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Michael M. Cernea

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ABSTRACT

The paper contains a discussion of policy options and operational strategies for improving social forestry programs.

The analysis of the types of social forestry approaches called "community" forestry or "village" woodlots reveals that many forestry programs intended genuinely to be participatory are formulated in fuzzy terms, are not designed around well identified social actors, and neglect to ensure clear benefit distribution arrangements and incentives. Their confused sociological conceptualization and lack of sound social engineering renders the investments in such programs much less effective than they could be.

Participatory social forestry strategies must aim at engaging the rural users of fuelwood into organized activities for producing and managing forests. The author argues that the profound behavioral change to be elicited on a gigantic mass scale among farmers through social forestry strategies is an evolutionary shift from simple foraging and gathering fuelwood in naturally grown forests to cultivating trees for fuelwood. Trees and forests are to be systematically produced.

Part one of the study discusses the general social prerequisites for reforestation programs. It focuses on land tenure variables in forestry, particularly under regimes of common property over land. A historical analysis is undertaken of the process of privatization of the commons in Azad Kashmir, which has unfolded in three stages: (a) informal partitioning, (b) incremental appropriation, and (c) formal privatization. This analysis reveals why the attempt of a World Bank-financed community forestry project to stimulate farmers' tree-planting behavior did not succeed.

Part two of the study (sections D, E, F, and G) broadens the analysis from communities, as one type of group, to several other types of social groups and units of social organization. The author argues that each development strategy must be formulated around and clearly identified social actor, interested in its outcome and capable to carry it out, but not each kind of group is suitable for each and all development actions. The role of groups as purposive social actors in forestry development is examined. The advantages of group actions are defined, together with the difficulties and transaction costs that group establishment encounters, and the structural constraints that may undermine the effectiveness of certain types of groups. In this light, the paper further analyzes the rise and fall of interest in "community woodlot" schemes. The study concludes that the failures of the so-called "community forestry" approaches are largely traceable to the misconceptions embedded in their design about communities' capacity for coordinated collective action in planting/managing trees. The author identifies seven basic sociological reasons for which communities as population clusters should not be regarded as willing and able corporate actors in afforestation programs.
Based on this analysis, the author argues further, at a more general level, that social forestry strategies (a) must be conceived starting with the definition of the adequate unit(s) of social organization capable to translate one or another of such strategies into practice; (b) must ensure a match between the sylvicultural technologies they promote and the social groups they aim to involve; and (c) must carry out a certain amount of social engineering (group formation and maintenance, establishing incentives and penalties, setting up authority arrangements and communication channels, benefit distribution, etc.).

Further, the author discusses and recommends options to replace the elusive and diffuse "community" approaches with two basic strategies for social forestry: family-centered strategies or group-centered strategies; the later should rely on alternative units of social organization, larger than the family. Public investments for afforestation could and should be made through both strategies, in adequate forms for each, and both strategies are apt to complement the public investments by mobilizing the private investments of the actors themselves. The author argues that the ineffectiveness of the community as one kind of group actor for forestry activities does not mean the demise of all types of groups as social actors in forestry development.

An array of alternative potential collective actors (groups) is examined further, such as: farmers' groups for forestry, associations of landless tree growers, age groups, women's groups, watershed based forestry, etc. Evidence from many social forestry projects is examined to assess the results of family-centered or group-centered approaches. The study concludes that such alternative group structures need not all pre-date the project: while those already in existence need to be strengthened, other group structures can be created anew through the very development programs that call for collective action.
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INTRODUCTION

Participation in development cannot occur as just an add-on to technical programs. Yet often the appeal for participation is a mere afterthought to a project’s design or is attempted as an ancillary ritual to an intervention that was conceived in a nonparticipatory manner. For government projects attempting to financially induce development, the key difficulty soon becomes a social and institutional one: how to generate and sustain the involvement of the social actors, the people who are to give life to the project?

If participation is indeed to occur, then the grandstanding but fuzzy rhetorical pledges to "people’s participation" must give way to the precise identification of who "the people" are and how are they organized for development action.

This paper’s area of analysis is social forestry, particularly under regimes of common property or joint usufruct over natural resources. The paper will argue that sociological analysis brings an increment of professional precision to the thinking about participation in natural resource management by proposing strategies for organizing the individual users of natural resources into user groups and for enabling such user groups to act as producers and managers in order to generate increased benefits through group action. Conversely, the paper contends that when sociological understanding is absent, well intentioned attempts toward participation lack compass and often result, as will be shown, in misguided intervention.

The paper is divided in seven sections: Section A discusses the social/cultural prerequisites of participatory approaches in forestry programs. Sections B and C focus on land
tenure variables in forestry development particularly under conditions of common property ownership or joint usufruct rights on state lands. A significant process of privatization of the commons, based on the case of Azad Kashmir (Pakistan) will be examined, and its three key stages [(1) informal partitioning; (2) incremental appropriation; and (3) formal privatization] will be defined in detail. Section D concentrates on the definition of social actors in formulating sociologically guided participatory strategies for reforestation. Each social forestry program must clearly rely on an existing unit(s) of social organization, or must endeavor to establish such social units as part of the development program. The disappointing performance of community woodlots in many afforestation programs is discussed in Section E, which further proposes a general formulation of seven sociological reasons for which communities should generally not be seen as corporate actors capable of collective action in forestry management.

The last two sections explore and recommend options to replace the elusive and unfocused "community" woodlots with either family-centered strategies (section F) or with group-centered reforestation strategies (section G) which would rely on alternative units of social organization: e.g., group-farm forestry, tree growers' association, age groups, women's groups, watershed forestry, etc. These two strategies are compatible and may also be used in parallel under the same program. Evidence from several World Bank projects is considered in discussing these strategies. Sometimes group structures already exist and need to be strengthened; at other times they need to be created anew as a social scaffolding able to sustain purposive collective action.
A. THE SOCIAL PREMISES OF REFORESTATION PROGRAMS

What is social in "social forestry"?

Almost never is the term "social" present in the jargon used by development practitioners to describe agricultural programs. One conspicuous exception, however, is "social forestry development." Who introduced the term "social"? And why this exception? In other words, what is social in afforestation programs?

The concept of social forestry as a strategy in forestry work was introduced at least as early as 1973 in India, where precise goals were set for the new approach.1 Since then, a broad consensus has developed about the content of social forestry. The current concept of social forestry recognizes that such programs must be so designed as to (a) motivate large numbers of people to plant trees, (b) promote the kind of tree-growing that will best supply fuelwood, small timber, grasses and income to the small producers themselves, and (c) provide increased benefits to the poorer strata. Social forestry programs are primarily aimed at involving the farmers and the landless. They attempt to influence the key variable -- a variable usually bypassed in the design of conventional afforestation programs: people's behavior toward trees.

Furthermore, the "social" in social forestry should be understood to signify a broader meaning than individual behavioral change alone: it includes collective action, institutional development, and the establishment of enduring social structures and value systems that activate and organize individual actors.

While commercial or industrial forestry programs are not a recent invention, social forestry projects are. Under the
conventional type of industrial forestry program, business corporations or government agencies hire laborers to establish plantations on large tracts of land that the businesses or agencies control; the wood is harvested for use in industry or construction. The alternative approach, social forestry, is to induce a large number of small farmers to plant fuelwood trees systematically for their own needs and on their own (and other available) lands. Foresters gradually come to recognize that behavioral and cultural (not just technical) changes are needed to intensify reforestation. By definition, social forestry programs demand massive farmer participation, and rise or fall depending on whether or not the farmers engage in the program.

The social innovation called for through social forestry programs appears formidable indeed if contrasted with the infinite history of the patterned behavior of gathering fuelwood.

Humankind long ago moved out of the hunting and gathering era in virtually all respects except one: the procurement of fuelwood. Throughout history, agriculturalists and rural populations in general have been foraging for their fuelwood in naturally grown forests.

This continues today. While many members of the global human society have substituted the use of fuelwood for heating and cooking needs with other energy sources, a large part, probably still the majority, continues to use wood as fuel. How do these users obtain their fuelwood? Now, as in earlier times, essentially by gathering, and not by cultivating. By and large, for the bulk of their fuelwood needs, people have cut naturally grown trees and have relied on the spontaneous regeneration of trees, without systematically planting trees for fuelwood on significant areas.

The current challenge, of worldwide proportions, requires a shift from merely gathering trees to cultivating them. That this
can be done is shown clearly by the major exception to the pattern of tree-gathering: humans long ago learned to domesticate, cultivate and propagate fruit trees. Fruit trees are now incorporated in various agricultural strategies, while wood for fuel continues to be acquired mostly by cutting natural forests and gathering. Given need, scarcity, and certain prerequisites and incentives, "gatherers" can shift to cultivating fuelwood for themselves and for the market. Such a historic shift may take generations, but large masses of fuelwood users must become producers-cum-users.

Several factors underscore the urgency of the problem. The world's looming energy crisis has turned the spotlight on two fundamental facts. First, the majority of humankind still uses firewood as main source of cheap everyday energy. Second, the fuelwood needs of the growing global population, as well as the rapidly increasing amounts of fuelwood "gathered", have apparently exceeded the regeneration capacity of the world's shrinking forests. Steady environmental degradation and fuelwood shortages of virtual crisis proportions have already struck many countries or extended regions of them, particularly in Asia and Africa. There is a growing awareness that without new planting the present use-rate of forest resources will lead to accelerating deforestation and a worldwide fuelwood scarcity, with profound socioeconomic and environmental consequences.

The advent of what are now called social forestry programs and policies on a worldwide scale could be regarded as part of the growing global response to that threat. Such programs were strongly recommended by the 1978 World Forestry Congress, by the Forestry Policy Paper issued the same year by the World Bank,2 and by national agencies in some countries.

The social innovations fostered through such policies are two-pronged. They attempt both to involve large groups of people
in the conservation and better management of existing forests and, since this would not be enough, to stimulate the widespread adoption of a "new" productive activity: the systematic planting of trees for fuel, as opposed to the age-sanctioned wood gathering in natural forests.

Several social prerequisites must be met if these innovations are to succeed. Financial investments alone, however big, cannot make such programs a success. These prerequisites go beyond the dynamics of individual adoption of innovations to lay the ground for the more complex processes of collective adoption. In social science research, although the adoption of innovations by individuals has been subjected to much investigation (spearheaded by Rogers and others\(^5\)), the collective adoption of innovation, as correctly pointed out by West\(^4\), has received far less attention and needs to be understood better for many development purposes.

By collective adoption I understand not a mere aggregate of many acts of innovation adoption by atomistic individuals, but a process of interlinkage among individuals and their purposive action for achieving a new common objective. Processes such as reforestation, environmental protection, watershed rehabilitation, and in general the group protection and management of natural resources, depend largely on collective action and collective innovation. Therefore, a development program must often trigger collective action among its target group, rather than only discrete individual responses to the program.

But how can this be accomplished?

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, and when the
group has developed leadership structures and internal norms and procedures capable to organize and manage its members and to overcome conflicts and deviant behavior. 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 programs such as afforestation or irrigation which depend on sustained, long-term consensual action of a large number of individual actors.

When an innovative program is deliberately pursued, central among the social prerequisites for success is a unit of social organization capable of sustaining that program. Therefore, afforestation strategies or projects must start with the identification (or the establishment) of such a viable unit or group; aim to engage the rural users of fuelwood in patterns of collective action for producing the fuelwood they need; tend to ensure a match between the sylvicultural 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.

Group formation is an acute need particularly in development programs that involve (even to a small extent) natural resources that are either (1) under a common property regime, or (2) lend themselves to group use and management even if they are under a state property regime. To ensure both the immediate use and the long-term renewal and sustainability of a commonly owned natural resource, the owners must act in consensus, as a group that subjects itself to the same norms. In order to act as a group,
they need to be a social group, not a simple set of unlinked individuals. Intra-group connections are forms of mutual conditioning, mutual help, and mutual control. The absence of structures and strictures leaves open the way to unchecked, contradictory, and counterproductive individual behavior such as free riding. This is the opposite of common property as a social construct and leads to the destruction of the natural resource itself.

Unfortunately, the planners of financially induced social forestry programs often do not yet realize that consideration of these social factors has to be woven into the very fabric of such programs 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 retailed anew for each socio-ecological context. For that, foresters, planners, and action-oriented 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 programs (see Guggenheim and Spears). 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. There is no justification for sociologically illiterate social forestry programs.
B. LAND TENURE AND THE ANATOMY OF TRIAL AND ERROR

To illustrate some of these issues, this section analyzes a case in which good intentions to experiment and innovate were not backed up by the necessary social knowledge. The case exhibits the fallacies of planning without an in-depth sociological understanding of the socioeconomic forces spontaneously at work and without a social strategy for translating goals into collective action. Salient sociological factors are always at work, and forcefully so, under the thin layer of the "new reality" temporarily constructed by the financial inflows of the program; if these salient factors are not deliberately taken into account, they trigger unanticipated consequences. Such factors in this case were: the existing land ownership system and the usufruct rights system; the local power and authority system; farmers' traditional attitudes and behavior regarding tree planting; and the absence of social structures for collective action aimed at reforestation.

Our case consists of two successive Bank-assisted projects in the same area over a period of ten years: the first was the pilot forestry program under the Azad Kashmir Hill Farming Technical Development Project (HFTDP) in Pakistan, which started in 1978; the second was the follow up project, called the Azad Kashmir Integrated Hill Farming Development Project (IHFDP), which started in 1984 and will be completed in 1990.

The lack of a pre-project sociological study in the HFTDP (as is known, field-based socioanthropological research in Azad Kashmir had been discouraged by state authorities during the preceding 20-30 years) paved the way for false design assumptions about land tenure. The project strategy predicated on these assumptions backfired.
A sociological analysis, undertaken at the mid-term of the first project (perhaps the first after a long interruption of sociological studies in Azad Kashmir) revealed the array of unanticipated consequences that had built up during the implementation process. The following summary of that sociological analysis will show why seeing the people beyond the trees should be the first commandment in social forestry.

The Hill Farming Technical Development Project (HFTDP) was started in 1978 in Azad Jammu and Kashmir as a test of new approaches to several agricultural subsectors, with the intention of replicating the successful ones in a subsequent larger project. The pilot forestry component was one of the first explicit social forestry interventions assisted by the World Bank. It financed fuelwood planting, testing of new tree species under local conditions, and the establishment of nurseries for supplying seedlings; this component was included as a result of the area's alarming deforestation and environmental deterioration, both demographically and culturally driven, and was intended to involve the participation of local communities and to benefit primarily the small farmers.

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. At the local high rate of population growth (3 percent annually), the population will double by the year 2000. Pressure on government forests is increasing as people cut trees both for fuel and for clearing forest land for farming (through illegal encroachments).

Both the formal regulations (enacted under British colonial rule) and the old customary rules in Azad Kashmir have allowed rural inhabitants to remove deadwood, branches, and noncommercial species from reserved forests without payment,
primarily for personal consumption. Both the formal and customary systems allowed and regulated wood gathering, but did not demand cultivating. In practice, however, customary user rights have been very liberally interpreted and broadened, while the use-limits set through formal regulations have been transgressed. Within a radius of several miles from many human settlements, virtually all trees were debranched beyond the limits set by sylvicultural recommendations. In many locations only the top 10 to 20 percent of the crown of trees remains. Outright topping has also occurred and prematurely killed the trees. In the Chir pine areas, long thin vertical slices of the bole of the tree are removed at stump level for home lighting. Roadside trees are similarly molested. On community lands, open access practices in the absence of community management have fully consumed the tree cover.

Forest resources have also been devastated by local livestock that graze without adequate controls. The situation is aggravated by the transhumant livestock of seminomadic populations coming from Punjab and the North-West Frontier Province to use the Azad Kashmir alpine rangeland 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 got into open conflict with many local inhabitants. When the project started, over 50,000 cases of forest offenses were pending in the Azad Kashmir courts. This amounted to about one family in six involved in an alleged forest offense. Farmers were 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 fuelwood demand was to be met.
In preparing the HFTDP’s forestry component, the technical experts estimated the average annual consumption of firewood per family at 2 to 4 tons, amounting to some 800,000 tons in total\(^{12}\). The scale of reforestation needed to produce this supply was estimated at 330,000 to 400,000 fully planted and well-managed acres. At the cost of establishing fuelwood plantations (then about 2,000 rupees [Rs] an acre), such a program would have incurred expenditures far beyond the available government resources. The government therefore needed to examine the extent to which the private users of fuelwood could contribute to these costs.

When the pilot project was prepared, it was thought that social support for the program (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 as 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 benefiting 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."13/ *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, totaling 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 key assumption was that the village communities would act as the social units supporting the pilot fuelwood plantations. Community consent was expected to make portions of shamilat land available for tree planting. Another explicit assumption was that the community institutions would mobilize community-members' investments in fuelwood planting in the form of labor, payments 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 beneficiaries of project-financed planting on common land were expected to be the small farmers who otherwise faced constraints in their access to scarce firewood. The community structures were assumed to be strong enough to enforce the temporary closing of reforested areas to prevent indiscriminate grazing and protect the tree seedlings.

Thus, typical features of "social forestry" were conspicuous in the project's design. The project was setting goals that required farmers to modify their economic behavior. The
question was: would the target communities and individual farmers respond as expected?

During the first project year the physical reforestation target was met, the nurseries were established and the project identified 100 acres of community and private land, in addition to government lands. The project staff reported that the owners and users of the private and community land agreed to allocate the lands for fuelwood plantation, 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 nonarable lands for tree plantations, and the project staff tentatively identified for planting about 750 acres of commons and private land and 500 acres of government land. This was a larger proportion of nongovernment land than what had even been optimistically assumed at appraisal. The farmers' response seemed to suggest that significant tracts of community (shamilat) and private lands could be incorporated into the fuelwood production circuit.

Given the pilot nature of this project, its socio-cultural aspects received more attention during implementation than was usually given to comparable projects. I was asked to undertake a social analysis of the progress of the forestry component between 1978-1980, to ascertain the mechanisms of community contributions in land and labor for fuelwood plantation, and of distribution of the expected benefits. Significantly, this social analysis was not triggered by a crisis, nor by slow progress, but was initiated to examine what seemed to be a successful project advance.
C. THE PRIVATIZATION OF THE COMMONS

The study assessed the socioeconomic status of the farmers reached 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,\(^{14/}\) 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.\(^{15/}\)

- **Shamilat** land is land that is attached to the communities and/or their members and derives its name from the concept of "getting together". These lands are used as grazing areas, forests, sites for village public buildings, village graveyards, and so on.

- **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, my field assessment of the status of specific land...
plots discovered, however, significant differences 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 de jure and de facto status. Although shamilat continues in principle to be considered common property land, in real life much of 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. There is no pattern and mechanism of community management, neither on the remaining patches of joint shamilat, nor, obviously, on those patches appropriated by individuals.

Thus, the sociological inquiry invalidated a basic assumption made when the planting of shamilat was originally planned. The different tenure was likely to cause unanticipated consequences of the planting program, 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 location for drinking water facilities for people and cattle. Sometimes, administrative "mutations" of khalsa wastelands into shamilat released the land either to village landholders as a group for common use, or directly to certain individuals. Such conversions were enacted retroactively (thus legalizing de facto encroachments), or were prescribed through government decisions like the Ailan (Proclamation) of 1927, which sanctioned several subclasses of shamilat.18/ The village's shamilat was not necessarily one consolidated plot; rather, more frequently the
village shamilat consisted of several plots of land located at various distances from the core settlement. The shamilat plots had often both different uses and users. Villagers located closer to one or another plot (or side) of the commons became its more frequent users and sometimes encroachers. Increasing needs and uneven family abilities in using shamilat resources asserted themselves over time. Patterns of differential use and access gradually crystallized, and subtle modifications in the actual status of various plots cumulated into major changes.

Three broad historical stages in the evolving condition of shamilat can be roughly distinguished over time:

- **Informal partitioning.**

Village families whose farmed land directly adjoined the shamilat areas became increasingly associated with the use of specific sections of shamilat, thus beginning in practice, though informally, an allocation of common land among themselves. Population increase from generation to generation and a nonexclusionary (at least for male offsprings) inheritance system contributed to gradual partitioning of family lands and to increased pressures on commonly held parcels. Within the traditional institution of **brotherhood**, which allowed each one of a number of peasants linked together by common ancestry to have distinguishable individual separate possession of the land he cultivated, the plots of partitioned farming land were not necessarily equal. This entailed uneven uses of the land held jointly (shamilat) by the members of a whole brotherhood or by a subdivision of it. Strong group entitlements were gradually eroded by recurrent individual use, and recurrent
use evolved into privileged use. In the process, the smaller and more remotely located farms were left out of this informal gradual partitioning of shamilat lands.

- Incremental appropriation.

Although the land laws formally forbid co-sharers of shamilat to encroach on it for private and exclusive use, farms adjoining shamilat or powerful village families nevertheless began to illegally take over segments of community lands and even to cultivate them. Increasing socioeconomic differentiation and stratification processes within the communities subverted community unity of interests and institutional arrangements and increasingly weakened the communities, ability to defend the commons against private appropriation. Power played a role in the 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 (see Moreland). Some shamilat tracts 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 the shamilat plots.

Even as this de facto appropriation was advancing, most shamilat lands maintained their status, in formal terms, as common lands and were not entered in the revenue records as belonging to private families. As a result, the benefiting families did not have to pay land taxes on "their" shamilat
plots. At the same time, Khalsa lands as well were gradually encroached and portions of Khalsa were appropriated for unauthorized private cultivation (called Nautor\textsuperscript{12}).

**Formal privatization.**

During the '60s and '70s, the pressure grew to have shamilat plots formally entered in revenue records in the names of the families who appropriated them; the goal of these families was, and is, to have such lands validated as privately owned lands. With community power weakened, the last time of "defense" of the formal status of shamilat as commons shifted to the state administration as the custodian of the land records in which shamilat was officially registered.

However, the government also yielded to pressure, both incrementally/locally, as well as through two sudden and general formal decisions. One was the Shamilat-Deh Act of 1966: it formally allowed up to 75 percent of the Shamilat area to be used by private landowners, while only 20 percent was "to be reserved for common purposes of villages"\textsuperscript{28}. The second was the government's 1974 Land Registration Ordinance\textsuperscript{21} which bestowed legal recognition upon most of the unauthorized use of land (Nautor).

In 1974, the tax on land was abolished in Pakistan. Subsequently, the pressure on both Shamilat and Khalsa and their illegal encroachment increased further. The interested families resorted to various means, many illegal, to change the formal
registration of pieces of both Shamilat and Khalsa lands.

Through such processes, the nature of the commons as a property regime has been considerably changed in large areas of Azad Kashmir, with village communities progressively losing control, de jure or de facto, over land resources they previously owned and used. The physical extent of the commons has altogether shrunk, even though the historical process of partitioning, appropriating, and privatizing community land has advanced at uneven speeds in various areas of Azad Kashmir. For instance, significant differences in land registration and tenure remain between Mirpur and Poonch districts; some Azad Kashmir areas still maintain considerable pieces of shamilat as true community possessions.

Overall, the historical cycle described above is continuing. Its creeping advancement is facilitated both by certain regulations and by backdoor influence or corruption. In the colorful words of a former senior area official, the 1974 Land Regulation Ordinance was

"a legislative disaster (that)...opened the floodgates of encroachments.... The result was that brazen-faced encroachments were made into the very heart of forest lands. Here was an opportunity for unscrupulous revenue officers to oblige friends and relatives or make hay while the sun shone at the cost of rich forests and vegetative covering of hills".22/

Against the backdrop of such incremental but profound historical changes in the land-tenure system, it becomes understandable why the staff of the HFTDP was not able to identify larger areas of genuine community land for project financed reforestation. On close inspection, I found that the 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 the 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, couldn't accomplish its "community" objectives, even though overall the first pilot project (HFTDP) did stimulate reforestation work.

Further analysis of the set of 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 the larger landholders 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, I found that the main part of the 100 acres planted in the first year belonged to one influential family 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.23/

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 perceive 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. Their attempt was facilitated by the absence of a legal definition of the obligations, not merely the rights, of the large farmers whose land was being reforested through government contribution. The absence of a contract24/ with the project or the Forest Department left a huge loophole that enabled the large landowners to avoid making contributions.

The findings of the sociological analysis were taken into account immediately. They led to midstream changes in the forestry component of the HFTDP and generated several lessons of broader validity. The project's management was asked to reexamine the plots identified for fuelwood planting and to stop planting on fictitious shamilat land. During the following year the project resurveyed 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" program, before a cost-sharing system could be designed. The funds left available 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 more emphatically oriented toward the smaller farms. However, it proved impossible in midstream to maintain priority for reforestation on communal lands and, according to the ex-post evaluation report\textsuperscript{26}, the fuelwood plantations on shamilat land ended up being the smallest fraction (15 percent) in the total area, compared to planting on Khalsa (30 percent) and on malkiat (55 percent). Moreover, various delays cumulated and the pilot project initially planned for three years took some six and a half years to complete.

Nevertheless, in addition to making possible immediate corrections in the ongoing pilot project, the sociological analysis prevented the initial pilot approach, based on wrong assumptions, from being carried out on a much larger scale as originally intended. The practical failure proved (more convincingly than intellectual arguments) that social analysis should have been carried out at the time of preparation and appraisal, when it could have steered the pilot project on a path consistent with the local social landscape. Though done relatively late, the social analysis was nevertheless instrumental and consequential.

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 with regard to forestry. The IHFDP appraisal report stated that in the new project "overcoming the social constraints to a systematic hill development program would constitute the real challenge."\textsuperscript{26} 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 that must be treated as such, 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 agreements (contracts) between the individual owners in each catchment area (or relevant communities) and the government, in regard to the definition, acceptance and implementation of "Hill Management Plans" with some cost-sharing and benefit-sharing arrangements.

Since strong sustaining structures within the farming communities were neither identified nor established in the available time, the IHFDP is currently being implemented mainly by government departments in a rather paternalistic, top-down manner; some 9,000 acres are to be planted with fuelwood species on hillsides and additional land is being planted to coniferous species within demarcated state forest areas. In parallel, IHFDP is promoting an alternative approach to reforestation: "farm forestry" (discussed below), that encourages farmers to plant within, or near to, their homesteads; the project finances 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 nonhomogeneous groups, with differential access to "common" goods and limitations on consensual action; and the behavioral 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.
D. DESIGNING STRATEGIES AROUND SOCIAL ACTORS

The variables discussed in connection with the Azad Kashmir project have relevance far beyond this specific case, as do the findings about common property erosion and the privatization processes. Sociologists and foresters together should translate such findings into learned guidance for future action.

The most critical factor in designing the social strategy of forestry programs is, in my view, the adequate identification of the unit of social organization able to carry out the program 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 unfocused appeals to various heterogeneous or undefined populations. This is bound to result (as it did in the Azad Kashmir project) in an ambiguous (or even mistaken) identification of the social unit which could perform the intended activities.

Contributing to this insufficient clarity are the loosely defined concepts of "community forestry" used by some national or international development agencies. For instance, FAO has defined social forestry as "including any situation which intimately involves local people in a forestry situation" (emphasis added).27 This is an overly broad and imprecise definition, of little practical help when it comes to saying which people, under what structured arrangements, and so on.

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 organization can and will do afforestation, and which social units and definable groups
can act as sustaining and durable social structures for long-term production activities.

In my view, such units of social organization can be either:

(a) natural (existing) social units, such as the individual family 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.

Examples of units of social organizations for each one of these three categories are discussed in the following sections. Before that, however, a few general considerations will introduce the discussion.

A distinction obvious in the above typology is between the single farm family as an actor (category a), on the one side, and the groups of families combined in different manners as collective actors (categories b and c), on the other side. First, therefore, it must be stated unequivocally that social forestry strategies can be designed around the single family household as their pivot and executing agent. It is a misconception to equate social forestry just with the so called community forestry, village forestry or other forms and terms that imply groups. The family, seen as a production unit, is a microsystem with extraordinary capabilities, resilience and flexibility, historically and structurally well-equipped to perform multiple functions. Tree
cultivation for fuelwood and construction needs can certainly be accommodated within family managed farming systems.

But if the individual family can act effectively in such programs, why then do we need groups? Why is it necessary to identify or establish groups as social actors supporting afforestation programs?

Forming enduring units of social organization is particularly important in the case of afforestation 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 labor required for tree planting and cultivating; (b) in labor 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 easier solved by groups. Particularly for watching and protecting tree plantations for a long time and over large areas against theft, fire, or destruction by animals, producers associated in groups are usually much more effective than individual families. Small, self-managing groups can also act as psychological motivators for the consensual action of their members.

Like any development activity, reforestation requires investments and other resources. Opening up social forestry strategies to many potential social actors -- including discrete families and multiple group structures -- is a way to amplify
investments and resources for afforestation. Social forestry programs need both public and private investments. The establishment of groups as action units opens up opportunities to mobilize and put to use resources that would not be used otherwise. There are, for instance, significant land areas under state control for which the public sector may not have the investment resources required for tree planting. By leasing the use of such lands to organized groups ready to invest their labor in planting and protecting trees (as will be shown further), those lands are put to use without the risk of fragmentation or alienation and with lower transaction costs. In sum, group based strategies, combined with some public sector support, can make better use of available but dispersed resources.

In other situations, lands that in principle are under common property regimes (forest commons or grazing commons) are often not managed as a group owned natural resource because of the dissolution of group cohesion, linkages, and authority systems. Their use slides toward a condition of open access abuse, lacking protection, yielding diminishing returns and suffering increasing ecological destruction. Reestablishing or strengthening, when possible, the group’s structures and functionality recovers the resources of that social actor for its own sake.

Thus, 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 "participation equation" to normalcy: the users of forests and forest products act as the primary producers and
decision-makers, and the forest departments 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 intragroup structure with well-defined functions. This in turn helps mold patterned behavior among members and is the essence of grassroot, purposive institution building.

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 family/household: namely, issues of joint dependence over a piece of land and, sometimes, group tenure over trees; issues of group management, labor allocation, and monitoring; and, probably the most sensitive, the issue of benefit distribution. Therefore, organizing and promoting groups as units of social organization for social forestry programs (where groups are pivotal "actors" or "economic agents" of such programs) means more than just lumping together a number of individual farmers; it means designing clear social arrangements for tenure, management and distribution, arrangements that are known, implemented and adhered to consensually. Such arrangements between members are the very glue and fabric of the group.

The social arrangements required for group forestry may need to vary with the technologies envisaged for reforestation in different ecological areas. The appropriateness of various tree husbandry technologies to one or another local situation is not neutral with respect to social structures. The technical-cum-physical characteristics of a forestry program and the
sociostructural characteristics of the unit that is its social actor should be compatible.

When forestry programs are designed, it is essential to realize that there are a number of different potential "social actors," but that they are not equally fit for carrying out each and all technical (sylvicultural) approaches to forestry. Such technologies refer to species selection, site selection, nursery development, planting technology and configurations, fertilizing, plantation managing, enclosure or other protection, marketing, and so on. For instance, to determine which of three types of tree arrangements -- block planting, linear planting, or alley cropping -- is most adequate in a particular case requires identification of the needs of the farmers themselves, and assessment of the local land tenure systems and land availability. Calibrating the proper fit between the technical/biological elements of afforestation and the social units around which an afforestation strategy can be built is the aim of the cooperation between foresters, planners, and sociologists.

Taken alone, however, group creation or strengthening is only one part, albeit central, of designing strategies around specific social actors. At least two more key elements are required: providing economic incentives and tangible benefits to the envisaged social actors, and increasing their awareness about the need for afforestation. Economic incentives can be introduced through public sectors contributions (e.g., free seedlings, technical extension advice, and others), by encouraging the development of markets for fuelwood, through tax mechanisms, etc. Markets make fuelwood producers price-responsive and may encourage the production of fuelwood beyond the subsistence needs of the cultivators. The effectiveness of economic incentives can therefore hardly be overstated.
In turn, increased awareness about afforestation needs may shorten the time-lag or tardiness with which diminishing wood resources and shortages are usually perceived, and may energize individuals into collective action for effective satisfaction of their shared needs. Better communication, extension and education can also open farmers' eyes towards the more subtle, less immediately perceivable, benefits of tree growing, like retaining soil moisture, decreasing wind effects and soil erosion, improving agricultural productivity, or building up savings over time in the form of valuable trees which can be drawn upon in times of sudden need.

The range of different social actors apt to get involved in forestry projects is broad: communities, village governing bodies, farm families, groups of farmers, cooperatives, schools, private companies, public agencies, nongovernment organizations, and so on. Some of these potential actors are analyzed below in light of their sociological advantages or disadvantages for social forestry. The next section will examine the village "community"; the following will be focused on the individual family as actor in social forestry; and the next will examine in turn several units of social organization that provide alternatives to building social forestry programs either upon whole "communities" or upon discrete single families.
E. COMMUNITY WOODLOTS: PROGRAMS WITHOUT PARTICIPATING ACTORS

Until recently, the community woodlot has been widely promoted as the desirable model in social forestry.

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 labor and promote self-help, and would collectively protect the young plantations on "their" land. It was also optimistically 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 increasingly documents that, at close scrutiny, they are not what their name suggests them to be and, therefore, 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 programs that use the community woodlot model. Between 1977-1986, about 50 percent of World Bank's lending for forestry went to 27 projects which included, among others, some form of community forestry. Next, the Bank's lending for social forestry tripled in the 1987-89 period compared to the full prior decade. Major resources came also from bilateral donors like USAID, CIDA, ODA, SIDA and others. Yet in most cases, according to evaluation reports, the actual plantings accomplished under the "community" model fall below targets and don't 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" -- were not confirmed. This assumption was sociologically naive, lacking understanding of the nature and structure of village communities. Furthermore, the uninformed assumptions evolved crude project approaches and led to inadequate implementation that ignored the social prerequisites for generating collective action.

Indeed, after the Azad Kashmir case, strong empirical evidence in the same sense came around the mid-80s from three large social forestry projects assisted by the World Bank in India (in Uttar Pradesh, Gujarat, and West Bengal). None of these three projects managed to achieve or to come close to their targets regarding the establishment of community woodlots, while they were effective in other approaches and -- to some planners' surprise -- even surpassed their targets in farm forestry. In Uttar Pradesh, for instance, against a project target of 3,080 ha, village woodlots could be established only on a total of 136 ha (2 ha
woodlots on average). 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 labor as expected by the project in exchange for rather limited potential benefits from a small woodlot, after many years of protection and maintenance.... The social forestry organization lacked relevant know-how and resources to deal with the sociological and technical problems associated with densely cultivated areas and very small farms".31

At the time these unsatisfactory results became known, a new National Social 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 now 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. The subsequent mid-term assessments in 1988 and 1989 again confirmed the earlier conclusion about the absence of a pivotal social actor at the center of such schemes. 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 that no user-created management system for the protection and
maintenance of "community" woodlots has emerged so far (Salam, 1989). Communities as a whole are not getting involved and hardly can; 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. Among the subsistence farmers, disappointment with the distribution of benefits from these woodlots saps future interest in maintaining or expanding them. A 1987 evaluation of Orissa Social Forestry project found that 82 percent 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. It is therefore not surprising that in such social forestry programs "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," and in several other Asian countries its adequacy was questioned as well. Often forestry departments were asked to fully set up the village woodlots and then to hand them over to the village committee. This deprives the community woodlot of all or most of its social forestry content and makes the social forestry label a mere untrue slogan. 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 concluded:

"one of the most vital problems being faced by the community forestry program 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 '80s, Arnold and Stewart 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 had 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."

Altogether, the findings discussed above, and many others, support an essential overall conclusion. The many community woodlot projects initiated during the last dozen years amount to an extraordinarily telling case of an international program intended to capture popular participation, which
nevertheless was launched and generously financed without having elementary understanding of the kind of social process and system it needs to put in motion. Financial resources were made readily available for the technical act of planting trees within a complex social-technical process, but before the social part of this process of constructing new norms and institutions was formulated theoretically or tested experimentally.

Investment in the technical process outpaced by far the investment in the human/institutional process. The latter was not recognized either as a basic cost, or as the unavoidable learning curve that it must be. There undisputedly was lack of knowledge about even how to invest in the institutional components of social forestry. Although the institutional arrangements were the building bricks for the success of the technical process, the financial outlays were rushed into the latter without a prayer for the former. The final outcome could be no other than what the evaluation findings discussed above proved it to be.

The absence of the basic sociological knowledge needed to guide social forestry policies and actual work is much more consequential than the bureaucratic hindrances that have appeared, and always appear, during the implementation of induced development programs. Bureaucratic hindrances aside, the weaknesses or distortions during project execution are not the primary cause that renders community woodlots ineffective. I argue that community woodlots cannot be effective as such 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.

Even though it seems that the common interests of individual village inhabitants converge in having and exploiting a common treelot, this commonality turns out to not be sufficient for generating collective action towards this goal. Cultural
dimensions -- such as awareness of goals to be pursued, consensus about what work is to be done, suitable social organization, group size and coherence, authority mechanisms and systems for benefit sharing -- are critical parameters of collective action. In many of the project cases referred to in this chapter, such variables are not knowledgeably woven into the strategy for building the desired models.

To propose a generalized formulation, 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 organization or economic agents) for afforestation programs:

1. Communities and villages are geographical residential units, not necessarily corporate organizations. Physical vicinity alone is not sufficient to engender the type of long-term collective action required for a woodlot enterprise.

2. The interests of community subgroups often differ to such an extent that the kind of collective unified action required by long-term afforestation program is generally not possible. Usually, communities are heterogeneous population clusters, stratified and split in factions and subgroups with fragmented socioeconomic interests. What is advantageous for one subgroup is 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 a vested interest in not allowing the commons, which to them are a continuous
even if meager source of products, to become a closed, unaccessible woodlot; as Jodha’s research in India has demonstrated\textsuperscript{40/}, the poor households are dependent on products from the commons much more than those that are better off.

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.\textsuperscript{41/}

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 for benefit sharing to ensure that the woodlot products reach the entitled recipients are usually not thought through at the outset and have not worked in practice. Specified intragroup rules and guarantees for distribution commensurate with labor contributions are lacking, and this alone is sufficient to doom the wholesale community approach. Exclusionary rules against noncontributors 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 favors the lingering suspicion that the authorities will appropriate the wood anyway.
7. Last but not least, most often communities are not organized as joint producers in other respects and thus don’t offer a matrix on which additional activities can be grafted. Externally designed programs, which do not bother to establish grassroots organizations, cannot foster by decree the kind of close interdependence of members required by community schemes.

Because such characteristics tend to be widespread, disappointing results have also been recurrent; I am arguing that results are likely to be poor in the future as well, whenever such corporate woodlots are expected to be sustained by noncorporate communities.

Implied in most community woodlot schemes is also a complex reversal in tenure. Such schemes often aim to revert the open access regimes that took hold of nominally communal lands (or even on lands under nominal state ownership) and return them to genuine common property management vested in a group that must be well defined. This, in principle, is not unfeasible, and a strong argument from many development theorists recognizes that converting open access to common property is superior to etatization or conversion to individual property systems (see Bromley/42/, Ostrom/43/, Peters/44/). But rarely is such a reversal designed with conceptual clarity and carried out with adequate social means. Moving from open access to common property demands a conceptually clear and operationally refined sequence of steps. Such clarity and sound, culturally attuned social engineering are simply not present in most of the hurriedly put together "community" woodlot projects.

On the other hand, it has to be stated also that positive results with community woodlots are sometimes achieved; but they tend rather to be exceptions linked to particular circumstances in one community or another.45/ When they occur (some are reported in
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 organization. But that is not synonymous with saying that they are units capable of undertaking collective or coordinated action in any and all respects. Although historically various forms of corporate villages have overlapped with kinship units of a corporate kind, Eric Wolf noted already a quarter of a century ago that "corporate peasant villages are growing fewer in the modern world". A similar observation was made in 1929 for Moslem India (and, by extension, for Azad Kashmir as discussed earlier) by Moreland, who rejects the concept of village community; he notes that the peasants forming the Brotherhoods "are sometimes referred to in the aggregate as the <<village community>> but this term frequently covers other elements of the population and, apart from this ambiguity, it has gathered so many vague connotations that I prefer to avoid it". Louis Dumont similarly emphasizes 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. Dumont does not see the village as a significant unit for social action in India and stresses that what is generally called a "village panchayat" is actually a "caste panchayat".

More recently, in an excellent field study of Indian community-based irrigation systems, Robert Wade engages Dumont's above point in discussion, defending the opposite view - namely, that the community can act as a unit of social organization. Wade's field findings indeed prove that the villages he studied were able to develop collective action for irrigation. This points
to the need to qualify the kind of collective actions and the kind of natural resources that are to be developed by the community. While communities, as argued here, have not proven to be effective actors for "community woodlots", under certain conditions they may be effective actors for other types of activities like irrigation schemes, fire-protection, or road building, and so on. No a priori blanket judgment will do. The key characteristics of the type of action required must be pondered together with the social needs, pressures, and group or individual benefits related to such action. For instance, the almost unavoidable pressure to manage water allocations under scarcity conditions may overcome in-built contradictions and make it possible for the community to perform water related actions collectively as a unit. The various "conceptual and operational fallacies" that circulate in connection with common property natural resources need to be clarified, in order to improve the management of such resources and the strategies for using them effectively (Bromley and Cernea\textsuperscript{51}).
F. THE FAMILY AS ACTOR IN SOCIAL FORESTRY

Returning to afforestation strategies and to their potential actors, two questions to address are:

first, if the community as a whole can hardly be a homogeneous collective actor in afforestation, are there other units of social organization able to assume and to execute such a role?

second, are there tenurial innovations (in either land or tree tenure, or in granting usufruct rights) that can be introduced to mobilize and facilitate performance by such alternative units of social action?

The answer is positive to both questions. There are such social groups within the stratified, nonhomogeneous communities — namely, specific subsections of such communities — that can act collectively. Moreover, and this is crucial, such groups can be purposively organized. Furthermore, making more refined distinctions, as Fortmann proposes, between forms of land tenure and various systems of tree tenure would allow more imaginative combinations and innovations that can be introduced to create new stimuli for forming action groups. The challenge is to identify the population sub-sections able to implement and viably sustain such innovative approaches, and carry out the work with them.

**Family Agroforestry**

The increasing evidence that the community-centered approach is less effective than assumed has led to a perceptible shift in thinking and strategies among foresters and planners. They have begun to focus on the individual family farm unit as an alternative to the community-based programs in social forestry.
This approach goes by various names: farm forestry, family woodlots, agroforestry, and others. But the common denominator behind this semantic diversity is that the family household becomes the social unit around which reforestation is planned and financed. The technical approach to family farm programs also differs from the one proposed for community woodlots: it is designed to suit the labor and land opportunities available to the individual family farm.

Of course, this is not to say that all interest in promoting village treelots has now disappeared, or that promoting tree planting on individual farms is a totally new and recent orientation. What I want to underscore is a shift in emphasis, a reallocation of priorities, and a refinement and diversification of social forestry strategies. This implies a change in the sociological underpinnings of certain forestry programs. This shift generates, in turn, a demand for sociologists to formulate the social/cultural strategy for stimulating family-based forestry.

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 family farms. Family farm forestry is now a substantial part of the follow-up IHFDP in Azad Kashmir, for instance, as mentioned previously. In the design of India's Jammu and Kashmir and Haryana social forestry project, village woodlots represent only 11.3 percent of the total planting program, while farm forestry represents about 43 percent, supported by a distribution of about 47 million seedlings free to individual farmers; a similar approach was taken in an ongoing Kerala Project. Some of the most spectacular results in family 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) family farms planted approximately 500 million seedlings, the equivalent of over 325,000 ha. on their private lands, exceeding the already high target by some 18 percent.68/

The vast potential of the family farms to incorporate tree planting was dramatically proven in Haiti by the Agroforestry Outreach Project (AOP) funded during 1981-85 by USAID. Guided by prior ethnographic knowledge of Haitian tenure systems and cropping patterns, the AOP stands out as one of the not too many social forestry projects that had a clearly thought-through sociological strategy, purposively designed around the family farm as its central social actor, and that promoted a technically appropriate reforestation package; in other words, the technical and social approaches were well intertwined. The project started from the farmer’s needs, values and actual behavior; it proposed that the family farm (the average peasant holding in Haiti is about a hectare and a half) plant 500 trees of fast growing fuelwood and pole-producing species in intercropping and border-planting, to reduce the opportunity cost of land; it produced light-weight microseedlings and provided them free to the peasants, together with technical assistance; and, most importantly, the project guaranteed that "the peasants themselves, and not the government or the project, would be the sole owners of the trees and that the peasants would have unlimited rights to the harvest of the wood whenever they wished".67/ Social anthropologists directed the implementation of this social forestry project, in close cooperation with technicians, mostly using nongovernmental organizations. The results were spectacular: while the four-year project target was to plant 3 million trees on the land of six thousand peasants, it accomplished the planting of 20 million trees on 75,000 family farms. The success of this project’s sociologically informed reforestation strategy holds a powerful lesson about the importance of providing its key social actor, the
farm family, good economic incentives and tree-tenure security, and of fully recognizing its autonomy in decision-making.

Social and Technical Variables

Sociologically, the significance of a strategy centered on family forestry is manifold. Instead of joint (community) responsibility for planting and protecting, it deals with individual (family) responsibility. Instead of promoting joint tenure and ownership of trees, it promotes individual ownership. The family-centered strategy also vests the management authority over the planted trees in a real person -- the man or woman of the household -- rather than in a large, nonhomogeneous entity. Land tenure and tree tenure are much less ambiguous and thus agroforestry approaches can adjust easier to the enormous variety of local customary norms of tree/land ownership or usufruct. Of great importance is that the divisive problems of intragroup benefit distribution are eliminated. Overall, the transaction costs entailed by involving communities, establishing groups, organizing participation and so forth, are much reduced or eliminated. The result is that the user's (family's) needs for fuelwood are satisfied more securely through stable production rather than through chancy gathering. Inasmuch as the correlation between the farmer's inputs (labor or cash) and the output becomes direct and clear to the farmer himself, in a manner that is understandable, proportionate, and less risky, his production-oriented behavior is reinforced.

Of course, the structure and size of family units vary considerably across cultures: and the farm-family unit as economic agent may be a nuclear family in one case, an extended family in another, or even a lineage group living in the same compound, as is often the case in Africa. Agroforestry projects centered on family units need sociological guidance to go beyond formal land
laws and understand the social space created by the customary rights systems regulating access to land and trees.

Technically, trees can be grown on individually owned land not necessarily in small blocks (family woodlots) but also along linear landscape features such as farm boundaries, internal field borders, roads, and watercourses. Under conditions of wood scarcity, the economics of family agroforestry favors expanding tree planting. The resources required by agroforestry are limited, and smallholders tend to weigh the opportunity costs of labor and land more than planners usually realize. 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 farms that cannot afford to set aside an arable plot for a tree block can use their hedgerows for planting. Thus, technical options for expanding tree planting are indeed numerous.

Individual trees scattered on and around the family farm's cultivated areas generally grow faster than plantation trees which compete with each other in dense treelots (e.g., the volume of free-growing eucalyptus at the age of ten years is at least five times that of trees grown at a stand density of 1,600 trees/ha). Moreover, since farmers secure most of their fuelwood by lopping branches, trees along homestead boundaries can produce more volume per tree and more frequent supplies of small quantities of wood than those felled on far away plantations. This option can go a long way towards mitigating fuelwood shortages, since it is easier to persuade a farm family to plant on its own farm boundaries than to persuade communities to provide scarce land for block plantations.

The sylvicultural technology recommended for family forestry programs usually differs from the one recommended for
block tree planting, because of the socioeconomic context of farm
forestry. Under this approach, tree planting is incorporated into
the farmer’s own farming system, rather than remaining parallel to
it on a remote communal lot. Technologically, this integration may
promote multipurpose tree species, since these will respond to
several user needs: not only need for fuelwood but also need for
fodder, shade, small timber, and so on. Species suitable for
animal fodder, with fuelwood as a secondary rather than primary
benefit, often integrate more organically into the overall farming
system than species such as eucalyptus widely promoted by many
programs. If marketable species are selected, trees can become a
cash crop and bring income, not be merely a product for household
consumption. Forestry can complement rather than compete with
agriculture. In favorable ecological circumstances, with
reasonable rainfall, an average rural family needs comparatively
few mature trees to cover its cooking and heating needs, and some
species, if correctly spaced, can help increase agricultural crop
yields. It therefore appears that small land holdings need not be
regarded as a prohibitive barrier to family forestry.

Since family farm forestry is introduced through
individual decision-making, it can spread without the limiting
social factors that impede the collective adoption of community
forestry. Adopting family forestry represents a significant change
in the farmer’s behavior in the sense discussed at the outset,
inasmuch as he did not previously plant fuelwood systematically.
In India, for instance, it was estimated that in 1984 only a small
fraction (no more than 10 percent) of all farmers planted fuelwood
trees. This low proportion suggests the gigantic dimension of the
changes that are necessary. Recent studies in Haiti, India,
Malawi, Yemen, Zimbabwe, and other countries indicate some increase
in farmers’ interest in planting multipurpose trees -- for poles,
fodder, fuelwood, and as a cash crop.
Eliciting and motivating such change in users' behavior is precisely a part of the social strategy for reforestation. Every technical approach must incorporate extension for communicating sylvicultural information to farmers, influencing their perception of existing opportunities, and activating the little used but existing thesaurus of farmer indigenous knowledge about trees. Successful forestry programs (e.g., in West Bengal, and Jammu and Kashmir and Haryana) employ special change agents (extension agents called motivators or social forestry workers) to persuade farmers to plant trees and to assist them in doing so. Good progress has been made recently by social scientists in refining extension techniques tailored to the specifics of reforestation.

However, economic factors may also reduce the role of the family farm in tree planting, namely in situations when naturally grown fuelwood is available abundantly. A study of agroforestry in Sub-Saharan African concluded that as long as wood can be collected from common lands at low cost by rural producers, there will be little economic incentive to plant trees on family farms to meet fuelwood demands.

Supportive evidence for such conclusions comes from field investigations like those in Malawi, which found that the returns to labor invested in gathering fuelwood are 15 times higher than the returns to labor invested in growing fuelwood and over 5 times higher than to labor invested in growing trees for poles. In light of such and other findings, the study on Sub-Saharan agroforestry pessimistically predicted that agroforestry for fuelwood will not be widely adopted in Africa until the "free" wood
resources of the commons have virtually disappeared.²²/

Even though such broad pessimistic conclusions may be disputable, they and the facts that led to them are a reminder that agroforestry has its own limits. This is why alternatives to family centered forestry strategies as well as conservation/prevention measures must also be promoted.

Because of the long time lag between planting and harvesting trees and because small farmers can rarely afford to wait several years for income, special economic incentives are often needed to induce behavior change. Economic incentives, though necessary, are difficult to provide when government funds are scarce or when there are limited cash markets for forest products. Alternative incentives, perceivable to the farmer, should therefore be sought as well. Chambers and Leach²³/, for instance, call attention to a long overlooked aspect of the value of tree to farmers -- trees as saving banks --, a perspective that gives additional options for imaginative motivation efforts. The use of incentives are an important aspect of responsible social engineering, and sociologists can contribute a great deal to incentive system design.

The sociological understanding of the local culture, value systems and symbolic behavior can help develop noneconomic but powerful incentive systems and motivation tools. Farm forestry activities can be linked to events which stimulate the farmers' interest. For instance, under (nonforestry) projects that aim at regularizing land tenure (as in Brazil or Thailand), large numbers of farmers who have had only customary rights to land receive formal legal title to it. Since titles are important to farmers, the very process of granting them can be turned into an incentive for farm forestry: farmers may be asked to plant trees along the boundaries of their demarcated plots as part of the title-receiving
process or ceremony, and free seedlings can be supplied to facilitate it. Farm forestry can also be linked to irrigation, settlement or infrastructure projects. The symbolism of tree planting can be linked to events in the farm family's life that are imbued with positive values, help adopt the new behavior -- cultivation of fuelwood trees.

As an enduring social unit able to sustain forestry development, the farm family is a powerful social resource. 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.
G. ALTERNATIVE UNITS OF SOCIAL ORGANIZATION

Small Groups

The current expansion of family-centered forestry may, but should not, obscure the fact that group-centered approaches retain development potential that must not be written off because of the ineffectiveness of the wholesale "community approach". It would be throwing out the baby with the bath water if the de-emphasis of community woodlots were interpreted as renouncing ALL group-centered approaches. Common property resource management is not wedded exclusively to the elusive pattern of whole-village involvement. Even the community-centered strategy should not be dismissed altogether, however, because under certain sociopolitical and institutional contexts it may be able to produce some results.

Sociologists are well placed to point out to planners and foresters that communities are just one type of group and that the community forestry approach is only one particular case of many conceivable group-centered strategies.

The foresters, in turn, can and must ask the sociologist: which social formations between the entire community and the individual farmer would be capable of acting as supporting structures for the development of forestry? Is it possible to avoid the weaknesses of the community-based approach, yet elicit and make use of the social synergy of group-powered efforts in forestry?

The sociologist's answer to this question can only be affirmative. Sociologically, alternative types of groups can definitely be identified or organized. Some have already been formed as a result of local social invention under favorable conditions. The key is to identify a group that is free from the
inner conflicts of large 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, as discussed earlier, from their large size and internal stratification. Homogeneous groups of an easily manageable size could prove more functional. Their small scale would not create difficult problems of system maintenance (such maintenance problems are sometimes more complex than the very tasks the group is called upon to solve).

Through small groups, a common need that links the members can be pursued more effectively by joint action than by individual actions. Their needs as users of fuelwood can aggregate powerfully not only for joint procurement but possibly for joint production as well. Further, a simple rule for members' contribution and benefit distribution (e.g., equal shares for all) would eliminate actual disadvantages or misperceptions of advantages. A small group can also enforce rules through peer pressure and mutual control, so as to arrest free rider behavior. Members of such small groups enter in face to face contacts simultaneously as users, producers, and enforcers. Small groups often manage other natural resources (as in the case of a water users' association formed around a small branch of the irrigation system) and could operate a woodlot largely without the conflicts that surround community plantations. Also, given their ability to reinforce and speed up dissemination groups may become "contact" partners (more effective than individuals) to extension services.

Two West Bengal experiences relevant to group formation and roles are the group farm forestry and the Arabari socioeconomic experiment. They confirm the great potential for group formation
and the advantages that grouping brings to both farmers and forest departments.

**Group Farm Forestry**

The first pattern, group farm forestry, consists of a group of landless families to whom the state government leased marginal public land on a long term basis (99 years) to enable and motivate them to grow trees. The lease was offered to the clusters of landless with the guarantee that it can be inherited but with the restriction that the land cannot be alienated (sold or used for nonforestry purposes). The plots of land are contiguous, thus facilitating collective action in planting and protecting (such as taking turns in watching the plantations), as these tasks are performed more effectively than if carried out individually. However, the ownership of the trees, maintenance obligations (fertilizer application, replacement of dead trees, etc.), and the right to dispose of the products are vested in the individual leaseholders. Under this system there is not only legal, but also group control over the temptation to change land use or mortgage the land.

The target group of this West Bengal scheme, being landless, was highly dependent on the immediate income from their labor, for daily sustenance. Some payments for labor have therefore been made to help meet consumption requirements of the families during the early stages of the plantation. Incentives are also given for each surviving tree to encourage maximum survival rates.

The area allotted and the number of trees to be planted guarantee enough wood from lops, tops, dead trees, and branches to meet a substantial part of a family’s domestic requirements. The stem volume is then available for sale, and the total output ensures participant interest. The group strategy thus not only
maximizes land use for forestry but also provides the users with fuel or construction materials, as well as with cash income. These plantations generated good revenues which some families invested in purchasing land, planting potatoes, and other such gains. Overall, some 20,000 ha have been successfully planted under group farm forestry arrangements in West Bengal during the last six-seven years.

The potential for multiplying such small groups is substantial, as the pattern of group farm forestry can be introduced not only for the landless, but for small farmers as well. However, a socio-organizational effort is required to form and validate such user-cum-producer groups. The advantage is that they will then supply the social structure necessary to transform little used natural resources (wastelands) into an income source for landless or marginal farmers who supply labor at low opportunity cost and reap the benefits. Both government agencies and NGOs like the SPWD in India envisage a considerable expansion of group farm forestry on public wastelands.

This social innovation privatizes the use, but not the ownership, of public (waste)lands, providing an economic incentive to landless people to raise trees as a cash crop. Where surplus labor is available and employment is scarce, this option can significantly benefit the landless. However, it also requires prudent implementation to prevent the risk of depriving other vulnerable households dependent on wasteland products.

**The Arabari Experiment**

In the Arabari socioeconomic experiment, the innovative idea was to stop forest depletion (encroachment, theft, etc.) by providing villagers with an amount of employment in forest protection-cum-replanting work which in monetary terms would be equivalent to what villagers earned by sale of stolen forest
products. The Arabari is the name of a mouza (the smallest revenue subdivision in West Bengal, usually coextensive with the village boundary) in the Midnapore district. The small team of three researchers led by A.K. Banerjee who started the experiment in 1970 assessed, through a house-to-house survey in 11 villages (some 1300 people), that the underemployed villagers earned a significant part of their income (some Rp. 80,000) through illegal firewood cutting; the researchers understood that the villagers couldn't simply give up that income and survive, unless they could get access to equivalent income from paid employment. The research team, with support from the Forest Department, designed an action-research experiment consisting of several elements:

- employing for villagers in planting trees (acacia, eucalyptus, etc.) and grasses (e.g., mesta, a poor man's jute) on blank patches;

- spreading and phasing employment creation over the year to match the seasons of most severe underemployment in the area;

- entrusting protection responsibility to villagers with minimum official interference;

- ensuring fuelwood supply to the villagers at a nominal, low price;

- supplying smallwood, plough pieces, etc., from outside at cost prices, to meet villagers' domestic and productive needs;

- offering a revenue-sharing arrangement under which the Forest Department would pay the villagers
25 percent of the selling price of the mature trees in cash (this element was introduced later);

- carrying out an intensive communication effort to explain the incentives and the experiment rationale to the villagers; and

- establishing institutional arrangements such as the election of rotating representatives to monitor work attendance and to collect/distribute payments.

The results confirmed the experiment's assumptions (with the exception of relocating grazing outside the forests), in that the villagers enforced total protection of the forest, primarily by desisting from making illegal cuttings, while their employment in replanting generated revenue for them and for the project as well. The self-imposed and self-enforced reduction of firewood cutting and the watching and patrolling by villagers acted as a "social fencing" around the state forest. The tensions between the villagers and the Forest Department eased. The upshot of this successful experiment was that the once degraded forests were rehabilitated spectacularly within 3-5 years and have continued to grow since. Moreover, other villages joined and the experiment soon expanded from 11 to 16 villages, covering 1506 ha by 1978; some of the newly included blank areas were planted with cashew nuts, which in a few years provided a cash crop sold on the open market, with part of the sale proceeds going to the villagers.

Recent (1989) assessments confirmed not only the sustainability of the initial Arabari model but also its rapid spread in the mid and late 1980s to many more areas. While the experiment started without formal group formation in each of the small villages involved, the subsequent follow up took on stronger characteristics of group creation, with the establishment of Village Protection Committees. A.K. Banerjee reports that some
700-800 such groups were formed in the southwest zone of West Bengal, protecting over 70,000 ha of degraded/replanted forests: "in this area, people have formed formal groups composed of one member from each family. These groups meet once in a while, take decision and keep minutes. Each family provides a forest watcher at regular intervals.... The will to do so developed as these groups believed in the assurance of sustained benefits.... Their collective action is productive as there is an action plan" for the group.

Both the group farm forestry and the Arabari model are more feasible when the location of the groups' residence borders the forest lands to be planted and protected. Further, tailoring these approaches to particular sites and social strata requires land-use surveys and population surveys as baselines for targeting. The basic sociological principle is to create a clear link between a well-defined small group and a well-defined tract of forest land that is to be protected or planted. In addition, the group members need to perceive a clear correlation between their contributions and the returns they get, and with this awareness be prepared to act consensually. Authority and benefits must be restricted to the members of the group, not left open to free riders.

Interesting developments around the creation and productive activities of small user groups have been reported from Nepal (Messerschmidt), Indonesia, Niger, a.o. Analyzing the collective management of Hill Forests in Nepal, Arnold and Campbell emphasize user group motivation, organization and establishment of legal agreements between the governments, the panchayat, and the people who comprise the user groups. The core content of the legal agreement is in fact the management plan which regulates the cutting regimes, product collection and group harvesting. From Niger, Floor reports experiments that encourage charcoal user groups to take over management responsibility for
areas of savanna woodland in producing charcoal with more efficient practices.78/

Overall, the quasi-ubiquity and diversity of such arrangements shows the potential for varying the degree and forms of group cooperation as called for by the task at hand and by the people's preparedness for cooperation.

**Forest Cooperatives and Associations**

Even when tree planting is done by farmers on private/individually owned land, the creation of some form of farmers’ association may be beneficial for specific activities such as the management of tree-lots or the marketing of tree products. In some countries, the forestry departments help establish tree growers’ associations or similar organizations to assist farmers in marketing the wood produced under individual family forestry.

The forestry cooperative is one such structure. Although forestry cooperatives are less common than agricultural cooperatives, in some regions (e.g., Scandinavia) forestry cooperatives are numerous and their organizing principles work effectively.71/ With a clearly defined and not too large membership, cooperatives might be a more coherent and goal-oriented organization than the village community as a whole. In the North-West Frontier Province of Pakistan a pilot program to revive forestry cooperatives in the Guzara forest was started to establish fifteen cooperatives, each with a minimum of 500 acres of forest land. Each cooperative has responsibility for managing only the forests owned by its members, in accordance with a plan approved by the Forest Department. The cooperatives receive technical assistance in preparing the management plan and the services of field foresters, both paid for by the provincial government. No other subsidies are given, and all other forestry costs (replanting felled areas, maintenance, extraction, and so on) are borne by the
cooperatives. For this purpose, cooperatives are authorized to retain at least 40 percent of the revenue from the sale of trees, and receive credit if needed. A sociological study\footnote{22} found that Guzara farmers strongly value the contribution cooperatives can make toward protecting their ownership rights to the forests, but see government interference and the intrusion of party politics as a mortal threat to these cooperatives.

An expansion of cooperative forestry structures is happening currently in India, due to the initiative to form "tree growers cooperatives" launched by the country's National Dairy Development Board. This attempt to transfer and adjust the pattern used by the well known Anand dairy cooperatives is obviously risky, but promising. Such tree growers cooperatives are envisaged on unencroached wastelands in Orissa, Andhra Pradesh, and other states, with each cooperative covering some 100 ha of private marginal lands and 50 ha of common wastelands.\footnote{23}

\textbf{Age Groups}

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. I think that these types of groups could also be used for certain forestry development activities.

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 group limits its participation in
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."

An example from Gujarat is impressive: at the outset of a social forestry program 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. The program has thus made wise use of available social units as a lever for amplifying tree planting and ownership. In addition, many schoolchildren took the seedlings home and planted them around their family homestead.

**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. And indeed, recent evidence analyzed by Molnar from many social
forestry programs points out the major contribution women are making to them.

Although women's associations for various productive or household-related activities have been promoted in many countries, until recently little has been done to encourage women's organized group action for cultivating woodlots. Even in a country such as Kenya, where women's groups are widespread and effective, a sociological field study reported a few years ago that out of 100 women's groups active in one district (Mbere), none was directly involved with tree planting; in other districts, however, women's groups have started planting some woodlots for their own use and some statistics for 1989 already report hundreds of women groups involved in forestry in Kenya. There are indications that similar trends are getting stronger in other countries as well. In India's Himachal Pradesh, multipurpose women's groups called Mahila Mandals, which have been in existence for many years already, are now frequently including tree planting among their activities.

Women's groups could become the prototypical grouping of discrete "users" turned "producers" in forestry. In many places women and children are compelled to make enormous efforts to collect wood for cooking and heating. In certain areas of Nepal, for instance, the time a woman spends collecting fuel is estimated to be between twenty and forty days a year. Therefore, producing rather than collecting the fuelwood may save both time and labor. Adjustments may be needed in their other productive and household roles, given the inelasticity of rural women's time. But promoting group-patterns in tree-growing activities may maximize output without necessarily creating new time constraints on the women. What is required is a policy that facilitate women's access to suitable land tracts and organizes the establishment of groups.

Establishing reasonably-sized women's groups that induce mutual help and cooperation is likely to be a more effective social
device than if each woman spends the same amount of time and labor on individual farm forestry. This is certainly an area for action-oriented research and sociological experimentation, in which positive social engineering could make a valuable contribution to foresters’ efforts.

**Watershed Forestry**

Environmentalists, foresters, planners, and policymakers alike are increasingly concerned with the rehabilitation of watersheds. A legitimate question which development sociologists therefore have to answer is what social unit can effectively sustain watershed rehabilitation and management?

Watersheds are geophysical entities and the people who inhabit them are not organized as one social unit. But the topographic pattern of the watershed and its resources shape human activities, division of labor, settlement patterns, etc. It has been observed that human societies in different parts of the world have frequently adapted themselves to the watershed landscape in similar manners and there are often "parallels between the ways in which human groups are organized and spatially distributed and the physical characteristics of the watersheds" (Lovelace and Rambo83). It is the physical potential and resources of watersheds that are used -- and often abused -- in people’s productive activities. This is why watershed use planning, erosion control, or watershed reforestation cannot be effective and sustained unless they are designed to enlist watershed inhabitants in rehabilitation work.

The need for an explicit sociological dimension in watershed resource management programs is being increasingly realized. A forward-looking strategy proposal for rehabilitating about 150 million hectares of degraded watersheds in developing
countries strongly urges the recognition of this sociological dimension:

Watershed projects deal with people. The key to securing people’s participation in such programs will lie in designing broad strategies based on a better understanding of their perceived needs and priorities and in particular of local land tenure.... This implies that enough time will have to be spent at the outset of project development on sociological studies in order to define the type of incentives needed to elicit farmers cooperation.83/

The challenges for sociology contained in such global strategies, and the call for specific answers and implementable social engineering, are pressing. There are important practical questions to be asked from a sociological angle: for instance, if a watershed is treated in physical planning as an ecological system, can the ecosystem users be regarded as a constituted social system? What is the need for, and the degree of actual cooperation among inhabitants in their productive activities? Do ecosystem inhabitants act collectively, in a more or less coordinated manner, to protect and rehabilitate, or to develop the natural resources of the watershed? If not, how can such collective action be encouraged?

A single watershed may contain a broad diversity of tenurial arrangements, stratified social groups, and various farming systems and land use patterns, evolved as forms of adaptation to the various physical segments of that watershed. Moreover, rehabilitation of deforested watersheds demands much more than massive planting of trees. It involves flood control and soil conservation; often bench terraces need to be built, requiring excavation, leveling, and refill work; farming systems need to be adapted to the ecological characteristics; and changes may be
needed in the land use rights, in the rules of land transmittal, and in settlement patterns and the number of inhabitants. The work that needs to be done is therefore usually beyond the scope of what individual farmers can do as discrete actors.

Again, **group** action is required, as well as support from technical agencies. But as pointed out earlier, coordinated and collective action does not ensue automatically just because individuals stand to gain from such consensual action. They must (a) understand subjectively the commonalities underpinning their objective interests, (b) be willing to act consensually, and (c) organize themselves into some kind of group structures, with goals and rules conducive to carrying out the requisite activities. Coordinated social action for the management of watershed resources is probably one of the most complex types of collective adoption of innovation, particularly when it has to start from the absence of structured groups.

Organizing structures for social action and engineering the formation of a group from discrete and not necessarily interactive farmers is a task no less difficult than any of those previously discussed. Watersheds and microwatersheds could be used as the physical subdivisions within which farmers' activities can be aggregated into coherent group efforts. Social groups should get involved in the design of a land use plan for the watershed and gain the strength to sustain it through convergent practices based on perceived common objectives and jointly enforced rules.

In such an approach, the sociologist would be called upon not only to design the social mechanism for a watershed strategy through applied field work, but also to provide an indispensable contribution by actually implementing it along with the land use planner, the forestry agent, and others. In the case of the very successful agroforestry project in Haiti discussed earlier, which was designed and directly managed for several years by social
anthropologists, sociological knowledge, applied with commitment and creativity, contributed decisively to the success of social forestry, and created a tested model for guiding future efforts.

**CONCLUSIONS**

The alternative types of social units examined above do not exhaust the list of potential social actors for afforestation programs. 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 organization created to perform, by using state investments and resources, the functions of conserving, managing and developing forests. As administrative bodies, forest departments are of a different organizational nature than the types 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 sylvicultural, organizational, 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 organizations that make forestry and environmental conservation their own agenda, may become also the organizers of people's productive organizations 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 organization. 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 organizational strengthening, adaptation, 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, the centrality of the masses of users-becoming-producers. It breaks radically with the stereotype that forest growth is the business of professional foresters alone, or of mother nature alone. In turn, the operational strategy to service this philosophy pertains to the how-to questions and is being fashioned with every new project or bold social experiment that attempts to involve people in tree growing. The practice of social forestry is wide open to multiple approaches, open to the creation of diverse patterns of social organization as matrices for action. It is open to imaginative and informed combinations of innovations in land tenure and tree tenure, of various forms of ownership or usufruct, of tested or unorthodox tree growing techniques, and of age-old or novel social structures ranging from the farm family to all kinds of purposively created groups.

The analysis of many available options showed that there is no single "best" social approach which will prove optimal for all situations of forestry development: the possible strategies span a broad spectrum. Sociological knowledge is instrumental and indispensable for conceiving and implementing each approach. Alternatives can be devised through testing and continuous learning, and should be encouraged as "social inventions" for the effective performance of productive and distributional functions.
NOTES AND REFERENCES

1/ I found a relatively early use of the concept "social forestry" (perhaps the earliest use in an important government program) in the Interim Report of the National Commission on Agriculture and Social Forestry prepared in 1973 for the Government of India (Ministry of Agriculture, New Delhi, August 1973). "Social forestry" was proposed and advocated in that report in contrast with, and as an alternative to, what was then called "extension forestry"; the latter was criticized as inadequately meeting the "social demands on forests" (p. 10).

The objectives specific to "social forestry" were defined in that 1973 Report as follows:

(i) fuelwood supply to the rural areas and replacement of cow dung;
(ii) small timber supply;
(iii) supply of grasses and fodder and provision of grazing;
(iv) protection of agricultural fields against wind; and
(v) recreational needs (see p. 12 of that report).


11/ The literature is replete with evidence about such conflicts, crying for radical reversals. Simon Commander, commenting upon a similar state of acute conflict in the Chatanogpur region of Bihar between the Forest Department and the adivasi population, called it a "deterioration to quasi-insurrectional proportions" (see S. Commander, Managing Indian Forests: A Case for the Reform of Property Rights, in Development Policy Review. Sage, London, vol. 4, 1986, p. 332).

12/ Sydney Draper, personal communication.


14/ W.H. Moreland, in "The Agrarian Systems of Moslem India", considers that the usual naming of Khalsa as "crown land" is somehow "misleading". He emphasizes the meaning of Khalsa as "free", reserved land, which is not assigned to individual owners, land over which the government, through the Revenue Department, exercises will and authority, or virtual ownership, (see W.H. Moreland, The Agrarian System of Moslem India. A Historical Essay with Appendices, Central Book Depot, Allahabad, 1929, p. 29 and 273).

15/ The official definitions of these two categories of forest land, given in the 1930 Jammu and Kashmir Forest Regulation act, No. 2, are:

"Demarcated Forest means forest land or waste land under the control of the Forest Department, of which
boundaries have already demarcated by means of columns of stone or masonry or by any other conspicuous mark, or which may hereafter be constituted as a 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."

As a rule of thumb, 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.

16/ Ailan (Proclamation) No. 17 of the Jammu and Kashmir Government issued on September 13, 1927 gave permission to record as Shamilat the Khalsa waste areas already in joint village possession and also sanctioned; some restrictions notwithstanding, the recording of certain tracts as Shamilat private holdings in the Jamabandi (the register of holdings of owners and tenants) under three subclasses: Shamilat Malikan, Shamilat Malguzaran, and Shamilat Maurusian, according to the nature of rights of the respective village landholder in the register.

17/ Land Revenue Act, sec. 150 A. In principle, according to the law, when a co-sharer of shamilat encroaches upon it and includes it in his cultivated area, he can be ejected at the request of another co-sharer. However, such grievances, and particularly their enforcement, have been rather infrequent. A rigorous land census in the late '20s, for instance, would have found nowhere in the area of today's Azad Kashmir as much as the 325,000 acres of shamilat lands assumed to exist at the appraisal of the Hill Farming Technical Development Project. Even less land in this category could be found now, in the late '80s.

18/ 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, or the incapacity (from old age or other causes) 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" (op.cit, p. 163).

19/ **Nautor** is a piece of state-owned Khalsa land that is encroached for cultivation; the encroacher is called **Nautor Kumanda**.


21/ **Azad Jammu and Kashmir Regulation of Nautors and Grant of Khalsa Land Ordinance, 1974**.


23/ The wealthier farmers benefited most from the project's financing of all the costs of the fuelwood planting, which included seedlings and the establishment of nurseries, labor for planting and filling in, transport of plants, and protection (wages for guards) for several years. The cost for planting was estimated to be Rp. 1,300 per acre, which excludes the costs of annual maintenance and protection between planting and harvesting, estimated at an additional Rp. 600-700 per acre per tree-crop rotation.

24/ In a neighboring province of Pakistan, the North-West Frontier Province, the *Hazara Forestry Act* (1936) provides an interesting example of a contractual relationship that ensures legal protection for the group-ownership rights of the farmers, while vesting the authority to manage their forests in the Forest Department. This Act also institutionalizes a contractual mechanism distributing the proceeds and of cost recovery, whereby the government costs for management and commercial exploitation are covered by a fraction of the proceeds from sold timber, which go to the owners.


32/ Abdul Salam, *Field report on sociological aspects in the National Social Forestry Project*, Gujarat Sub-project, January 1989, processed; also Dr. A.K. Banerjee, personal communication.

33/ *Mid-term review materials for the National Social Forestry Project in India*, World Bank, June, 1988, processed.


41/ 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 M.


45/ Mathew S. Ghamser, for instance, 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 Mathew S. Ghamser, Letting the Piper Call the Tune: Experimenting with Different Forestry Extension Methods in the Northern Sudan, ODI Social Forestry Network, Network Paper 4a, 1 June, 1987.


49/ 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." (L. Dumont, Hommo Hierarchicus. The Caste System and Its Implications, University of Chicago Press, Chicago and London, 1980, p. 164.)


55/ World Bank, Kerala Social Forestry Project, Staff Appraisal Report, December 1984, processed.

56/ Mid Term Review materials for the National Social Forestry Project in India, World Bank, 1988, processed.


62/ Cook, Cynthia and Mikael Grut, op. cit., p. 56.


64/ The economic analysis of such a land lease scheme indicates that if some 2,500 seedlings can be given free to each participating family for staggered year by year planting over 10-12 years, the family would become self-sustaining on tree-cropping alone when the first year's plantation will reach maturity. The family would satisfy its domestic fuelwood needs from lops, tops and fallen wood and could sell the main stem volume for cash, replanting anew each year to replace the mature trees harvested.


74/ Chowdhry, Kamla, Schools as Partners in Social Forestry, Ford Foundation Discussion Paper Series (Delhi, August 1983).


79/ Dianne Rocheleau, personal communication.


81/ An interesting analysis of the issues of human energy and women’s work, including the implications for women’s gathering, using, and producing firewood, is contained in Irene Tinker, The Real Rural Energy Crisis: Women’s Time (Washington, D.C.; EPOC, 1984, processed); see also Irene Tinker, Women, Energy and Development (Vienna: Centre for Social Development and Humanitarian Affairs, 1982).


85/ Conwey, Frederick J., Broadening Fields of Action: Anthropologists and Project Implementation in Haiti, Paper

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