush	x	xx	xxx		x		Roofing
4. Scattered Chilaune	xxx	xx	xx		x		
5. Scattered Pine Forest	xxx	x	x		x	x	Resin tapping
6. Scattered Oak Forest	x		xxx	xxx	x	x	
7. Dense Lopped Oak forest	xxx		xx	xxx		x	

SOURCE: P.K. Tyystjarvi (1983)

xxx Best choice
 xx Good choice
 x Possible choice

The reasons most frequently stated by government officers for proceeding cautiously with this aspect of the program were centered around fears that once government controls were lessened, the resource would be destroyed by the local population. The forest officer responsible for handing over forests which were subsequently destroyed perceived far greater potential damage to his career than would accrue from cautious delay.

Significantly, not even one such incident has yet taken place. In the rare instances where PF plantations have been destroyed, inves-

tigation has always shown that demarcation of the area was conducted without widely informing the local community that the purpose of this surveying was to hand the area over to the community. In each case, the community was under the wrong impression that the government was attempting to further take away their resource. This overall positive experience to date has increased the forest officers' confidence and helped create a climate of opinion favorable to increasing the rate of PPF establishment.

Beyond initial attitudinal resistance by some forest officers, the major causes for a slow start on this activity can also be traced to its innovativeness and the difficulty of adapting traditional working procedures to a completely new framework. Modern forest management taught to professional foresters stresses the need for proper scientific inventories of the existing forest resource and the application of yield tables to determine harvesting schedules to meet commercial objectives. In contrast, the development of PPF management systems rests on jointly conducting an assessment of the resource with the Forest Committee, and jointly arriving at management prescriptions based on meeting locally perceived needs. Harvesting plans must almost always attempt to meet multiple objectives on an annual basis rather than optimize the production of a single product over the long run. Plans have more chance of working if they are based on socioeconomically sound principles as illustrated by the traditional management systems than if they follow textbook procedures. Yield tables for managing scrub forests for branchwood, fodder, leaf litter, leaf plates, poles, etc. do not exist.

The Community Forestry Assistants responsible for the actual field preparation of the plans have found the dual demands of meeting silvicultural expectations of their superiors and the social demands of the community difficult to implement. Despite training in extension methods and the provision of extensive supporting materials, the youthful and inexperienced CFAs have found the task of community organization and collaboration initially difficult. Existing requirements for scientific inventories, though greatly reduced from those demanded for government forests, are complicated and physically strenuous with little commensurate rewards. For these reasons, the project has been continuing to examine ways in which the management agreement can be further simplified (Troensegaard, 1984), and the required training imparted to the CFAs. Since this kind of forest management is new to all parties involved, experimentation and learning continues, and the CFAs level of confidence has been steadily increasing.

The bureaucratic procedures involved in processing and approving applications are proving to be an additional impediment to rapid implementation. In the terrain characteristic of most of the hill region of Nepal, even the District Forest Office can be several days distant from any given panchayat, and Regional Offices even more remote, up to one week's walk away. The processing of documentation can consequently be very time consuming, with field visits necessary to check on queries often having to be delayed for long periods. The possibilities of short cutting and simplifying handing over procedures are therefore also being looked at.

User Group Motivation and Organization

The greatest barrier to community participation during the initial years was lack of widespread public knowledge of what was entailed by taking on a PPF for management. Until a community has actually gone through the process of drawing up a plan in a public meeting, villagers remain ignorant of the precise benefits and costs associated with this activity to them individually (Bhattarai and Campbell, 1983). Previous experience with the Forest Department has been limited to situations which have increased their individual costs by requiring, for example, payments for cutting wood, withdrawal of land previously available for slash and burn agriculture, and closure of land for grazing. Demarcation, a word which has been incorporated in its English form into the local vocabulary, denotes the assertion of government rights over areas they previously considered their own. It should also be noted that villagers also sometimes perceive that their panchayat leaders form an alliance with government authorities for their personal gain. Initially, the project had to overcome widespread suspicion that the program was just another way for their customary rights to be usurped.

One of the first lessons of the project, then, was the importance of widespread public discussion of exactly what the establishment of a PPF involved. Extension messages informing all members of a community of the provisions of the law regarding, for example, panchayat-government revenue sharing, proved insufficient. However, when the actual provisions of specific management plans which would spell out group rules for protection, harvesting, and benefit sharing were brought under group

discussion, it was remarkable how quickly group consensus on the value of establishing a PPF usually materialized. In annual District meetings held by the project for Pradhan Panchas, Forest Committee Chairmen, and other leaders, it has been repeatedly found that suspicions voiced by panchayats not yet participating in the program were completely overcome by the enthusiastic response of those in which the details had been already worked out. Almost every meeting recommended that similar large public meetings should be held within the individual panchayats.

The establishment of acceptable PPFs also required dealing with the central issues involved in upgrading traditional management systems. Principal among these were concerns with defining the boundaries of the beneficiary group, improving protection systems, changing grazing patterns, regulating cutting and harvesting, dealing with offenses, and managing any cash income.

Since the laws governing PPF establishment are written in terms of panchayats as a whole, many user groups feared that their local forest resource would be "nationalized" by the panchayat. Reaching consensus on a PPF thus usually required carefully delineating the boundaries of the user group by specific product. In many cases, the group of people who collected specific products, such as bamboo or fuelwood, were willing to acknowledge the right to other products, such as timber for house construction, to the panchayat as a whole so long as the specific products they previously collected would remain theirs. It thus became crucial to the success of the program to specify benefits and responsibilities by product and beneficiary. An "Existing Forest Management Survey" to determine existing usages was thus developed by the project

instead of the earlier survey of needs to allow PPF plans to build on traditional management systems. This survey, conducted in a group session, forced communities to make explicit a number of more or less implicit group management rules to allow them to be encoded in a legal agreement.

Resource Protection

A number of key issues arise around the problems of protection of the resource--particularly from grazing livestock. The most important silvicultural treatment required by most community forests, including thoses under explicit traditional management, is some form of closure of areas to grazing for sufficiently long to allow natural regeneration to take place. The initial problem has been to obtain consensus on how much to close and how to enforce compliance. Since no fencing is used, closure rests on willing consent of all herders to keep their cattle and goats out of the specified areas. As this requires more intensive guarding than protectiong from cutting (which can be detected from a distance or after return to the village), communities find it difficult to finance additional guards even where they previously had such an institution in existence. Furthermore, most of them have stated that protection will improve if the government also provides its authority by appointing a guard in addition to their own. They have thus frequently requested financial support for hiring local watchers from the project, which has recommended that this issue be considered for the next project phase.

Enrichment planting in PPFs with adequate stocking for natural regeneration has also been found to assist with solving the problems of protection. Initially conducted because of the high targets assigned to this activity, and in order to be able to provide financial assistance for a guard (for which budget was only available if planting had taken place), it has been found that enrichment planting serves an important symbolic function. By planting a small number of highly desirable or visible seedlings in a forest area, the need for restricting grazing until the seedlings were established became apparent to all the villagers in the area. The existing natural forest was transformed from an area which did not depend on humans for its reproduction to a "cultivated" area which required protection from livestock. Forests were symbolically transformed into fields; management became meaningful to people who for generations were used to alternative land use patterns. Furthermore, by agreeing on a phased introduction of plants and rotational grazing areas, people who were initially suspicious of the loss of their grazing lands could be convinced of the value of cooperative action.

Cutting Regimes

Ironically, the most difficult technical issue from the perspective of local communities has been to introduce cutting regimes. The limited number of plans completed to date (86) have tended to be conservative and restrictive in their production prescriptions (de Pater, 1984).

Evidently this reflects the conservative approach of most traditional forest management. This strong traditional orientation towards conservation appears to have been largely based on perceptions that the only way to prevent abuse and overharvesting by individuals was to ban all cutting of products not specifically controlled by the various methods outlined earlier. This was reinforced by the fact that communities did not previously have legal title to the forests and could not easily institutionalize a system which was vulnerable to government sanction. With the removal of the latter restriction, communities are now theoretically free to design systems which would be based on selective cutting of, for example, diseased and dying trees.

On the basis of extensive discussions with villagers, the following "management systems" appear to be easiest to implement considering local control capabilities and traditional forest management systems:

(i) Rotation: one of the most effective ways used by some villages is to conduct product collection (such as branch lopping, grass cutting, grazing) on rotational basis in order to control illegal use and ensure regeneration of the area.

(ii) Limited Time Period: some forests are opened for only one or two weeks for the collection of particular products so that uncontrolled cutting at other times of the year can be detected and stopped and distribution controlled.

(iii) Equal Distribution: one common way villagers use to distribute the products, whether hand cut grass, thatch or fuelwood, is to conduct group harvesting so that all users go to the same harvesting area at the same time and obtain roughly equal amounts per household.

However, many communities still opt for avoiding any cutting which would be difficult to control, and sometimes have suggested closing the forest to all product collection. For this reason, rotational cutting of individual areas during prescribed time limits is frequently the method of choice for the local community.

This conservatism illustrates the concerns of local communities with the problems of common resource management once they have been provided with the legal structure and tenural rights within which to take up more active regulation of their existing forests. Because they are extremely aware of the dangers of uncontrolled access, they are cautious about adopting any system of cutting which would be difficult to enforce. The lesson here is that management prescriptions must answer social requirements first if they are to be widely adopted by the community. But perhaps even more importantly, the lesson is that communities themselves will take the responsibility for devising methods for solving the common property problem if they are given sufficient authority, information, and assistance in doing so.

OUTCOMES

Distribution of Benefits

So far, the project has left the exact mode of distribution within the beneficiary groups largely up to the panchayats and user groups involved. The result has been the proliferation of a number of different systems depending on the size and type of the resource and the communities involved. While fuelwood is usually equally distributed per user household, fodder may be sold on contract or made accessible to a more restricted group during certain periods of the year. Depending on the quantities available, timber may be reserved only for those households who require it for house construction after receiving the permission of the Forest Committee. While some communities have strong opinions on the mode of disposal, often based on their traditional usage, others have little tradition to draw upon and are open to suggestions from CFAs or village leaders. In this latter case, there has been the opportunity to draw on experience from traditional management systems in other villages for adoption in a new setting.

Cash benefits accruing to the user group or panchayat have presented a special problem because of the difficulties arising from the legislation. The 1978 Protected Panchayat Forest Rules are still subject to the provisions of the underlying Forest Act of 1960. The

latter requires that harvesting of timber be authorized in advance by the District Forest Controller. The practical difficulties and delays entailed in trying to observe this requirement discourage local groups from including significant timber production in the management prescriptions.

More importantly, the Panchayat Protected Forest Regulations themselves incorporate a sharing of the income from timber sales between government and users, and a mechanism for handling the funds which is proving cumbersome and slow, and an impediment to progress at the panchayat level. The regulations split income from sales, 25 percent to the government and 75 percent to the panchayat. However, initially the full proceeds of sales accrue to government, with the panchayat share being returned to it in due course. Not only does the often lengthy period which elapses before repayment discourage panchayats, but the whole procedure has been found to engender suspicion that the process of PPFs and management plans is intended to generate income for the government rather than for the user group members.

These difficulties have meant that most established management systems have so far attempted to avoid cash income from forest products such as timber which fall under the forest products sales act and for which the income should so far go directly to the Forest Department before being returned. In addition, ambiguities regarding whether or not permits for these products should still be issued by the Forest Department after a plan has been approved have also served to inhibit the distribution of these products. The project has recognized that

modifications to the legislation, and the establishment of accounting procedures acceptable to all involved, is a priority for improving the program further.

Future Prospects

Already 381 panchayats are participating in this project to strengthen collaborative local forest management--and private tree management--in the hill areas of Nepal. Over the next five years a further 375 panchayats are expected to be added. If this occurs, and demand to join the project is strong, its coverage will extend over more than half of all the Panchayats in the 29 districts that it serves. A continuation of the present momentum could therefore extend the new approaches to common forest management to a significant proportion of the hill population.

As has been indicated in this paper, the limited experience to date is quite encouraging. Though some of the bureaucratic procedures are seen by now to be too rigid or not yet sufficiently adapted to present needs, there do not seem to be insuperable impediments to effecting the necessary changes. For example, experience to date suggests that more may need to be done in some panchayats to ensure participation of women in the forest committees, committee leadership separate from panchayat leadership, the right size of committee membership, and operating rules which permit a quorum of the committee to make decisions. The existence of a committee secretary with some relevant

training is also seen to be desirable, as is provision for the committee to directly participate in monitoring and evaluation of their panchayat's activities.

At the present time, the key to future progress appears to be the management plan. As this embodies both the agreement between the government and the community, and the prescriptions to enable the latter to make more effective use of their forest resource, it is central to the success of the program. Consequently, priority is now being given to resolving those issues which are impeding the process of producing, adopting, and implementing workable and acceptable management plans.

NOTES

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²From J. Gabriel Campbell with Tara N. Bhattarai, "People and forests in hill Nepal: preliminary presentation of findings of community forestry household and ward leader survey." Project Paper No. 10, HMG/UNDP/FAO Community Forestry Development Project, Nepal, 1983.

³In addition to the survey already referred to, this section draws on the report of an enquiry carried out for the project in 1981: A. Molnar, "The dynamics of traditional systems of forest management in Nepal: implications for the Community Forestry Development and Training Project." Report to the World Bank, February 1981.

⁴From "Guidelines for the Preparation of Management Plan for Panchayat Forests and Panchayat Protected Forests," (Working draft, August 1983 revision), HMB/UNDP/FAO Community Forestry Development Project, Nepal as modified by "Report of Fifth Annual Meeting of Regional Directors, District Forest Controllers, Associate Experts, Volunteers and CFAD Staff associated with HMG/WB/UNDP/FAO Community Forestry

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