1993

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Recommended Citation

MACALESTER

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There are three fundamental elements of any social forestry project: the forest, the people and the establishment of a link between the two. A comprehensive understanding of the forest and the people, and an appropriate strategy for the third element, are prerequisites for promoting successful social forestry projects.

Forests are composed of land and its associated vegetation. The land has a dimension and a growth potential. The vegetation on that land is a product of the land's size, growth-potential, and the use to which it has been put over time. The forest also has a social characteristic, namely the ownership of the land and the rights to use its products. As we will see, each of these features plays a significant role in social forestry programs.

The second element, "the people", has to be considered in a number of ways. First, does "the people" refer to an individual, a group of a few, or a large body? If the latter, how large is that body and what are their economic positions, social behaviors, institutional capabilities and technical skills? How do "the people" now, and how did they in the past, perceive the forest? What do they expect from forests and how do they choose to access forest resources? Finally, what is the role of these people in the outside world—are they located in the market mainstream or in an isolated area with little outside contact?

The third element, the establishment of a link between the forest and the people, is what gives life to a social forestry project. The connection should include the entire spectrum from the introduction of technology required to reach the land's potential, through sustainable generation of forest products desired by local people, to an equitable distribution of benefits to the people.

There are two major forms of social forestry—that practiced by community members as groups and that practiced by individuals or families on private farms. This paper focuses on forest management by community groups. I discuss the constraints and advantages of each of the three fundamental elements in community forestry projects and specify steps necessary in promoting successful projects.

The Forest

Amount and Quality of Land

The size and quality of land are important, yet often forgotten, issues in social forestry projects. Large forests cannot be effectively managed by an individual or small group, while small plots of land generate insufficient goods to be equitably distributed to all members of a larger group. Land of inferior quality, even if it is large in size, can be a production liability rather than an asset, as it requires extensive management time and yields few desirable products. Small plots of land or land of bad quality generating few products vis a vis the needs of the users provide insufficient incentives to entice public participation in social forestry projects.

For example, in the first social forestry project of Gujarat, India, community forests were established in four hectare plots without regard to the quantity of forest products people needed. In most cases, the production from these community forests was less than one sixteenth of what was needed by people for their personal use. Although the villagers refrained from cutting the trees, they did not participate in the management of these plantations.

There is no specific land to people ratio that balances human forest product needs and ease of management. The amount of land needed for a given group depends on the local conditions, human perceptions of forest resources, the land quality and the number of individuals linked to the land. The broad principle to keep in mind is that the products and income generated from the land should constitute a significant part of the income of the people involved with managing that land. This would encourage people to participate enthusiastically in the community forestry project.

For example, suppose that in a moist area of India an average quality hectare of land with standard forestry technology generates six to eight cubic meters of biomass per year. A family of five dependent on the land for fuelwood would need about one hectare of land to satisfy their own requirement. If the land allotted to the family is less than one hectare and they continue to collect fuelwood only from this land, degradation would continue to the extent that land is scarce. The social forestry program would thus be unsuccessful to that same degree unless the family is provided with alternative fuel. The size and quality of land are thus critical factors in developing effective social forestry projects.

Forest Stocking and Productivity

Knowledge of the stock and productivity of the forest for both wood and non-wood products is extremely important in community forestry projects. Ground surveys or, if available, aerial photographs or satellite images are used to collect this information. Surveys should also be conducted to calculate the actual and potential growth of the forest. This information is critical to forest planning and management.

Currently, most social forestry projects are conducted on waste land or on degraded land. Existing vegetation in these areas is sparse and of low quality. These lands are often transferred to the people because the state has failed to protect them effectively. It is assumed that people will protect and improve the productivity of these lands in return for greater usufruct rights.

With sparse vegetation and degraded land quality, protection alone does not generate sufficient short term products on the typical community forestry land. In fact, the prescription of protection deprives local people of biomass that they once were allowed to collect. Poor families eking out an existence must reduce their income in the present in order to improve it in the future. This formula does not work for the poor.

The transfer of productive forest areas is necessary for "the people" particularly the poor, to participate in social forestry projects. Productive forests can generate goods for the people, from the first year, that exceed in value what they are accustomed to getting from degraded forests. However, with productive forests transferred to the people, the government loses revenue and the forest is not necessarily managed for optimal national interests. In fact, some critics uphold that the people would convert productive forests to agricultural land. To avoid these problems, agreements must be reached between the people and the government prior to the transfer of forested land. The agreement should provide safeguards to ensure that the forests are sustainably managed and the income is shared equitably between the government and the people. The successful acceptance of this proposal must include the negotiation of issues such as stumpage value and the relative share of forest products allocated to the people and the government.

The above proposal also suggests that degraded forest and waste land management needs investment and some gestation period in order to generate tangible products. The local people, living below or barely above subsistence level, can neither invest in nor wait for these forest products. Therefore, the government must assume the responsibility of managing degraded forests and transfer the role of managing productive forests to the people. There will be cases where hardly any productive forest

remains and degraded forests and wastelands have to be managed and reforested. In such circumstances, social forestry projects should compensate the local people for the income foregone due to the waste land being taken out of production.

Land Tenure

The lack of official land tenure is a constant constraint in many social forestry projects. If we look at the history of land tenure in different parts of the world, we find a similar refrain. In the past, land belonged to the people living on or using the land. Even today, in some parts of Arunachal Pradesh, India, if you ask a tribal person about the area his tribe manages, he traces the boundary over extensive forests in front of him stretching to distant peaks. One should not imagine that he overstates the boundary of his land. His people probably use all of that area through swidden cultivation with long fallow periods. The area used is as large as the fallow is long. With time and rapid population growth, community owned lands in many parts of the world have been reduced by the encroachment of outsiders. Ultimately however, it was national governments that usurped most common lands across the globe including forested land, leaving little for community use. Some of this usurped land has since been transferred to private ownership. The story of land ownership therefore is one of a trend from community ownership to public ownership to a mix of private and government land tenure. Most remaining community owned land is little, of low quality and often managed by the government.

When social forestry projects are implemented, land ownership problems come to the forefront. With the exception of farm forestry on private lands, most community forestry components are implemented on lands either owned or managed by the government. Participants are typically unsure if they are entitled to benefits from this land. In spite of government officials indicating that they are so entitled, people continue to regard community forests as belonging to the government with their role as wage employees. This situation does not promote participation.

These problems could be alleviated if the government would issue unambiguous orders to transfer either ownership or usufruct rights of the land to the people. Properly implemented, either transfer can be effective. Moreover, the government should negotiate the sharing of benefits from these forests with the people. A number of problems have to be considered in this regard. For forests with non-marketable products, the stumpage value of trees is negligible. If forests are managed in a manner that is ecologically sustainable without investment (as in the case of coppicable forests in Nepal's middle hills), the question of the Government sharing a part of the product does not arise. However, the nation gets the indirect benefits provided by a well managed forest. When products of the forest are marketable, the government is entitled to collect an economic stumpage. The people as forest managers would also have to keep aside investment reserves to regenerate the forests before utilizing the profit. The government and the people would have to negotiate the terms of transfer in advance of the project such that the forest is perpetuated and the people benefit in the process.

The Government of West Bengal, India has issued an order that 100% of some the intermediate timber and non timber forest products and 25% of the final harvest of the degraded forests will go to the people, provided they protect it. Many other states in India have made similar decisions with varying patterns of sharing (SPWD, 1992). Acceptance of the offer of sharing depends on whether the generated income significantly improves a family's income. While in West Bengal the offer seems to have worked, it has not in many other states.

Land tenure is a very sensitive and a difficult issue in community forestry. The people must be convinced that the government is genuinely interested in sharing, and they must understand that the pattern of sharing will give them substantial benefits. As the track record of many governments regarding land ownership is dismal, people tend to reject extension efforts emphasizing a change of government attitude. In addition, the concept of sharing products or land may not have trickled down to the official land managers (i.e. forest officials). Thus, public skepticism of government efforts to help them is often warranted. Efforts must be simultaneously made to help the government maintain a commitment to sharing forest resources and to build the confidence of local people such that they are willing to participate in community forestry projects.

The People Element

Group Formation

Community forestry is all about people. But who are the people in this context? There is substantial disagreement surrounding this question. Some believe that the human focus of community forestry projects is the poor, as they are the most dependent on forest resources. Others believe that "the people" refers to the users of the resource, regardless of their status. Several authors give special emphasis to gender, specifically women, while others give special attention to community leaders such as teachers, elected officials and prominent youth. It is argued by some that a community forestry group should be as homogeneous as possible with respect to religion, caste, language, economic status and so on. According to this argument, if there is too much variation in these characteristics between individuals of a group, the variation should be eliminated creating additional groups.

It is essential to define groups at the outset of any community project. In general, a group should be not more than 100 families and they should be geographically close to the communal resource in question. Although each individual in the group may not be a direct user of the forest resource, all are expected to seek benefits as the sharing of the resources is negotiated among all group members. Thus, according to this view, "users" refers to all potential users of the resource. The next legitimate question is what constitutes closeness to the forest resource? In most parts of the world, particularly in the plains, people live in villages with an identifiable space between villages. In these situations, people in the first row of villages surrounding the resource constitute close groups. From among these villages people should be encouraged to form groups, each of about 100 families.

Unfortunately, there are problems associated with this simple definition of proximity. Firstly, if the resource is large, the people living in the immediate vicinity of the resource should not get all the benefits while people living in not too distant villages, are deprived. Secondly, in many areas particularly in the mountains, people do not live in well defined villages. There are often isolated families with up to several hours walk to the next household. In this case, local traditions regarding the villages or groups of people that use the resource is an important consideration. Once traditional use is determined, all families of resource users and their neighbors should be included in the group. If the resource is so big that the community surrounding it cannot manage it, or the resource generates more products than the group presently uses, more groups, even from distant places, should be included as separate groups.

In identifying groups, one has to keep in mind the group's proximity to the resource, the actual and potential users of the resource, the yield of the resource and the capability of the groups to manage it. This process of identifying user groups and managing the resource can be surprisingly simple in the field. People seem to know who should manage what land and for what purpose. Groups are promoted or formed at their own volition and, after a bit of haggling with other groups, each identifies their own resource area. The role of the project is to bring the users and potential users together, explain the possible problems and let them sort out the solutions through discussion. An incident in the Terai district in Nepal which I witnessed, will help illustrate this point.

A village group (village I), consisting mainly of women, was protecting a small forest. The group's main problem was theft in the protected forest of trees by members of a neighboring village (village II). In a meeting of the people of the two villages, two persons of village II openly admitted to cutting trees from the protected forest. They did not call it stealing but claimed that this has been done by their fathers and that they would continue to do so as a traditional right. They further said that they were landless, had no employment and had had difficulty feeding their families since the group of village I began protecting the forest. After much haggling and three meetings, the two villages decided to allow the two people of village II to join the group of village I and be beneficiaries of forest protection until they are allotted land for cultivation by the state. The resolution of community conflicts may not always be this happy, but this example illustrates how groups are altered and problems solved in the field. (World Bank Report).

Group Functioning and the Perception of Needs

With the formation of groups and identification of the area that they will manage, the community forestry project should assist the groups in functioning. This is the more challenging part of the process as groups, in the long run, have a tendency to be dominated by a few aggressive people. This brings the topic of committee formation.

I am thoroughly opposed to the formation of committees composed of part of the group. If groups form committees, the committees generally take over management of the resource. Even if it is assumed that the members of the committee are conscientious, non-committee group members are still distanced from their management responsibilities. In the long run, group members not involved in the committee unknowingly accept management mistakes and are unaware of ongoing operations.

In community forestry, all members of the group should participate in the decision-making process. One man and one woman of each family should be entitled to be members of the group. This would increase the number in the group to 200. Making a decision with a group of 200 is not a practical proposition and leads to disorderly meetings. However, disorderliness combined with the involvement of the entire group is preferable to keeping order with most of the group uninvolved in decision making. Most groups, with time, will establish rules and regulations which bring order to meetings and the making of management decisions.

It is the responsibility of the community forestry project to generate the data required in the management of forest resources. This should be done in consultation with the people. In addition to collecting general information, such as population, number of cattle, economic status and land holdings of each family, it is important to discern the requirements and expectations people have of the forest resources. At the same time, project organizers should determine how group members are willing to contribute to the community forestry project.

The perception study of peoples' expectations and participatory role is best carried out by meeting individuals in their homes. At least 15 families should be included in each study and they should be drawn randomly from economic status sub-groups such that the sample proportions from each economic sub-group equals the population proportions. It is important that interviews with the selected families are informal and unstructured. The objective of this interview is to learn what family members identify as their primary use of the forest (fuelwood, fodder, employment, small timber, large construction timber, non-wood forest products etc.) and how these products are best obtained from the available land. For example, in an interview in the state of Karnataka, India, it was found that the villagers wanted a tree windbreak for stopping salted sea breezes affecting their agricultural crop. The data from these interviews are then analyzed to determine the primary requirements of each economic group. These interviews also bring forth the people's perceptions of the current group leadership and the group's previous undertakings in community work. These data also play a crucial role in the community forestry process.

The Link Between the "Forest" and the "People"

Microplanning, GIS and the Application of Improved Forest Technology

Armed with the knowledge of the forest potential and what community groups perceive to be their needs, the project must draft a preliminary plan to join the two sets of data. This is referred to as a microplan (Banerjee, 1987). The microplan should recommend improved and appropriate management technology, calculate sustainable yields of various products, provide data on employment opportunities, and indicate the responsibility of the group and the government in managing the resource and sharing the benefits it produces.

The plan is then presented to the group for critical discussion, modification, finalization and ultimately execution. The discussion process is lengthy and may extend over several meetings, for the majority of group members must agree to the plan for effective implementation. The project may use a

wide range of techniques to facilitate the discussion process. For example, project leaders may use plans of the village and the forests drawn on the floor of the meeting place to explain what they want the group to decide upon. Or they may use a Geographic Information System (GIS) to prepare maps that, once explained to the group, become the basis of decisions on some issues. The point is that most groups are comfortable with a visual presentation of forestry management problems. They generally are not concerned with how you arrive at the visual image so long as it is understandable. The idea that project leaders must use simplistic techniques for dealing with villagers is not always applicable. New sophisticated techniques may be presented to villagers for decisions in microplanning.

Using GIS, it is possible to demonstrate that the current use of a specific Forest Block A is degrading, while another forest stock is increasing dramatically in the nearby forest block B. GIS can also indicate through maps the expected situation after some years, if the present trend continues. Members of two villages then can confer to balance their use of the two areas such that both remain healthy and productive. Based on GIS maps, villagers can decide how groups must split apart or merge. They can then negotiate arrangements for ecologically sustainable forest use with equitable benefits to members of both groups.

It is necessary here to discuss forest technology which has been largely neglected in the community forestry program. In community forestry in India, similar technology has been adopted in all areas, regardless of specific needs. This is because the technology of community forestry is not well known to most foresters and the attention given to social issues often diverts attention from technological issues. No attempt has been made to increase production in community forests by introducing improved technology such as soil and moisture conservation, genetically improved seedlings or techniques for enhancing growth rates of coppice forests.

The appropriate management techniques for a given forest area depend on the desired forest products. While traditional forest management aims to produce primarily timber, with other outputs considered by-products, community forestry may recognize non-timber products or a combination of non-timber and timber as the main management goal. Every group has different perceptions of their needs, and management technology options should differ with every microplan. The technology section of the plan should therefore emphasize production of what people want and maximizing this to an extent that the site can sustain.

In one microplan preparation in India, a community forestry group found that a large percentage of their earnings would come from the collection and sale of sal leaves. While the foresters knew how to produce sal timber and poles of average quality, they did not know how to increase the production of sal leaves. This group obviously needs technological support not provided by conventional forestry projects to maximize the production of the product they most desire.

Indeed, determining the appropriate technology of a microplan is a difficult task and should be handled by the most knowledgeable. The community group decides on what it needs but it should be the endeavor of technical experts to devise a strategy for producing the maximum quantity of products from the available resources. A coordinated effort by a team consisting of local people and technical personnel is imperative for an effective microplan.

Failures of Community Management

While the establishment of a strong link between the people and the forest may appear simple on paper, it is quite complicated and difficult in practice. For example, in both Mexico and Papua New Guinea, community management of forests was the rule rather than exception. The forests in these countries have not, however, fared better than those managed by the state. My conclusion would be that an effective link has not been established considering the unsatisfactory outcome. If a majority of people in the community are not concerned with the way the resource is managed, the resource is likely to be usurped by a few community members. We are not, however, advocating that traditional management groups be revived, or that forests should be managed using the techniques of the distant past. Times have changed, demands have increased, and the expectations that people place on forest resources are

different. New community groups must cater to these developments and devise new solutions. Community forestry projects can assist community groups in reaching this new phase of management.

Conclusion

Given that the land tenure of productive forests by community groups is tenuous, the receipt of tangible economic benefits may be the major incentive for community groups to protect and manage forest resources. Tangible benefits are available if technology is appropriate and sustainable and production is significant, equitably distributed and sustained over time. Technology for optimum production and democratic local institutions are therefore the keys to success in community forestry at the micro level. Positive indications of groups taking over forest management is manifest in different parts of the world, especially in Asia (Poffenberger, 1990). It is time for governments and foresters to help promote these local initiatives rather than letting them lose momentum.

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