PN-AAX-169
ISN 50264

PEOPLES' INSTITUTIONS FOR FOREST AND FUELWOOD DEVELOPMENT

A Report on Participatory Fuelwood Evaluations in India and Thailand

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A Project Conducted by

East-West Center
Resource Systems Institute

Appropriate Technology
Development Association

East-West Center
Environment and Policy Institute

Chulalongkorn University
Social Research Institute

PN-AAX-169

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March 1987

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PREFACE

In urgent efforts to improve the welfare of rural citizens, governments often attempt to save time by planning development programs with a minimum of consultation with the intended beneficiaries. One serious drawback to this mode of program formulation is that the problems identified by experts working in urban environments often do not coincide with the high priority problems as perceived by rural populations. This flaw in problem identification and needs assessment carries over to the implementation and eventual evaluation of such programs and projects. Using yardsticks that are not relevant to needs of the rural poor, external evaluators may arrive at conclusions that indicate program success, whereas an evaluation carried out from the viewpoint of the local people would indicate otherwise.

Social forestry programs designed to alleviate extreme local shortages of forest resources--for fuelwood, farm construction materials, fodder, green manure, food, or combinations of these needs--are often similar to other development programs in terms of lack of local participation in needs assessment, project planning and negotiation, actual implementation, and monitoring. Thus it is frequently the case that impressive physical evidence of action, such as established fuelwood plantations, becomes the sole gauge of achievement of project goals, without taking into account whether such plantations satisfy urgent community needs.

This research project on "Participatory Evaluation of Fuelwood Programs" in selected regions of India and Thailand represents a profound departure from traditional evaluation approaches. Instead of engaging "experts" who are external to the rural settings, farm families and other village residents are involved as evaluators themselves. Their particular vantage points are points of departure for judgments about the ability of fuelwood projects to attain village goals. It is highly instructive to find that their conclusions often differ widely, sometimes being diametrically opposite, from those of the usual external evaluation teams, as this study clearly reveals.

From this experience, it would seem appropriate for development planners to modify their approach so that future problem identification, planning, implementation, and evaluation are participatory in nature. Methods for strengthening and adapting existing local institutions for this purpose are identified. The findings also indicate the necessity of modifying current policies and laws on land use in light of the influence of tenurial arrangements, as reported by farmers and other community members, on their decisions and behavior relative to soil, water, and forest conservation and management.

The study was made possible by a research grant to the East-West Center Resource Systems Institute and Environment and Policy Institute from the U. S. Agency for International Development. The evaluations were designed and conducted through the initiatives and active collaboration of the Appropriate Technology Development Association in Lucknow,

India, and the Chulalongkorn University Social Research Institute in Bangkok, Thailand.

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PART I

PARTICIPATORY EVALUATION OF FUELWOOD PROGRAMS: SYNOPSES AND WORKSHOP RECOMMENDATIONS

We report here our findings from engaging with village residents in selected areas of India and Thailand in evaluating the conditions for success in planning and implementing fuelwood development programs.

The report is in four parts. First, in Part I, we explain the context and objectives of these applied policy studies and their participatory style. Synopses of the India and Thailand cases are then given. Central policy lessons from both country studies follow. Part I concludes with the recommendations of the international workshop that reviewed the evaluation experiences.

The approaches to participatory evaluation by the India and Thailand research teams and their detailed findings are presented in Part II and Part III, with implications for policy and action in the respective regions.

In Part IV, we review common issues revealed in the country studies and elaborate the central policy lessons and recommendations based on specific aspects of the village evaluations.

Audience and Authors

"The forest is a life-giving entity--the most important resource in the village." A forest committee member in Silpar

village, north India, gave us this assessment of forest resources in the course of discussions on village residents' priorities in allocation and use of land. He appeared to have values and goals in common with the Vice-President of India, R. Venkataraman, who at about the same time was calling for "a massive afforestation drive on a war footing through a people's movement" (The Hindustan Times, Oct. 17).

Yet not all the village residents whom we met--or even a majority--put such high priority on forestry or fuelwood. Water, more food production, fodder, income through sale of forest products, and more equitable access to and sharing of employment were more frequently voiced priorities. Mr. Venkataraman recognized these concerns in proceeding to address the complex array of policy, social, biophysical, legal, and economic factors that inhibit achievement of afforestation goals.

On these inhibiting factors, and on factors in successful local organization for forest and fuelwood development, we have heard the anxieties and assessments of many farm families, landless workers, and other village residents. In a sense, our report's most basic task is to present these assessments in a manner that will facilitate better communication between local citizens, on the one hand, and development planners, legislators, foresters and other resource managers, on the other. These parties share in common a need for the creation of policies and procedures to promote flexible interplay among the social, economic, and biophysical aspects of forest and fuelwood development.

A central challenge to communication is expressed in the aphorism: "Villages can tolerate variation. The state likes uniformity" (Dani, Gibbs, and Bromley 1987). This is also a central challenge to forest policy. Ideally, the principal authors of this report would be representative village residents themselves. We as authors are interpreters, striving for correct renditions of village assessments, but imperfect. The challenge to readers, therefore, is to project your own imagination and feelings into these village reports, to hear the messages of the true authors as a basis for opening new paths of two-way communication.

Objectives and Impetus for Participatory Evaluations

The objectives of the participatory evaluations were

- To identify successful and unsuccessful cases of fuelwood development and the factors and policies contributing to success or failure;
- To quantify the results of successful projects in terms of availability, distribution, use, and costs of fuelwood, and in terms of income, fuel substitution, employment creation, and other economic benefits;
- To draw policy conclusions on issues of fuelwood research, development and extension, market development and prices, loan and/or subsidy incentives, and

fuelwood/forestry program organization and management; and

- To refine participatory research methods and produce project assessment data in forms adaptable by farm families and village residents in similar or different ecoregions through the cooperation of research institutions in these and other countries (East-West Center, May 1984).

Participatory evaluation as the means of conducting the studies was motivated by the need to foster two-way sharing of perspectives and information between rural producers and users of fuelwood, and scientists, planners, and policymakers. Simpl stated this implies, "Evaluation done from the viewpoint of people, in the light of their needs and problems." The true implication is deeper, however. People's perception of problem is strongly influenced by their sociopolitical environment, which determines their access to resources, information, technology, and justice. Participatory evaluation tends to unfold these dimensions. This leads to a process of consciousness raising, bringing sharply into focus both the social dynamics and prevailing irregularities in resource use c management.

The synopses of the India and Thailand cases in the next two sections highlight our village experiences in pursuing thes evaluation objectives.

Village Forest Institutions in a North India Hill Region

A sub-Himalayan hill region, Almora district in Uttar Pradesh state, was chosen as the locale for the India case in order to examine the workings of a long-established village institution, the Van Panchayat or Forest Council. Van Panchayats are responsible for protection and management of the local forests, under rules first framed by government in the 1930s. Villages were selected for study to include both successful and unsuccessful Van Panchayats, in the context of socioeconomic and biophysical aspects of fuelwood use and production. In course of the study an older institution, the Lath Panchayat, was identified and studied in a comparative manner. In the Lath Panchayat, rules and sanctions are formulated and applied by decision of the local community members themselves.

The project team members, including one woman researcher, resided with families in the selected villages for sustained periods, engaging in long detailed discussions on various aspects of local resource structure and fuelwood issues. Discussions were often intensive in nature and sometimes reached an emotional pitch, especially in interaction with vested interest groups. Detailed discussions were also held with forestry personnel and other government staff. Primary data were collected through structured questionnaires, participant observation, and measurement. Secondary data were obtained from village, Van Panchayat, and district records.

The macro demand/supply balance estimated for the hill region shows serious scarcity of fuel, fodder, and timber resources. A government ban on tree fellings above an elevation of 1,000 m has been in force since 1981. A study of the present system of wood products marketing, predominantly through a State corporation, brings to light several inadequacies in structure and methods. Under scarcity conditions, the marketing monopoly creates motivations for illegal cutting and export of wood from the region. The average rural resident of the hill region is thus seen to be in a tight and inert situation with respect to forest resources and marketing.

A socioeconomic profile of the villages indicates limited land ownership, a high level of migration, and lack of alternative sources of employment. Private tree ownership and plantings are restricted due to lack of land. Women, who perform nearly all farm and household work in the hills, have to spend several hours each day in fuel and fodder collection. The injustice of their situation is aggravated by the fact that the system provides them little or no opportunity to participate substantively in forest management.

Prevalent debate between advocates of broad-leaved and needle-leaved species is seen, on close examination in each village, to miss the mark. The true issues of species choice can be resolved only through better knowledge of soil/species compatibility and of people's actual needs. The institutional setting of Van Panchayats and Lath Panchayats is instructive for their success or lack of success in facilitating action by

residents to plant and protect tree species that match needs with land resource capabilities.

Silpar village, at the head of a prominent ridge, is a compact community mostly of the same caste and with a history of a Lath Panchayat going back over five decades. Its proportion of forest land, in dense oak and pine, is high, enabling its residents to meet basic fodder and fuel needs. Hence the residents are seeking suitable new species as sources of income and employment: mulberry and oak varieties for rearing silkworms, hardwoods for farm implements, and trees producing spices for local use and export.

Kunj is a village not far from Silpar, in the same ecozone. Its Van Panchayat proved to have serious organizational problems, though not untypical. Encroachments on land by a relatively few residents, without restitution either by the local organization or through legal process, have led to declining participation by villagers in Panchayat meetings. Fuel and fodder trees are sparse. Women are required to make daylong collection journeys. In the one instance when prominent village members cooperated in a Forest Department afforestation program, inadequate attention to boundary disputes and to broad involvement of villagers in planting and protection mechanisms resulted in low survival rates. The team found few trees surviving in the planted area, with continuing irregularities in internal management and external support to the Panchayat.

Chausuli's severe land constraints and highway location, nine km from Almora city, have resulted in high out-migration

and mixed organizational success. Nearly one-third of the families on the village register have permanently moved away. All farm holdings are marginal, averaging 0.7 acres. Most land is of poor quality, on steep slopes. Drinking water is an acute problem. Availability of biomass fuel near the village is only from shrubs and bushy plants. Women must go eight to nine km for fuelwood. The Van Panchayat does not have active member involvement. But nearness to district forest officials has led to close scrutiny of afforestation programs, resulting in good stands of young pine and silver oak. These are relatively distant from the settlement, however. Product choices of families interviewed in Chausuli are for fuelwood and fodder species. Land capabilities restrict species options, however. Iterative planning and assessments by the Panchayat and foresters will be required to test species performance on available land, in relation to expressed needs and market development potential.

In **Falyati,** strong local leadership oriented to forest preservation makes the Van Panchayat effective in village forest protection and management, though at the expense of the government reserve forest nearby. Forest relations with nearby villages are also problematic.

In **Sangar,** the small but vigorous Lath Panchayat has evolved as a Van Panchayat to achieve recent planting of 12,000 seedlings in a plot protected by newly-built stone walls. Sangar demonstrates the immediate potential for widening village-scale planning and action to encompass a miniwatershed

involving four added villages and five coordinate government agencies.

In conclusion, the India hill region study emphasizes that such local assessments are essential in order to reorient planning methods and rebuild trust between villagers and government. The administrative infrastructure for support to Van Panchayats requires substantial strengthening and greater involvement of foresters. These policy findings are timely, in view of the fact that the state legislature is currently reviewing the workings and legal status of Forest Panchayats. Strengthening local capabilities implies continuing dialogues with village groups in different ecological zones for more definitive problem and needs identification. It also requires the imparting of technical and managerial skills to enable local institutions to manage programs with minimum outside inputs, and multidisciplinary orientation and training of forestry extension personnel as facilitators of local decision making in forest management.

Village Fuelwood Development and Farm Forestry in a Rainfed Thailand Plateau

Thailand's fuelwood problems are generally recognized as less severe than in India, or at an earlier stage of severity. The present evaluation examines forestry issues in the context of agricultural expansion, which in some years in the past two decades has resulted in deforestation equal to the total reforestation achieved in 40 years. For this purpose it was

decided to study villages engaging mainly in rice farming, in a rainfed, upland region, but undertaking some forms of forest management for local needs.

Thailand's Sixth Five Year Development Plan encourages more private forestry, more local-level management of forest resources, and more community forestry as a response to energy problems and a contributor to rural development.

The traditional rural energy demand pattern is concentrated on fuelwood for domestic use. In the study area, access to natural forests is limited due to land clearing for rice cultivation in the past. The farmers depend on trees left standing in their rice fields for the supply of both fuelwood and timber. With the increase in village population and continued cultivation, the natural sources of wood will be inadequate to meet their requirements.

The villages chosen for the study in Sisaket province, Northeast Thailand, vary in their response to the fuelwood scarcity. This ranges from private forestry using an indigenous species on the one hand, to government-initiated large-scale community forestry on the other. A third case illustrates how through participatory action research, a community woodlot was established in a village. The village case studies point to the importance of village organization as a fundamental factor in the success of a community woodlot project, and to the forms of external support required in the various stages of implementing such a project.

Ban Nong Lung is a long established community, dating back three generations, and lying close to the provincial center. The villagers have learned to plant a native species, ton sio (Phyllanthus polythyllus) on the farm bunds. Initially, the trees were planted to prevent damage to the bunds during the rainy season. However, the ton sio serves as an excellent source of fuelwood and small timber for household and farm use--fencing and bean poles. The villagers of Nong Lung have enjoyed the benefit of their own fuelwood supply even without access to natural forests.

Ban Pong is a newer village, about 50 years old, and lying close to a small market center only recently elevated to a district. Hence the area is still relatively well-wooded in comparison with Ban Nong Lung. In 1981, a community woodlot project came to Ban Pong under the auspices of the U. S. Agency for International Development (USAID) and the Royal Forestry Department (RFD). A piece of public land formerly used for a pasture project was converted to a plantation of Eucalyptus. The official from the central government consulted mainly with the headman of the village about the plantation. At first, the village was to contribute labor for the planting, but due to delays in implementation, the plantation eventually had to be done with paid labor, wherein some of the village people were hired. After the plantings were finished, there has been no action taken by the village for the care and maintenance of the trees, nor planning about how to organize the use of products and distribution of benefits from the woodlot. The chief

obstacle appeared to be uncertainty about the status of the village with respect to the woodlot, and the extent to which the village actually had control over the trees planted. The perception was that since the government paid for the planting, the trees belonged to the government. However, as a result of outside interest from researchers, the village may be organizing itself to undertake the remaining tasks of managing the woodlot for its own benefit. The lesson here is that it is not enough to involve the "official" village headman in the project. Rather, it would be better to enlist the interest and cooperation of the village as a whole right from the planning stage of the woodlot project.

Ban Nong Yang shows how villagers themselves can take an active role in the establishment of community woodlots. The village is located in a lowland rice-growing area close to the River Mun. Trees in the paddy fields are sparse compared with Ban Pong. For fuelwood, the villagers depend on a public forest about two km from the village, which is now being gazetted as a reserve forest. This would mean the villagers would not be able to go and collect fuelwood freely as at present. The villagers readily agreed to participate in the research during the site selection process. The village made available two plots of public land for the purpose of establishing the village woodlots. After a visit to the Forestry Research Center and to Ban Pong, where the villagers talked with the officials and the residents of Ban Pong, the villagers of Nong Yang decided to plant Eucalyptus and intercrop with annual garden vegetables such as beans and sesame.

The supply of seedlings was organized with the help of the researcher who took up residence in the village. The villagers held group meetings to decide on the timing and the contributions of village members in the land clearing and planting. Disputes arose concerning the demarcation of land for planting due to encroachments on the land by villagers, but through the mediation of the headman and village elders, and the presence of the researcher, the disagreements were resolved and the plantings was finally completed. The village committee has agreed to organize a rotation system for weeding and fertilizing the woodlot, and to use the trees for communal purposes when they are mature. Thus, the experience gained from Nong Yang shows that the villagers are indeed capable of organizing themselves to handle the woodlot project. They still need technical advice from forestry personnel, but they can define their own needs and allocate resources from within the community to take advantage of the opportunity created when external resources become available which correspond to their perceived needs.

The village case studies in Thailand point to the following conclusions. Firstly, villagers are concerned with their fuelwood supply and are prepared and able to take action to avoid the consequences of fuelwood shortage. Responses can be at the individual level, as in the case of Ban Nong Lung, or communal as at Ban Nong Yang. In both cases, the initiative to plant trees comes from the villagers' own felt needs. When the

villagers is different in kind. When the external initiative is removed, as at Ban Pong, the villagers do not feel committed to the proper maintenance of the woodlot, nor are they concerned with the eventual utilization of the trees from the woodlot. The project therefore has to answer a real need in order for it to be successful.

The second conclusion is that land for the woodlot is an important issue at the village level. There are always alternative uses, and the village has to agree that the woodlot is the appropriate form of land use, otherwise the woodlot will not be accepted. Thirdly, technical support, in the form of seedlings and demonstration of agro-forestry practices, are useful in creating interest in woodlot projects. Finally, the process of establishing a community woodlot requires a continuous dialogue to maintain the involvement of all the sections of the village. Without overall participation, the community woodlot would be only a partial success. It may be **in the village, but not of the village.** For those intending to work with villagers in community forestry projects, this is an important consideration to take into account in project planning and implementation. In the training of foresters, an awareness of this factor should also be created.

Central Evaluation Findings

We draw several common lessons, summarized here, from the India and Thailand evaluations.

1. Social and Physical Contrasts among Villages

Each village in which we worked differs importantly from the others in social and biophysical features that affect forest and fuelwood development. Although in each country the selected villages are in a well-defined agroecological zone, with common cultural and economic features, the dynamics of interaction between people and their environment in each village is different. This finding, while neither new nor unexpected, reinforces growing evidence that individual villages must be starting points in planning and organizing fuelwood programs.

2. Changing Village Environments and Resource Potential

Forestry is an instructive activity in which to see and interpret the continuous but changing interactions of families and groups of families in each village with their biophysical environment. Trees grow, are cared for or neglected, used or abused, over many years. Changes in forest cover and in interactions of forests with crop and livestock systems can be seen from year to year. They affect decisions by family and community members with respect to methods, organization, and use of local resources, which change from year to year, often season to season. These village experiences reveal a general truth: "No society can step into its same environment twice."

3. Fuelwood and Fodder Scarcity: Immediate and Near Term

Continued dependence on fuelwood for cooking, increasing distance of forests, and inadequate systems for planning and

managing local resources have contributed to deterioration of the local demand/supply balance of fuelwood, fodder, and other forest products. Decisions on land use and species choice are made by weighing the respective needs for fuel, fodder, and other tree products in the local demand/supply situation. These needs, in turn, are influenced by the local farming system and its development constraints and potential.

Kunj and Chausuli in Almora district experience acute fuelwood scarcity, requiring women to make daylong collection journeys. The people of Ban Nong Yang in Sisaket province have been motivated by increasing distance and scarcity of fuelwood trees to organize in planting two village woodlots, facilitated by this research.

Fodder scarcity is acutely felt in Kunj and Chausuli. Availability of fodder is a significant constraint in Ban Nong Lung, but not regarded as pressing in Ban Pong or Nang Yong. Seasonal variations in fodder availability require more frequent adjustments in grazing and collection practices during different periods of the year than for fuelwood collection. Limited storage facilities further constrain options in planning and managing both these basic village requirements.

4. Uniting Folk and Professional Knowledge

Farm families, animal herders, and women and men who collect fuelwood and other biomass energy resources display substantial knowledge of the multiple uses and growth requirements of various tree species. In Ban Nong Lung, farmers

have successfully met their wood fuel needs for the past 30 years by planting an indigenous species, ton sio (Phyllanthus polythyllus), on rice field bunds. We estimate their income-in-kind at approximately 10 percent of value added per capita from all local activities. In Silpar, assured and stable supply of fuel and fodder from the village forest provides a subsistence threshold on which the residents propose to add new tree species as hosts for silkworms, for hardwood to be used in farm implement manufacture, and for spice production. The inherited knowledge and experience of these villagers provide a context in which dialogue with professional foresters, farming system researchers, and other scientists can be mutually productive. Folk culture and scientific culture, however, are still separate. Barriers to their union exist on each side. These must be overcome if new knowledge relevant for wider use is to be generated.

5. Women's Work and Forest Management Roles

Women's fortitude in forest work is demonstrated, in an extreme instance, by the Silpar mother who delivered her child in the forest where she had gone to collect fuel and fodder. She returned home in the evening carrying both bundle and baby. Women in both India and Thailand have primary roles in biomass fuel collection, though the sharing of farm tasks with men is more equal in Thailand. Women's needs, experience, and knowledge, however, are a neglected resource, not mobilized and not taken advantage of in local organization for planning and managing forest and fuelwood development projects.

6. Planning Dilemmas: Regional and Professional

Village individuality and culture gaps are not the only dilemmas presented to forest program planners. Villages interact in countless ways with nearby villages, either cooperatively or in conflict. Intervillage relations influence, and are influenced by, changes in land and water use, quality, and biophysical potential. As compared to traditional institutions within the village, institutional means on an intervillage scale for reaching compatible individual and group decisions are weak or absent. Village residents therefore experience a planning and management vacuum with respect to their nearby environment. They face the need and opportunity, together with district planners, foresters, and other sector specialists, both to deepen and widen the scope of assessments and planning for intervillage, ecozone development. This has direct implications for foresters who need to plan the species mix in nurseries catering to several villages.

7. Trust, Legal Rights, and Resource Allocation Decisions

Realizing this opportunity for collaborative planning and management will require new levels of mutual trust and credibility between villagers and officials, farmers and foresters. Mistrust of forest officials by villagers is a serious factor in two out of the three villages in which we worked in both India and Thailand. Notwithstanding their cultural and political contrasts, the history of expanding government control over forest lands during the past two

centuries in both countries is similar; it is one of reducing local rights over forest land. So the distrust is explicable. Constitutional and legal scholars in India have advanced radical proposals to reverse the legal basis for this conflicted relationship. At a minimum, the restoration of trust will require national policy decisions and their local implementation to create clear, long-term, stable rights of local citizens and communities for the use of land deemed suitable for forestry and fuelwood development purposes.

Summary of Recommendations for Policy and Action

The country reports that follow in Parts II and III offer recommendations for policy and action specific to each region. After reviewing these proposals, the international workshop on participatory evaluation of fuelwood programs held in Lucknow in October, 1986, formulated several recommendations of wider applicability. These international workshop recommendations are

1. Despite an acknowledged need for the promotion of people's participation in social forestry programs, little has been done to arrive at working approaches or methods that contribute towards the same. The group feels that such approaches should be necessarily based on establishing an effective dialogue with village communities and sharing of responsibilities with them in the development and management of plantations at village level, creating an atmosphere of trust and partnership between the people and the government.

2. Sharing of responsibilities with village residents can be made meaningful and effective essentially through a process of strengthening of local institutions representing the interests of the villagers, including the less advantaged groups among them.
3. In areas where such institutions do not exist, it is essential to arrive at procedures to help develop them by a democratic method, as in the case of Van Panchayats in the hill areas of Uttar Pradesh. This implies holding of elections for the selection of a local executive committee and its head by the local residents periodically.
4. Strengthening of capabilities of such institutions implies imparting a multidisciplinary set of skills including project formulation, technical and managerial skills, to selected representatives of the villagers, so that local institutions could share responsibilities in planning, implementation, and follow-up of programs with minimum external inputs.
5. Skill development at local level should combine practical knowledge related to alternative technologies or systems like biogas plants or improved stoves so that local planning is based upon an integrated perspective combining needs, resource, and technology assessments.
6. Village level assessments made thereby should form the basis for arriving at area plans. Annual targets could be reviewed in the light of these assessments.

7. Departmental staff concerned with planning, implementation, and follow-up of plantation programs at different levels would require reorientation and training, so as to enable them to pursue such an approach. This would necessitate development of suitable training modules and learning materials for the purpose. These must include methods of establishing an effective dialogue with village communities.
8. There is also a need for reviewing administrative systems to follow such an approach, especially for the development of backward and forward linkages. This implies development of methods to achieve coordination with other departments, e.g., for sorting out land ownership irregularities, or for following up on related development plans.
9. Additional emphasis needs to be placed on proper monitoring and follow-up of programs. In this context, it would be desirable to arrive at a process of participatory evaluation that is based on people's opinion and perspectives.
10. There is also a need to develop market arrangements and local processing facilities for wood products as well as other forest products like seeds, nuts, and fruits to link forestry to overall economic development of the region. Additional marketing channels, in the form of cooperatives or otherwise, should be introduced to stimulate the growth of private farm forestry.

11. In the light of the above suggestions, operational procedures could be reviewed in the Social Forestry, Van Panchayat, and Watershed Development schemes in India and Social Forestry schemes in Thailand.

In Part IV, the rationale for these recommendations of the international workshop and concrete suggestions for their application are spelled out in more detail.

PART II

PARTICIPATORY FUELWOOD DEVELOPMENT ISSUES IN A HILL AREA OF NORTHERN INDIA

Chapter 1

INTRODUCTION TO THE DESIGN AND SCOPE OF PARTICIPATORY EVALUATION OF FUELWOOD PROGRAMS

Varun Vidyarthi

Programs for the development of fuelwood resources generally fall within the category of afforestation programs that are designed to meet the needs of the local population. In India, these are popularly known as "Social Forestry" programs. Social Forestry has acquired a distinct character among forestry programs, with new departments, staff, and procedures. Even earlier, the concept of local management and decision making has often intrigued foresters, generally trained to deal with the technical aspects of large-scale, industrially-oriented forestry only. Yet, local management of forests is an old practice in India, especially in the hills, where the system has even acquired a formal character under the name of "Van Panchayats" or "Forest Councils." Van Panchayats are village level institutions, responsible for the protection and management of local forests and governed by Van Panchayat rules, first framed in the 1930s. The working of these Panchayats offers a rich experience, accumulated over several decades, regarding the opportunities and constraints presented by decentralized management of forests under the supervision and guidance of a government department.

The present evaluation is, therefore, centered around the working of these Panchayats in the context of various socioeconomic, biophysical, and other developmental issues associated with the development of fuelwood and other forestry resources. The design and scope of the study follows the principles of participatory evaluation, a concept that is gradually becoming popular among researchers and policymakers due to its potential to draw out the true nature of problems as well as the opportunities for change as seen by those most directly affected. This concept is discussed in some detail in the following section.

PARTICIPATORY EVALUATION

Right from the beginning of the project, I have been often asked the question, "What is meant by participatory evaluation? How does it differ from an ordinary evaluation done properly?" My simple answer was, "Evaluation done from the viewpoint of people, in the light of their needs and problems. Evaluation done otherwise could be of a technical nature, probing questions like rate of survival of plantings, or a more sophisticated type, like Social Benefit-Cost Analysis. Even if done properly, the results of such a technical or economic evaluation may not reflect people's opinion or perception of the problem."

Having gone through the exercise, I feel that the answer is not so simple. People's perception of a problem, as evidenced clearly in our interactions, is closely linked to their sociopolitical environment that determines their access to

resources, technology, and justice. Participatory evaluation tends to unfold these dimensions, leading to a process of consciousness raising in the population under study, bringing sharply into focus both the social dynamics and the prevailing irregularities in local resource use or management. It clearly brings out the social implications of development alternatives, pointing to associated preconditions for the success of a development program. It is, therefore, of equal interest and value to villagers, academicians, planners, and policymakers.

In practice, participatory evaluation implies the use of established methods of data collection, including survey and participant observations, together with individual and collective discussions on opportunities of change, including organizational alternatives for the same. It could also involve development and appraisal of projects with the local inhabitants for working on alternatives. A useful picture of the approach can be obtained from the design and scope of the present study which is given ahead.

DESIGN AND SCOPE OF THE STUDY

As mentioned earlier, the present study is centered around the working of local forest management Panchayats in the hill areas of Uttar Pradesh. Almora district presented a useful opportunity for doing so, because of a long well-recorded history of forest development and typical middle hill region characteristics (see Appendix I for details). The selection of villages within Almora was done on the basis of criteria noted below.

Site Selection

Villages were selected in a manner such that cases of both successful and unsuccessful Panchayats could be studied for characteristics contributing to or constraining fuelwood development. We could not follow a predetermined plan in this context, as we were learning at all stages regarding different villages and important factors affecting their forest management system.

The first village, Kunj, was selected as it is a relatively interior village (about 70 km from Almora), and is in the proximity of a local nongovernmental organization promoting "khadi" (homespun yarn and handwoven cloth) and village industries, and also taking interest in afforestation programs. The Van Panchayat there turned out to be one with serious, though typical, organizational problems leading to near total lack of people's participation. Not far from this village is another, Silpar, where a very successful local management system was reported. This was found to be a "Lath Panchayat" or one based on the use of "lath" (long hard stick) or club for enforcing discipline. We learnt that there were several Lath Panchayats in the region, most of which were working satisfactorily in terms of forest protection and distribution of products. Accordingly, we included Silpar in our study sample. Both these villages being relatively inaccessible, we considered selection of another that was close to the city Almora, and decided on Chausuli. This village also had a good data base on land capabilities surveyed by the National Bureau of Soil Survey

and Land Use Planning.[1] These three villages, Kunj, Silpar, and Chausuli (see Map 1), then became the focus of our activities.

We later chose another village, Falyati, which was reported to have a "successful" Van Panchayat. This Panchayat was studied only in terms of its organizational aspects contributing to its "success," involving much less time and attention of the team. Detailed discussions were also held in two other villages, Sangar and Aati, in view of their special organizational characteristics related to the working of forest Panchayats. The nature of our involvement in the different villages and the method of data collection are described in brief ahead.

Methods Adopted in Evaluation

In course of the study, the team members interacted with different members of the village community, forestry personnel, and other government staff associated with the working of the Van Panchayat system. The exercise involved both primary and secondary data collection, long detailed discussions on various aspects of the program, and preliminary appraisal of alternatives in association with the community. Most of the

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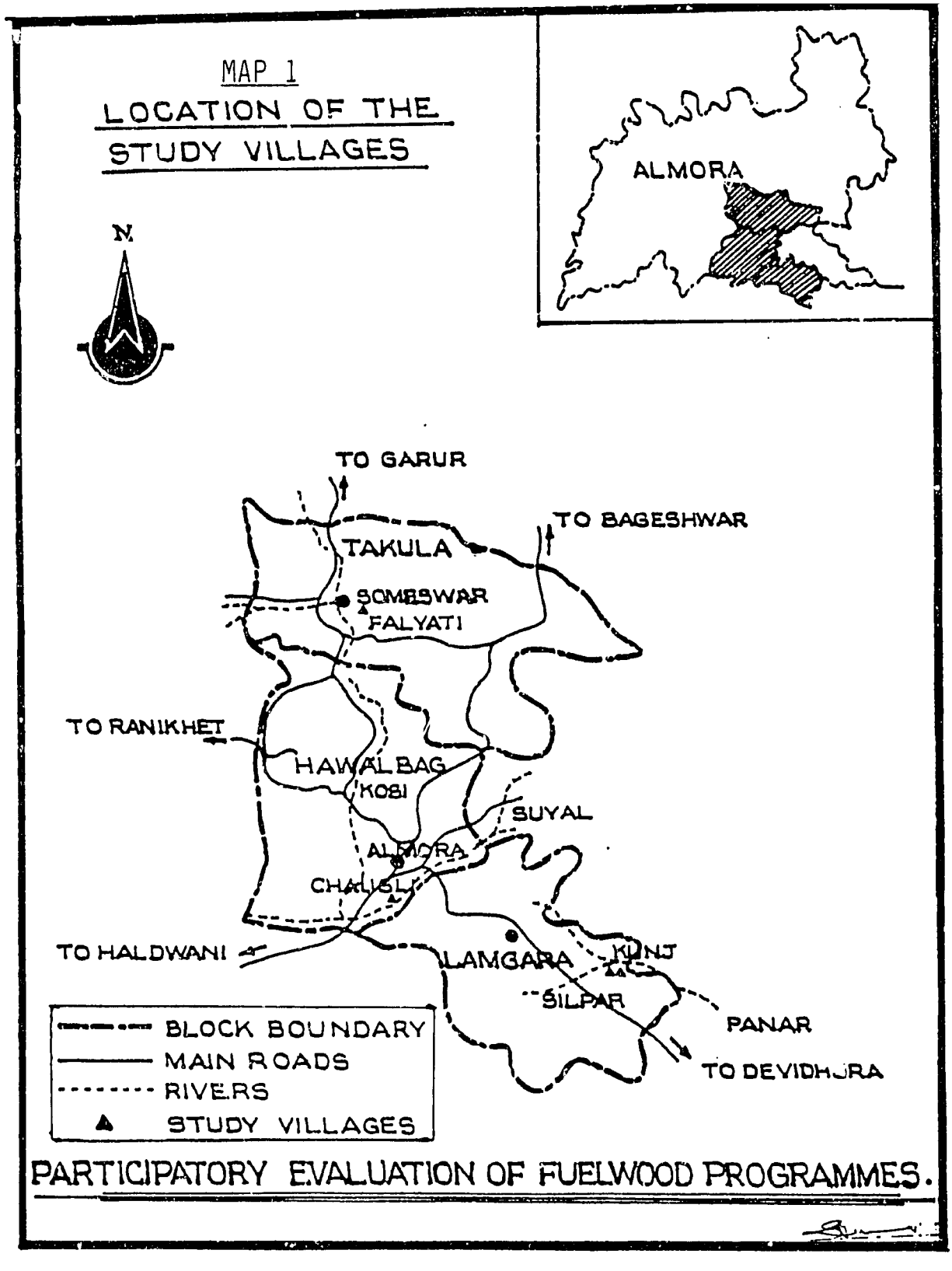
[1]Reported in Micro Level Planning of Strategies for Agricultural Development in the Mid Himalayas, A Study of Kosi-Suyal Mini Watershed in the Mid Hills of U.P., S.L. Shah, Vivekananda Laboratory, Indian Council of Agricultural Research, Almora, 1982.



PARTICIPATORY EVALUATION OF FUELWOOD PROGRAMMES.

work was organized through village camps. The team members would camp in the selected village for several days in the home of one or more families, cook their own meals, and interact wit villagers all through the stay, even during late nights, in an informal manner. The tasks were generally divided between different members, who evolved their own program in accordance with the agreed distribution of tasks. But sharing of notes, and cross-checking of information naturally occurred during meetings. Some details of these interactions are noted below.

The primary data collection was done through various methods including structured questionnaires (Appendix III), participant observation, and measurement. While a village census was done to obtain the name, caste, landholdings, and occupation of the households, most of the remaining data were collected from a sample of about 25 percent families of different economic status. The economic status of the families could not be determined from their landholding alone, as remittances by migrant members or other nonagricultural income were seen to change their living style considerably. Accordingly, discussions were held with the village head in the presence of several other villagers for identification of the poorest villagers, the relatively well-to-do, and the middle status families. The status of the families was cross-checked by observing their houses and other visible assets owned by them. Measurements were done to obtain data on cooking fuel consumption in a family for one or two sample days. The housewife was given a weighed bundle of fuelwood for consumptio

during the day. This was weighed again the following day, the difference thus gave the cooking fuel consumed in a day.

Apart from structured data collection, detailed discussions were held with different sections of the community on various aspects of forest management, including their grievances and suggestions for improving the situation. In some instances, the villagers appeared tight-lipped in a group sitting and had to be contacted individually for obtaining information. Persons with vested interests sometimes became wary of our activities, and at one stage even challenged us by saying, "This is no way of doing research." As a result, we often had intense emotion-pitched discussions related to our immediate and long-term objectives, our general thinking on development, and its practical implications. The team was not only able to withstand such pressures successfully, but was able to mold the circumstances in a limited way towards useful change. This also helped us in obtaining useful insights into the nature of the problems as well as their backward and forward linkages.

The team also had detailed discussions with forestry personnel of varying seniority, as well as those associated with the Van Panchayat program, to obtain their views on different issues. Wherever possible, secondary data were obtained from the official records. This helped us to link up different issues and trace the strengths and gaps in administrative structure and support.

For obtaining information on the fuelwood markets, a short survey of users and suppliers of wood was conducted in some of

the small towns and city areas. This was supplemented with information from major dealers of wood products in the foothill as well as the government depots. Towards the end, the team also had been able to establish a working relationship with the watershed management division for enlisting people's participation in the planning and implementation of afforestation programs in the Panar River watershed. In this context, detailed discussions and meetings had started with residents of village Sangar. However, these could not be followed up due to time and resource constraints of the project

CHAPTER ORGANIZATION AND CONTENT OF REPORT

The report is presented as a collection of separate papers written by different members of the team. The content of these papers also indicates the broad division of tasks between them. The tasks were by no means exclusive during the field work, and there were constant overlaps and sharing of work by the members The report has also been enriched considerably by a macro assessment of resources and consumption pattern of timber, fuel, and fodder in district Almora by a Forest Department statistical officer. These papers are presented chapter-wise as follows.

The next two chapters by G.K. Shukla and S.C. Agrawal give a macro picture of the demand/supply gaps of forest products and their marketing infrastructure in the region respectively. These are helpful to understand the pushes and pulls of the economy that affect the range of decision making options at village level. For example, Shukla has indicated that there are

serious shortfalls in the supplies of fuel, fodder, and timber resources of the district, even when it is assumed that all the supplies are used to meet the needs of the local population. Agrawal finds that the wood product marketing system has important shortcomings contributing to lack of people's interest in forest resource development. An average rural inhabitant of the middle hill region of Almora thus is seen to be in a tight and inert situation with respect to forestry resources and markets respectively.

The fourth and fifth chapters deal with the socioeconomic and energy situation in the study villages respectively. The socioeconomic profile analyzed by B.N. Mishra indicates fragmented landholdings, a high level of out-migration, and lack of alternative sources of employment at village level. Private tree ownership and plantings are restricted due to lack of land. Analyzing the energy situation, Neera Kool finds that the women have to spend several hours everyday in fuel and fodder collection, while also doing nearly all other work in the agricultural and domestic spheres. The injustice meted out to them is compounded by the fact that they have been given few or no opportunities in local forest management.

The sixth chapter presents an analysis of the institutional aspects of forest management. Tracing the history of evolution of Van Panchayats, Kamlesh Tripathi suggests that despite village level problems, the working of panchayats could be made more effective by strengthening the local administrative

infrastructure so that quick and strong measures could be taken to remove the irregularities.

In the final chapter, I attempt to bring together the different participatory development issues under a broad classification of socioeconomic, biophysical, and other developmental issues. The emerging policy perspectives are then examined in the context of local planning and management of forests. It is suggested that there is a need for a policy thrust towards strengthening of local capabilities, reorienting planning methods to give due consideration to local assessments, and enhancing the capabilities of extension workers through proper training, administrative support, and incentives for such development.

Chapter 2

WOOD AND NON-WOOD FOREST RESOURCE POSITION AND CONSUMPTION PATTERN IN ALMORA DISTRICT

G.K. Shukla

INTRODUCTION

Almora district occupies a distinctive position in the Kumaon region of the Himalayas. It represents the middle hill region, i.e., elevations ranging from 600 m to 2,500 m, where the majority of the hill population live. The issues and problems of people residing in hill areas are thus characterized in the district. There is, therefore, considerable merit in attempting an assessment of its forest resources and consumption pattern.

There are, however, some methodological difficulties in doing such a macro assessment. These are

1. Statistics on the forest resource position of the district are available in terms of forest divisions. There are two main forest divisions in the district--the East Almora and the West Almora divisions. These divisions partly overlap some other districts as well, so that per capita estimates of forest resources based on Almora population census would have an element of error. However, these overlaps being minor, the error in estimating the resource position may be treated as insignificant.

2. There are four types of forests under the control of different agencies in the district:
   (a) The Reserve and other forests controlled by the Forest Department.
   (b) The Civil and Soyam Forests which are controlled by the district administration.
   (c) The Panchayat Forests controlled by villagers.
   (d) Private Forests.

The growing stock of trees in the Reserve and other forest under the control of the Forest Department are well classified and documented. But data on Civil and Panchayat forests, which are under local management, are virtually nonexistent. The areas occupied by them represent a substantial proportion (62 percent) of the total hectares under forests (Table 1). An estimate of the forest resources, therefore, can only be based on strong assumptions regarding the growing stock in these areas.

It is felt, however, that despite these limitations, a macro assessment of resources and consumption pattern would be useful to bring out the overall regional trend in supply and demand gaps. Such an understanding, coupled with the micro level observations based on intensive village studies, would be useful to determine wood and non-wood forest resource development strategies. In this chapter, our assessment of resources is based on divisional working plans of the Forest Department.

Table 1

CLASSIFICATION OF FOREST AREAS,
DISTRICT ALMORA

	Hectares	Percent
Forest area under the control of Forest Department	149,481	38
Forest area not under the control of Forest Department		
a. Civil and Soyam Forests	182,100	46
b. Panchayat Forests	62,799	16
c. Private Forests	52	—
Total Forest Area	394,432	100

Demand estimates are based on district census of human and cattle population and per capita consumption norms derived from various sources including the wood balance survey conducted by the Forest Department. A comparison of wood resources and consumption patterns reveals serious supply shortages requiring immediate shift in developmental strategies.

CHANGING PRODUCTIVITY AND LAND COVERAGE OF FORESTS IN DISTRICT ALMORA

An assessment of area under forests is inadequate to determine the forest resource position. This can be determined realistically only through proper assessment of actual land coverage and productivity of forests. These are done for district Almora on the basis of working plan estimates as in the following paragraphs.

Annual Productivity

The dominant forest crop in district Almora is chir (*Pinus roxburghii*) (Table 2). Table 3 gives the annual productivity of chir some 60 years back as assessed in Howard's Forest Pocket Book.

The current productivity is derived from the average annual outturn of East Almora forest division (Table 4). We see that the average outturn of chir is 70,000 m^3 round. With the net area of 73,960 ha under chir, the average annual productivity of forests in the area works out to approximately 1.00 m^3 per hectare. This is far less than the productivity figures of Howard even for quality III wood area.

Forest Cover

Although Table 1 shows the area under forest in district Almora as 3,944 km^2, this is not the true indicator of forest cover. The density of forest under the control of various agencies is seen to vary greatly. Civil and Soyam forests, which are generally nearer settlements, have been affected most by irregular fellings. The situation in areas under the control of Forest Department and Panchayats is comparatively better. According to the working plan, the net effective area under cover of forests works out as shown in Table 5.

Table 2

SPECIES AND GROWING STOCK,
EAST AND WEST ALMORA FOREST DIVISIONS

Species (Local/English Name)	Botanical Name	Potential Increment (m^3)	Annual Number of Trees (1000)	Total Total Volume (1000 m^3)
Chir/Pine	Pinus roxburghii	175,020	21,105	13,490
Banj/Oak	Quercus spp.	3,570	451	238
Sarai/Himalayan or Bhutan Cypress	Cupressus torulosa	844	65	132
Utis/Alder	Alnus spp.	649	97	33
Chamkharik	Caspinus vimiensa	643	285	64
Putti/Maple	Acer spp.	388	338	86
Fir/Silver Fir	Abis/Pindraw	338	151	202
Pangar/Horse Chestnut	Aesculus indica	274	80	45
Kathbhoj/Alder Birch	Batula alnoides	128	50	31
Deodara/Himalayan Cedar	Cedrus deodara	108	36	23
Samroj/Cherry	Prunus	101	179	4
Others		less than 100	255	24
Total		182,000	23,072	14,372

Source: Working Plans, East and West Almora Forest Divisions, 1981.

Table 3

MEAN ANNUAL WOOD INCREMENT
(m^3 round per hectare for rotation of maximum volume production)

Species	Total wood increment (Stem timber and small wood) Class I	Class II	Class III
Pinus roxburghii	6.2	3.7	2.5

Source: Howard's Pocket Book, Superintendent, Printing and Stationery, Allahabad, U.P., 1944.

Table 4

AVERAGE ANNUAL OUTTURN, EAST ALMORA DIVISION
(Cubic meter round)

Year	Chir	Deodar	Others
1976-77	42,850	6	3,440
1977-78	64,963	6	10,651
1978-79	113,830	231	88,222
Average	70,000	80	34,000

Source: Working Plan, East Almora Forest Division, 1981.

Thus the net effective area under tree cover is only about 1,100 km^2 which is roughly one fifth of the total geographical area of the district. The National Forest Policy of 1952 recommends that, in the hill region, about 60 percent area should be under forest from the standpoint of watershed

protection and conservation. The effective area under forest in Almora being far lower, there is considerable ecological degradation in the region, warranting immediate remedial steps.

Table 5

NET EFFECTIVE AREA UNDER COVER OF FORESTS

Forest Type	Total Area km2	Estimated Percent Cover	Net Effective Area Under Cover km2
Reserved	1,500	40	600
Civil Soyam	1,820	10	182
Panchayat	628	50	314
Total	3,948		1,096

ASSESSMENT OF FOREST RESOURCE AVAILABILITY AND CONSUMPTION

Timber

The estimated annual increment of growing stock in the reserved forests of East and West Almora divisions, covering 192,000 ha, is 182,000 m^3 round (Table 2). Given 40 percent stocking of trees in the reserved forests, this increment figure applies to a net effective forest area of 77,000 ha only. We have already estimated the net effective forest area for the whole district as 110,000 ha. Assuming that the stocking and composition of forest over the whole area is similar to that of

the reserved forest, the proportionate annual increment for 110,000 ha works out to 26,000 m^3 round.

There is no reliable information as to how much of the annual production of timber is used locally. The per capita annual wood consumption varies considerably from country to country. In Sweden, it is 1.93 m^3 as against 0.018 m^3 in India In the hill region, where population density is low and wood is the major commodity produced, we could assume the per capita annual demand for timber as 0.5 m^3. Based on the above assumption, the demand for timber based on a population projection for 1986 at 900,000 for district Almora, works out t 450,000 m^3 round. This gives a gap of 190,000 m^3 round of timber. This is based on the assumption that all timber supplies remain in the district. The fact, however, is that before the ban on felling of trees in 1981, much timber went out of the district as sleepers for the railways while much wood went out as pulpwood for the paper industry. If the supply is assumed to move out of the district, the gap naturally increases accordingly.

Fuelwood

The draft Sixth Five Year Plan of the Forest Department of U.P. assumes the per capita annual consumption of fuelwood in the hills to be 0.65 metric tonne. The recent wood balance survey for district Almora conducted by the Forest Department (Table 6) suggests a higher figure for nearly all types of villages and families. Even by the conservative estimate of

0.65 m tonne per capita per annum, the fuelwood requirement for 900,000 Almora inhabitants works out to 585,000 tonnes, equivalent to 1,500,000 m^3 (stacked).[1]

Table 7 gives the mean annual increment at the age of maximum production for various quality classes of chir. On the basis of Table 7 and the actual outturn in hill areas, it is assumed that for 1 m^3 round of timber we get almost 1 m^3 of fuelwood (stacked). Accordingly, as shown earlier, the present growing stock of district Almora can produce a maximum of 260,000 m^3 stacked fuelwood per annum on a sustained basis. The supply is thus seen to be only 16 percent of the requirement. This huge gap is naturally causing disappearance of the capital growing stock and underscores the severity of the fuelwood problem in the region.

Fodder

The intensity of grazing of cattle in district Almora has been worked out by Jayanti Prasad in his West Almora working plan as follows. The total cattle population is reduced to the corresponding animal units according to Table 8. According to the livestock census, the animal population in district Almora has changed very little in the last two decades, so that the estimate holds good for the present also.

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[1] 1 tonne is equivalent to 1.6 m^3 solid and 1 m^3 solid is equivalent to 1.6 m^3 stacked.

Table 6

AVERAGE PER CAPITA ANNUAL CONSUMPTION OF FUELWOOD IN SELECTED VILLAGES OF DISTRICT ALMORA

Village Type	Family Type		Average Consumption in Metric Tonnes
I	Head of the village	(A)	0.77
	Poorest of the poor	(B)	0.72
	Random household	(C)	0.67
II		(A)	0.55
		(B)	0.78
		(C)	0.68
III		(A)	0.64
		(B)	0.86
		(C)	0.86
IV		(A)	0.89
		(B)	0.81
		(C)	1.18
V		(A)	0.99
		(B)	1.00
		(C)	1.61

I Villages having the development block headquarters.
II Predominantly scheduled caste villages.[1]
III Villages having neither electricity nor all weather roads.
IV Villages not having electricity but having all weather roads.
V Villages having electricity and roads.

[1]Note: Scheduled castes and scheduled tribes are communities listed in the Indian Constitution whose interests are constitutionally protected. They receive special reservations in Parliament, in educational institutions, and in various employment markets.

Table 7

MEAN ANNUAL INCREMENT AT THE AGE OF MAXIMUM PRODUCTION
(ft^3 per hectare)

	Quality I	Quality II	Quality III
Stem timber	102	81	52
Small wood	113	49	37
Total	215	130	89

Source: Howard's Pocket Book.

The area suitable for grazing is taken in the Forest Department working plan as two thirds of the total forest area. Based on this assumption, the area suitable for grazing in district Almora works out to 269,120 ha.

Assuming the capacity of grazing land as two animal units per ha, district Almora affords a capacity of only 538,240 annual units of animal, as contrasted with the present estimated population of 2,900,000 units. The above analysis suggests a need for large scale reduction in animal population in this region.

Other Products

In addition to timber, fuel, and fodder, the forests also give other products like resin, medicinal herbs, and ringal. Although the monetary value of these items is low compared to the major forest resources, they fulfill various other social needs.

Table 8

TOTAL ANIMAL UNITS IN DISTRICT ALMORA

Sl. No.	Animal Category	Number According to 1972 Census	Animal Unit	Total Animal Unit ('000)
1	Buffalo	139,225	8	1,114
2	Cattle (cow, etc.)	356,114	4	1,424
3	Horse & Pony	2,206	4	9
4	Khatcher	276	4	1
5	Donkey	286	4	1
6	Yak	156	4	1
7	GOAT	157,965	2	316
8	Sheep	33,835	1	34
	Total Animal Units			2,900

CONCLUSION

Almora region constitutes the catchments of some of the important river systems of Uttar Pradesh. Estimates of timber, fuel, and fodder resources and consumption in the district indicate alarming shortfalls in the supply position. Apart from local requirements, there is felling also due to large scale road building and demands of wood based industries outside the region (e.g., paper mills require twisted chir, packing case industry requires various kinds of soft wood). As a result,

parts of the region have been brought to a state of severe erosion. Rivers and streams have become conveyor belts for transporting the soil of the district to the plains, causing floods there. Accordingly there is need for immediate development of alternatives for meeting the needs of local inhabitants and also for maintaining the ecological balance in the region.

Chapter 3

THE ROLE OF COMMERCIAL AND INFORMAL WOOD MARKETING SYSTEMS IN UTTAR PRADESH HILLS

Sushil C. Agrawal

INTRODUCTION

Levels of people's participation in a program can be attributed to multiple factors, but the process of decision making in the adoption of any program is strongly influenced by economic factors. The possibility of acceptance of a program by the rural population greatly depends on the economic gains from the program as envisaged by individuals. Economic gains, to a great extent, are related to the prevailing marketing system and the marketability of products the program is intended to produce.

A suitable marketing network is also desirable from the standpoint of reducing the demand/supply gap at a macro-level. Fuelwood supplies are deficit not only in the district of Almora, as estimated in the previous chapter, but in the state of Uttar Pradesh and the country as a whole too (Table 1). This shortage has led to a steep rise in the price of fuelwood (Table 2). As seen from the table, the price index of fuelwood in the selected cities of the country increased from 100 to 965 during 1960 to 1984, while the consumer price index rose from 100 to 585 only.

Table 1

FUELWOOD PRODUCTION AND DEFICIT
(million m^3)

State	Annual Production (1976-77)	Fuelwood Requirement	Deficit
Uttar Pradesh	2.1	28.9	26.8
India	12.5	182.3	169.8

Source: Adapted from the Production Forestry Section of the Report of the National Commission on Agriculture, Government of India, 1976.

In the context of both scarcity and increasing prices of fuelwood all over the country, marketing systems can play a vital role if they are conceived properly and operated efficiently. This chapter discusses the macroeconomic context of the wood marketing systems in Uttar Pradesh Hills. This background on the market structures is critical to understanding the institutional and financial constraints that affect incentives for forest and fuelwood development by Van and Lath Panchayats and by individuals.

The wood products marketing system in the hill region can be broadly separated into a commercial system, for products such as timber, pulpwood, and fuelwood, and an informal system which is primarily for fuelwood. In the hill areas, timber producing

Table 2

PRICES OF FUELWOOD IN IMPORTANT INDIAN URBAN CENTERS

Urban Centers	Fuelwood Prices (Rs. per tonne) 1960	1977	1984	Annual Growth Rates 1960-77 (%)	Annual Growth Rates 1977-84 (%)
Ahmedabad	90.9	306.0	671.0	7.5	11.9
Ajmer	46.8	225.0	550.0	9.7	13.6
Barbil	30.8	125.0	262.5	8.6	11.2
Bhavnagar	80.5	250.0	400.0	6.9	6.9
Bhopal	54.8	180.0	665.8	7.3	20.6
Bombay	84.0	362.3	1053.5	9.0	16.5
Calcutta	92.8	275.0	730.0	6.6	15.0
Coimbatore	73.0	240.0	600.0	7.3	14.0
Delhi	100.0	400.0	950.0	8.5	13.2
Gwalior	64.3	225.0	729.7	7.6	18.3
Howrah	90.3	287.5	737.5	7.1	14.4
Hyderabad	66.0	243.4	616.6	8.0	14.2
Indore	57.0	257.6	650.0	9.3	14.1
Jaipur	78.5	298.0	659.5	8.2	12.0
Kanpur	61.5	238.5	576.5	9.0	13.4
Madras	84.8	283.2	680.0	7.4	13.3
Madurai	72.5	179.0	562.0	5.5	17.8
Nagpur	59.5	150.0	550.0	5.6	20.4
Sholapur	89.3	275.0	650.0	6.8	13.1
Srinagar	34.8	160.8	384.0	9.4	13.2
Varanasi	60.6	271.8	810.8	9.3	17.0
Average	59.9	218.7	558.2	7.9	14.4

Source: Adapted from Bowonder, B., et al., Deforestation Around Urban Centres in India, Administrative Staff College of India, Hyderabad, 1986.

forests mainly fall under the ownership of the State Forest Department. But the Forest Department's activities remain confined only to production and maintenance of the forests and receiving revenue or royalty against the products. The harvesting and marketing of forest products, except for a few minor products, is done by other agencies and functionaries. Details of the two systems and their limitations are described in the sections ahead, with attention given to the role of fuelwood in each system.

THE TRADITIONAL MARKETING SYSTEM

The private contractor system for extracting timber, pulpwood, and fuelwood was in operation for many decades. Until 1974, when the state government constituted the Uttar Pradesh Forest Corporation (UPFC), contractors were allowed to operate within an allotted area and permitted to fell trees marked by the Forest Department on the basis of certain parameters. A number of restrictions were imposed to ensure that logging was done scientifically. The forest contractors hired trained labor mostly from Himachal Pradesh and Kashmir for different operations. The labor force lived for months together in the dense forest areas where basic amenities like shelter, drinking water, medical aids, and lighting were arranged by the contractors. Food items were also provided at the site on payment. At the time of hiring labor, a substantial amount was paid by contractors in advance to their families to meet their expenses during the period of absence of the male head of the

family. The wages were paid on piece work basis. Though the rates were low and the laborers were exploited by other means, contractors in general provided basic requirements and a human touch in professional activities.

In the traditional system, experienced contractors processed forest products considering the market demand and business trends. Their attempt was to bring maximum amount of available wood into use. The initial processing was done in the forest and wood in the form of logs, poles, railway sleepers, and rough sections was brought down to the foothill towns. For the transportation of the semi-processed goods, various means like elephants, humans, trucks, boats, and rivers were used. The contractors managed the transportation themselves.

For timber processing, these contractors generally had their depots at the foothill towns where most of them had installed sawmills to prepare different items on the basis of market demand. The products were then supplied to the wholesale dealers in various parts of the country on receiving orders from them. Supplies were mainly done by road and rail transport. The wholesale dealers were dealing with specialized items, and the retailers and individuals got the material of their requirement from them.

In this system, industries based on forest products such as the paper industry received their supply either through these contractors or by taking forest area through open auction. Even when the supply was arranged through contractors, these industries managed to impose restrictions through the

government, compelling the contractors to sell a certain part of their products to the industries at a cheaper rate. This rule was framed to protect the industries from the hazards of low availability of the raw materials.

A very negligible portion of the timber supply and a small portion of the fuelwood supply came from trees of private owners. A major part of the private trees was used by the owners themselves or consumed in the local market, without affecting the major marketing network of fuelwood. At most, the neighboring towns and cities were benefited from the supply from the private tree owners. In the plains, in contrast, the supply of fuelwood was largely dependent on such private tree ownership.

COMMERCIAL MARKETING THROUGH THE STATE CORPORATION

In 1974, the state government established a new body, the Uttar Pradesh Forest Corporation, for the purpose of felling, extracting, and processing trees and selling products to the wholesale dealers. The Corporation was established with the objectives of eliminating the middle agency (contractor) system and arranging the supply of major and minor forest products; protecting the interest of the poor labor class by ensuring minimum wages; providing fuelwood at a cheaper rate; stabilizing wood product prices; and applying modern logging techniques. In 1981, the state government imposed a complete ban on the felling of trees by individuals under the Tree Protection Act. Under this rule, even the owner of a tree is not allowed to fell it

for his own use, without the permission of the Forest Department. This ban was the outcome of an alarming imbalance in the person-to-tree ratio in the state. As a result, the system of private contractor was completely abolished, as far as the felling of trees was concerned.

Bulk Marketing

The UPFC has its head office at the State capital from where the Managing Director controls the entire business under the supervision of a board of directors. The Managing Director is assisted by a team of General Managers. At the divisional level, Deputy General Managers are appointed separately for logging and marketing. The Corporation has a number of depots, where wood in various forms and sizes is collected for auction and sale. These depots are mostly located at the foothill towns.

The Corporation pays a fixed amount of money to its parent Forest Department in the form of royalty for harvesting wood on forest reserve lands. The felling of trees is arranged by the Corporation by engaging labor. The supervision of the work is done by the Corporation staff. At the highest level, decisions are taken on the quantities and sizes of the poles, railway sleepers, and logs to be prepared, retail sale prices, and minimum auction rates. The entire processing is done in the forest itself and wood in the form of poles, sleepers, or logs is brought from the forest to various depots. The amount of wood, of various types to be supplied to each depot, is decided

on the basis of their demand indents and previous sale records. Transport means are the same as previously used by private forest contractors.

The wood is broadly divided into four categories, namely softwood, hardwood, fuelwood, and mixed wood according to its end-use quality. Within each category, a number of species are included. At the depot, the stacking is done according to these four categories and then on the basis of quality and size within each category. Stacking is a highly technical job since there is a tremendous price variation within each category, depending upon the size and quality of wood. From the depot, the wood is sold by auction or through private treaty.

Auction. The Corporation has a list of registered contractors who may participate in the auction, which is done on certain fixed dates--three to four times in a month--at each depot. The office of the Managing Director decides the minimum price of each category of wood considering the market trends, the total cost involved, and a fixed percentage of profit. Though auction dates are fixed, prior notice is given through newspapers and circulars to the contractors about the quantity of various categories of the wood available for the auction. The highest bid is accepted by the Corporation only when it exceeds the minimum price fixed by the Managing Director. The bidder is asked to deposit a part of the payment in advance and lift the lot within 15 days.

Private Treaty System. Besides open auction, the Corporation may execute a treaty with any firm, ensuring the

supply of a certain quantity of any forest product on a mutually agreed rate. Only the Managing Director may execute the Treaty, that has an upper limit of Rs. 100,000 per day. Even before the emergence of the Corporation, the Forest Department was under the obligation of supplying such items to paper and turpentine industries. In the present system, all firms dealing in the manufacture of forest products may negotiate with the Corporation for executing such a treaty. The Managing Director decides the forest product price to be fixed under the treaty, on the basis of previous auction rates, stock availability, or market rate. By paying a slightly higher rate, the firm gets the best lot from the same quality category and remains unaffected by the price variations due to auction trends. This system helps the Corporation in disposing of the excess amount of wood, and works as a controlling valve for contractors who try to bring the auction rates to the lowest point by lobbying. The system is also used to maintain a balance between demand and supply.

It is interesting to observe the proceedings of an auction. A large number of contractors assemble long before the scheduled time. Different lots are minutely examined by the trained and experienced staff of these contractors, who advise the contractors regarding the maximum possible bid. Efforts are made to know the minimum price fixed by the Corporation to facilitate bidding a price nearest to it. Contractors having common interest often join together, forming a syndicate to avoid competition. Those who could not be persuaded to join the

syndicate, have to be prepared to face the threats from the muscle-men of the syndicate. During an auction, fighting between two groups is not uncommon. According to several former contractors, "mafia" has entered in this business and single contractors are not allowed to participate in the auction. The Corporation has decided to restrict the entry to the depot premises to registered contractors only. This has improved the situation slightly, but these muscle-men converted to neo-contractors still apply their force. With a shortage of forest products, and auction being the only major source of supply, such tactics are bound to continue.

Shortcomings of the System

Non-availability of wood of the required species and size in these auctions was reported by most contractors and wholesale dealers. In their opinion, the Corporation does not have adequate marketing experience. Thus undersized logs and poles are prepared and the seasonal demand of various species in the market is not considered. Due to this reason, a substantial amount of wood remains unused or is sold at a very low rate. However, the Corporation officials do not agree. In their opinion, the Corporation is felling trees scientifically and every part of the tree is properly used to minimize any losses. On the other hand, the personnel of the Forest Department do not agree with this logic on the ground that the quantity of available wood from the tree is determined by the Department on the basis of a fixed formula that works out to be much less than

the actual quantity available. Besides, it is reported that a substantial portion of the wood is left in the forest for illegal transactions. Scientific felling also involves close technical supervision which is often neglected. Leftovers result in wild forest fires and loss of national resources.

The prices of all types of wood have increased several fold after the Corporation came into being. The wholesale dealers and contractors hold the Corporation responsible for this on the grounds that the costs incurred by the Corporation are very high and inexperienced officials of the Corporation are wasting useful material. They further argue that the market trends and national demand factors are not considered by the Corporation. The Corporation, on the other hand, denies these charges by presenting statistics showing a decrease in the forest area and thus in the total supply of forest products. According to them, since felling of trees is now done scientifically, only a limited number of trees whose volume is equal to the annual growth of the forest capital are marked for felling. Contractors used to fell even undersized trees to enhance their profits, without considering the sustainability of the resource and the damages inflicted upon the forest area.

On the basis of discussions with various sections of the community and the Forest Department, it appears that there are several malpractices involved. It is reported that sometimes the leftover wood is given in the form of wages, which is shown against the expenditure. Illegal transactions of the forest products are reported widely. This has probably also led to

increase in the price of forest products. The private treaty system was also criticized by the same contractors on the ground that the system allows the Corporation to favor particular firms by allotting them the best quality wood. In their opinion, some firms having linkages with the Corporation staff take advantage by reselling the products at a much higher price in the open market. However, such allegations seem unfounded due to the strict procedures of the private treaty system that do not allow the Managing Director to take arbitrary decisions.

The Corporation was established with a view to stop the undesired felling of trees by private contractors. Undoubtedly, the Corporation has succeeded in this mission and the forests are no more a target of profit-mongers. But at the same time, the Corporation has not helped the program, and, as reported by the forest personnel, sometimes causes damage to new plantations by adopting unscientific methods of felling trees. Being a relatively new body, the Corporation is yet to develop a more scientific timber harvesting technique and commercialized marketing system. The Corporation has also failed to achieve one of its most important objectives of maintaining stability in prices.

Wood Products from Private and Community Land

The Corporation has not yet formulated a policy for purchasing and marketing the trees grown on private and community land. Private marketing of wood is completely banned in the hills. Villagers have rights to collect fuelwood free of

charge from the reserve forests for their own consumption. However, they can collect only fallen and dry twigs. They also have rights to share the products of the forest panchayats. But, neither an individual nor a panchayat has the right to sell a tree or its wood without permission from the Forest Department. Seeking permission from the Department is not an easy task, particularly for the villagers of remote areas. This results in illegal transactions and discourages villagers from adopting forestry programs, the benefits of which they cannot get easily. Accordingly, villagers prefer to plant fruit trees, instead of fuelwood or timber trees, so that they may sell the produce in the open market and get the returns immediately.

Retail Supply of Fuelwood

In accordance with its objectives, the Corporation has set up several retail fuelwood depots in different hill towns for wood from the UPFC, to ensure supply of fuelwood to the urban population at reasonable rates. Due to the high level of demand, a monthly ceiling for the purchase of fuelwood is fixed for every family. In Almora town three such depots are in operation. Large pine logs are generally available in these depots. During our study, we found that the per quintal rate for fuelwood was Rs. 20.80 including sales tax. The buyer pays an additional Rs. 12.00 per quintal for chopping the logs and Rs. 18.00 for transportation of wood from the depot to the residence. Thus the actual cost comes to about Rs. 50 per quintal. This is slightly higher than the prices paid to

individual headload sellers (see subsequent section on INFORMAL FUELWOOD MARKETING) as judged from the approximate weight of their fuelwood bundle and its price.

Each UPFC depot manages to sell about 500 quintals of fuelwood per month with seasonal variations. Establishments like hospitals, school hostels, or the military mess are the main buyers all around the year. Hotels have reduced their use of fuelwood due to the smoke problem. Families and petty tea stall owners buy wood from the depot mainly during winter, when the demand is high. Otherwise, they depend primarily on headload supply in the informal market, which is cheaper and more convenient. Other fuels like Liquid Petroleum Gas (LPG), kerosene, and coal briquettes are becoming popular because of the increasing price, difficulty in procurement, and smoke emission in the case of fuelwood. It is estimated that these wood depots are now meeting only one fourth of the cooking fuel requirement of Almora town.

INFORMAL FUELWOOD MARKETING

An informal marketing system also prevails in the hills for the supply of fuelwood. As mentioned earlier, the hill population has a right to collect fallen dry twigs from the reserve forest area for own consumption. Taking advantage of this right, many poor families have adopted a profession of collecting and selling the twigs to urban residents and petty tea shop owners.

Discussions with persons engaged in the activity, both male and female, reveal that although the profession is not linked to the caste system, most of them belong to the scheduled castes because of their extreme poverty. The collection of wood is exclusively done by the women while selling is done by both women and men. There are certain villages near the towns where most of the families are engaged in this economic activity. However, a discussion with these families revealed that none of them are satisfied with it because of the risks involved, hardships, and the low income. They are carrying on the job under constant threat of being caught by Forest Guards, since no other alternatives are available.

These persons generally prefer to collect wood from the forest area assigned to their village. But, shortage of wood compels them to cover distant places ranging up to 10 km. Although only fallen or dry twigs are supposed to be collected, even green branches and twigs are being sold. One can often observe a group of four to eight persons, each with a headload and a backload consisting of cut wood one to two inches in diameter, moving from Binsar area to Almora town, i.e., a distance of 12-15 km. Often one complete day is involved in the collection of one headload of wood. The following day another family member usually carries the collected wood to the town on foot, involving a whole day.

The fuelwood is sold without weighing. The size of the bundle, the quality, and species of the wood are the factors determining the price, which is fixed through bargaining. On an

average, a person gets Rs. 15 against two days labor, compared to the minimum wage for the hill of Rs. 15 per day. This amount is received after a great hardship. Even old women are found selling fuelwood in the Almora town. Sometimes, young children aged seven to eight years are also found helping their parents in collection and carriage of fuelwood. Some common species brought to the market are chir, banj, deodar, bhimal, toon, utis. Bushes, roots, and shrubs are also collected by them.

Besides these individual sellers, one can also observe fuelwood being sold in bulk quantities by regular shopkeepers who purchase it from the individual fuelwood collectors. These shopkeepers charge a higher price, but many persons are willing to pay more when they have an immediate need for fuelwood in bulk quantity.

Interference by the Forest Guards and the declining forest resources have increased the hardships of these fuelwood collectors. As a result, the quantity of fuelwood supplied by them is shrinking. This was evident from the interviews of the tea stall owners in Almora and other towns. Many of these shopkeepers, who had been completely dependent on such supplies, have now partially switched to kerosene and coal briquettes brought from the plains at a much higher price. However, preference is still given to fuelwood, as it provides space heating in addition to cooking. It was observed that the shopkeepers in remote places still depend on fuelwood and have a greater liking for it as its availability is better in those areas, and sometimes it could be obtained from their own trees.

In the villages, fuelwood and timber are seldom purchased. The requirement of villagers is generally met from their rights in the forest area. For timber, a family can apply to get a tree allotted by the Department as and when required. Additional demand often is met by borrowing from other families. Special quotas are allotted on special occasions like marriages. Sales occur only when people sometimes sell the excess timber wood in the open market. Many small tea stall owners in small towns collect fuelwood themselves for their shops, but a large number of them purchase fuelwood from others, since they cannot spare so much time.

Cooperative Marketing

Various other non-wood forest products like herbs, shrubs, medicinal plants have a very high market value. Earlier the local businessmen engaged labor for extracting these items from the forests, after paying the necessary royalty to the Forest Department. Wages paid to the laborers were extremely low. The businessmen transported the material to the foothill towns, selling them to commission agents and wholesale dealers who, in turn, sold these items to specific firms in India and abroad. It was not unusual for the prices of certain herbs in a metropolitan city like Bombay to be five times the purchase price paid by the dealer. The local businessmen get a nominal share of the total profit.

To abolish the middlemen system and to improve the economic conditions of the labor class, the government recently decided

to allow only Cooperative Marketing Societies to operate in this business. It was expected that a higher margin of the profit will now be shared by the labor class. But in reality it was observed that most of these Cooperative Societies are organized by the same old traders in the name of local laborers. Thus, the basic purpose of the new system failed. Knowing the high margin of profits, "mafia-type" gangs have entered in this business too, by organizing false Cooperative Societies.

Thus an attempt to involve the local population through local Cooperatives and disbursing the benefits of the forests among them failed and their miseries remained unchanged.

Marketing by the Mandaliya Vikas Nigam

Boulders, sand, coarse sand, and grits are extracted from the riverbeds lying in the forest areas. The Forest Department charges royalty on these items. Till 1983, this business was entirely in the hands of private contractors, who were providing employment to a large population. However, following the same policy of abolishing the middleman, the right of extracting these and similar other items was given to the Mandaliya Vikas Nigam (MVN), a development agency of the Government. It was expected that the labor community will receive better wages and facilities as a result. However, in reality it is observed that a great deal of uncertainty prevails among the labor class who have no personal association or direct communication with the MVN personnel as was existing in the case of private

contractors. The payment of wages is also irregular on the plea that wages can be paid only after the sale of produce.

The manufacture of packing cases is an important activity for the orchard owners since the marketing of apples totally depends on the availability of cases. For this purpose, the Forest Corporation has decided to provide the required quantity of pine wood to the Mandaliya Vikas Nigam for processing and selling to the manufacturers. In a recent survey, it has been reported that the Forest Corporation failed to provide adequate quantity of wood and the Nigam failed to process the wood for the packing case manufacturers during the peak season. This resulted in heavy losses to the apple growers. Orchard owners reported that packing cases were available in the open market at a much lower rate. Those orchard owners who received the packing cases from the Nigam, were bound to sell their produce through the Nigam. Their payment too was made at a relatively lower rate after a lapse of several months.

CONCLUSIONS

The emergence of the U.P. Forest Corporation in the marketing scene in the year 1974 brought drastic changes in the traditional well-established marketing system of forest products. A large number of private contractors who were making enormous profits from the forests were pushed aside. It is a known fact that the forests were badly damaged under the traditional marketing system, and strict control was desired. This was possible only through a government body, like the

Forest Corporation. Government sponsored corporations have certain inherent weaknesses that are widely discussed in the context of the functioning of the public sector. Still, the need for such a body cannot be ruled out.

If the performance of the UPFC is evaluated against its basic objectives, one may draw the conclusion that the Corporation has failed to stabilize forest products prices and that the forest management and wood marketing functions of the Corporation are not as sound as required for a commercial organization. The Corporation provides better wages to the laborers but the wastage of valuable forest products in adjusting the wage account cannot be denied. If the argument of the personnel belonging to Forest Department is considered correct, the Corporation has not succeeded in maintaining and promoting the productivity of forests, since logging is not done scientifically. This was one of the major objectives of the Corporation.

On the supply front, the Corporation depots are partially meeting the fuelwood demand of the hill towns while the population continues to depend on traditional informal supply of fuelwood. Shortage of fuelwood results in higher consumption of substitute commercial fuels like coal, kerosene, and LPG. The informal marketing system, though mostly illegal, still prevails in the hills because of inherent limitations in the Corporation's role and operations. A sound marketing network would solve the problem of supply shortages only if the forest resource base is large enough and the problems arise from

maldistribution of these resources. Under conditions of inadequate forest resources, marketing, by itself, will not solve the problem. Incentives for people to expand the resource base are needed. Although, after the introduction of the Tree Protection Act, the activities of private wood collectors were curtailed, poverty compels them to get themselves involved in illegal practices. The cooperative marketing system and Mandaliya Vikas Nigam have also failed to bring the desired results.

The present marketing system has not yet helped in the promotion of private tree plantation program. The Corporation has yet to develop a system of buying products from the village community or private lands, and the owners--community or individual--have yet to arrange the marketing of their products without prior approval of the Department. In this situation, the villagers prefer to plant fruit trees, whose products can generate direct income in shorter time, without the interference of the Department. It is thus essential to provide proper marketing facilities for individuals and the community for convenient supply of the forest products in the open market.

The informal marketing system continues to play an important role in the supply of fuelwood. In remote places, where the marketing of fuel and timber is restricted to a very limited number of persons, local requirement is mostly being met by villagers' rights in the forest areas. Informal borrowing helps to meet occasional bulk requirement. In the hill towns, the consumption of commercial fuels is increasing, but fuelwood

is still required by all families particularly during winter. The supply is arranged by the fuelwood collectors belonging to the weaker section of the village community who assume a severe personal and legal risk to obtain the wood. Though the forest is thus a source of their livelihood, one must answer the questions--do the methods followed suit human dignity? Can the forests not provide better income generation opportunities to these persons? Are they really receiving their due share in the national income generated by the forests? Can the forests continue to generate income and employment on a sustainable basis?

An overview of the entire marketing system--both formal and informal--leads to the conclusion that there is a need for a better system which generates interest in the rural population for the adoption of social forestry programs and ensures the preservation of forests.

Chapter 4

LAND, PEOPLE, AND FORESTRY IN THE STUDY VILLAGES

B.N. Mishra

INTRODUCTION

The villages taken for intensive study represent different situations associated with accessibility, local organization, and infrastructural development. These variations also reflect the problems of villagers including those of forestry and fuelwood. In this chapter, these situations are analyzed for selected villages to examine the general effect of such factors on the forestry situation. The first part of the chapter gives a brief presentation of the characteristics of the study area. In the next part, profiles of different villages are described together with a comparative analysis of their socioeconomic situation. Finally, the farm forestry situation in the villages is analyzed and people's opinion on the associated issues is assessed in relation to their socioeconomic background.

Study Area

Two of the villages studied, Kunj and Silpar, lie in the block Lamgara, which is a relatively interior region. The other study village Chausuli, lies in block Hawalbagh and is very close to Almora. Block Lamgara, representing typical rural conditions of district Almora, is described in brief here.

Lamgara town is situated at a distance of 35 km from Almora city. Most of the population of the block live in the rural areas, so that the density of the population in the block is relatively low (93 per km2 as compared to 141 per km2 for the district). There are 108 inhabited villages in the block, most of which have a population of less than 500. About 50 percent of the total area of the block lies under forest and about 20 percent is sown. Orchards constitute a mere 1.9 percent. Most of the agricultural fields (more than 90 percent) are rainfed. Wheat, rice, madua, and madira are the main crops constituting 30.2, 19.6, 21.8, and 13.1 percent of the cropped area respectively. Other important crops include barley, maize, and potato. There is no important industry in the block and there are few alternative employment opportunities.

PROFILE OF THE STUDY VILLAGES

Location and Population Characteristics

Kunj. The village is situated at a distance of 72 km from the Almora city. There is a market town Jaity at a distance of three km from the village. Jaity is connected by bus from Almora and Haldwani.

The village is situated at elevations from 1,400 to 1,550 m, and has an average annual rainfall of 1,200 to 1,500 mm. There are 57 families in the village, the total population being 450. Of this, the population of scheduled castes is 45, the rest belonging to the Rajput community. There are friendly relations between the Rajput and Harijan

communities. In fact, it was observed that on some cultural occasions like "Bayasi" all members of the village danced hand-in-hand.

Due to lack of employment opportunities in the village, most parents send their sons to towns in search of employment. Remittances of such migrants supplement the income of many families.

Silpar. The village Silpar is situated at a distance of 68 km from Almora city and lies on the road to Jaity. There is a distance of only four km between Kunj and Silpar. Jaity is the market serving both these villages. There is another small market town Jwarnedi located three km from Silpar. This has a few tea shops only and essentially serves as a collection center for the agricultural produce of the area.

The village is situated at elevations from 1,500 to 1,650 m and the average annual rainfall is the same as Kunj. There are 68 families in the village, the total population being 353. There are 11 retired military pensioners in the village. However, the pension amounts are low (about Rs. 280 per month) and inadequate to make ends meet.

Some families (about six percent) leave the village in the winter season, i.e., from October to March and live at the foothill station, Haldwani, with their milk cattle. Sale of milk helps them in supplementing their income.

Silpar has a very good forest on community land. The forest is about 80 years old and serves the needs of fuel, fodder, and timber. The management and maintenance system of

the forest is unique. It is known as the "Lath Panchayat." Every villager helps in maintenance of the forest like a policeman. A village committee headed by a Sarpanch takes all decisions regarding forest management.

Chausuli. The village Chausuli is located at a distance c nine km from Almora on the Almora-Haldwani road. The village i situated at elevations from 1,100 to 1,300 m and has an average rainfall of 1,360 mm. There are 155 families listed in the village register. Of these, only 106 families are residing in the village, the rest having migrated permanently. 82 families belong to the Rajput community and the remaining 24 to the Harijan community.

Unlike Kunj and Silpar, this village does not have any primary school and the children have to go to the neighboring village for schooling. In all the three villages, the schools are mostly attended by boys only. On being inquired as to why the girls are not sent to school, the parents reply that this i because a girl does not have to do service and has to look afte the household and agricultural work only.

Land Distribution and Occupation Pattern

As seen from Table 1, there is not much difference between the landholding of different families. There are no farmers having more than five acres in any of the study villages. In

Table 1

LAND DISTRIBUTION AND OCCUPATION PATTERN
(Brackets indicate percentages)

	Landholding Groups					
	Marginal (up to 2.5 acres)		Small (2.5 to 5.0 acres)		Total	
Kunj						
Number of Families	39	(68)	18	(32)	57	(100)
Average Landholding (acres)	1.5		3.8		1.2	
Families engaged in:						
Agriculture	28	(72)	16	(89)	44	(77)
Nonagricultural occupations[1]						
Resident	3	(8)	1	(6)	4	(7)
Migrant	8	(21)	1	(6)	9	(16)
Silpar						
Number of Families	62	(91)	6	(9)	68	(100)
Average Landholding (acres)	1.8		3.3		2.0	
Families engaged in:						
Agriculture	48	(77)	5	(83)	53	(78)
Nonagricultural occupations						
Resident	1	(2)	0	(0)	1	(2)
Migrant	13	(21)	1	(17)	14	(21)
Chausuli[2]						
Number of Families	106	(100)	0		106	(100)
Average Landholding (acres)	0.7		0		0.7	
Families engaged in:						
Agriculture	56	(53)	0		56	(53)
Nonagricultural occupations						
Resident	50	(47)	0		50	(47)
Migrant	493					

[1]Nonagricultural occupations include shopkeeping, tailoring, masonry work, and other outside employment.
[2]The register containing the data regarding landholding of the families was not available. Therefore, these data are based on the information provided by the sample families.
[3]These families have migrated permanently. Hence they are not included in the total.

Kunj, there are some farmers who cultivate 2.5 to 5 acres, but very few families belong to this category in Silpar, and none in Chausuli. In Chausuli, however, there are a large number of families in nonagricultural occupations, like road labor and masonry work. Most family heads in nonagricultural occupations are seen to live outside the village, especially in the case of Silpar where most service holders are in military jobs. In Chausuli, most families in nonagricultural occupations have migrated permanently.

Family Resource Structure

The resource structure of the families of the different villages has been done for a sample of 25 percent (Table 2). The respondents are divided into three categories--poor, medium, and rich. These categories were made on the basis of sources of income of families, as suggested by the villagers themselves in a group meeting. Details of these families are given below.

Landholding and Occupation. The data regarding the landholding are based on interviews from households and the village head. The data of the village Kunj were also made available by a survey conducted by the Village Development Officer. However, the data provided by the head of the village in company of other villagers seemed to be more reliable, and are included here. It is clear from Table 3 that rich families have more land in comparison to others, except in the case of Chausuli. There, the average landholding of the medium group is higher. This is because the rich families of the village are

Table 2

SAMPLE FAMILIES

Villages	Total Number of Resident Families	Sample Families			
		Poor	Medium	Rich	Total Number
Kunj	57	4	6	3	13
Silpar	68	9	9	4	22
Chausuli	106	7	9	3	19

Table 3

LANDHOLDING AND OCCUPATION OF SELECTED FAMILIES

	Economic Status			
	Poor	Medium	Rich	Altogether
Kunj				
Average landholding (acres)	1.3	1.3	3.8	2.1
Percent of families engaged in:				
Agriculture	75.0	66.7	66.7	69.2
Nonagricultural occupation	25.0	33.3	33.3	30.8
Silpar				
Average landholding (acres)	0.8	1.4	1.6	1.2
Percent of families engaged in:				
Agriculture	100.0	100.0	75.0	95.5
Nonagricultural occupation	0	0	25.0	4.5
Chausuli				
Average landholding (acres)	0.3	1.1	0.6	0.3
Percent of families engaged in:				
Agriculture	42.9	77.8	0	52.6
Nonagricultural occupation	57.1	22.2	100.0	47.4

involved in nonagricultural occupations, which bring them more money as compared to other groups.

Cattle Holding. The data on cattle holding (Table 4) show that there is little variation in ownership across classes and that most families own some cattle both draft and milk.

Houses and Assets. The houses are generally two floors divided into two parts by the stairs located in the middle. There are generally two rooms on the ground floor. One of these is used for keeping cattle and is called "Goth" in local language. The other groundfloor room is used for keeping agricultural implements and crop residues. But in some houses this second room is used by the male members of the family for sleeping. The rooms on the upper floor are likewise divided by the stairs. Of these, the outer rooms are generally used for sleeping. One of the inner rooms is generally used as kitchen and the other for keeping household items. In Kunj, some families have constructed separate sheds for keeping the cattle, but such sheds are not found in Silpar and Chausuli. Some families also have other houses near their agricultural fields.

The number of rooms in the houses of the poor, medium, and rich groups confirm that the rich families have large houses (Table 5). But in terms of style there is not much difference between the houses of the rich and the poor. All the houses are made from locally available stones and slates.

The data regarding assets such as durable consumer products show that the poor families do not have these items and that their number is highest in Kunj and lowest in Chausuli.

Table 4

AVERAGE CATTLE HOLDING

	Economic Status			
	Poor	Medium	Rich	Altogether
Kunj				
Draft	1.5	2.0	1.3	1.7
Milk	2.3	1.7	2.7	2.1
Total	3.8	3.7	4.0	3.8
Silpar				
Draft	0.9	1.4	1.3	1.2
Milk	1.6	2.2	2.8	2.0
Total	2.4	3.7	3.8	3.2
Chausuli				
Draft	0.4	1.3	1.3	1.0
Milk	1.1	1.6	2.3	1.5
Total	1.6	2.9	3.7	2.5

Table 5

AVERAGE NUMBER OF ROOMS AND ASSETS*

	Economic Status			
	Poor	Medium	Rich	Altogether
Kunj				
Rooms	1.8	2.3	4.3	2.6
Assets	0.3	1.0	3.3	1.3
Silpar				
Rooms	1.9	2.0	3.0	2.1
Assets	0	0	1.8	0.3
Chausuli				
Rooms	1.6	1.9	3.0	0.3
Assets	0	0.1	0.3	0.1

*Assets include: wristwatches, radios, chairs, tables, tape recorders, and sewing machines.

Land Use Pattern

The land use pattern of the study villages (Table 6) shows that the area of forest is highest in Silpar. The area of cultivated land and cultivable wasteland is highest in Kunj. There is no cultivable wasteland in Chausuli, but there is a lot of uncultivable wasteland there. The data show that there could be significant differences in land use pattern in the same region.

FARM FORESTRY

The people of the hills are closely dependent on forests for fulfilling their requirement of fuel, fodder, and timber. During the study, it was learnt that the people have to cover considerable distances for collection of fuel and fodder. This problem could be avoided through good farm forestry. Although attempts are being made to popularize farm forestry, there are certain hindrances, such as lack of irrigation facilities and protection of trees in distant agricultural fields. Land around the houses can only be used for vegetable growing. Moreover, the species which people want to plant are not easily available near the village. These factors are discussed in detail with reference to the study villages below.

Existing Trees on Private Lands

The data show that the ownership of trees is highest in Kunj. Nearly all the villagers in Kunj and Chausuli have some trees. Most of them are either fruit trees or pine (chir).

Table 6

LAND USE PATTERN
(Acres. Brackets represent percentages)

Land Use	Kunj		Silpar		Chausuli	
Net sown area	88	(33.6)	134.7	(35.9)	158	(21.1)
Forest	43	(16.4)	206.1	(55.0)	120	(16.0)
Cultivable Wastelands*	106	(40.5)	7.4	(2.0)	0	(0.0)
Uncultivable Wastelands	13	(5.0)	16.4	(4.4)	414	(55.2)
Area put to nonagricultural uses**	12	(4.6)	9.8	(2.6)	58	(7.7)
Total	262	(100.0)	374.4	(100.0)	750	(100.0)

*Includes old and new fallows and culturable wastelands.
**Includes areas occupied by houses, roads, waterstreams, temples, and so on.

Table 7 shows that the selected families of the rich group have many more trees in comparison to the poor and the medium group, especially in Kunj.

New Plantings

Plantings undertaken during the last five years were observed to be highest in Silpar (Table 8). They were low in Kunj and Chausuli where a total of only 37 and 22 saplings were planted respectively. The new saplings were planted mostly by the families who had vacant land near their houses. This is especially true for Kunj and Chausuli, and is also a reason why

Table 7

TREE OWNERSHIP PATTERN

	Economic Group			
	Poor	Medium	Rich	Altogether
Kunj				
Mean	5.0	15.8	92.0	30.1
Median	7	12	51	
Silpar				
Mean	7.4	14.0	19.5	12.3
Median	6	8	15	
Chausuli				
Mean	8.3	18.8	28.0	16.4
Median	6.5	16	32	
Species planted:				
Fruit[1]	17.9	15.1	8.9	12.7
Fuel/Fodder[2]	35.2	35.6	32.7	34.2
Timber[3]	46.9	49.2	58.5	53.0

[1]Orange, apple, walnut, lemon, malta.
[2]Kharik (*Celtis australis*), bhimal (*Grewia oppositifolia*), banj (*Quercus incane*), ghingaru (*Phycantha crenulata*).
[3]Chir (*Pinus roxburghii*), tun (*Toona ciliata*), deodar (*Cedrus deodara*).

the average survival rate is higher in these two villages. In all the three villages, 100 percent of the plantings were of fruit species, although fuel and fodder have been observed to be the main problem. There is not much difference between the survival rate of saplings among the rich and poor groups. The survival rate is low for poor families in Silpar because they had undertaken new plantings on a relatively large scale.

Table 8

FAMILIES UNDERTAKING NEW PLANTINGS
(percent of total)

	Economic Status			
	Poor	Medium	Rich	Altogether
Kunj				
Percent of Families	50.0	0	66.7	30.8
Species planted	100% fruit saplings	0	100% fruit saplings	100% fruit saplings
Survival rate	37.5	0	48.3	45.9
Silpar				
Percent of Families	66.7	55.6	100.0	68.2
Species planted	100% fruit saplings	100% fruit saplings	100% fruit saplings	100% fruit saplings
Survival rate	8.1	46.9	51.0	25.8
Chausuli				
Percent of Families	14.3	22.2	33.3	21.0
Species planted	100% fruit saplings	100% fruit saplings	100% fruit saplings	100% fruit saplings
Survival rate	100.0	23.5	100.0	40.0

Reasons For Not Undertaking New Plantings

The respondents of all the study villages mentioned that they were facing three main problems regarding the planting of new saplings, i.e., lack of land near their houses, protection, and irrigation. If a sapling is planted near the house, anyone from the family could look after it. But not so if it is planted near the fields. Also it is difficult to irrigate the plants sown in the agricultural land. Both these problems are

taken care of if the sapling is planted near the house. But most families did not have land near their houses, making it difficult to undertake new plantings. Some other problems were also stated by the villagers. These were unavailability of saplings and their low survival rate (Table 8). In all the villages, the new plantings were generally done from saplings provided by the development block administration. It was reported that saplings of the desired species were generally not available. At the time of campaigns launched by the government departments, the saplings are available free of cost. But otherwise, the cost of a sapling could be between Rs. 1.00 and Rs. 2.50. In some cases in Silpar, the saplings were purchased from government nurseries, but in most other cases there they were grown from seeds in the houses.

Farm vs. Community Forestry

Of the three selected villages, the highest number of new plantings were done in Silpar. Almost two-third families of that village have done new plantings during the last five years. This shows that the persons of the village have greater interest in plantings, as also seen by the fact that most of them have raised plants from seeds in their own houses. This is probably because of an old tradition of planting trees, because of which they have a good forest. In all the selected villages, the villagers have planted 100 percent fruit species on their private land. Although the villagers need fuel and fodder, they do not plant these species on private land.

In contrast, according to the survey, they are all of the opinion that on community land, only fuel and fodder species should be planted. In fact, sometimes fodder species have a higher priority. For example, in Kunj, the villagers opposed the government department for planting pine saplings. The villagers were of the opinion that the government department should plant fodder species on community land.

Our survey findings show that most of the respondents are worried about the method of distribution of products of the forest, e.g., fallen trees or grasses. For example, in Kunj, except two rich families, not even a single respondent was satisfied with the present distribution system. They all wanted that the present auction system should be stopped and equal distribution of the products should be made among all the villagers.

In general, we feel that the Farm Forestry system could be improved by:

1. Distributing saplings free or at a low cost. A lot of families who are poor do not prefer to plant new saplings because the cost is high and the survival is uncertain.
2. Providing the saplings to villagers just before the rainy season, when the plantation work starts.
3. Starting more nurseries, where the saplings of locally grown and preferred species are available.
4. Giving incentives to start private nurseries so that the villagers may get the saplings in the nearby villages.

5. Making available technical expertise from time to time. If these steps are taken, the Farm Forestry situation will certainly improve.
6. Modifying current policy which requires private forest owners to obtain permission from the Forest Department to cut trees from their own land.

Chapter 5

VILLAGE ASSESSMENTS OF FUELWOOD SCARCITY AND ALTERNATIVES

Neera Kool

In the hills, fuelwood collection and use is directly associated with the lives of women who, irrespective of their economic status, have been involved in this activity as a tradition. An assessment of fuelwood scarcities and alternatives should, therefore, center around the problems and perspectives of women. In this chapter, I have tried to examine these issues in the context of their lives, which continue to be restricted to the kitchen, the forest, and the agricultural fields. Problems associated with fuelwood cannot be seen in isolation from other routine activities like fodder or water collection. A description of these issues is given in the first three sections of the chapter. This is followed by an examination of the role of women in forest management and a discussion on the alternatives.

FUELWOOD CONSUMPTION AND COLLECTION

Fuelwood Consumption in Cooking

Fuelwood is the main cooking fuel used in the hills. Kerosene oil is available as an alternative, but it is not easily available. In order to estimate the amount of fuelwood consumed in cooking, the following methodology was adopted. The selected families were given a weighed bundle of fuelwood for

their day's requirement of cooking fuel. This amount was a bit more than the daily consumption, visually assessed by the housewives themselves. The amount of wood consumed during the next 24 hours was determined by weighing the wood left on the next day. Each housewife was advised not to use any other fuel for cooking and also not to use the weighed fuel for any other purpose. Fuelwood consumption, thus determined for the different economic groups in the three selected villages, is presented in the following table.

The table indicates that the average fuelwood consumption is significantly higher in Kunj and Silpar as compared to Chausuli. But there is not much variation in consumption pattern across different economic groups. Further analysis of the fuelwood consumption data indicates a positive correlation between the number of members and the daily fuelwood consumption in a family. The correlation coefficient between the two for villages Kunj and Silpar work out to 0.4 and 0.66 respectively.

Table 1

AVERAGE DAILY CONSUMPTION OF FUELWOOD
(kg/person)

Economic Groups	Kunj	Silpar	Chausuli
Poor	4.5	4.2	2.1
Medium	3.6	3.8	1.8
Rich	4.2	3.3	1.8
All together	4.1	3.6	1.9

Types of Fuelwood Used

It was found that most families were using stems and branches of chir wood. Other types of wood commonly used were banj, buronj, and kafal. Fodder trees like khadik and bhimal were generally not used for fuelwood. However, villagers of Chausuli were seen to depend more upon twigs of chir and bushes like kilmora and ghingaru. Sometimes they also used "sevata" (pine cone) for making tea.

The families belonging to the richer class were generally seen to use solid stem wood, while the families of poor and medium class often used twigs which burn off quickly making it necessary for the housewife to sit near the stove.

Fuelwood Consumption in Space Heating

In the hills, due to the cold climate, considerable amount of fuelwood is used for space heating. There is no alternative arrangement for space heating. During the study, it was found that the rich villagers use thick wood of chir or banj for space heating, while families of the poor class or those who are unable to go to the forest for collection of wood, use twigs, thorny bushes or other dry matter available in the village. The families belonging to rich and medium class also have quilts and mattresses.

As the poor families do not have enough quilts and mattresses, they generally use more fuel for space heating. They are often seen to use "sevata" which produces a lot of smoke. The smoke is harmful to the lungs and the eyes.

Table 2

FAMILIES HAVING QUILTS AND MATTERESSES (%)

Economic groups	Kunj	Silpar	Chausuli
Poor	20	55	28
Middle	67	67	55
Rich	100	100	67

Fuelwood Consumption During Festivals and Marriages

It was learnt that during festivals and marriages the fuelwood consumption goes up considerably. Some housewives reported that on festival days, instead of one bundle of wood, two bundles are consumed.[1] On the occasion of marriages, usually one or two fully grown trees are consumed. In Kunj, it was found that those owning several trees usually felled one at the time of a marriage. Families who did not own trees obtained it from the Van Panchayat at a cost of Rs. 100 to Rs. 300 per tree. In the case of village Silpar, the wood could be obtained from the Lath Panchayat on making a request. For cremation of the dead body, all families generally contributed one log of wood.

Collection of Fuelwood

The job of fuelwood collection is done mainly by the women (Table 3). During the study, it was found that women from

[1]This could mean about 40 kg per family.

nearly all the families go to the forest for collection of fuelwood and fodder. The women generally go in groups for security and company. In winter, they generally go to the forest two or three times per week, but they do not go during rains, when they use the wood collected during winter.

Table 3

TIME TAKEN IN FUELWOOD COLLECTION

	Kunj	Silpar	Chausuli
Woman-hours per family per week	22.4	4.0	22.9

In summer, the women are busy in agricultural work, so they go to the forest only once a week, or whenever they are free. But during winter, their main job is fuelwood collection. Even at the peak of winter season, when it is snowing, fuelwood collection has to be done regardless of their health conditions. The mothers were observed to leave their newly born babies at home and go to the forest. An extreme case was narrated by a woman in Silpar. She mentioned that she had delivered her child in the forest, where she had gone for collection of fuelwood and had returned home in the evening with a bundle of wood and a baby.

Women mentioned that the heavy burden of work which has to be continued during the menstruation period and also immediately

before and after pregnancy, affects their health. But there is no alternative. They wanted some way out of it, so that the next generation may not face the same problem. I suggested that in difficult times they should adopt a Palta system,[2] practiced in sharing agricultural work. Some women agreed, but were afraid of their husbands and elderly women of their family, who might not allow them to do so. When I told them that this is their problem and they should not be afraid of others, they asked me to select one woman who could be given the responsibility of organizing the work. The women who agreed to do this work were discouraged by their husbands. The head of the village was also of the negative view. He, however, rationalized by saying that, "We (the men) don't ask them (the women) to go to the forest in the condition described. These women go by themselves."

The dialogue with women could not be continued, so that the alternative arrrangement suggested could not be followed up.

Fodder

During the study it was found that most families have some animals (Table 4). The animals are generally given green and dry grass, leaves, and agriculture residues as fodder. The women go to the forest for collection of leaves and grass.

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[2]The agricultural fields are scattered at distant locations. Therefore, the women do agricultural activities in a group in a cooperative manner. This group is known as "Palta."

There is greater shortage of fodder during summer. For this, the women store the grass collected during the month of October and November. This is generally tied on the trees and is locally called "loota." The grass is used whenever required.

Table 4

AVERAGE NUMBER OF ANIMALS OWNED BY THE SELECTED FAMILIES

Economic Groups	Kunj		Silpar		Chausuli	
	Draft	Milk	Draft	Milk	Draft	Milk
Poor	1.5	2.3	0.9	1.7	0.7	0.7
Middle	2.0	1.7	1.4	2.2	1.3	1.6
Rich	1.3	2.7	1.3	2.8	1.3	3.3
All together	1.7	2.2	1.2	2.2	1.1	1.9

The children are also sent to the forest for grazing the animals. During the study, it was observed that the children go to the forest after having their breakfast and come back in the afternoon. This is a direct loss of their study time. Sometimes the villagers also purchase dry grass to meet their fodder requirement.

In Kunj, the expenses incurred in purchasing fodder are seen to be relatively low, because khadik and bhimal leaves are available. In Silpar and Chausuli, there is an acute problem of fodder because they do not have trees that give leaves useful as fodder.

Table 5

AVERAGE ANNUAL EXPENDITURE PER FAMILY
IN THE PURCHASE OF FODDER (RUPEES)

Economic groups	Kunj	Silpar	Chausuli
Poor	46	200	100
Middle	18	100	278
Rich	52	167	57

Note: Rs. 12.50 = US $1.00

Water

We were told that, due to continuous deforestation, natural sources of water are getting dried up. This is affecting the daily routine of women and children, who have to collect water for their domestic requirements. In Kunj, there are 57 families who are getting water from a distant river and four "naulas" or streams in the village. Out of these, two naulas have very little water. Moreover, the houses in Kunj are very scattered, so that the villagers have to spend considerable time in collection of water.

In Chausuli, there is a more severe water shortage. Though there are six water taps among 106 families in the village, the flow of water is so little that the villagers have to wait for a long time. We saw that at all times there are empty buckets and pots kept in a queue, waiting for their turn to be filled. It is interesting to note that this had contributed to the women's

habit of smoking tobacco. When I asked them how they started smoking tobacco, they replied, "At night we have to wait for a long time for getting water. This is very tiring and makes us sleepy. To get some relaxation, we once tried tobacco and now we have become habituated." They requested me not to disclose this habit to other male members of our team.

In Silpar, there is no problem of water, because through local contributions, the villagers have constructed a tank at the center of the village. The houses are not very scattered, so that no one has to cover much distance. Besides, there is a dense forest on the slopes above. This assures a continuous and good supply of water in their naula.

Women in Local Forest Management

The forest management system varies in the different selected villages. Although there is a Van Panchayat in Kunj, the local forest is very degraded and the women of the village face considerable problems in the collection of fuelwood and fodder from the reserve forest.[3] In the forest, there are no restrictions on collection of fallen twigs and branches. The villagers also have rights to get timber for domestic requirements.[4] This is called "Haque Ki Lakri" in the local language.

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[3]They go to the Mornola reserve forest which is situated at a distance of nine km from the village.
[4]For construction and repair of houses and agricultural implements.

The Panchayat Forest of Silpar is well developed and managed by their Lath Panchayat. Due to the good management of the panchayat, there is no problem in getting wood for domestic purposes. In the Lath Panchayat, the villagers are free to collect fallen branches from the forest throughout the year. For this, the panchayat does not charge any fee. Whenever required, they call a meeting and if the majority want to use the forest, some people are nominated as supervisors and everyone is allowed to collect agreed amounts of forest produce for a fixed period.[5] The forest is quite close to the village, so the women do not have to walk much for the collection of fuelwood or fodder.

In Chausuli, there are few trees left in the Panchayat Forest. The Forest Department has carried out some plantation work but the trees are too young to supply fuelwood. Therefore, the women of Chausuli often steal grass and fuelwood from the forest of the nearby village. If they are seen by the women of that village, they quarrel. Sometimes their cutting tools are snatched from them.

During discussions, it was learnt that although the women are closely associated with the forest since their early age, they do not know much about their forest management system. They did not even have any information about the manner in which wood was obtained for construction of houses, festivals and marriages. In village Kunj, when it was clear that the women

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[5]Generally two or three days, depending on their requirements.

knew nothing about the forest management, I told them, "If you want to know about it, we can tell you." The women replied, "What shall we benefit by knowing the system? We know that we have to go to the Mornola forest for the collection of wood." A woman of the same village said that there was no male member in their family who could tell them about the proceedings of Van Panchayat meetings and the auction conducted by the Panchayat.

In contrast to the above situations, we learnt that in another village Aati, women were active in the management of their Panchayat Forest. Although village Aati was not included for a detailed study, we decided to examine their forest management system. When we visited Aati, we learnt that the women of nearby village Baker often entered the Panchayat Forest of Aati, because they had rights in that area before the formation of the Aati Van Panchayat. When one watchman was appointed by Aati villagers, the women accused him of doing mischief. Therefore, the head of the Forest Panchayat found it difficult to protect the forest, and applied for resignation.

During this period a committee was formed by the women of Aati to protect the forest. This information was given to the Forest Panchayat Inspector with a request to conduct fresh elections. When the Forest Panchayat Inspector visited Aati, the woman Sarpanch candidate was not well. The Inspector reasoned with the villagers that it was natural for women to be unwell occasionally. This would make it difficult for a woman Sarpanch to perform her duties properly, especially if she is suddenly asked to be present elsewhere. Accordingly, the

villagers agreed to have a male Sarpanch, but two women were elected executive members of the Forest Panchayat. They were able to reduce the illegal cutting of trees in their Panchayat Forest.

From this example, it is clear that women can play an active role in forest management and can also improve the working of a Panchayat. However, traditional attitudes and roles have restricted their participation.

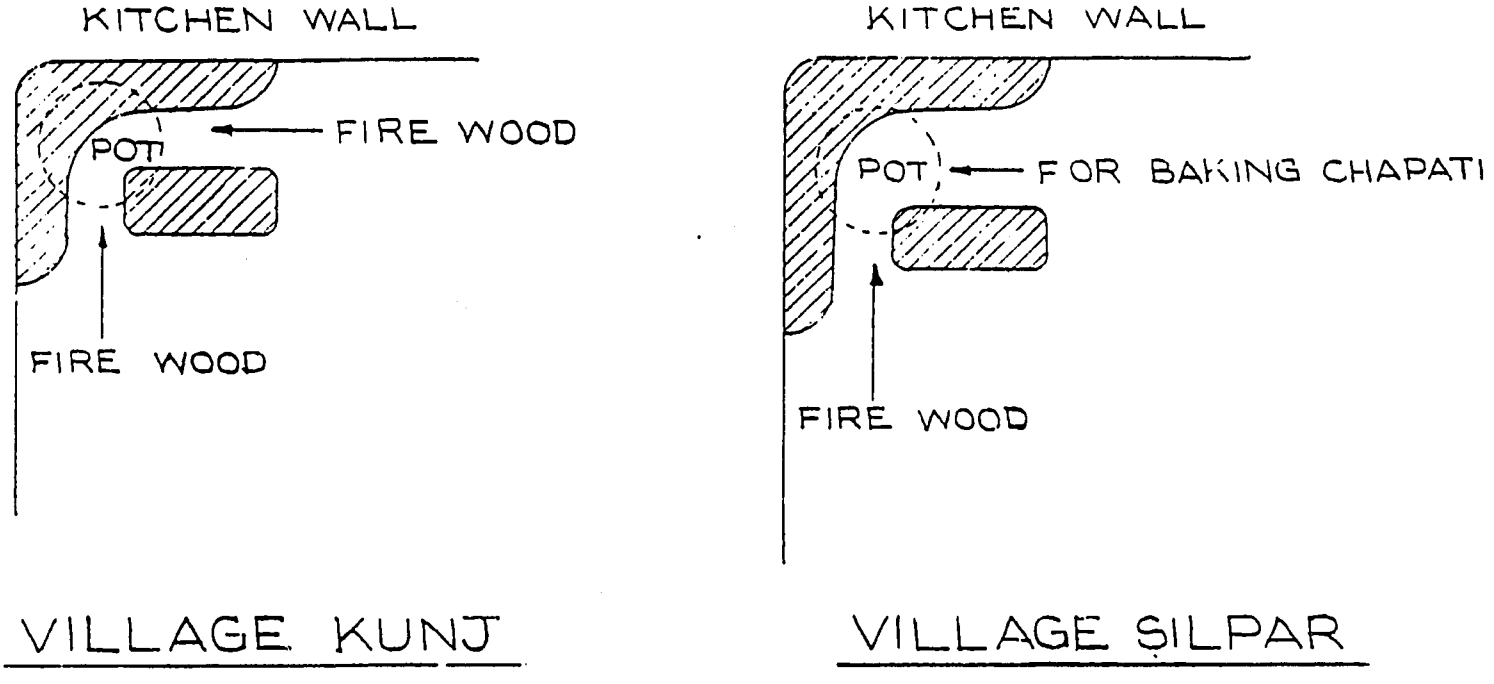
ALTERNATIVES

To meet the challenge of fuelwood scarcity, alternatives like smokeless stoves and biogas plants are become available. During our study we tried to examine possibilities of developing such alternatives. These are described briefly here. We shall also discuss other options for improving the living conditions of village women, and enhancing their participation in forest management.

Stoves

Nearly all households were observed to use wood-burning stoves made of clay, because wood was the only cooking fuel available to most villagers. During the study, it was found that most families were using fixed U-shaped mud stoves. Many families were, however, using another type of stove, constructed by keeping a stone a few inches from the corner of the kitchen wall. The distance between the wall and the stove was seen to vary for stoves in Kunj vis-a-vis the stoves in Silpar (Figure 1).

Figure 1



VILLAGE KUNJ

VILLAGE SILPAR

TRADITIONAL COOKING STOVES (TOP VIEW)

As shown in the figure, many stoves in Kunj were fed with firewood from both the open sides of the stove. This gave a big flame and the food was cooked faster. Though fuel consumption was more in these stoves, the women considered it useful for saving time. This method was generally adopted while cooking during the mornings, when the women were in a hurry to go to the forest for fuel or fodder collection. In Silpar, fuelwood was generally fed from one side of the stove and the other side was used for baking "chapatis" (bread).

It was observed that women did not pay much attention to the control of flames while cooking. They generally cooked on a flame much bigger than the optimum. They did not even use lid on the pot while cooking. In this way, there was considerable wastage of energy in cooking.

Under a stove development scheme, some smokeless stoves were made in village Chausuli. During the study, some shortcomings were noted in their construction and use. For example, the rear damper was found only on a few stoves. The women did not know about proper use of the damper. Therefore, most of them were not using it. In general, the women were not satisfied with the functioning of the smokeless stoves. Most of them reported that the fuel consumption was the same or more in smokeless stoves in relation to the traditional ones. A follow-up user training program seemed desirable.

Biogas

During the study, it was found that most families generally had two cattle. Moreover, their houses being situated close to

one another, construction of both individual and community biogas plants was possible. We found that there were two biogas plants in villages Kunj and Chausuli and both were working satisfactorily. With the help of biogas technology, the time of women can be saved and their animal-like burden of carrying wood can be reduced.

Enhancing the Role of Women in Forest Management

We feel that the women were generally unaware of their forest management system, because they were not consciously involved in it. As described earlier, when the women of village Aati took the responsibility of protecting their forest, they were successful, although the men had failed in the same. The involvement of women in forest management is thus very important. In the Van Panchayat system, there should be a provision to involve more women in the management committee. Currently, the involvement of one woman member is suggested and that too is not practiced. Some training programs should also be organized at village level to train the women in various aspects of forest development, to develop their capabilities and confidence.

For facilitating the involvement of women, however, we must find ways to save their time. During the study, it was observed that most of the work related to domestic activities, agriculture, animal husbandry, and forestry is being done by the women. When we asked some men, "Do you help the women in fuel or fodder collection?" They replied, "It is not our work.

Women are supposed to do it." We said, "OK, you may not go to forest, but do you assist in any of the work at home?" They replied, "It is the women's responsibility to do the domestic work." We observed that the men generally do the work outside the village. They go to the city in search of employment and take jobs like utensil washing and cleaning in hotels. They also work as domestic servants or in any other unskilled job. In the village, they spend their time in playing cards and drinking liquor. These are important constraining factors in any development scheme and must be considered before introducing any alternative.

As described above, the women do nearly all the work but have little role in household decision making. We found that no attention is being paid to their health, even during pregnancy or after delivery, when some bed-rest and nutritious diet is necessary. During this period, they are given bread of madua and salt only. When I asked the reason behind it, I was told that if milk, ghee, fruits, or vegetables are given to the mother of a newly born baby, the baby may get ill. We also noted an age old practice of treatment of diseases with a red-hot iron ring which created local burns in the affected part. This often brought greater misery to the patient.

Thus, there are various inhibitions and practices that contribute to the drudgery of women. Unless these are removed through suitable measures like promotion of appropriate technologies, local medicinal herbs, and removal of unhealthy social practices, effective forest management and women's participation in the same would remain a distant dream.

Chapter 6

LOCAL INSTITUTIONS INVOLVED IN FOREST MANAGEMENT: PANCHAYAT CASE STUDIES

Kamlesh Chandra Tripathi

INTRODUCTION

The hill areas present a useful opportunity for the study of local institutions involved in forest protection and management. In district Almora there are presently two types of local institutions involved in forest management--the Van Panchayats and the Lath Panchayats. Van Panchayats are working under the control and guidance of a government department, while the Lath Panchayats are independent entities without any legal sanction.

The success of any institution depends upon the faith of its members in its management committee. This in turn is related to the effectiveness of the committee in taking action against offenders and in making a just distribution of benefits from the local resources. These factors, and several others, were studied to determine the role of local institutions in forest management at village level. For this, the people of the selected villages were visited several times for discussion in a group and individually. Before starting any dialogue, it was made clear to the villagers that we were interested to know both their real problems and their proposed ways of solving them. They were assured that we could arrange for expert knowledge in

different fields and help them to achieve their desired objectives. The villagers were very cooperative with us and provided all types of information about themselves and their forest management system.

HISTORICAL CONTEXT TO THE FORMATION OF FOREST PANCHAYATS

Till 1823 there was no demarcation of lands in the hills and people were free to use the forest in any area. At that time, there was no need of local organization for forest management because pressure of population on forest resources was low and religious values generally barred people from felling trees. Forests were considered the common property of all human beings.

Impact of Different Land Settlement Acts on Local Forest Management Initiatives

In the Kumaon hills, village boundaries were first demarcated between 1815 and 1823. The boundaries were shown with the help of some common natural signs. In the land settlement of 1823, local people were given rights of fuel, fodder, timber, and agriculture in and around the village boundary. The Settlement of 1823 is known as "Assi Sala" or "Sal Assi Bandobast" (Settlement of Year 80), because the year 1823 is Samvat 1880 by Vikrami calendar. The villagers paid much importance to this Settlement. At that time, land was classified as "Abad" and "Beabad" land. Abad denotes cultivated land. The Beabad land, consisting of forest and barren land,

was considered as common property. The villagers were free to use Beabad land for their requirement of fuel, fodder, timber, or agriculture.

In the Beckette Land Settlement of 1863, the cultivated land was measured for the first time for imposition of land rent. Ownership of the measured land was officially transferred to the person who had cultivated the land. During the land measurement it was found that on some portions of the cultivated land, no person was making claim, so that rent could not be imposed on any individual. This cultivated but unrented land was declared common property of the village. This land is locally called "Beparat" land. Thus the land was classified as "Nap" (measured), "Benap" (unmeasured), or "Beparat" (unrented).

In the Forest Act of 1864, all the forests were declared reserved. Later, in the Forest Act of 1878, forests were classified as "Protected," "Reserved," and "Village" forests. In the protected forests, under the administrative control of the Deputy Commissioner, the local people were given the rights of fuel, fodder, timber, and extension of agriculture. The administration of reserved forests was given to the Forest Department. Local people had limited rights in the reserved forests. Village forests were the common property of all the villagers. In 1878, 1893, and 1904 the boundaries of the reserved and protected forests were redefined as a result of which the area of protected forests decreased and the area of reserved forests increased. This led the people to think that the Forest Department wanted to enhance its area and probably

cover all the forest area. Therefore, they started cutting trees in such areas.

Due to considerable exploitation of forests in this manner, the government declared all the good forests in 1915 as reserved forests, and their management was transferred to the Forest Department. In these forests, cutting of branches and leaves of trees, grazing of animals, and extension of agriculture were prohibited. This was unbearable for the inhabitants who started agitations and consequently many forests were burnt. In view of this situation, a "Kumaon Grievances Committee" was established in 1920 to determine the views of the local people about forest management. Suggestions of the committee led to the following changes in the early definition of protected forests:

1. The forests having trees predominantly of species[1] that fulfilled local requirements were declared protected forests.
2. The remaining protected forests were classified into class I and class II forests on the basis of their commercial utility. The forests which were useful for commercial purposes were considered as class II and the remaining as class I forests.

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[1]For example: banj, chir, sal, and kukath.

The administration of protected and class I forests was given to the Deputy Commissioner and, wherever possible, to the Van Panchayat, a local organization that could be established by the people themselves to manage the forest. Thus, villagers got the rights to use these forests for their requirements of fuel, fodder, and timber.

Formation of Lath Panchayats

The Land Settlement of 1823 is considered important by the local people because their rights over forests were declared for the first time under this settlement. The villagers generally do not want anyone to share their rights in protected and class I forests or Panchayat forests.

Those villagers who had faith in their power and unity and did not want any outsider to touch their rights at any cost, decided to organize themselves for protection of the forests and to prevent unnecessary cutting of trees. This led to creation of an organizational pattern based on people's power. This system is locally called "Lath Panchayat" and is in practice in some villages of district Almora.

VAN PANCHAYAT SYSTEM

Van Panchayat is a voluntary organization at village level consisting of the right holders of a Panchayat forest, who may belong to more than one village. The main objective of Van Panchayats is to protect and develop the forests and to distribute the forest produce among the right holders in an

equal proportion. The rules of Van Panchayat system were framed under the Scheduled District Act in the 1930s, but in 1972, the Act was abolished, so the rules now stand under the Forest Act, 1927, with some modifications as made in 1976 (Van Panchayat Niyamawali, 1976).

According to these rules, a Van Panchayat can be formed by the decision of more than two-thirds right holders who are required to elect five to nine members known as "Panch" from amongst themselves. One of the Panchs must be selected from the scheduled caste or scheduled tribe residents. In case a person is not elected from this group, the District Magistrate is empowered to nominate one from this group. The elected Panchs select a Sarpanch from amongst themselves. This Panchayat or committee, headed by a Sarpanch, is responsible for management of all the organizational work of the Panchayat forest. The working of the Panchayat, according to its different functions, can be described as follows.

Protection

To demarcate the forest boundary, the Panchayat is responsible for fixing of stone pillars. The Panchayat may meet this expenditure from its own resources. The Panchayat is also responsible for the prevention of illegal and unscientific cutting of trees, encroachment on Panchayat lands, and other irregularities. If the funds permit, the Panchayat can appoint a guard for the purpose.

Any person found guilty of violating the rules of a Van Panchayat, or disobeying the orders of the Panchayat, may be deprived of all the benefits from its forest. A Panchayat may impose fines up to Rs. 50, and with the approval of the District Magistrate up to Rs. 500. However, if the defaulter is willing to pay, the Van Panchayat may also collect the value of the tree or other damaged property from the defaulter. In case the Panchayat is unable to collect the fine, then the case could be reported to the Forest Panchayat Inspector who would generally forward it to the Patwari.[2] The Patwari is supposed to collect the due fine and report back to the Forest Panchayat Inspector.

Distribution

The Panchayat is responsible for distribution of all the benefits of the Panchayat forest among the right holders in an equal proportion. For this, the Panchayat may issue permit cards to them for a fixed fee.

The Panchayat may also sell the grass, fallen twigs, firewood, stones, and slates to the right holders. Auction of trees, up to an estimated value of Rs. 5,000, can be undertaken by the Panchayat with the approval of the Forest Department. Auctions above Rs. 5,000 have to be conducted by the Forest Department with the approval of the Conservator of Forests.

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[2]Patwari is responsible for collection of revenue. He also acts as the local policeman.

Income and Expenditure

A Van Panchayat can raise income from the distribution of its forest resources.[3] These funds are supposed to be deposited in any local bank or post office. Other than the expenditures on forest management,[4] all major expenses from this fund need approval of the District Magistrate.

The Forest Department is authorized to extract the resin from pine trees in a Panchayat Forest. The income, after deduction of the administrative expenses, up to 10 percent of the total revenue, is to be deposited at the district level in a fund known as the Resin Royalty Fund. The District Board is authorized to use up to 20 percent of this fund for district level development projects; the Panchayat can get up to 40 percent for forest development and up to 40 percent for their local development projects. Only the District Magistrate is authorized to make this distribution.

Forest and Grassland Development

To develop grass and bushes in the Panchayat Forest, a Van Panchayat may enclose some portion of the forest area in which animals may not be allowed to graze. It may also undertake new plantations with the help of its accumulated funds. For this, the Panchayat can use up to 40 percent of the income deposited in the Resin Royalty Fund with the permission of the District

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[3]Grasses, leaves, fallen wood, dry wood, stone, and slates.
[4]Stationary and postage charges, watchkeeping expenses.

Magistrate. The Forest Department sometimes also establishes panchayat forests and then turns them over to the villagers to manage.

Other Provisions

A Van Panchayat is required to hold its meeting every third month, i.e., four meetings in a year. The proceedings of these meetings are required to be noted in a register, a copy of which is required to be sent to the Forest Panchayat Inspector to take necessary action.

PRESENT CONDITION OF FOREST PANCHAYATS IN BARAMANDAL DIVISION

District Almora is divided into four divisions, each having one Forest Panchayat Inspector, appointed from amongst the Senior officers in the Revenue department. The Forest Panchayat Inspector is responsible for formation and working of forest panchayats in his area. He reports to the Sub Divisional Magistrate, appointed as Forest Panchayat Officer for the district. The present condition of Van Panchayats working in Baramandal division is given below.

Progress of Establishment of Van Panchayats in Baramandal Division

The progress of Van Panchayats established in Baramandal division can be seen from Table 1. The table indicates that up to 1976, the average number of Van Panchayats established per year was 4.3. This increased rapidly during 1976 to 1984 and

achieved a rate of 39 Panchayats per year, but during 1984-86 it fell to three Panchayats per year.

Presently there are 598 Van Panchayats in Baramandal division which covers 931 villages. Several panchayats cover more than one village. Therefore, it can be said that the majority of villages have adopted the Van Panchayat system for local forest management. The remaining villages either have Lath Panchayats or manage the local forest through the Gram Sabha (Village Council).

Until the Land Settlement of 1965, separate boundaries of all villages were demarcated. This often caused disputes among the inhabitants of villages having common Van Panchayats. Therefore, many of these Panchayats are not working properly. The villages now prefer to have separate Van Panchayats.

Table 1

FORMATION OF VAN PANCHAYATS IN BARAMANDAL DIVISION

Year	Number of Van Panchayats Formed
1931-76	282
1976-84	310
1984-86	6

Source: Records kept in the division office.

Administrative Support and Structure

This is analyzed in different aspects below.

Election. A Van Panchayat is supposed to hold elections every five years. In Baramandal division, out of 598 Van Panchayats, elections were due in 213 villages at the time of our study in 1986. During this year, elections could be held in 18 Van Panchayats only, while the remaining 195 were still under consideration. It can be understood that if the elections are not held in time, the management of Panchayats becomes less effective.

Inspection. According to the Van Panchayat rules, a Forest Panchayat Officer is supposed to inspect 25 Van Panchayats and the Commissioner five Van Panchayats every year. The Forest Panchayat Inspector is supposed to inspect at least one-third of the total Van Panchayats in his division every year.

In 1986, by the time of the study, the Commissioner had inspected five Panchayats and the Forest Panchayat Officer had inspected 29 Panchayats of Baramandal division. However, the Forest Panchayat Inspector had been able to inspect only 54 Panchayats, which is only nine percent of the total, against the required 33 percent.

Administrative support. A sum of Rs. 5 per month is given to meet the expenditure of stationery required in the office of the Forest Panchayat Inspector. There has been no increment in this head since the beginning of the Forest Panchayat System. We noted that due to short supply of stationery, corrrespondence work is affected. Also, the inspector is getting only Rs. 80

per month towards travel allowance to conduct elections and inspections in a total of 598 Van Panchayats in the division. He has to inspect 199 Van Panchayats per year or 16 Van Panchayats per month giving a figure of Rs. 5 per visit. This is far less than the actual expenditure incurred in a visit. Clearly the system receives very poor administrative support.

Availability and Use of Funds

As described earlier, the income of Van Panchayats is being deposited in two accounts, i.e., a local account and a Resin Royalty Fund at the district level. From the records available in the office of the Forest Panchayat Inspector it was learnt that majority of the Van Panchayats are unable to fetch income from any source (Table 2). Sixty two percent of the Van Panchayats do not have funds in any account.

As per the Van Panchayat Niyamavali of 1976, although the District Board is getting 20 percent of the total income deposited in the Resin Royalty Fund, the forest panchayats are not able to avail the remaining 80 percent for their forests and area development. This was severely criticized in the Pungar Ghati Conference.[5]

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[5]Report of Pungar Ghati Conference of Forest Panchayat heads held in district Almora, 5-6 May 1984.

Table 2

VAN PANCHAYAT FUNDS

Total Number of Panchayats	Number of Panchayats having an account in Bank or Post Office	Number of Panchayats having an account in Resin Royalty Fund	Number of Panchayats having no deposited funds
598	225	226	372

Source: Records kept in the division office.

It was learnt during discussions with the district level authorities that the problem is not the mishandling of funds, but that of lack of skills or capabilities at village level. The Van Panchayat members are not able to make appropriate plans for the development of their area.

Forest Department Inputs

As described earlier, if the fallen trees are worth more than Rs. 5,000, then only the Forest Department is authorized to conduct the auction of the trees. From the records available in the office of the Forest Panchayat Inspector, Baramandal division, it was learnt that due to lack of required action by the Forest Department, the auction of wood is pending in several Van Panchayats. For instance, in the Van Panchayat, Tulari, fallen trees have been lying at the site for auctioning since 1980. This results in wood decay and loss. It is clear that

the Forest Department has not been able to give adequate attention to its role in auctioning of fallen trees in the Panchayat forests.

From the above data, it can be seen that although the number of Van Panchayats in Baramandal division has more than doubled in the past decade, there has been no increase in the number of Panchayat Inspectors. Presently, in district Almora, there are 1,717 Van Panchayats working and only four Forest Panchayats Inspectors to manage them. The workload on these inspectors has increased without increase in the facilities provided to them. It is, therefore, difficult for them to manage the working of Van Panchayats properly.

PANCHAYAT CASE STUDIES

In district Almora, both the Van Panchayat and the Lath Panchayat systems are in operation to manage the Panchayat forests. The working of these systems is assessed here with reference to selected villages. We first present details of village Kunj, in the historical context of the impact of the different land settlements on local forest management. This will be compared with the assessment of other Van Panchayats.

Van Panchayat Kunj

A number of land ownership irregularities were discovered in Kunj, which affected people's opinion towards the Van Panchayat. Some of them are related to earlier land settlements. For example, it was made known to us that at a

village committee meeting in 1935, the Beparat, i.e., unrented land, in Kunj was distributed among the shareholders in an equal proportion. Families which were divided since the earlier settlement could only get a divided share. Some of them sold their share through mutual agreement. Under the land settlement of 1965, all the lands which were not cultivated and were left barren by the owners, were declared the property of the government. Some families who had purchased the Beparat land but had not cultivated it could not retain ownership of that land. They were obviously very grieved about it, especially when an afforestation program was carried out on these lands.

In 1948, some of the right holders decided to form a Van Panchayat for the management of the forest. This was finally registered in 1952. During the study we learnt that there was no map of the Panchayat forest. The expenditure records were maintained from 1954 and the proceedings register from 1964 onwards. Forest Panchayat Inspector's comments about the working of Van Panchayat were also available from 1952 to 1975. Information collected from these sources and through discussions with people is presented under different headings as follows.

Meetings. Information available from 1964 to 1980 regarding the number of Van Panchayat meetings and attendance, indicates a declining trend in participation (Table 3). The meetings generally discussed ways to realize fines, to take necessary action against the persons encroaching on Panchayat land, and to decide about the watchkeeping system which often failed to achieve its purpose. However, the number of persons

making encroachment kept increasing. Therefore, the meetings started losing value in the eyes of the villagers.

Forest Protection. Records of watchkeeping are available from 1964 onwards. In 1964, the watchman was entrusted with the responsibility of crop protection along with forest protection. Every family agreed to share equally the watchman's pay. But 14 families failed to pay their share. In 1965, it was decided that every family would do the watchkeeping on an agreed schedule. Those unable to do the same would arrange someone for that day and give him Rs. 2. This system lasted only for four months. In 1966, it was agreed that the watchman would be paid

Table 3

DETAILS OF MEETINGS OF VAN PANCHAYAT KUNJ
(1964-1980)

	Years			
	1964-68	1969-73	1974-78	1979-80
Total number of meetings held	26	16	13	8
Average per year	5.2	3.2	2.6	4.0
Number of meetings held				
With participation of villagers	17	12	11	3
Without participation of villagers	5	4	2	--
No information about participation	4	--	--	5

Source: Records kept in Van Panchayat Kunj office.

partly from the Van Panchayat funds (Rs. 3 per family per year) and partly from family cont ibutions amounting to two nalis'[6] produce of paddy and one nali's produce of wheat. But at the time of crop harvesting, contributions were not given by several families, as a result of which a watchman could not be arranged from 1966 to 1970. A watchman was appointed again in 1971, but he failed in his duties, because when he reported the forest violation cases to the Panchayat, the offenders not only abused him but sometimes physically tortured him too. Thus, irrespective of various systems devised, the Van Panchayat failed to provide proper protection to forests during the period.

Distribution. In the first year of inspection of the Panchayat, the bushes and grasses on the Panchayat land were distributed among 30 families for a fee of Rs. 2 per family. The very next year, the grass was sold to a Panch so that the benefit accrued to one person only. The dead tree and dry wood were auctioned and the Panchs were benefited here also. The wood from bushes was generally distributed among the villagers for a fee of Rs. 3 per family. Permits were issued to families, and only one member per family was allowed to enter the panchayat land for cutting, under the supervision of members of Van Panchayat. Many cases of violation were noted. However, the offenders often did not pay the fines imposed on them.

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[6]Local measurement of land; 20 nalis equal 1 acre.

These fines could not be realized, even when the matter was reported to the district authorities.

In December 1977, the Civil Soyam division of the Forest Department started new plantations. As a result of fencing made by them, there was a good crop of grass that year. Permits were issued to villagers for cutting grass at a nominal fee of Rs. 3 per family. But some families did not pay the fee. The following year several families not only declined to pay the aforesaid amount, but forcibly cut the grass. Owing to all these difficulties, in 1983, all the grass was sold to two persons. However, some other persons forcibly cut the grass and on being called for explanation they replied, "Unless there is justice, this will continue."

It is clear from the above description that the Van Panchayat of village Kunj failed to distribute equitably the benefits of panchayat land among the villagers.

Encroachment. The proceedings register reveals that the Van Panchayat had lost the map of Van Panchayat boundary. In 1964, five families of the village had encroached upon the Panchayat land, but in the absence of a map no action could be taken against them. As a result, the number of families encroaching on the forest land increased to 11 in 1969.

According to the Sarpanch, the Van Panchayat at the time of its election in 1969 intended to initiate action against these people, but could not do so for some reasons. In 1975, the Forest Panchayat Inspector visited Kunj to conduct the elections, but owing to poor attendance of villagers, the

election could not be held. The number of families encroaching on the Panchayat land increased to 48 (84 percent of the total families) in 1979. Of these, 43 families were using the land to grow grass and the remaining five for other purposes.

The above description indicates that the Van Panchayat failed to protect the forest from encroachments.

Boundary Dispute. Two villages, Baykhar and Ara are situated adjacent to the village Kunj. Under the land settlement of 1823, the village boundaries were made by putting stone pillars. In 1970, Baykhar villagers displaced the stone pillars and damaged the forest property of village Kunj. This was opposed by the villagers of Kunj and led to clashes between villagers of Ara and Kunj. This was also published in local newspapers. Fines were imposed on persons damaging the forest. This was paid by the villagers of Ara but the villagers of Baykhar continued to claim ownership of the disputed land and refused to pay the fines.

As described earlier, new plantation work was started by the Civil Soyam Department on the land of Panchayat forest in 1977. The fencing was undertaken with the help of outside workers who were unaware of the boundary of the Panchayat forest. The villagers were not consulted about the boundary. They did not take interest in the work either, as the contract for wall construction was given to an outside party.

Later, the Ara villagers claimed rights on this land and forcibly cut the grass and damaged the plants. They also used the land for grazing their animals. Owing to this boundary dispute, the afforestation program could not succeed.

In conclusion, we can say that in the absence of a proper map, incapability of the Van Panchayat to take proper action, noncooperation of villagers in afforestation, and boundary disputes, the Civil Soyam Division of the Forest Department failed in its efforts of afforestation. The Van Panchayat was not successful in protecting the forest and in distributing the benefits equitably to the right holders. But this cannot be generalized in the absence of knowledge of working of some other panchayats. This has been done for two other Panchayats and is given ahead.

Van Panchayat Chausuli

The Van Panchayat Chausuli was formed in 1932. During discussions with the villagers, it was learnt that the Panchayat never called the villagers to discuss the organizational aspects. Therefore, most villagers did not participate in its meeting (Table 4).

Illegal felling of trees or encroachment on Van Panchayat land was not in practice here because of the strong action taken by the Van Panchayat in such cases. However, there has been no arrangement for watchkeeping and the Panchayat is not taking adequate care for proper distribution of forest resources. We learnt that since 1975, grass was distributed only twice and fallen twigs only once. Even at present, there are no plans for distribution of any resources. So the villagers are not satisfied with the management of the Van Panchayat. Otherwise,

Table 4

DETAILS OF MEETINGS VAN PANCHAYAT CHAUSULI
(1972-85)

	Year		
	1972-76	1977-81	1982-85
Number of meetings held			
Total number	14	16	10
Average per year	2.8	3.2	2.5
Meetings held			
Without participation of villagers	13	16	10
With participation of villagers	1	--	--

Source: Records kept in Van Panchayat Chausuli office.

there were few irregularities due to continuous inspection by district level authorities[7] (Table 5).

Van Panchayat Chausuli is relatively successful in achieving the objectives of the afforestation program. The first plantation in 1968 was not successful because the manpower for plantation work was called from outside. They were interested only in finishing the work for which they were paid. In 1975, the Civil Soyam Division of the Forest Department started plantation work with the help of local people. This attempt was successful and now there are good newly grown forests there.

[7]Chausuli being close to Almora and in fact, being on the main road, is very convenient for visits by officials.

Table 5

DETAILS OF INSPECTION OF SELECTED FOREST PANCHAYATS

Names of villages	Years	Number of inspections			
		Forest Panchayat Inspector	Forest Panchayat Officer	District Magistrate	Commissior
Kunj	1954-75	7	--	--	--
Chausuli	1971-86	3	1	--	5
Falyati	1968-85	10	1	2	--

Source: Records kept in the Division Office.

It was learnt from the Panchayat records that in 1983 the Panchayat had demanded Rs. 10,000 from the Resin Royalty Fund, for the construction of roads in their village. This amount was not sanctioned because at that time the Panchayat did not have that amount deposited.

It is clear that the Van Panchayat is not providing much benefit to the local people but due to continuous interaction between the district authorities and the local management, the Panchayat is able to protect the forest. With the help of income deposited in the Resin Royalty Fund, the Panchayat could also undertake some development work in their area, but has been unable to do it so far.

Van Panchayat Falyati

We visited village Falyati as it was reported to us that since its formation the Van Panchayat there is working very

efficiently in all the aspects of management of the forest and is regarded as a successful Panchayat.

Village Bhasara is situated adjacent to village Falyati. During discussion with the villagers of Falyati it was learnt that under the land settlement of 1823, inhabitants of both the villages were given rights of fuel, fodder, timber, and agriculture in a Panchayat forest which was their common property. But under the land settlement of 1965, boundaries of all the villages were demarcated. As a consequence, the common forest was divided between the villages. Therefore, the villagers' legal rights could not remain in the forest area of the other village.

The villagers of Bhasara were not willing to lose their traditional rights. On the other hand, the villagers of Falyati were not interested in sharing their rights with the inhabitants of village Bhasara. Therefore, they decided to establish their separate Van Panchayat. Accordingly, when the Van Panchayat Falyati was formed in 1967, the inhabitants of Bhasara requested the villagers of Falyati to allow them to collect fuel and fodder from their forest. In a joint meeting, held in the presence of Forest Panchayat Inspector, this matter was discussed. An understanding was reached based on the fact that the village Falyati had a considerable area of forest other than the common forest, while the village Bhasara had limited forest area other than the common forest. This including the separated portion of the common forest could not meet Bhasara's daily requirement of fuel and fodder but was enough to meet their

requirement of timber. This justified continuing the rights of Bhasara inhabitants to collect fuel and fodder but not the right of timber and agriculture. This was the mutual agreement of the two villages made on a court stamp paper on January 21, 1967.

After some time, the inhabitants of Bhasara claimed also for timber and other forest benefits available in the Panchayat forest of Falyati. On October 16, 1975 this matter was decided in a court of Sub-divisional Magistrate and on the ground of the previous agreement rights of fuel and fodder were ultimately given to the villagers of Bhasara but they were not allowed to enjoy the rights of timber and agriculture.

After this decision the villagers of Falyati started discussing the method of increasing the forest benefits for themselves and limiting the right of neighboring villages. In this process they became conscious of their forest resources, therefore, successful attempts were made to develop them. A watchman was appointed permanently for the protection of forest resources. Moreover, the villagers also worked as chaukidar, sometimes, during the night. During our study the villagers of Bhasara were getting fuel and fodder from the forest of Falyati. Illegal felling of trees or encroachment on Van Panchayat land was not found in practice there, because of the strong action taken by the Van Panchayat in such cases. The Van Panchayat has developed the forest resources in such a manner that the resources are utilized to maximum and are sufficient to meet most of their requirements. The Van Panchayat Falyati has considerable funds deposited in the Resin Royalty Fund. These

funds have been used by them to establish a school, a nursery, a Panchayat building, and purchasing of goods useful for the community. The Van Panchayat worked efficiently to make just distribution of the forest resources, available in the Panchayat forest, among the right holders. Thus the villagers were satisfied with the management of the Van Panchayat as they were deriving their due benefits.

These findings indicate that if the villagers are well-organized and the district authorities cooperate with them by taking quick action whenever any case is reported to them, the Van Panchayat could win the faith of the people and the Van Panchayat system could be successful in achieving its objectives.

Van Panchayat Sangar

Sangar is located in the same watershed area as Kunj, and had been selected for integrated development under the Panar Sub-Watershed development program. The head of the Van Panchayat approached us to see this village and assist them in the organization of this forest program. During a visit to the village, we learnt that the Sarpanch of the Sangar Van Panchayat is a very dynamic person who has strong villagers' support, the reason being his effectiveness in managing a small Lath Panchayat in the same village. After his election as Sarpanch, he had been looking for opportunities to improve the situation of his Van Panchayat.

In a meeting of villagers called by him, we learnt that a plantation program had already been undertaken in Sangar. This had several species of saplings which were found to be growing well. However, the villagers had very poor information about the overall plans of the watershed development directorate for their village. They indicated keen interest in organizing and reshaping the plan in accordance with their needs and constraints and were preparing to do so towards the end of our project.

Lath Panchayat Silpar

As described earlier, a Lath Panchayat is a joint agreement of the right holders of a forest to protect it, and not allow any outsider to share in its benefits. It was learnt from the Lath Panchayat in Silpar that it was formed more than 80 years ago, when a meeting of all right holders of the forest was called and it was decided that the forest developed by the ancient generations should be protected for the coming generations. Everyone was supposed to be a guard and was equally responsible for forest management. The working of a Lath Panchayat may be described in terms of its different functions as follows.

Protection. There is no appointed watchman. Everyone is equally responsible for the protection of the forest. The right holders cannot use the forest in any manner they like. They can get the benefits from the forest only after a collective decision in a meeting. The villagers participate actively in

these meetings which could be on all aspects of forest management. When any unauthorized felling is reported, the Lat Panchayat charges a fine, decided collectively in a meeting. Half of the recovered amount is given to the person who helps i catching the offender. Owing to this, the villagers take considerable interest in finding out the offender.

Distribution. The Lath Panchayat generally issues permit cards for cutting the grass or bushes and collection of leaf fodder. For this, the Panchayat charges Rs. 2 per season, per family. In the case of timber, the Lath Panchayat charges Rs. 2 and Rs. 5 for short and long poles respectively. The villagers can get any number of poles required for their domestic use. Ir this manner, all families are getting an equal opportunity to use their forest resources and are highly satisfied.

Management. In a Lath Panchayat system, there is generally no separate management committee. Every right holder is a beneficiary as well as an executive member of the Lath Panchayat. In 1980, it was decided for the first time that elected members of the village development committee should also be the executive members of the Lath Panchayat. This committee selects a Sarpanch among them. The head of the committee, i.e., headman of the village, need not be the Sarpanch. Even after starting the system of executive committee, an individual family's interests remained the same. The villagers participate in the working of the system as they are getting all their requirements fulfilled.

Thus it is clear that if there is a clear understanding among villagers and everyone is active in local organization, the forests can be managed at village level without any outside intervention. Also if there is a provision for financial rewards, e.g., for catching offenders, the forests can be managed easily and efficiently.

CONCLUDING REMARKS

The Forest Panchayats are gaining popularity in the hills as institutions for local forest management. The Lath Panchayat system also continues to exist and multiply despite lack of legal status.

From the earlier discussion, it may be said that the success of a local institution in promoting local forestry is directly related to people's faith in the managing committee of the institution. This is a function of their capability to take useful action against any offenders, and to distribute the forest benefits to the local people in an equal proportion. This can be facilitated to a great extent if they have good support of the district authorities. This implies regular election and inspection of the Forest Panchayat and immediate recovery of fines.

Due to inadequate administrative structure and support, very few panchayats are able to manage and develop their forest resources like the Van Panchayat Falyati. On the other hand, a number of Panchayats can be found which are working like Van Panchayat Kunj and Chausuli. Our experience shows that to

achieve success in plantation and protection, attention must be paid to the village boundary disputes, and the involvement of local institutions in all the organizational aspects of the program. Any activity undertaken without the consent of the villagers could lead to failure of the program.

Presently in district Almora, more than 30 percent of the Van Panchayats have deposits in the Resin Royalty Fund, which could be used by the Panchayats for the development of their resources. Therefore, it is suggested that training programs should be organized at village level to develop the skills of the local people in formulation and implementation of appropriate projects to increase income and employment opportunities at village level. This will also integrate forestry activities with the development concerns of the area.

Chapter 7

PARTICIPATORY DEVELOPMENT ISSUES AND POLICY PERSPECTIVES

Varun Vidyarthi

INTRODUCTION

Social forestry programs have acquired different forms and emphases over the past years. Among them, the programs associated with plantings on community land have often drawn the greatest attention due to their potential of bringing the benefits of forestry to the poorest segments of society, but have also drawn criticism due to continued lack of villagers' participation in the program. Problems associated with common property management are typical to all resource development schemes. In community forestry, however, they are more easily understandable being based on the use of large areas of land, a resource that is one of the principal sources of disputes in rural areas.

Disputes and problems are, nevertheless, normal to a process of participatory development. Neat and simplistic approaches to development are seldom realistic. Instead, participatory development often leads to a rise of contradictions that need amicable settlement through negotiations and tact. Many programs are not designed to meet such adversities. Technical plans at village level are made and implemented without caring to determine local perceptions and contradictions. The outcomes are not surprising. On the basis of experience of the present study, it is suggested that

people's participation could be ensured by arriving at appropriate program strategies, administrative structures, and working methods. However, this calls for a policy thrust towards strengthening of local institutions and reorienting planning to give due consideration to local assessments. This implies a review of working procedures, development of backward and forward linkages, training of extension personnel, and collaboration with voluntary organizations having persons of th desired capabilities.

The study has been carried out in an area where administrative structure and methods are already geared to a system of local management founded on local institution and leadership development. We consider this in itself to be a major accomplishment, as the basic institutional arrangement fo promoting people's participation already exists in the area. The evaluation is, therefore, centered around the analysis of strengths and weaknesses of this system. However, the policy implications are quite general and would apply to any situation Detailed descriptions of different parameters of the study have been presented in the earlier chapters.

The discussion here is focussed on the emerging socioeconomic, biophysical, and other developmental issues to assess and pinpoint forward looking approaches in forestry development. These are then analyzed in terms of their policy implications.

SOCIOECONOMIC ISSUES

Social and economic differences in a community are often reflected in terms of varying degrees of access to resources an consequent differences in perception with respect to developmen alternatives. Any attempt to introduce change in resource use patterns has, therefore, potential conflicts built in between different segments of the community, unless some mutual tangibl benefits are visualized by all concerned. It is, therefore, useful to gain an understanding of the socioeconomic difference and their plausible effects on local decision making with respect to alternatives.

Among the villages studied, we see that land ownership does not vary significantly across the village population. However, variations do exist in terms of the number of members engaged principally in nonagricultural occupations, both inside and outside the village. Returns from such occupations could have a significant effect on the family economic status. This is partly reflected in the differences in asset holding or number of rooms in the house of a family (details in Chapter 4). Social categories do exist, but as in Silpar, many villages are constituted by members of the same caste. Even otherwise, disputes arising due to caste differences were found to be minimal. It was of interest to note that on some cultural occasions like Bayasi all members of a village danced hand-in-hand in oblivion of their social or economic background.

Despite relative homogeneity of the population with respect to the mentioned indicators, differences in conditions of

resource accessibility were noticeable and, in fact expressed vigorously by some inhabitants in at least one village, Kunj, where the Van Panchayat had practically failed to achieve its objectives. A close examination of its records, pertaining to proceedings of meetings and sale of products, indicated a definite tendency towards apportionment of benefits by a few a declining participation of villagers in its meetings. This wa confirmed by several villagers during separate discussions, their resentment being aptly conveyed by a remark "What is the point of attending a meeting where there is no hope of obtaini justice?" The economically disadvantaged villagers were especially critical of the system of auctioning of wood and grass through which the benefits of a community system went to few families only.

The greatest resentment and loss of credibility in the Va Panchayat's effectiveness stemmed from the fact that there existed several unsettled cases of encroachments on the Panchayat lands. The principal cases of encroachments were reportedly done by the rich and the influential, who also managed to stall a routine official exercise to map the Van Panchayat land. In the absence of a clear demarcation of boundaries, none could legally challenge their occupation of such lands. This had instead encouraged many others to do likewise and is also reported as an important cause of felling of trees on such lands. The Van Panchayat had failed to take effective action against such practices.

It was of interest to note that, barring a few, most villagers had resigned themselves to the situation. They did want a change in the state of affairs, but the nagging question effectively posed by one was "Who would the bell the cat?"

It was generally observed that the mature educated persons migrated from the village in search of employment opportunities and the old or retired who returned to the village preferred to stay away from controversies. In the case of Kunj, this had allowed a few families with economic and political links with the outside world to acquire power and status that overwhelmed the rest. In general, the village presented a picture of a weak organization without a distinct popular leadership.

In the light of these circumstances, it was clear that any useful attempt at forestry development could only be based on a settlement of past irregularities that would allow the Panchayat to regain the trust and confidence of villagers. This meant holding the Van Panchayat elections, already long overdue in this case, and clear demarcation of Panchayat lands by the mapping authorities. Many villagers felt that this would not be easy because of the associated vested interests, but were sure, nevertheless, that if it did happen, it would lead to opening of a new chapter in forestry development in the village.

Social and organizational structures in other villages presented an educative contrast to the situation just described. In village Silpar, for example, the organizational strength and resilience of the Lath Panchayat had allowed effective forest management for over five decades without any external

intervention. The Panchayat continues to function effectively with strong villagers' participation in meetings and in forest management in general. In this case, there was no evidence of power concentration in a few hands. Conflicts and differences did exist amongst members of the Lath Panchayat, but issues related to forest management stood above all such conflicts. The organizational system of the Panchayat exuded strength founded on unity and a sense of purpose.

Successful local management was also observed in the case of village Falyati, where the Panchayat functioned within the ambit of Van Panchayat rules and procedures. Here the village population had thrown full support behind the leadership of an individual who had been able to devise effective means and procedures to protect the forest and distribute the products equitably between all sections of the village community.

Socioeconomic issues including questions of organization and leadership are thus seen to have direct bearing with forest management and development alternatives. A discussion on these issues would be incomplete without reference to the nature of women's participation in forest management and development activities. It is significant to note that in all the village studied, women had practically no role in these activities and also had little or no information about the working of Van Panchayats. This is indeed a serious lacuna in the overall functioning of the system, especially since women are directly affected by the process. It was evident from our discussion with village women, that they were willing to share

responsibilities but were constrained by social factors and by lack of time and information on different aspects of the program. As described in Chapter 5, their participation could be encouraged through development of energy alternatives and proper reorientation of forestry programs. Effective women's participation could enrich forest management and development perspectives considerably.

BIOPHYSICAL ISSUES

This term is being used to encompass a broad range of technical and environmental questions associated with scientific land use and management, including selection of biomass species for plantation, their cultivation, and harnessing for use. It is our experience that these issues cannot be seen in isolation from the socioeconomic issues. Yet a sound judgement on the same requires a proper scientific base. The resulting conflicts have often intrigued extension workers looking for neat solutions. In this section we shall examine some of these issues in the light of responses obtained from local inhabitants with a general view to identifying opportunities and methods for effective intervention.

The most important biophysical issue confronted by the researchers during the study was the question of species selection. While it is evident from the record of growing stock (Chapter 2, Table 2) that the dominant species growing in natural forest stands in the region is chir (*Pinus roxburghii*) many people believe that this is not the right species for

community forests, and that given the general nature of fodder needs of the local population, broad-leaved species are more appropriate. To this the typical reply of a forester is "Under the circumstances, chir is found to be most suited to the sites and to have the best survival growth." Without going into this debate, we wish to mention that the real issue is not one of broad-leaved vs. needle-leaved plantings, but that of proper land use planning. For this, a knowledge of both land capabilities and people's needs is essential to arrive at a listing of species for different areas. A judgement based simply on only one of these two factors, and on a general understanding, is likely to be fallacious and misleading either way.

Here it is instructive to note the experience of an afforestation program in Chausuli. Inspired by the need for propagating species that could enhance local incomes, the authorities responsible for the plantation introduced walnut saplings. The saplings failed to take root and were destroyed. Later chir saplings did well and were seen growing well at the time of the study.

This example should not be considered as an argument in favor of a more hardy species like chir. Our observations indicate that people's apprehensions of Forest Department's preference of chir are not without base. It is noted, for example, that in several villages chir was the dominant species selected for plantation by the simple criterion of availability of saplings at the nearest nursery. Indeed, the general nature

of such a phenomenon was confirmed by the local district forest officer, who mentioned that villagers come with their proposals for afforestation of village lands very close to the planting season, so that it is not possible to plan properly the species mix of new saplings raised at the nursery. This points to lacunae in communication and planning of the tasks on the one hand, but more importantly, to the process of establishment of a nursery and its functional linkages with surrounding villages, on the other. Planning of species in a nursery and eventually, in a plantation, is a task linked to area planning, a process that cannot be productive unless done in a participatory manner. There are several biophysical issues associated with the process. We shall discuss some of these in the context of our observations and experiences in the study villages.

The villages studied present different situations with respect to land availability and use (Chapter 4, Table 6). When examined in relation to assessments of local needs, they suggest different patterns of biomass development. For example, Silpar has a high acreage of forests per family, so that fuelwood availability is not considered a problem there. During our discussions, most people there indicated interest in biomass development projects that contribute to income generation. Examples of such species mentioned by villagers were: (a) those suitable for raising silkworms including mulberry and oak, (b) relatively fast growing hardwood species suitable for agricultural implements, (c) those providing high value spices. They were, however, interested in a package approach that held

some assurance of marketing. The villagers were sure that, in accordance with the tradition of Lath Panchayat, they would be able to provide necessary protection and care to the plantings. The land use data of the village do not provide direct information on the soil capability, but preliminary investigations suggest that the wastelands available there could be used for the purpose.

Chausuli presents a different picture with respect to both land use and local needs suggesting a different pattern of biomass development. As discussed earlier, fuelwood availability is a problem in Chausuli where women go out for collection to forests eight to nine km away and could take up to 23 person-hours per week. Most poor households are able to obtain only the less preferred shrubs and bushy plants like kilmora (Berberis asiatica and B. lycium), hisalu (Rubus ellipticus), and ghingaru (Crataegus cranulata). There is also a clear evidence of fodder scarcity with households purchasing fodder up to Rs. 270 every year. The land use data of Chausuli indicate that a relatively large portion of land is uncultivable waste (Table 1). The soil capability analysis of this land shows a Grade VIII classification having a slope category of over 50 percent. Most of it is rock surface with patches of shallow soils. This land can only be used for growing of shrubs and grasses. As seen from Table 1, however, there are some wastelands (30 ha) that have a better soil capability though Classified in Grade VIII. These could be used for planting

Table 1

LAND CAPABILITY - VILLAGE CHAUSULI

Sl. No.	Land use	Area (ha)	Land capability	Slope category	Soil	Proposed land use
1	Cultivated land	37.7	Group IV	15 to 33%	Deep, sandy loam	Agriculture
2	Cultivated land	25.7	Group VI	15 to 50%	Sandy loam	Agriculture
3	Wasteland	2.3	Group VI	30 to 50%	Shallow sandy loam	Horticulture fuel, fodder trees
4	Civil Soyam Panchayat Forests	36.5	Group VII	30 to 50%	Do	Do
5	Civil Soyam Panchayat Forests	11.6	Group VIII	Over 50%	Shallow to very shallow	Do
6	Wastelands	30.5	Group VIII	Do	Do	Do
7	Wastelands	132.9	Group VIII	Do	Rock surface patches of soil	Grass and wild life

Source: "National Bureau of Soil Survey and Land Use Planning," New Delhi, 1978. Quoted in Shah, S.L., Microlevel Planning and Strategies for Agricultural Development in Mid-Himalayas: A Study of Kosi-Suyal Miniwatershed in the Mid Hills of U.P., 1982, Vivekenanda Laboratory, Indian Council of Agricultural Research, Almora.

fuel, fodder, or horticulture species. A survey among selected families regarding species choice of planting on community land indicated a preference for fuelwood and fodder. The land capabilities, however, point to important restrictions allowing only certain types of biomass species. This implies an iterative planning involving both needs assessment and biophysical assessments.

It is interesting to note that in all instances, villagers preferred fruit species for plantation on private lands. Here, they usually implied lands close to their homesteads where better protection and care were possible. Such a choice was normally out of the question in far flung fields unless it was associated with a definite plan for raising an orchard. There existed little incentive for doing so in the absence of a proper marketing infrastructure.

OTHER DEVELOPMENTAL ISSUES

Decision making among village communities is not simply a function of local factors, social or physical, but is under constant review in the face of changing externalities linked to technology, markets, or government support, control and procedures. Issues associated with the effects of development of these parameters are being classified here under the rubric "other development issues."

Administrative Support

One of the principal difficulties expressed by some Van Panchayat heads with respect to the Van Panchayat administration

was the lack of follow-up action in dealing with reported cases of encroachment or illegal fellings, which eroded people's trust in the institution's capability to mete out justice to its members. Other complaints related to irregular holdings of elections, inability to draw funds timely to meet management expenses, and a general apathy towards boundary and other disputes that occurred from time to time. Going through the records of the Panchayats kept by the Panchayat head at the village, we noticed several cases of unreplied letters requesting follow-up action for recovery of fines imposed on lawbreakers, for settlement of boundary disputes, and other irregularities.

When this was followed up by the team at district level, it was incredible to note that there was only one Supervisor, called the Forest Panchayat Inspector, responsible for coordinating the entire gamut of activities and complaints associated with the system. One such person was responsible for coordinating the follow-up of more than 500 Van Panchayats in the division with no field or clerical assistance of any sort. To mention some small but noteworthy details, he received a fixed travel allowance that had not changed for more than a decade although the number of Panchayats and travel costs had more than doubled during the period. As a consequence, perhaps, the number of Van Panchayats in Baramandal Division visited by Government personnel during the previous year was less than 10 percent of the total. In the same division the Van Panchayat elections were pending in about 200 cases, i.e., about one-third of all Panchayats. (For details, see Chapter 6.)

All these factors point to a weak organizational structure and a poor system of incentives for coordination and follow-up of Van Panchayat activities. In a broader perspective, this also indicates a lack of focus towards strengthening of local institutions and their capabilities in respect of forest management and development. Strengthening of such capabilities would imply imparting a multidisciplinary set of skills--technical and managerial--including skills related to accounts and record keeping, and project formulation. The absence of a system of training for development of such skills could be restricting several persons from contesting in Van Panchayat elections due to lack of adequate background experience or training, and could severely limit the abilities of current Panchayat office bearers. For the same reason, perhaps, there are few proposals coming from Van Panchayats for carrying out development activities from their Resin Royalty Funds deposited with the district magistrate.

With respect to other government controls and laws, the ban on felling of trees above 1,000 m elevation is generally met with disapproval from most villagers. It has acted as a positive disincentive for new plantations and, as reported by villagers, has contributed to increased incidence of illegal fellings. While the positive aspects of the ban are appreciated, a blanket ban is considered unreasonable. We also feel that this has led to further erosion of trust between an ordinary villager and the government.

Alternative Technology

Technology alternatives strike at the base of forestry development issues as they have the potential of significantly reducing the demand of forest products like fuelwood. Our discussions with villagers on the subject indicated lack of adequate knowledge but growing interest in the same. Many people were aware of the existence of biogas and improved stove technologies, but there were some doubts about the effectiveness or feasibility of such devices.

It is worth mentioning here that some alternative technologies for cooking like biogas do not have a proven record of performance in the hill area.[1] The team, however, was able to observe two biogas plants operating in the study villages even during the winter. Both these plants were of the drumless or 'Janata' type, operating with inputs from three cattle heads and described as being adequate to meet the cooking energy needs of a family of five in summer.[2] Such performance reports need to be investigated and supported by scientific field trials of alternative designs. This also holds true for solar cookers, one of which was reportedly working well at Kausani situated at about 2,000 m elevation.

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[1]See Agrawal, Sushil, "Prospects of Biogas Plants in Hill Areas," Tata Energy Research Institute, New Delhi, 1986.
[2]The owners of these plants reported that there was no special insulation done for the plants. One of them however, covered it with dry leaves and grass during the nights in winter.

As regards improved stoves, it was observed that several households in Chausuli had one constructed in their house. The housewives were, however, unsure of its effectiveness. An examination of the stoves showed faulty construction resulting possibly from the housewives' own alteration. It was, however, clear that little effort had been taken to provide proper user training or follow-up.

Such technology alternatives have great promise especially since they could be spread through family level initiatives as compared to community initiatives necessary in many forestry schemes. This could have significant impact on people's life-style, especially those of women who could then take greater intiatives in local forest management.

Marketing System

There is no denying that the lack of a proper marketing system for tree products acts as an important disincentive for undertaking new plantations. As noted earlier, most villagers had indicated interest in fruit species for plantings on private land. This was necessarily restricted owing to marketing uncertainties. Local markets did not create enough demand to absorb large volumes of production. Accordingly, this did not attract investments from would-be entrepreneurs, especially since most fruits grown in the region like pears, peaches, or plums get perished easily. A marketing network for such products needs to be characterized by quick disposal avenues. Alternatives exist in promoting other species providing

nonperishable products like nuts and oil seeds. In either case, villagers' interest would be evinced only if assured of prompt payments.

It is worth mentioning here that the services of Kumaon Mandal Vikas Nigam, a government enterprise, had not benefited anyone in the study villages, despite the fact that many spices occur naturally in the field and forest areas and could be collected free of charge by any villager. The principal reasons for such disinterest were absence of collection depots and unrealistic payment policy, according to which payments are given to the supplier only after they are sold by the Nigam. In general, marketing systems and strategies for various forest and tree products need a careful review and reorientation for promoting local production initiatives. (For a detailed discussion, see Chapter 3.)

POLICY PERSPECTIVES

Economic policy formulation often reflects the need to correct demand/supply imbalances at the macro level. It seldom takes into account the realities of life at the micro level, due to the large variations that exist at that level. Plans and programs pursued thereby tend to overlook the problems and perspectives of local inhabitants creating in them a sense of distrust with respect to the activities of the government. Observations of our study reinforce this view. Such mistrust is seen as one of the principal reasons behind the lack of people's

these problems can be overcome through strengthening of local institutions as well as the capabilities of the government staff at the local level, so that local assessments of alternatives are built into a sequence of upward planning. This would, however, require a basic policy thrust towards such a process, allowing the development programs to be shaped accordingly.

Distrust between the villagers and the government could stem from various reasons including faulty approach or inadequate care in implementation of programs. We have already noted several inadequacies in the Van Panchayat program. In areas where there are no Van Pachayats, the usual approach of the Forest Department is to form a local committee for management of the forest. Local membership of this committee, though well-defined, is usually left to the discretion of the village head. This often leads to formation of a coterie of the village head that does not have the faith of the villagers. Besides, several cases are noted, both in the hills and the plains region, where the department has postponed the transfer of management of newly grown forest to the local committee or Van Panchayat, despite completion of the period of agreement for its management. Even if there were genuine reasons associated with such a postponement, it leads to various apprehensions in the minds of ill-informed villagers. Little efforts are taken to enter into a dialogue with local inhabitants to discuss the various issues linked to a program. In many instances, the contract for making the boundary wall or for digging the land for plantation is given to persons not belonging to the village

who get hired labor from outside. Apart from such examples, a general basis for mutual mistrust lies in the difference in perspective held by a forester vis-a-vis a villager, i.e., while the forester may be looking at forests in terms of a resource for meeting macro economic requirements, a villager would be more interested in his individual rights. The history of forest problem in Kumaon clearly indicates this.[3]

In the present circumstances, we hold the view that the two perspectives are not incompatible with each other. In fact, Social Forestry is already recognized as a separate discipline linking forestry to rural development. There also exist vast stretches of unutilized wastelands that could be potentially afforested, benefiting the environment as well as the local inhabitants. Large areas of public lands, e.g., by the sides of roads, canals, railway lines, and otherwise, have already been brought under plantation. However, this has remained much as an exercise of the Forest Department with little or no people's participation. There exists considerable scope for sharing of responsibilities with the local inhabitants for proper management and utilization of such plantations. This would also go a long way in removing the continuing distrust between the local inhabitants and the government. However, this would necessitate a policy focussing on strengthening of local capabilities, so that responsibilities for the management of

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[3]See Pant, G.B., "The Forest Problem in Kumaon," Gyanodaya Prakashan, Nainital, 1922.

local forests could be effectively shared, thus creating an atmosphere of mutual trust and partnership in the process. Details and various ramifications of such a policy are describ in brief ahead.

Strengthening Local Capabilities

Strengthening of local capabilities could imply extended dialogues with different groups in a village, encouragement an support to local organizations and leadership capable of resolving differences and bringing about convergence of interests among villagers, and imparting technical and managerial skills to allow the local institutions to manage a program independently, with minimum outside inputs. In areas where appropriate local organizations do not exist, it is desirable to develop them by a democratic method, i.e., throug formation of a local committee and its head, elected by the villages periodically.

The Van Panchayats provide a useful opportunity for pursuing such an approach in the hill areas. Studies have sho that while many Van Panchayats have contributed usefully to th objectives of social forestry, many have not.[4] We feel that i

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[4]See Shah, S.L., "Socio-Economic, Technological, Organisational and Institutional Constraints in the Afforestation of Civil Soyam, Usar and Waste Lands for Resolving the Fuelwood Crisis i the Hill Districts of U.P.," Vivekenanda Laboratory, ICR, Almora, 1982.

should not be surprising to expect social problems in the working of a community system. Instead of blaming the local population, as foresters are sometimes observed to do, it is desirable to formulate working approaches that could lead to gradual resolution of local problems. As noted earlier, the administrative infrastructure associated with the working of Van Panchayats has been woefully inadequate to cope up with such problems. The Forest Department has played too minimal a role in this respect. By strengthening this infrastructure and employing properly trained extension workers, a lot could be achieved in this direction.

This also applies to Social Forestry programs in the plains. The staff operating at village level often constitutes the weakest link of the extension arm of the department. With their background and training, they could hardly be expected to facilitate the development of local organizations and leadership for the management of local forest resources. Strengthening of capabilities of this staff, including a review of their working procedures is, therefore, of utmost importance (Joshi 1984). An associated policy question here relates to the methods adapted in planning. This is discussed in brief ahead.

Planning Perspectives

A planning process that gives due consideration to local assessments relating to resource generation, management and use implies a fundamentally different approach to planning. Usually, the village has no entity or role in the process of

planning. Supply-demand assessments are made on the basis of aggregate data for the region. Development options determined thereby may differ significantly from local assessments of alternatives. This is because differences in rights or access to a resource or variation in felt need cannot simply be taken into account in a process of linear aggregation. Besides, land use patterns of proximate villages too could vary significantly, altering the development options considerably. This is clearly illustrated in the case of Kunj and Silpar which are closely located, and yet, as noted earlier, classify for different patterns of biomass development. We believe that the only way to overcome this problem is by taking the village as the starting point in planning.

A planning exercise at village level must necessarily take a form different from one at district level. A village plan document would be meaningful only if it has the sanction of the community and can be implemented with their full support and participation. In this context, our observation provides some useful perspectives.

The village Kunj lies in the Panar Sub Watershed Region which has been taken for integrated development by the Watershed Management Directorate. Panar project's approach to planning does start from village level moving to the miniwatershed level, encompassing several nearby villages. A plan document is prepared for the miniwatershed, with details given for each village. Village plans are prepared through collection of data on a prescribed format by a person of the rank of a forest

guard, who generally consults the village head in respect of sites for community schemes, e.g., for an afforestation program. With this background information, the plan is prepared on the basis of standard assumptions regarding unit demand or supply. It was instructive to note that villagers had little idea about the nature of benefits that the scheme would provide. There was no community meeting or open discussion on the subject either. Most villagers considered this to be "another government scheme." As noted earlier, Kunj has a Van Panchayat which has been ineffective in dealing with problems of encroachments. For enlisting people's participation in forestry program, their mapping of Panchayat lands and re-election of the Van Panchayat head are essential. This did not find any place in the watershed development scheme.

It is clear from the above discussion that a village level planning exercise could only be meaningful if it is based on a dialogue with villagers that allows them to share their concern regarding different aspects of the program. It is our experience that the organizational aspects of a program relating to the process of decision making and distribution of benefits receives the greatest attention from most villagers. Accordingly, we believe that a village development plan that does not give an organizational design for implementation, agreed upon by most villagers, is of little practical value.

The obvious issue confronting a policymaker is how could this be achieved on a large scale? We believe that the answer to this question lies in reviewing procedures, development of

backward and forward linkages, training of extension personnel, and collaboration with voluntary organizations having persons of the desired capabilities. These are discussed in brief ahead.

Review of Procedures

Despite inadequacies, the system of Van Panchayats provides a useful platform for promoting local initiatives in local management, and has in several cases contributed to participatory development of forests. The working procedures of the system are elaborated in a set of Van Panchayat Rules governed by the Indian Forest Act of 1927. Although these rules and procedures need not be followed in other areas, the basic principles of building local institutions and leadership are worth emulating in most situations. For example, extension workers should be encouraged to enter into dialogue with local communities and ease themselves from a technical fix approach to a process of sharing knowledge, organizational development, and removal of various contradictions and constraints at village level. Implementation targets could then be reviewed in relation to the number of local groups or institutions sharing responsibilities in planning, implementation, or follow-up of programs.

Development of Backward and Forward Linkages

In the context of social forestry, backward linkages relate to resolution of problems associated with landownership including unsettled cases of encroachments or boundary disputes,

pending election of the village committee or its head, and any other past irregularity or grievance that people might have. Forward linkages relate to development of markets or processing facilities for forest products including timber, fruits, seeds, and the like; promotion of alternative technologies or systems like biogas plants, fuel-conserving stoves, or improved grasses, that lead to conservation of excessively used forest products like fuelwood and leaf fodder; and any other incentive or arrangement that may promote the program objectives.

As indicated in this study, there exist little or no such linkages in the forestry program, and we did not find any special effort to develop them either. It is also clear from the study that unless these linkages are developed, it would be difficult to entice people to take active interest in the program. However, development of these linkages is more easily said than done, as it requires coordination with several departments and involves considerable uncertainties regarding task content and time requirement.

We feel, however, that these are not just theoretical propoundments, but could be pursued with meaningful results at two levels--one at the level of senior authorities of different departments for achieving coordination along agreed lines of action; and other at the village decision making level, where concerned people's institutions could bring about the necessary integration of programs in accordance with their needs, priorities, and organizational liking. The infrastructure for coordination of activities of different departments already

exists in many instances, in the form of District Rural Development Agencies or the Watershed Management Directorates. But the persons there seem to be overburdened with other tasks at the cost of planning and coordination activities. At the village level also, there exists no method of achieving integration in consultation with people. This points to the need for a serious rethinking of program strategies and could be facilitated by strengthening local capabilities to assess and organize development alternatives.

Training of Extension Personnel

An ideal extension worker is not one who can just impart technical skills, but one who can also facilitate local decision making with respect to his concerns or activities. In community projects, this becomes more difficult since one is dealing with heterogenous groups and interests. Here it becomes essential to identify both formal and informal community leaders, local organizational strengths and weaknesses and share information on different aspects of the project effectively. Clearly there is a need for both technical and interpersonal communication skills.

In one of the villages studied, the young forest guard who was collecting information for the watershed management office had picked up necessary skills for the survey, but was not trained to work as a facilitator. Our discussion with him indicated that he did have a good grasp of social problems, but was not adequately equipped or directed to facilitate

participatory planning and development. Given his local knowledge[5] and the status and security of his job, he could well discuss the plan perspectives with the villagers. On being encouraged by our team, the forest guard had, in fact, agreed to do so in a village meeting attended by the writer.

We feel, therefore, that a lot can be achieved in this direction by proper training and orientation of the field staff together with necessary encouragement and incentive to do so.

Collaboration With Voluntary Organizations

Many voluntary organizations are created by professional, dedicated, and experienced individuals or groups unwilling to work within the bounds and limitations of bureaucracy, to allow flexibility and innovation in approach. The advantage of local knowledge or contacts possessed by such organizations could be easily used in program implementation by sharing responsibilities with them.

CONCLUDING REMARKS

The process of participatory evaluation inevitably links up a specialized subject like forestry to other broader concerns of socioeconomic development. Such a linkage generally brings to light the pressing developmental issues of a village--socioeconomic, biophysical, or other--and is also the key to

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[5]Forest guards are normally recruited locally.

development of people's interest and participation in a forestry program. At the local level, such an integration of issues is best achieved by the people themselves. Accordingly, the constitution and effectiveness of local institutions that could facilitate such an integration is vital to the success of a forestry program.

The system of Van Panchayats for local forest management is, therefore, considered potentially very progressive. However, a study of different village situations, described in this report, points to several lacunae in the system, limiting its effectiveness as a means of promoting people's participation in the development and management of local forest resources.

Village Kunj, for example, represents a typical interior village having agriculture as the principal source of employment of most families. Landholdings are small and few alternative employment opportunities exist. Fuelwood scarcities compel women to undertake long and arduous trips to the reserve forest, for collection of fallen twigs and branches, regularly. An analysis of the working of Kunj Van Panchayat indicates the existence of several cases of encroachments on Panchayat land, boundary disputes with neighboring villages, pending election of the Panchayat and its head, and lack of villagers' participation in the Panchayat activities. There exist large areas of land that could be potentially afforested. The Forest Department has undertaken plantation in some areas. But the results have been very discouraging. Villagers suggest that the effectiveness of the Panchayat could be revived only by mapping of Panchayat

land, settling of land disputes, and holding fresh elections of the Panchayat. Local vested interests were not allowing these activities to take place, so that the local institution, i.e., the Van Panchayat, had lost villagers' support. In this situation, a revival of the working of the Panchayat is most essential before undertaking any forestry program with meaningful results in the village.

Village Silpar is similar to Kunj in respect of the economic situation of the families. But this village has a well-managed forest that is adequate to meet the fuelwood and timber needs of the residents. It also has a very active local Panchayat, known as "Lath Panchayat," that is responsible for the successful management of the forest. There are many unutilized tracts of land in the village that could be potentially afforested. The villagers would prefer to undertake afforestation schemes that improve their economic situation. However, their Lath Panchayat does not have any legal sanction. In this case, therefore, the steps which appear logical for the promotion of participatory development are--registration of their institution and development of income-generating projects based on forest products. The latter also applies to village Falyati that has a well-managed Van Panchayat which has a considerable sum deposited in the Resin Royalty Fund at district level.

Athough village Chausuli is close to Almora, the economic situation of its inhabitants is no better. Only a few families are able to benefit from the proximity of town by way of selling

milk and milk products. Due to low family income, commercial cooking fuels have not been able to make inroads into the village either. Women have to traverse long distances for collection of fuelwood from the reserve forest. Although there are no land disputes within the village, the residents are not taking active interest in their Van Panchayat as it does not provide them any significant benefits. There is a considerable amount of land lying unutilized in the village, but most of it is of poor quality suitable only for growing grasses and shrubs. Accordingly, selection of appropriate biomass species for plantation is a tricky task there. A forest development plan for this village may have to include trials of alternative species to ascertain their technical feasibility as well as usefulness to the village population.

The diversity of situations and the various dimensions of tasks involved in the development and management of local forest resources indicates the nature of multi-tiered and multidisciplinary capabilities desired from a coordinating institution. The existing body, in contrast, is found to be incapable of handling little details like regular inspections. It is, therefore, no wonder that the system is proving ineffective in many instances. In general, however, an analysis of the different issues involved, indicates a need for strengthening of local institutions supported by planning and implementation methods that give due consideration to local assessments. This implies a review of working procedures, development of backward and forward linkages, appropriate

training of extension personnel, and collaboration with voluntary organizations having persons of the desired capabilities.

Participatory development of forests is not a utopian concept. Policies suggested above could be useful in giving a new direction to Social Forestry, contributing to improvement in the living standard of village residents and the environment in general.

APPENDIX I

DISTRICT ALMORA: COMPARATIVE STATISTICAL PROFILE[1]

Sl. No.	Particulars	District Almora	Hill Region	Uttar Pradesh
1.	Density of population	144	95	377
2.	Villages classified according to the population (percent, 1981)			
	Less than 200	56.4	57.2	24.3
	200-499	33.3	31.4	31.0
	500-999	9.0	8.7	25.2
	More than 1,000	1.3	2.8	19.6
3.	Electrified villages (percent, 1982-83)	40.8	37.3	37.6 (1981)
4.	Literacy (percent, 1981):			
	Rural: a. Male	56.3	50.3	35.4
	b. Female	19.0	18.8	9.9
	Urban: a. Male	33.8	68.7	54.4
	b. Female	65.9	51.2	35.8
5.	Principal occupation of workers (percent, 1981)			
	Agriculturist	75.2	64.9	58.0
	Agricultural labor	1.8	5.7	16.3
	Cottage industry	2.3	2.2	4.4
	Others	20.7	27.2	21.3
6.	Number of workers in registered industrial organizations (per lakh population, 1979-80)	114	413	620
7.	Consumption of energy (percent, 1980-81):			
	Domestic	21.7	16.7	
	Industrial	32.2	67.8	
	Agricultural	5.9	5.3	
	Commercial	1.4	1.9	
	Other[2]	38.6	7.7	

8.	Land use pattern (percent, 1980-81):			
	Net area sown	15.6	13.2	
	Forest Area	54.3	64.6	
	Land under miscellaneous treecrops and groves	5.5	3.5	
	Permanent pasture and other grazing land	7.0	4.1	
	Barren and unculturable land	4.8	5.4	
	Fallow land	1.0	1.0	
	Land put to nonagricultural uses	2.2	2.2	
	Culturable wasteland	9.5	5.9	
9.	Forest area (km^2, 1982)			
	Area under control of Forest Department	37.9	69.2	
	Area under civil and soyam forests	46.2	23.3	
	Panchayat forests	15.3	6.9	
	Private, Cantonment and Nagapalika forests	Negligible	.6	
10.	Area under principal crops (percent of gross cultivated area, 1980-81)			
	Wheat	33.7	33.2	
	Rice	18.2	22.6	
	Madua (millet)	20.7	13.8	
	Sawan (millet)	13.0	7.6	
	Maize	1.8	3.7	
	Barley	4.8	3.3	
11.	Area under commercial crops (percent of gross cultivated area, 1980-81)	0.7	5.4	1.0
12.	Number of operational holdings by size of holdings (percent 1976-77)			
	Less than 1 hectare	85.1	71.5	70.5
	1-2 hectare	11.4	15.6	16.3
	More than 2 hectares	3.6	12.9	13.2 (1981-82)

13.	Area of operational holdings by size class of holding (percent, 1976-77)			
	Less than 1 hectare	45.1	23.4	25.7
	1-2 hectare	35.7	23.6	22.6
	More than 2 hectares	19.2	53.0	51.7 (1981-82)
14.	Use of fertilizer per hectare 1981-82	3.6	37.2	51.7
15.	Livestock per person (1978)			
	Cattle	.46	.43	
	Buffalo	.23	.16	
	Sheep and goats	.28	.30	
	Others	.00	.01	
16.	Civil hospitals and dispensaries (per lakh population, 1980-81)			
	Allopathic	12.1	11.9	
	Homeopathic	0.6	0.6	
	Ayurvedic	5.1	6.8	
17.	Number of schools (per lakh population, 1982)			
	Junior Basic	162.6	149.0	65.1
	Senior Basic	27.7	29.1	12.7
	High School	18.4	15.5	5.1

Notes:

1. Compiled from: a. Fact book--Hill Region, Parts I to III, Hill Division, State Planning Institute, Uttar Pradesh, 1984; b. Statistical diary--Hill Region, Hill Division, State Planning Institute, Uttar Pradesh, 1983; c. Statistical Diary--Uttar Pradesh, Economics & Statistics Division, State Planning Institute, Uttar Pradesh, 1985.

2. Public lighting and public water and sewage pumping.

APPENDIX II

COMMON TREE SPECIES IN THE HILL AREAS

Sl. No.	Local Name	Botanical Name	Habitat	Major Uses
1.	Akhrot	Juglans regia	1,200 to 3,000 meters	Furniture, plywood, decorative pieces, and musical instruments. The fruit is eaten.
2.	Angu	Fraxinus micrantha	1,800 to 2,700 meters	Tools, handles of all sorts, ploughs, camp furniture, decorative pieces, walking sticks, etc.
3.	Aonla	Emblica officinalis	Up to 1,400 meters	Agricultural implements, well construction, charcoal. The bark, leaves, and fruits are used for tanning and medicine.
4.	Arru	Ailanthus excelsa	Up to 500 meters	Packing case, match splints, and plywood, writing and printing papers.
5.	Bakain	Mela azaderach	800 to 1,700 meters	Fuel, fodder, timber, soil conservation.
6.	Banj	Quercus incana	1,300 to 2,500 meters	Fuelwood, charcoal making, timber, agricultural tools, fodder.
7.	Bhimal	Grewia oppositifolia	Up to 1,700 meters	Fodder, soil conservation.
8.	Buronj	Rhododendorn arboreum	1,300 to 2,700 meters	Fuelwood and charcoal. Flowers are used for making soft drinks.
9.	Chamkharik	Carpinus viminea	1,500 to 2,100 meters in shady ravines and along water courses.	Shutters and bobbins.

10. Chir	Pinus roxburghii	700 to 1,900 meters	Light construction, roofing, planking, furniture, packing cases, writing and printing papers. The tree is tapped for resin from which turpentine is manufactured.
11. Deodar	Cedrus deodara	2,130 to 2,590 meters	Timber, sleepers, printing blocks, fence poster, musical instruments, and pen holders.
12. Fir	Abis pindrow	2,400 to 3,000 meters	Railway sleepers, packing cases, picture frames, and as pulp.
13. Haldu	Adina cordifolia	Up to 900 meters	Timber, toys, turnery, textile mill accessories, railway coaches, tea chests, plywood, and battery separator.
14. Jacaranda	Jacaranda acutifolia	Up to 1,600 meters	
15. Kafal	Myrica esculanta	1,200 to 1,800 meters	Fruit, fuelwood.
16. Kathbhoj	Betula alnoides	1,520 to 3,050 meters	Plywood, tool handles, tea chests, cabinet work, and bobbins.
17. Khair	Acacia catechu	Up to 1,300 meters	Agricultural implements and tools, sugarcane and oil seed crushers, rice pounders, mallets, etc. Heart wood is mainly utilized for extraction of catechu.
18. Kharik	Celtis australis	Up to 2,000 meters	Fodder, soil conservation.
19. Mehal	Pyrus pashia	Up to 2,400 meters	Walking stick, combs, and tobacco pipes.
20. Padam	Prunus cornuta	Up to 2,700 meters	Walking stick, fuelwood.
21. Pangar	Aesculus ondika	In shady ravines between 1,520 to 3,050 meters	Sports goods, mathematical instruments, furniture, plywood, and bobbins. Pangar wood is turned into cups, dishes, etc.

22. Phaliat	Quercus glauca	1,000 to 1,600 meters	Same as other Quercus.
23. Poplar or Pahari Pipal	Populus ciliata	1,220 to 3,050 meters preferring sunny blanks with light soils	Packing baskets, artificial limbs, and small turnery articles.
24. Putti	Acer spp.	1,800 to 3,050 meters	Bobbins, mathematical instruments, rifle bult.
25. Ritha	Sapindus mukorassi	Up to 1,600 meters	
26. Robinia	Robinia pseudoacaia	1,000 to 2,800 meters	Timber, erosion control.
27. Sal	Shorea robusta	Up to 1,500 meters	Timber, all types of construction, beams, columns, bridges, wheel work, tools, etc.
28. Sirus	Albizia lebbeck	950 to 1,550 meters	
29. Subabul	Leucaena leuco cephala	Up to 1,000 meters	Fuel, fodder, timber, soil conservation.
30. Surai	Cupressus torulosa	1,830 to 2,740 meters, generally on lime stone formation	Furniture, picture frames, drawing boards, pencil, slates, and battery separators.
31. Timla	Ficus roxburghii	Up to 1,600 meters	Fodder and fuelwood.
32. Toon	Cedrela toona	In moist locations up to 1,000 meters	Furniture, tea chests, bobbins, crates, packing cases, brushes, and brooms, printing blocks, mathematical and musical instruments.
33. Utis	Alnus nepalensis	In the most shady ravines near water between 900 to 2,700 meters	It is suitable for planking, packing cases, match splints, artificial limbs, plywood, and carpentary work. The bark is used for dyeing and tanning.

Shrubs

34. Ghingaru	Crataegus cranulata	1,700 to 2,500 meters
35. Kilmora	Berberis asiatica	Up to 2,000 meters
36. Hisalu	Rubus ellipticus	Up to 2,000 meters

APPENDIX III

HOUSEHOLD SURVEY SCHEDULE
(ENGLISH TRANSLATION)

SECTION A: GENERAL INFORMATION

I. FAMILY IDENTIFICATION

1. Name head of the family_____Father's name_____

2. Caste_____Age_____Location identification_____

3. (a) Principal occupation_____

   (b) Subsidiary occupation_____

II. DETAILS OF FAMILY MEMBERS

1. Those staying in the village

Sl No	Relationship with the head	Age	Literacy level	Involvement in: Principal occupation	Involvement in: Household works	Other Income Sources: Nature of work	Other Income Sources: Period of involvement	Other Income Sources: Amount received

2. Migrants

Sl No	Relationship with the head	Age	Literacy level	Occupation	Nature of migration	Annual remittance	Remarks

III. LAND HOLDING

1. No. of plots_____Total area (in local units)_____

2. No. of locations of plots and their average distance from the home

_____

3. Have you rented in/rented out some portion of your land? If yes, note area of such land and the terms and conditions._____

_____

4. Kharif season crops

Sl No	Crops sown		Total area		Total Production
	Name	Number of plots	Irrigated	Unirrigated	

5. Rabi season crops

Sl No	Crops sown		Total area		Total Production
	Name	Number of plots	Irrigated	Unirrigated	

6. Do you have barren land? If yes, note total area and its use._____

IV. LIVESTOCK*

Milch Cattle		Draft Cattle						
Cow	Buffaloes	Bullocks	He buffaloes	Minor	Goats	Horses	Poultry	Others

*Note improved breeds, if any.

V. LIVING SPACE AND ASSETS

		Cattle Shed					Assets	
Rooms	Kitchen	Inside	Outside	Toilet	Verandah	Courtyard	Name	Numbers

VI. INDEBTEDNESS

1. Bank/Cooperative Society Loans

Year	Scheme	Source & amount of loan	In whose name	Subsidy	Assets acquired	Interest rate	Amount repaid	Remarks

2. Loan from money lenders

Year	Purpose	Interest rate	Amount repaid	Remarks

VII. PRIORITY PROBLEM AREA

1. General _____

2. Household _____

3. Agricultural _____

4. Forest related _____

SECTION B: COOKING FUEL AND FODDER
(Questions to be asked from housewives)

I. COOKING PATTERN

1. How many times do you cook daily?_____

	Items prepared	Time of cooking
(a) Morning	_____	_____
(b) Mid-day	_____	_____
(c) Evening	_____	_____

2. Which type of stove do you use?
   (a) Traditional/Smokeless (b) Fixed/Portable

3. What types of vessels do you use?_____

4. Do you cover the vessels during cooking?
   (a) Dal_____ (b) Vegetable_____ (c) Rice_____

5. What types of fuel are being used in your home for different purposes?

Purposes	Types of fuel used	
	Main	Others
(a) Cooking		
(b) Space heating		
(c) Lighting		

6. What kinds of fuelwood are used in your house?
   Main_____ Others_____

II. FUELWOOD CONSUMPTION

1. Fuelwood, given to housewife, to be used for the next 24 hours
   Weight_____ Species_____ Condition_____

2. Weight of fuelwood remaining after 24 hours_____

3. Items prepared during the 24 hours

Sl No	Items prepared	Quantity

4. Note details of fuelwood consumed during festivals and marriages.

III. FODDER CONSUMPTION

1. What type of fodder do you give to your cattle in different seasons?

Seasons	Quantity given per cattle per day				
	Grass	Leaves	Agricultural residues	Concentrates	Others
(a) Winter					
(b) Summer					
(c) Rainy					

2. In which season do you have a problem of fodder and how do you solve it?_____

IV. STORAGE

1. In which season do you store fuelwood and fodder?_____
(Note minimum and maximum quantity, place, and process of storage.)

2. In which season do you use the stored fuelwood and fodder?_____

V. SOURCE OF SUPPLIES

1. From where do you obtain your fuelwood supplies?_____

Purpose	Sources
(a) Cooking	Own/collected/purchased
(b) Space heating	Own/collected/purchased
(c) Festivals and marriages	Own/collected/purchased

1.1 <u>If own</u>

(a) How do you use it? Does it require any permission before cutting? Who gives the permission?_____

1.2 <u>If collected</u>

(a) Name and distance of the forest from where collected_____

(b) Total hours spent in the process_____

(c) How many times per week do you go to the forest for fuelwood and fodder collection in different seasons?

Seasons	Number of trips per week for Fuelwood	Fodder
(a) Winter		
(b) Summer		
(c) Rainy		

Note whether they bring the fuelwood and fodder together.

(d) How many members of the family help you in collection and why?

_____

1.3 If purchased

From where, distance, and rate species-wise
(a) fuelwood_____
(b) fodder_____

VI. NEW PLANTATIONS

1. Plantations near the house can reduce the problem of fuelwood and fodder collection, but there is no progress in this direction. Why?

_____

VII. WATER COLLECTION

1. What is source of getting water? Who collects it?_____
(Note distane from the house.)

2. How long does it take?_____

3. Do you have any problem in meeting the requirement of water for drinking and other domestic purposes?_____

4. Do you have any suggestions to reduce this problem?_____

VIII. How many mattresses and quilts do you have?_____

SECTION C: FARM FORESTRY

I. TREE OWNERSHIP

Please give the number of mature trees owned by the family.

Species	Area*	Number of trees	Age of the trees (Average)

II. NEW PLANTATIONS

1. Plantation undertaken during the last five years

Year of plantation	Species	Areas*	Numbers Planted	Numbers Survived	Fertilizers or pesticides used	Irrigation	Average length	Cause of mortality	Remarks

*Note previously fallow land/previously cropped land/Bunds or boundaries/Homestead.

2. Method of plantation adopted, i.e., from seed or sapling? How did you get them? (Block/forest nursery/private nursery) Rate per plant species-wise and the distance from the source?_____

3. Use of labor for planting, maintenance, and harvesting? (family/hired/shared)_____

4. Do you have any plans for undertaking plantation in future? If yes, please give name of the species and the number of plants you want to grow with reasons._____

III. AVAILABILITY AND CONSUMPTION PATTERN OF TIMBER

Sl No	Use*	Quantity used last year	Species used	Source			Remarks
				Forest	Own	Purchased	

*House construction or repair, furniture, agricultural implements, others. Also note local value of timber of different species and their alternative uses. Availability of workmen for different jobs and their labor charges.

IV. HARVESTING AND SALE OF PRODUCTS

1. Is there a ready market for some products like fruits or nuts? What is the present mechanism for sale of such products at village level/outside?_____

2. What product and approximately how much of each have you harvested during last year?

Species	Number of trees	Product Harvested*	
		Type	Quantity

*Fuelwood, leaves, fruits, seeds, others.

3. Approximately how much did you receive during last year for each of the product sold?_____

4. Who purchased it, for what purpose, and at what rate? Note the rate species wise_____

V. GOVERNMENT REGULATIONS

1. What has been the effect of the ban on tree felling above 1,000 m?

2. What is the procedure of getting permission for tree felling? What has been your experience in this regard?_____

SECTION D: LOCAL INSTITUTIONS

I. PARTICIPATION

1. Is there any person in your family who is a member of the village committee?_____

2. In which way is your family providing assistance in forest management?

_____

3. Do you participate in committee meetings? What are the main issues generally discussed?_____

4. Have you received any payment for contributing labor in forest development of the committee?_____
Note type of work done by the respondent.

II. BENEFIT DISTRIBUTION

1.1 Benefits that you are getting from the local forest

Benefits	How Often	System of Distribution
Fuelwood		
Timber		
Fodder		
Others		

1.2 Are these sufficient to fulfill your requirements? If no why?

_____

_____

2. Are you satisfied with the distribution system adopted by the committee? If no, what are your suggestions to improve it?_____

_____

_____

3. Do you find any problem in the working of the village committee?

_____

III. PROTECTION

1. What is the arrangement for the protection of the Panchayat forest?

_____

Note suggestions of the respondent for improving it.

2. What kind of protection methods for new samplings are desirable from your viewpoint?_____

IV. FUTURE ACTIVITIES

1. Do you wish that the committee should undertake village development programs such as establishment of a cottage industry on cooperative basis? If no why?_____

_____

2. Do you feel that the committee should undertake more plantations on common land? If yes, list the species preferred by you._____

_____

PART III

FUELWOOD DEVELOPMENT IN A RAINFED RICE-GROWING AREA

SISAKET PROVINCE, THAILAND

Chapter 1

INTRODUCTION

FUELWOOD ISSUES IN THAILAND

It has been estimated that for 1983, fuelwood and charcoal together accounted for 61.7 percent of residential energy consumption in Thailand. Of this, 93 percent is due to rural consumption. In terms of energy, the amount consumed in rural areas was 5,136 thousand tons of oil equivalent (TOE) with 2,917 thousand TOE as fuelwood and 2,219 thousand TOE as charcoal. For urban areas, more charcoal is consumed at 280 thousand TOE, than fuelwood, at 15 thousand TOE. The bulk of rural energy consumption is for cooking in the household.

Virtually the whole of the fuelwood consumed in the rural household is collected by the user. The source of fuelwood was found to be 35 percent the user's own land, while a further 14 percent was from land belonging to other people. Forest sources accounted for 49 percent of the total fuelwood demand. However, in regions where the forest area is small in relation to the cultivated area, such as the northeastern region of the country, 57 percent of rural households relied on collection of fuelwood from private land, whether their own or others. In relation to charcoal, private land also accounts for 54 percent of wood collected for charcoal making by the households. In the forest-scarce northeast, private land accounts for 66 percent of the fuelwood supply for charcoal making. A survey of rural

energy consumption in 1980 showed that 39 villages out of 50 surveyed still had access to fuelwood supply sources within fi km from the village.

Taking all these data together, the high level of charcoa use and the close access to non-forest fuelwood supply sources suggest that the fuelwood problem in Thailand may not yet be critical. Nevertheless, there is a growing concern about the increased severity of the problem in the near future. Given tl rapid rate of deforestation in the country as a result of the continuing demand for cultivable land and the intensification (cropping on cultivated land, the supply of fuelwood is likely t diminish while demand will continue to increase as a result of population growth and increased rural income. It has been estimated that by the year 2001, there will be a deficit of 36. million m3 of wood for fuelwood purposes. In this respect, and given the considerable lead time involved in the establishment and maturation of fuelwood trees, it is not too early to be taking the fuelwood problem seriously and to take the necessary steps to avert the crisis. The establishment of woodlots to provide a sustained supply of fuelwood for rural needs is an integral component in whatever program of action should be taken.

Early Approach to Village Woodlots

The USAID/Royal Thai Government Project on Renewable Nonconventional Energy included the establishment of village woodlots as one component within its scope. The basic idea was

to "demonstrate and study the techniques of planting fuelwood crops so that there would be a sustained source of fuelwood production for villagers in the Northeast." (RFD/NEA 1984:16)

As described in the project report, the specific objectives of the project were:

- To provide a sustained supply of wood fuel for both woodlot owners and non-woodlot owners.
- To lessen the pressure resulting from the cutting of trees in the natural forests and illicit cutting of trees on public land in general.
- To create employment opportunities and increase income for rural families.
- To develop techniques to be used as an important first step toward a countrywide scheme, and
- To stimulate interest in tree farming by demonstrating the benefits derived from such development. (RFD/NEA 1984:18)

The village woodlot project accomplished a great deal in terms of generating information on village woodlots. By the end of the project, 6,000 rais[1] of Eucalyptus camaldulensis had been planted in seven provinces in the Northeast of Thailand. One million seedlings were distributed to villagers in eight provinces, village level studies of socioeconomic conditions and

---

[1]rai = 0.16 ha

attitudes toward woodlot projects were undertaken, and training programs and materials were developed. The current concern with the effect of planting Eucalyptus on a large scale in Thailand is a reflection, perhaps, of the urban alarm at the success of the project in stimulating interest in the woodlot concept in rural areas.

While the USAID project succeeded in establishing woodlots in the villages, the long-term impacts of the woodlots on the village socioeconomic conditions have not yet been studied. The problems involved in the establishment phase were studied by CUSRI (1983), using a sample of villages which were involved in the project. The CUSRI study showed that there were significant variations in the baseline conditions of the villages where the woodlot project was implemented. The response of the village communities to the introduction of the woodlot technology to alleviate the fuelwood problem was also varied, and there were administrative problems involved which handicapped the implementation of the project in various places. Most importantly, the study was done soon after the completion of the project, so that the long-term impacts were not studied. The questions of operation and maintenance, distribution of benefits of the project, and impact on the village communities involved remain to be investigated.

Government Policy on Fuelwood and Woodlots

The government recognizes the importance of the fuelwood problem for the coming years. In the Sixth National Economic

and Social Development Plan (1987-1991), we find two references to the idea of social forestry:

1. Natural Resources Policy

With reference to the problems associated with deforestation, the government proposes a policy on forestry which defines two types of forest. The first is conservation forest, which will be protected strictly from encroachment. The second type is economic forest. This will be managed to obtain maximum economic benefit, especially with private sector cooperation. In this respect, the Plan says,

> Community Forestry--the government will encourage and support private/popular organizations at the local level to cooperate in afforestation and to derive benefits from the planted forests. The emphasis will be on planting of multipurpose tree species and encouragement of economic utilization of trees.

The Plan sets the target that the total area of the economic forest will be 25 percent of the total land area of the country (Sixth Plan, 236-7).

2. Energy Policy

The Plan expects the trend of increasing use of commercial energy in rural areas to continue. Nevertheless, traditional fuels especially fuelwood and charcoal are expected to remain the principal form of energy used in rural areas. Yet, with the declining forest area the cost of acquiring energy increases, and the question of rural energy supply has to be tackled

together with the problem of rural poverty. In this respect, the Plan proposes the following measure:

> Encouragement of production and utilization of energy in rural area in appropriate forms. The government will encourage the establishment of woodlots for household and community use. It will promote private efforts at commercial afforestation and encourage the dissemination of energy conservation information relating to present uses of fuels. Research and development on biomass energy will be encouraged. The use of LPG and rural electrification will also be encouraged. (Sixth Plan, 338-9)

An Overview of Research Issues

The policy contained in the Plan document is the outcome of intensive study of the overall national energy situation and trends. Since the early 1980s, the government has undertaken extensive research projects, with technical assistance provided by many countries on energy issues, including rural energy and use of renewable and nonconventional energy sources and technologies. Of special interest is the World Bank's Energy Assessment Study, which also looks at the rural energy issues. On fuelwood, the World Bank study concludes as follows:

> The total potential demand for fuelwood (both firewood and charcoal) is projected to rise to about 50 million cubic meters by 2001. On the other hand, without a fuelwood program, the total sustainable supply from all sources would decline to about 13.9 million m^3 leaving a gross deficit of about 36.1 million m^3. This shortfall would be met by further overcutting of forest resources and by additional shift to modern fuels in rural areas.....

The consequence of such a scenario is elaborated in the report:

> Deforestation, although not principally caused by fuelwood gathering, will be exacerbated, ultimately leading to

> environmental damage and reduced agricultural productivity. ...As the forests recede and the collection and transportation of wood have to be done over increasingly greater distances, the increased cost of energy will impose a considerable burden on rural households. By 2001, continued overcutting is likely to raise the cost of collecting wood from the forest two or three times the present level....The most adversely affected will be low-income households, who would still constitute a substantial proportion of the rural populace at that time. Poor families who cannot afford much commercial energy will have to spend more time collecting wood from distant sources or burn increasing quantities of available crop residues. (IBRD(1), 72-73)

The World Bank study proposes a program which it describes as "modest and achievable" that it expects to help substantially narrow the projected gap between fuelwood supply and demand. The program involves the following:

> (a) Establishing 450,000 ha of private fuelwood plantations; 300,000 ha in small farm holdings (about five ha each) that have been converted to growing fuelwood as a cash crop, and 150,000 ha of industrial scale plantations near wood markets. An average yield of 20 m^3/ha/year could be obtained in such plantations generating 9 million m^3 wood annually.
> (b) Tree planting around homesteads by 2 million rural households, each with about 50 trees. With a rotation period of 6-10 years, this would provide 2-3 million m^3 of fuelwood annually.
> (c) Converting 75,000 ha of state-owned forest land into intensively-managed government plantations. At an assumed yield of 20 m^3/ha/year, this would contribute about 1-2 million m^3 per year to the supply.
> (d) Increasing the proportion of total forest area that will be economically accessible for fuelwood collection by 2001, through, for example, building roads into more remote forested areas to permit managed commercial exploitation of fuelwood to supply charcoal. (IBRD(2),p.171-172)

These proposed activities are aimed at expanding the supply of fuelwood to the population. The study also proposes complementary actions on the demand side, through improved

charcoal making and utilization with improved stoves, and substitution of fuelwood by other biomass fuels such as rice husk and saw mill waste.

However, the World Bank study expresses an important reservation about the implementation of the program that is of direct relevance to the present study. To quote the World Bank study:

> A critical element in the analyses presented...relates to how large a fuelwood program is feasible. The targets outlined...are certainly ambitious and should be considered at this time as a tentative ceiling. Whether in fact they can be achieved will depend on a host of institutional, economic and sociological factors. (IBRD(2),173)

These factors are elaborated on the basis of existing World Bank-funded programs with forestry components as follows:

> In the "Highland Forestry Component" of the Northern Agricultural Development Projects, though the physical target of 7,700 ha of plantation was exceeded, community participation, which is a crucial requirement for the successful implementation of larger planting efforts, has remained a problem. Legislative restrictions on forest reserve lands and the Royal Forest Department's (RFD) present lack of extension expertise have limited the role of local farmers. Virtually none of the component's woodlot plantations are managed and harvested by the farmers.
>
> In the "Upland Forestry Component" of the same project, only one-third of the target of 4,050 ha plantation is expected to be met. Besides the technical difficulties (inadequate culling of seedings, unsuitable tree species for certain sites, selection of sites with extremely poor soils), the more significant problems were sociological in nature. Since a fair amount of wood is still available from nearby forests, the farmers do not perceive any urgency in planting their trees. Also, common woodlots do not seem to gain acceptance because of their collective and voluntary nature.

The World Bank Study concludes on a cautionary note:

> These particular problems point to the critical role for continuous, expert extension work; the need to select woodlot sites and tree species more judiciously; the importance of securing the rights of farmer participants; the need to review the collective as opposed to the individual woodlot approach; the need to carefully delineate responsibilities and working relations of all relevant RTG agencies, the location of planting--and the price that can be expected for charcoal. (IBRD(2),175)

As part of the Action Plan, the World Bank study proposes,

> A study to review the sociological aspects of a fuelwood supply, conservation and biomass substitution program. This would essentially be an assessment of people's awareness of the fuelwood supply problem and their attitude to participation in a government program to plant trees in and around homesteads and in village woodlots, and to use improved cooking stoves...These sociological analyses at the household and community levels are necessary before making any major investments because experience has shown that centralized planning perspectives of what constitutes optimal solutions to the fuelwood "crisis" may not always be in accord with the perspectives of target groups... (IBRD(2),177)

Problem Identification

In considering the problems encountered in the World Bank's community forestry projects, we may focus attention on two points, the marketing aspect of the product of the community forestry, and the availability of trained forestry personnel to carry out the tasks required for a successful implementation of a social forestry program.

The marketing aspect of fuelwood production has been largely neglected in the recent studies of fuelwood. A study of the production and marketing of charcoal was made by the RFD in 1982. The study found that markets for charcoal were largely

confined to the region in which the charcoal was produced. The prices of charcoal were found to vary according to the variety of wood used (Chavalit, 1982).

The difficulties in marketing the product from fuelwood plantations were said to be a major constraint in expansion of private afforestation activities (CUSRI, 1982). Since only a small proportion of charcoal consumed by the household setor is purchased, this factor may be considered not very important in relation to other supply constraints already discussed. However, if it is desired to attract investment into commercial fuelwood production, in order to increase the commercial supply of fuelwood, attention needs to be paid to the feasibility of the investment. In the World Bank study, the economic feasibility of a fuelwood plantation is analyzed with the assumption that the product from the plantation is sold to a charcoal producer located within five km from the plantation. Under such an assumption, a fuelwood plantation is found to be economically feasible, with an internal rate of return of 23 to 28 percent, depending in turn on assumed yields of the trees planted (IBRD(2),78).

A more recent study was carried out, using empirical data from a number of mature fuelwood plantations (Arunee, 1986). The study assesses the economic returns on investing in the plantation of fast-growing trees. Its conclusions are

1. The scope for using fast-growing trees to substitute for imported logs is limited due to the difference in the

types of wood grown and imported. The imported logs are generally high quality timber not produced by the fast-growing tree plantations.

2. For rural households, commercial charcoal made from fuelwood plantations is uncompetitive with charcoal made from fuelwood collected by the users themselves.
3. For industrial use, charcoal made from fuelwood plantations is competitive with other fuels on the basis of heat value.

On the basis of assuming the sale of the fuelwood from th plantation as industrial fuel, the study concludes that a commercial woodlot will yield a financial internal rate of return of 15 to 60 percent for five year rotation of fast-growing trees such as Eucalyptus and acacia (Arunee, 1986

The lack of forestry personnel to provide technical suppo for community forestry project is one reason for the difficulties encountered in community forestry projects. It h been observed that though approximately 2,500 forestry persone have been produced by the Faculty of Forestry at Kasetsart University since 1936, the faculty did not offer a direct program on community forestry until 1986, when a program major was introduced in the curriculum. Thus, the first batch of graduates from the program will be available only after 1987.

The thrust of the program is aimed at the following issue

How to train forestry students to cope with the problems community development; how can the trained foresters play an effective role through forest and/or forest industry

activities in order to create rural employment and generat rural incomes. (Niwat, 1985)

As required by the curriculum, the student decides on his major in the third year of the study. He is required to take courses on rural sociology, Thai culture and society, in addition to courses on sociology and economics taken in the first two years of the Forestry Program. Courses directly relating to social forestry are also required: Introduction to Social Forestry, Field Social Forestry, Principles of Agroforestry, Economic Analysis of Social Forestry Projects and Forestry Extension. In total, these courses contribute 28 credits out of the total of 150 credits required for the undergraduate degree.

Because of its recent introduction, the assessment of the suitability of the curriculum has not been made.

In our preliminary review of problems, we delineated five research issues for attention in the participatory evaluation: land tenure and land use decisions; decisions on choice of tree species; silvicultural techniques; social organization, beneficiaries, and project agreements; and long-term species research and development (Vergara et al, 1986). These issues serve as a context for focusing the objectives of the research.

OBJECTIVES OF THE STUDY

The above discussion of the fuelwood issues serves as an introduction to the research objectives. The study has the following objectives:

1. To study the interactions between the village community and tree planting activities within the village. The research seeks to answer a set of questions relating to Social Forestry. These are: How important is the forest to the life of the villagers in Thailand? What are the attitudes of the villagers to forest resources in term of costs and availability? What is the value of forest resources compared with other forms of land uses, especially agriculture, in the perspective of the villagers? What are the conditions under which community woodlot projects can be expected to be successful and contribute to rural development?
2. To develop a "minimal tool kit" for a professional forester intending to work with village communities in developing a tree planting project.

The output of the study is expected to provide information on the issues raised. Recommendations are made to assist the relevant government agencies in the formulation of policy and measures in the implementation of the goals and objectives of the 6th Plan. The implications for the training of a professional forester are also discussed.

RESEARCH METHODOLOGY

Overall Approach

The approach adopted for the study is to look at the interactions between the village community and the tree planting

activity over the whole sequence. This means, in practical terms, the study of a village involved in the assessment of needs and resources, identification of the tree planting project, project appraisal, project implementation, operations and maintenance and distribution of benefits from the project. In the time available for the study, it was not possible to observe all phases of the project within a single village. So it was decided to study a number of villages, with broadly similar characteristics, but which were involved in various stages of the project. It was determined that three villages would be selected for the study: one with a woodlot already planted, one engaged in individual tree planting, and one where there has been no planting. The study of the village without any tree planting activity would afford an opportunity to examine the factors involved in the decision whether a village would adopt community forestry as a solution to its fuelwood problem, while the study of the village with a woodlot and one with only private tree planting would enable us to compare the various aspects of project implementation, operational problems and the distribution of benefits from the project.

Site Selection

The research team visited a number of forest villages established by the Royal Forestry Department and the Forest Industry Organization in Sisaket province to observe their operation. It was then decided that the institutional framework of these forest villages was not appropriate for the purpose of

the study, in that they are not typical of the villages in the northeast as a whole. Rather, the forest villages were established as a means to protect the natural forest and are located in designated forest areas. In contrast, the concern of the present study is to examine how tree planting can help improve the life of an ordinary village, typically located in a rainfed rice farming area. It was decided therefore that the villages to be selected for the study were to satisfy the following criteria:

1. Village with an existing woodlot organized on a communal basis.
2. Village with substantial scale of private planting.
3. Village which has shown interest in tree planting with some public land available for communal planting if desired.

The final selection of the study villages was made after field visits by the Thailand research team together with East-West Center researchers. The selected villages are

1. **Ban Pong**, as the village with an established community woodlot. This village had been intensively studied by CUSRI at the end of the woodlot plantation activity, so the selection affords an opportunity to follow-up on the earlier study and to see how the village continues with the implementation of the woodlot project.

2. **Ban Nong Lung** is selected as the village with an extensive degree of private planting. The selection was made after attempts made to identify such a village from the record of the Seed Distribution Centre led to villages which either did not have substantial planting or where plantings were in fact organised on a large scale with the seedlings supplied from the centre. The case of Nong Lung was brought to the attention of the research team by an earlier study carried out as a joint Khonkaen University/Ford Foundation project (Somluckrat W. Grandstaff, et.al, 1986).
3. **Ban Nong Yang** was selected as the village with no planting activity and where there was interest in undertaking some planting activity, so that the process leading to a village tree planting activity could be studied. The village also had some public land which it was willing to make available for a communal planting.

Selection of Household Sample

Once the sample villages were selected, the team selected households within each village for a questionnaire survey. The sample households were selected to provide information on the pattern of fuelwood use, economic activities, needs assessment and assessments of resources, and attitudes towards tree planting. From each village, thirty households were selected, 10 each representng the well-to-do, the middle farmer and the less well-off farmers. The households were identified from

discussion with the village headman and villagers. The socioeconomic status of the sample households was also confirmed with data from the questionnaires administered within the village.

Household and Village Questionnaires

Two questionnaires were employed within each village. One is a structured interview form. The other is an interview guide for discussion with the village headman and village elders.

Village Residence

The field activity includes as an integral part the residence of the field researcher within the study villages over an extended period, with the objective of getting to know the villagers intimately so that discussions could be held with villagers informally. This would allow the field researcher greater contact and observation time to explore attitudes and behavior which would otherwise be unobservable during formal interviews.

Participatory Action Research

In the village with no planting activity, the researcher undertook participatory action research by becoming actively involved in the processes relating to the planning and implementation of the woodlot project.

Data Processing

The questionnaire data are coded for computer processing and are analysed by means of the SPS program on a PC. The results are tabulated and discussed in the text of the report.

Seminar and Discussion

The findings of the study were presented and discussed at a seminar held at CUSRI on December 4, 1986 as part of the Symposium on Social Science Research. The seminar was attended by researchers and officials from the Royal Forestry Department, the Land Development Department, the Agricultural Land Reform Office, among others. Interested members of the public also attended the seminar.

Chapter 2

DESCRIPTION OF STUDY VILLAGES

VILLAGE PROFILE

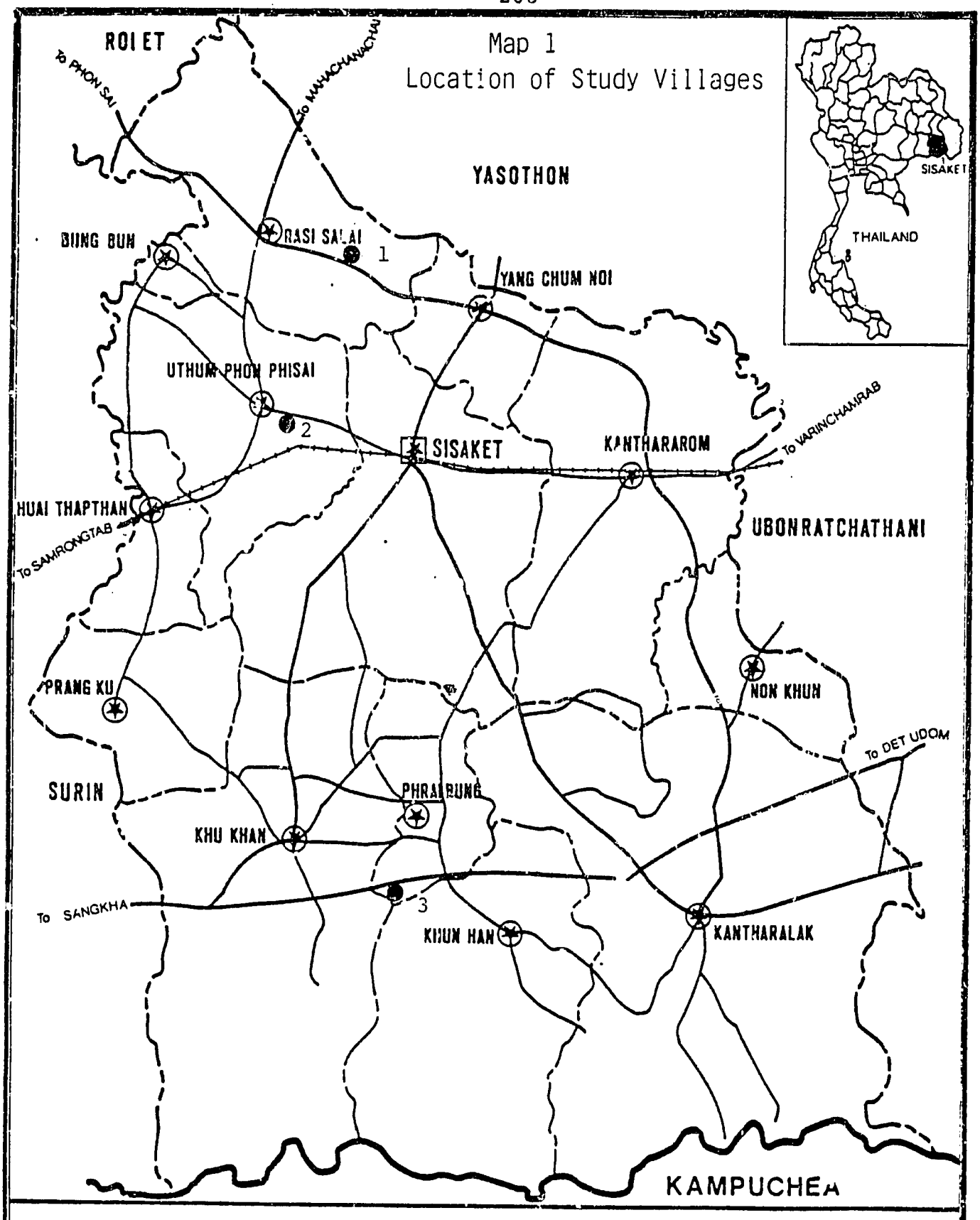
Ban Nong Lung

Ban Nong Lung has a population of 470 persons, 237 male and 233 female. The number of households is 130. The village has been established for more than three generations. It is located close to the provincial center of Sisaket, which is only 14 km away, to which it is connected by a good all-weather road (Map 1). The village is situated in the middle of extensive rice land. The soil is sandy and of low fertility, typical of the northeast region.

Rice farming is the major occupation of the population of Nong Lung. Of the 130 households in the village, 129 are engaged in rice farming. Only five households practice trading as a subsidiary occupation. However, due to its closeness to the market center, some villagers also find employment in the center. Otherwise, people are engaged in petty trading, occasional wage labor on farms, and weaving of local cloth.

A wide range of crops is grown in the village. Other than rice which is the staple crop, the villagers grow string beans, water melon, eggplant, and cabbage. These vegetables find a ready market in the town center.

Weaving is the main cottage industry in the village, with about 50 households engaged in the activity. About 10 families



PARTICIPATORY EVALUATION OF FUELWOOD PROGRAMS

✱	CHANGWAT (PROVINCE)	▬▬▬	BORDER
⊛	AMPHOE (DISTRICT)	▬ ▬ ▬	PROVINCE BOUNDARY
☽	SAMPLE VILLAGE	▬ - - -	DISTRICT BOUNDARY
● 1	BAN NONG YANG	▬▬▬	ROAD
● 2	BAN NONG LUNG	▬▬▬	
● 3	BAN PONG	┼┼┼┼	RAILWAY

SCALE

Kilometres

10 5 0 5 10

are also involved with breeding silkworms as a result of a community development effort by the district administration.

Landholding in the village is fairly evenly distributed. There is only one household identified as landless in the interview with the village headman. Landholdings are in the range 6-20 rais for 104 households, while 20 households own more than 20 rais each. The maximum size of landholding was reported as 50 rai. However, six households have less than five rais of rice land, which are too small for subsistence. Members of these households have to seek additional income by other means. Agricultural wage labor is required at times of peak labor demand, at transplanting and harvesting times. The wage rates are 35 baht[1] for the transplanting and 40 baht for the harvesting. The increase reflects the higher opportunity cost of labor in the off-farm season, when non-farm work is available or the farmers prefer to spend their time in leisure activities.

The traditional lifestyles have all but disappeared from Nong Lung. In place of labor exchange, now there is only hired labor. Group organizations exist, but these are of the formal kinds such as the silk rearing group, formed by the district community development officer. The agricultural cooperatives were formed to take advantage of the loans from the Bank of Agriculture and Co-operatives. In large measure, this is due to the closeness to the town center, hence the modern way of life.

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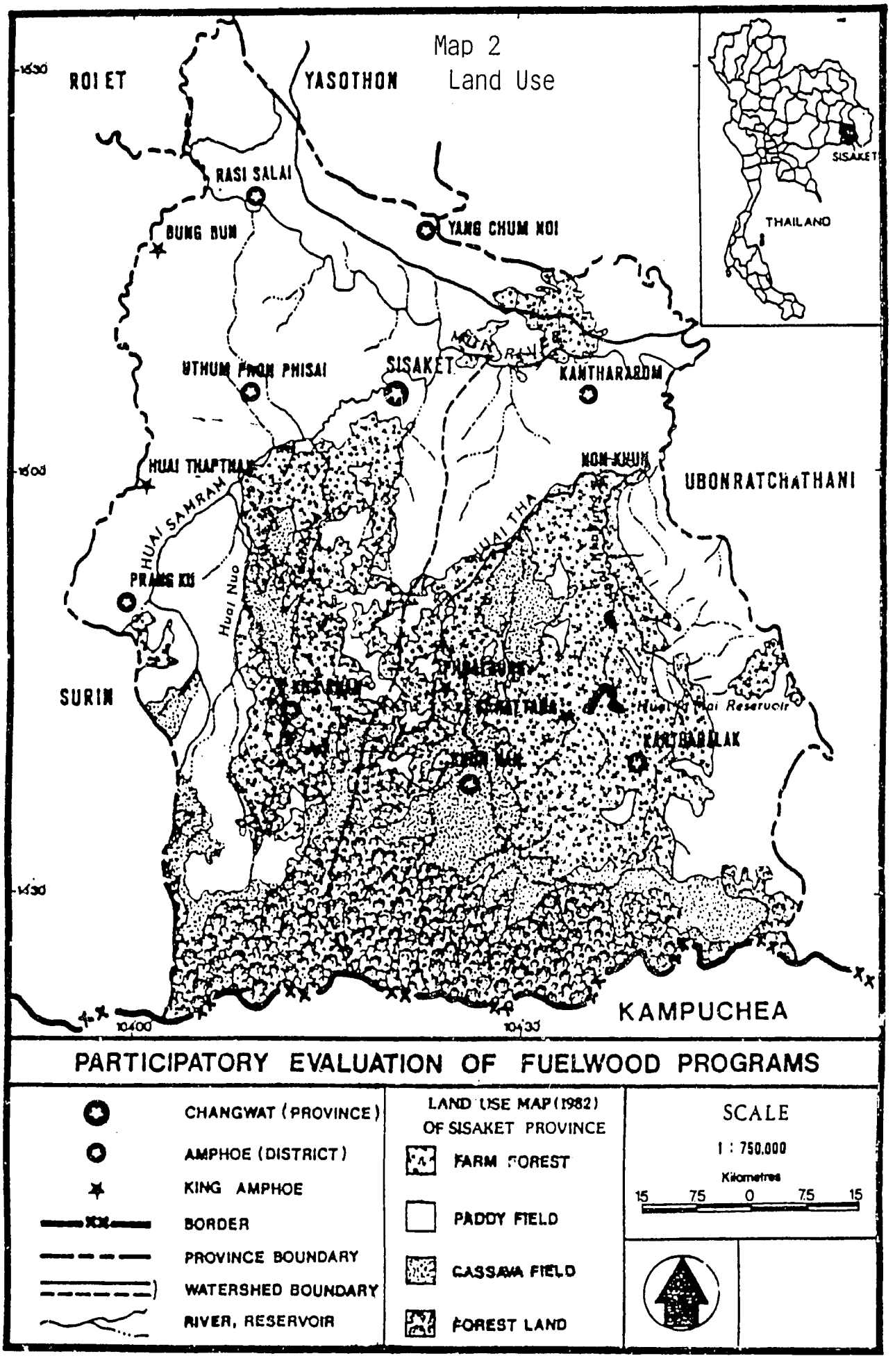
[1]Baht 26.0 = US $1.00

Ban Pong

To the south of Sisaket town center, the terrain rises gently to hilly areas bordering Kampuchea. About 30 km from the center is Prai Bueng district, and 10 km from that is Ban Pong Village, lying on the main road from Bangkok to Ubonratchatani Province.

Ban Pong is a village of 593 inhabitants, 289 male and 304 females. The number of households is 106. Inspite of its convenient location on a main road, the number of households has remained stable over the recent period. The village was established about 50 years ago as an offshoot from Ban Sai, another village nearby. Since its founding, there have been six or seven headmen, attesting to the length of time the village had been established.

The terrain of Ban Pong is less favorable for rice cultivation than at Nong Lung, because it is on higher grounds. And because it is of more recent origin, much of the farmland is still in the process of clearing. This means that a fair number of trees still stand in the fields used for rice growing (Map 2). The soil is, as with the rest of the northeast, sandy and of low fertility. Agriculture here is entirely rainfed. Nevertheless, all the households in the village are engaged in rice farming, with a small number engaging in growing subsidiary crops like chillies and tobacco, as well as vegetables like eggplant and cabbage, for sale in the nearby district center of Khukan.


Map 2
Land Use
ROI ET
YASOTHON
RASI SALAI
BUNG KUN
YANG CHUM NOI
UTHUM PHON PHISAI
SISAKET
KANTHARALUM
HUAI THAPTHAN
NON KHUN
UBONRATCHATHANI
HUAI SAMRAM
HUAI THA
PRANG KU
Huai Nuo
SURIN
KANTHARALAK
KAMPUCHEA
SISAKET
THAILAND
PARTICIPATORY EVALUATION OF FUELWOOD PROGRAMS
CHANGWAT (PROVINCE)
AMPHOE (DISTRICT)
KING AMPHOE
BORDER
PROVINCE BOUNDARY
WATERSHED BOUNDARY
RIVER, RESERVOIR
LAND USE MAP (1982)
OF SISAKET PROVINCE
FARM FOREST
PADDY FIELD
CASSAVA FIELD
FOREST LAND
SCALE
1 : 750,000
Kilometres
15 7.5 0 7.5 15

The pattern of landholding in Ban Pong is slightly different from that in Nong Lung. The average size of a holding is larger, and there is more renting of land. Landlessness is not found in Ban Pong, though the poor can be found. A measure of poverty is whether and to what extent a person has to borrow rice to tide over the deficit from his own supply.

Land for cultivation is a major issue in Ban Pong. The village has a plot of public land, about 500 rais in all, now used as the village woodlot. Before that, it was used for grazing and some villagers had encroached on the land for cultivation. The issue came to a head when the district administration wanted to use the land for a pasture development project, so that the users of the public land had to give up their plots. Disputes from that time are still well remembered.

The local custom of labor exchange is still practiced in Ban Pong, at times of planting and harvesting, as well as house-building. For the latter, people would come to help with sawing the logs for making the planks for the walls and flooring of the house to be built. The trees are however acquired by the house owner.

Ban Nong Yang

Nong Yang is a village of 325 inhabitants, divided into 53 households. It is an offshoot of Ban Phai, an older village located two km from the village. Formerly, the area used to be an area of forest surrounded by rice fields. The owners of the fields were living in Ban Phai. In the early 1940s, as the

distance from the village to the field was increasing, five households came to set up houses in the area to be closer to their fields. A number of people followed, and by 1953, the village was big enough to elect a headman. The present headman was elected in 1986, after the old headman retired.

The village lies on the flood plain of the River Mun, with rice as the main crop. The villagers also grow shallot as the second crop, from which they obtain substantial cash income.

The pattern of landholding is quite equitable, with only three households owning less than five rais, and 10 households owning more than 20 rais. The majority of the households, 40 out of 53, own between 6-20 rais. There is no landless household. Land is passed on from one generation to another within the family.

The village is connected to the district center of Rasisalai which is 10 km away by a laterite road, which is passable in the dry season, but less so in the rainy season. It is also conveniently located and connected with laterite roads to other villages like Ban Sompoi, where the village children go to attend secondary school. The young children of primary school age go to Ban Phai for schooling. In Nong Yang itself, a piece of land had been set aside by the villagers for a school, but the village has not been given Education Department funds to build a school on the site, because the number of school children is too small and it is located close to Ban Phai.

Though it is a small village, the village of Nong Yang is highly community-minded and aware of development opportunities.

It has formed a saving group and a village development fund. The village houses are equipped with large water jars and covered toilets, as well as electricity. In general, the villagers enjoy a relatively high standard of living, based on their self-sufficiency in rice and the cash income from the sale of shallots.

COMPARATIVE ANALYSIS OF SURVEY RESULTS

Settlement History and Migration

From the sample, we can see a reflection of the settlement history of the villages. In Nong Yang, which is more recently established than the other two villages, the original domicile of the respondents is 46.7 percent in the village and 53 percent outside. This compares with 90 percent and 66 percent respectively in village for Nong Lung and Ban Pong, which are larger and longer established.

Origin of Respondent, by Village (No. and %)

	Nong Yang		Nong Lung		Ban Pong	
In village	14	(46.7)	27	(90.0)	20	(66.7)
Outside village	16	(53.3)	3	(10.0)	10	(33.3)
Total	30	(100)	30	(100)	30	(100)

Motive for Migration. The apparently high level of movement in Nong Yang is due to marriage. Families in Nong Yang still retain close ties with the parent village at Ban Phai, and they marry people from Ban Phai. In the case of Nong Yang, 13 of the 16 movers in the sample cited marriage to female as the reason for the move to Nong Yang. This pattern is fairly typical of short distance, rural-rural migration prevalent in Thailand.

Occupation

Farming is the main occupation of the villagers in the sample, as shown below.

	Nong Yang		Nong Lung		Ban Pong	
Rice Growing	1	(3.3)	13	(43.3)	0	(0.0)
Rice and Other Crops	26	(86.7)	0	(0.0)	28	(93.3)
Rice and Weaving	0	(0.0)	14	(46.7)	0	(0.0)
Others	3	(10.0)	3	(10.0)	2	(6.7)
Total	30	(100)	30	(100)	30	(100)

In Nong Yang, 86.7 percent of the sample grow rice and onion (shallot), while in Ban Pong, the main alternative crop to rice is tobacco (local variety) which is grown for the local market. Only Nong Lung, with closer access to town and limited land, is engaged in rice growing and cottage industry (weaving).

Landholding Pattern

Virtually all the respondents in the sample are landowners. This is a typical pattern in Northeast Thailand, where the incidence of landlessness is low in spite of increasing population. Landholding is also not fragmented, the majority holding one or two plots of farmland. Only in Nong Yang do we find almost 30 percent holding three plots, but this could be explained by the high incidence of marriage to people from outside the village. Responses on the ownership of the land support the view that inheritance is passed to the female of the household, with 40 percent and 60 percent of the sample in Nong Lung and Ban Pong holding land belonging to the wife of the household heads. The case of Nong Yang is slightly different, again reflecting its more recent settlement history, with only 16 percent of holdings belonging to the wife. The main form is own land in many plots acquired by clearing. It is also the village showing highest level of land renting (26 percent of the sample rent land). This is perhaps an indication that land pressure is building up.

In Nong Lung, the high percentage of others is due to ownership by other family members--relatives and children--so this is another way land pressure is alleviated, by land sharing within the (extended) family.

Landholding Data

1. No. of Plots of Landholding

	Nong Yang	Nong Lung	Ban Pong
No land	0 (0.0)	0 (0.0)	1 (3.3)
1 plot	7 (23.3)	20 (66.7)	14 (46.7)
2 plots	11 (36.7)	7 (23.3)	9 (30.0)
3 or more plots	12 (40.0)	2 (6.7)	6 (20.0)
Total	30 (100)	30 (100)	30 (100)

2. Ownership of Land by Member of Family

	Nong Yang	Nong Lung	Ban Pong
No land	0 (0.0)	0 (0.0)	1 (3.3)
Husband's	16 (53.4)	5 (16.7)	8 (26.7)
Wife's	5 (16.7)	12 (40.0)	18 (60.0)
Renting and Owning	8 (26.7)	0 (0.0)	0 (0.0)
Others	1 (3.3)	13 (43.3)	3 (10.0)
Total	30 (100)	30 (100)	30 (100)

Use of House Plot Land

The house plot is used for a number of activities, including tree planting. The survey supports this observation as follows.

Use of House Plot

	Nong Yang	Nong Lung	Ban Pong
Not used	4 (3.3)	1 (3.3)	1 (3.3)
Fruit trees and animals	4 (13.3)	19 (63.3)	5 (16.7)
Kitchen garden	19 (63.3)	0 (0.0)	0 (0.0)
Fruit trees, animals and mixed trees	4 (13.3)	3 (10.0)	16 (53.3)
Other	2 (6.7)	7 (23.3)	8 (26.7)
Total	30 (100)	30 (100)	30 (100)

The main pattern is mixed kitchen garden, fruit trees and animals (cattle and poultry). The use of trees other than fruit is only prevalent in Ban Pong, where the Eucalyptus seedlings were made available at the time of the Woodlot Project. Otherwise, villagers appear to prefer fruit trees for planting in the house plot.

Economy and Marketing

The main feature of the village economy is the planting of rice for own consumption. However, rice is also a cash crop, which is saved as an asset for sale when cash income is needed. In the case of Nong Yang, the villagers have an alternative source of cash income in growing shallot for the market, but this is not a general practice. Other ways of earning cash income are wage labor or nonagricultural work. These practices are available to all the villagers in the sample.

Disposal of Output

	Nong Yang	Nong Lung	Ban Pong
Selling own	3 (10.0)	29 (96.7)	28 (93.3)
Combined with others for sale	19 (63.3)	0 (0.0)	0 (0.0)
Others	8 (26.7)	1 (3.3)	2 (6.6)
Total	30 (100)	30 (100)	30 (100)

Marketing Pattern for Output

	Nong Yang	Nong Lung	Ban Pong
Selling all at one time	2 (6.7)	3 (10.0)	0 (0.0)
Selling gradually	21 (70.0)	25 (83.3)	28 (93.3)
Selling before harvest	0 (0.0)	0 (0.0)	0 (0.0)
Others	7 (23.3)	2 (6.7)	2 (6.7)
Total	30 (100)	30 (100)	30 (100)

Note the absence of the practice of selling before the harvest. This is an indication of the degree of self sufficiency exhibited by all three villages. The villagers can still manage to control their own timing of the sale of output to suit their needs, rather than having to sell to meet the demands of others, such as creditors and moneylenders. This is possible because they can still get enough income to cover the expenses of farming and living without getting seriously into indebtedness, unlike some farmers elsewhere in the country.

Farm Inputs

Labor. As is common in farming, there are periods of labor scarcity, such as planting and harvesting. At these times, villagers will hire labor, often others in the village, if not people from outside the village. But the main emphasis is still on using family labor, as shown below.

Hiring Labor for Farming

	Nong Yang	Nong Lung	Ban Pong
No hiring	16 (53.3)	12 (40.0)	22 (73.3)
Hiring human labor	13 (43.3)	18 (60.0	8 (26.7)
Hiring animal	1 (3.3)	0 (0.0)	0 (0.0)
Total	30 (100)	30 (100)	30 (100)

It may be noted that there is very low level of hiring animal labor. This is due to two factors, the small size of family plots, and the widespread ownership of buffaloes, there being virtually no mechanization in the farming practices in the three villages.

Fertilizers. Given the poor soils of the region, the use of fertilizer is necessary to produce an adequate yield. Virtually all the villagers in the sample use fertilizer input for their crops. Both chemical fertilizers and organic fertilizers are used. When fertilizer is bought, it is paid for in cash or in terms of cash loans. This is in line with the self-reliant style of living of the villagers in the sample.

Type of Fertilizer Used

	Nong Yang	Nong Lung	Ban Pong
Not used	0 (0.0)	1 (3.3)	0 (3.3)
Chemical only	2 (6.7)	14 (46.7)	27 (90.0)
Chemical and manure	26 (86.7)	15 (50.0)	2 (6.7)
Chemical, manure and compost	2 (6.7)	0 (0.0)	0 (0.0)
Total	30 (100)	30 (100)	30 (100)

Method of Payment for Fertilizer

	Nong Yang	Nong Lung	Ban Pong
Not using	0 (0.0)	1 (3.3)	1 (3.3)
Cash Payment	23 (76.7)	5 (16.7)	24 (80.0)
Cash Loan	3 (10.0)	15 (50.0)	1 (3.3)
Both methods	4 (13.3)	9 (30.0)	2 (6.7)
Loan, payment in kind	0 (0.0)	0 (0.0)	2 (6.7)
Total	30 (100)	30 (100)	30 (100)

The source of loan, in case it is used, also reflects the situation of village self-sufficiency, and its ability to choose its terms in dealing with the world outside the village. The major source of credit is from the Marketing Organisation for Farmers (MOF), a government agency, which offers the cheapest loan.

Source of Loan for Fertilize

	Nong Yang	Nong Lung	Ban Pong
Not borrowing	23 (76.7)	6 (20.0)	25 (83.3)
MOF/BAAC	2 (6.7)	24 (80.0)	4 (13.3)
Village store/Trader	2 (6.7)	0 (0.0)	1 (3.3)
Others	3 (10.0)	0 (0.0)	0 (0.0)
Total	30 (100)	30 (100)	30 (100)

Labor Exchange Practice

As opposed to hiring labor, labor exchange is a more traditional form of exchange in village society and is a reflection of village cohesiveness. It is noteworthy that in two of the sample villages, labor exchange is still a predominant practice, and the exchange is not only confined to relatives, but is extended to neighbors as well. This finding from the household survey supports the information obtained from the village headman reported in the previous section.

Use of Labor Exchange Practice

	Nong Yang	Nong Lung	Ban Pong
Not using	1 (3.3)	12 (40.0)	4 (13.3)
Using	29 (96.7)	18 (60.0)	26 (86.7)

With Whom Exchange Labor (for those using)

	Nong Yang	Nong Lung	Ban Pong
Relatives only	1 (3.3)	1 (3.3)	0 (0.0)
Neighbors only	0 (0.0)	16 (53.3)	0 (0.0)
Both	28 (93.3)	1 (3.3)	26 (86.7)
Total	30 (100)	30 (100)	30 (100)

Nong Lung is perhaps interesting for its lower level of labor exchange practice, going more for hiring labor. This is again due to its proximity to the town center. It is more oriented to the market than the traditional economy.

Group Membership

In all three villages, there is a high level of participation in group activities, such the BAAC Credit group, the Agricultural Cooperatives and the MOF Credit group. Interview information also suggests that villagers join in traditional social activities such as merit-making (puja) at the temple during festivals, and so on.

Extent of Group Membership

	Nong Yang	Nong Lung	Ban Pong
Not a member	0 (0.0)	8 (26.7)	4 (13.3)
Already a member of some group	30(100.0)	22 (23.3)	26 (86.7)
Total	30 (100)	30 (100)	30 (100)

Overall Attitude to Living Conditions

As a summary of the villagers' general attitude to their conditions, the survey data suggest that most villagers in Nong Lung and Ban Pong are satisfied with their socioeconomic conditions, while at Nong Yang, there is a feeling that conditions have worsened. The significance of this is in indicating the villagers' awareness of problems and their perception of possibilities for action. From this, it would appear that the level of social consciousness is higher in Nong Yang than at the other two villages.

Attitude to Present Conditions

	Nong Yang	Nong Lung	Ban Pong
Better	6 (20.0)	17 (56.7)	19 (63.3)
Worse	20 (66.7)	0 (0.0)	2 (6.7)
No change	4 (13.3)	13 (43.3)	9 (30.0)
Total	30 (100)	30 (100)	30 (100)

PATTERN OF ENERGY USE

The village survey covered the household's use of fuel for different activities. The main findings can be summarized as follows:

cooking: charcoal and firewood

lighting: kerosene and electricity

In this respect, the findings are not different from the results of previous surveys such as NEA (1980) and META (1980).

Pattern of Energy Use in Household Activities

Cooking

Fuel Type	Nong Yang	Nong Lung	Ban Pong
Firewood only	2 (6.7)	0 (0.0)	2 (6.7)
Charcoal only	1 (3.3)	6 (20.0)	6 (20.0)
Both	26 (86.7)	18 (60.0)	22 (73.3)
Others	1 (3.3)	6 (20.0)	0 (0.0)
Total	30 (100)	30 (100)	30 (100)

Note: Other fuels include rice cooker (1 case) and electric cookers (5 cases).

Lighting

	Nong Yang	Nong Lung	Ban Pong
Kerosene	2 (56.7)	0 (0.0)	30 (100.0)
Electricity	23 (93.3)	30 (100.0)	0 (0.0)
Total	30 (100)	30 (100)	30 (100)

The high level of electricity usage in Nong Yang is remarkable in view of the fact that the village only received electricity three years ago (1983). In Ban Pong, there was no electricity connection yet at the time of the survey, but the village is scheduled to be electrified soon. It can be expected that the pattern of energy use for lighting will be changed once that occurs.

Other Activities

Other activities in the household using energy include silk yarn making, by boiling the cocoons of silkworms over a slow fire, usually made from firewood, and drawing the fibres into a thread. But the most significant use of fuelwood, in terms of quantity, is charcoal making. Here, branches and tree trunks are regularly collected and processed into charcoal for use during the rainy season.

The next chapter examines the fuelwood situation in more detail.

Chapter 3

FUELWOOD AND THE VILLAGE COMMUNITY

AN OVERVIEW OF VILLAGE FUELWOOD SITUATION

The energy situation in Nong Lung is on the surface unexceptional. Fuelwood is the main fuel for domestic uses, and charcoal is used more during the rainy season. The notable feature, the reason why Nong Lung is selected for detail study, is that the supply of fuelwood is virtually all home grown. Because of its location and its age, the village has no access to natural forest. The public land, of which the village has 12 rai, is used for growing mulberry trees in the silkworm project. However, the villagers have learned to plant ton sio (Phyllanthus polythyllus) for over 30 years and these plantings are their main source of fuelwood.

The fuelwood situation in Ban Pong is far from critical. Though it was selected as a site for the implementation of the woodlot project in 1981, on account of the expressed concern about the fuelwood problem, villagers continue to find enough trees and branches from their own and others' farmland to satisfy their needs. While there is a feeling that fuelwood has become scarce, and the villagers have to go further to get the wood, the method of collection for some has changed. These people can afford to hire a small truck when they go on the fuelwood collection expedition, so that they can carry more back

to the house each time they go and therefore need to go less frequently for fuelwood collection.

So far the government-initiated woodlot has played no role in supplying fuelwood for the village. Rather, the villagers regard it as a center of attraction for researchers on woodlot projects.

In Nong Yang, for their fuelwood requirement, the villagers rely on their farmland for trees and branches. They also collect fuelwood from a public forest about two km away located close to Ban Phai. Because of the terrain, there are few trees left in the paddy fields. The supply from the public forest is also declining, as is shown in the increase of the time required for collecting the same quantity of fuelwood. In addition, recently the villagers have learned of a plan to declare the forest a national reserve forest. For this reason, the villagers feel strongly the need to prepare a fuelwood source of their own.

PRESENT PATTERN OF WOOD USES AND SOURCES

The main uses of wood, according to the survey, are as firewood and charcoal. This does not take into account other uses of wood, such as for making farm implements or for construction, though these are very much part of the village's traditional uses of wood.

Use of Wood

	Nong Yang		Nong Lung		Ban Pong	
Firewood	2	(6.7)	1	(3.3)	3	(10.0)
Charcoal	1	(3.3)	7	(23.3)	6	(20.0)
Firewood and Charcoal	25	(83.3)	22	(73.3)	21	(70.0)
Firewood, charcoal and implements	2	(6.7)	0	(0.0)	0	(0.0)
Total	30	(100)	30	(100)	30	(100)

Acquisition of Wood

Most villagers collect the wood they require by themselves. Only a few cases were reported of hiring someone to collect wood, or of buying wood.

Method of Acquisition of Wood

	Nong Yang		Nong Lung		Ban Pong	
Collect by self	26	(86.7)	22	(73.3)	29	(96.7)
Buy from others	1	(3.3)	3	(10.0)	0	(0.0)
Hire someone to collect	0	(0.0)	0	(0.0)	1	(3.3)
All three methods	3	(10.0)	5	(16.7)	1	(0.0)
Total	30	(100)	30	(100)	30	(100)

Wood Collection Area

	Nong Yang		Nong Lung		Ban Pong	
Not collect	1	(3.3)	3	(10.0)	1	(3.3)
Around house	2	(6.7)	0	(0.0)	1	(3.3)
Own farmland	7	(23.3)	27	(90.0)	25	(83.3)
Own farmland, other's land	3	(10.7)	0	(0.0)	0	(0.0)
Farmland & public land	5	(16.7)	0	(0.0)	3	(10.0)
All farm and public land	12	(40.0)	0	(0.0)	0	(0.0)
Forest reserve	0	(0.0)	0	(0.0)	0	(0.0
Total	30	(100)	30	(100)	30	(100

The special feature of these three villages is that they are all located in rice fields, with difficult access to forest areas. This is reflected in the absence of use of forest as source of fuelwood supply. Instead, reliance is placed on farmland, either one's own, or land belonging to others, as well as on accessible public land, such as village burial grounds and pasture areas, as sources of wood for collection. The exception to this, as in the case of Nong Yang, is the area reserved for the village spirit (the Puta) which is left untouched, whether for wood collection or for conversion to farmland.

In the context of fuelwood scarcity, it may be seen that the most limited supply source is at Nong Lung, where villagers have to depend on their own farmland for fuelwood, whereas in Nong Yang, people can still collect fuelwood from fields belonging to others. At Ban Pong, only a few survey respondents

report use of public and others' land as fuelwood supply source. Our interviews in Ban Pong suggest larger use of these sources.

Wood Collection Practice

Villagers either go alone, or in groups, when they go to collect wood. Since they depend mainly on farmland as sources of the fuelwood, they do not need to travel far. For most villagers, the fields are within 30 minutes' walking time from their own houses.

Wood Collection Practice

	Nong Yang		Nong Lung		Ban Pong	
Not collect	1	(3.3)	3	(10.0)	1	(3.3)
Going alone	14	(46.7)	13	(43.3)	10	(33.3)
Going in group	15	(50.0)	14	(46.7)	19	(63.3)
Total	30	(100)	30	(100)	30	(100)

Travel Time for Wood Collection

	Nong Yang		Nong Lung		Ban Pong	
Less than 30 minutes	25	(83.3)	18	(60.0)	20	(66.7)
30-60 minutes	3	(10.0)	8	(26.7)	5	(16.7)
More than 60 minutes	1	(3.3)	1	(3.3)	4	(13.3)
Total collecting (% of total village sample)	29	(96.7)	27	(90.0)	29	(96.7)

The frequency of wood collection varies, depending on time of year and other labor-intensive activities. Another way to look at the frequency is to see for how long one trip can provide the fuelwood supply. Easy availability, other things being equal, should result in small stock being kept at home and more frequent trips.

Duration of Supply of Wood Collected From One Trip

	Nong Yang		Nong Lung		Ban Pong	
One week	4	(13.3)	0	(0.0)	12	(40.0)
2 weeks	1	(3.3)	0	(0.0)	4	(13.3)
1 month	12	(40.0)	3	(10.0)	4	(13.3)
More than 1 month, but less than 1 year	12	(40.0)	6	(20.0)	6	(20.0)
Total	30	(100)	30	(100)	30	(100)

The picture given is quite mixed. At Nong Yang, more than 80 percent of the sample collect wood to last a month or more. The percentage of those collecting for the long period is higher in Nong Lung, where the ton sio is grown on farm bunds. In Ban Pong, the collection pattern is divided. Fifty-three percent of the sample collect wood to last only one to two weeks, while 37 percent collect for one month to a year. The latter, as noted earlier, hire small trucks to transport fuelwood. This indicates that the fuelwood scarcity is less problematic at Ban Pong than elsewhere. But other factors should also be

considered. For instance, at Nong Lung, in spite of the planting of ton sio on farm bunds, which should imply easy availability, collecting the wood during the period when the fields are used for planting rice would disturb the rice plants. Hence 37 percent of the respondents collect the wood only once for the whole year, at the time they prepare the land for the rice crop.

In Nong Yang, the collection of firewood is also done for quite a long period. This can be seen as the villagers' response to increasing firewood scarcity, when they have to collect when they can for use over a long period, as well as competing labor demand, such as for onion growing, which is a major income source and requires a great deal of investment in terms of cash outlay and labor time. Only at Ban Pong, where access to natural forest is still quite good, is wood collection largely done for short periods only. Perhaps, the need for a woodlot would be greater at Nong Lung or Nong Yang than at Ban Pong, where the USAID project was established in 1981.

ATTITUDES TO TREE PLANTING

A prerequisite for the success of a woodlot program would include the condition that it is answering to a felt need for wood. Hence it is necessary to investigate whether the demand for trees is in fact present, even before deciding that a woodlot is an appropriate means of answering to that need. We have seen that villagers use wood extensively in their daily lives, mainly for cooking, but also for farm implements and for

housing. The most pressing need is for firewood, and for this they depend on the wood resources on their farmland which will decline unless they replace the amount removed with new planting. So the question is whether villagers will consider trees important enough to plant them.

Interest in Tree Planting

An overwhelming proportion of the villagers seem to be interested enough in tree planting, to judge from the survey response.

Are you Interested in Tree Planting ?

	Nong Yang		Nong Lung		Ban Pong	
No	1	(3.3)	3	(10.0)	1	(3.3)
Yes	29	(96.7)	27	(90.0)	29	(96.7)
Total	30	(100)	30	(100)	30	(100)

The main reason for the interest is to make use of the trees planted. The responses are shown below.

We should first note, in passing, the low level of non-interest, which is an indication that only a minority of villagers consider fuelwood availability to be an unimportant issue. Instead, the majority of the villagers surveyed attach considerable importance to tree planting. But the reasons vary. Immediate use seems to be most important in the mind of

villagers at Nong Lung and Ban Pong, whereas at Nong Yang, fewer people feel the need for immediate use of trees, but take a longer term perspective of planning for future scarcity and for environmental protection.

Reasons for Interest in Planting Trees

	Nong Yang		Nong Lung		Ban Pong	
Not interested in planting (1)	1	(3.3)	3	(10.0)	1	(3.3)
For use	4	(13.3)	17	(56.7)	13	(43.3)
For firewood	11	(36.7)	8	(26.7)	10	(33.3)
Feeling scarcity	7	(23.3)	1	(3.3)	0	(0.0)
Other reasons (2)	7	(23.3)	1	(3.3)	6	(20.0)
Total	30	(100)	30	(100)	30	(100)

(1) No land, no time, wood still available.
(2) Aesthetics, environmental protection.

However, at Ban Pong, the specific demand for firewood is less strong than the demand for having wood for more general, unspecified uses. This may be a relevant factor in considering the experience of establishing the woodlot in Ban Pong and subsequent activities in connection with it since 1981.

Importance of Trees

An important consideration in the design of a tree planting program is to ascertain the expected end uses of the trees. It appears, on the basis of survey evidence, that the villagers do

not clearly distinguish between the uses of trees in general, though they may be very specific about specific tree species.

Why Trees Are Important

	Nong Yang		Nong Lung		Ban Pong	
Trees have many uses	8	(26.7)	29	(96.7)	27	(90.0)
Trees are used for firewood and housing	20	(66.7)	1	(3.3)	2	(6.7)
Environmental protection	2	(6.7)	0	(0.0)	1	(3.3)
Total	30	(100)	30	(100)	30	(100)

Benefit from Trees

	Nong Yang		Nong Lung		Ban Pong	
Fuelwood only	1	(3.3)	1	(3.3)	0	(0.0)
Construction only	0	(0.0)	1	(3.3)	0	(0.0)
General use ony	2	(6.7)	1	(3.3)	0	(0.0)
Fuel and housing	6	(20.0)	21	(70.0)	28	(93.3)
Fuel, housing and general use	21	(70.0)	5	(16.7)	2	(6.7)
Total	30	(100)	30	(100)	30	(100)

The question before planting trees is, if you can't find the wood you want, what would you do? If a substitute for wood is available, then the desire to plant tree would be weaker than if no substitute can be found. The villagers' response to this

question shows that tree planting is not always the "obvious" solution to fuelwood scarcity. Indeed, in Ban Pong, where a woodlot has been planted, idea of replanting has the lowest response in favor.

Response to Fuelwood Scarcity

	Nong Yang		Nong Lung		Ban Pong	
Look elsewhere	1	(3.3)	2	(6.7)	13	(43.3)
Replant	20	(66.7)	15	(50.0)	1	(3.3)
Buy	0	(0.0	2	(6.7)	9	(30.0)
Don't know/no answer	9	(30.0)	11	(36.7)	7	(23.3)
Total	30	(100)	30	(100)	30	(100)

Nevertheless, the idea of establishing a woodlot appears to be well known to the villagers. Most people in the villages have expressed a desire to establish a woodlot.

Desire to Have Woodlot

	Nong Yang		Nong Lung		Ban Pong	
No	0	(0.0)	7	(23.3)	3	(10.0)
Yes	30	(100.0)	23	(76.7)	27	(90.0)
Total	30	(100)	30	(100)	30	(100)

The enthusiasm which seems to have been expressed for having a woodlot may look impressive. But this should be taken

with a grain of salt, as the experience of Ban Pong shows. It may be the case that the "woodlot" is a catchword, thought of as a "panacea" for the "fuelwood problem." But there are quite enough experiences to show that it is advantageous to approach the idea of establishing a woodlot carefully, taking all factors into consideration, before deciding that the "woodlot" is an appropriate answer to the villager's needs.

WOODLOT ISSUES

End Use of Woodlot Trees

	Nong Yang		Nong Lung		Ban Pong	
Fuelwood	20	(66.7)	6	(20.0)	0	(0.0)
Fruit	0	(0.0)	1	(3.3)	0	(0.0)
Construction	1	(3.3)	1	(3.3)	9	(30.0)
All three, in some combination	9	(30.0)	15	(50.0)	17	(56.7)
No reply	0	(0.0)	7	(23.3)	3	(10.0)
Total	30	(100)	30	(100)	30	(100)

The perceived multipurpose use of trees is reflected in the expected end use of the woodlot. Only in the case of Nong Yang is there the majority preference for fuelwood only. Elsewhere, the most frequently expressed choice is for wood to be used as fuelwood, fruit production, or for house building, in some combination of the three uses. Without being species-specific, it is perhaps not possible to go deeper into the question of end use of a hypothetical woodlot.

Location of Woodlot

One requirement of a woodlot would be the availability of land for planting the trees. The trees would have to compete with alternative uses of land in any case, and a woodlot requires a large plot of land which may be available only at a cost to the village economy.

Location for Tree Planting

	Nong Yang		Nong Lung		Ban Pong	
Not planting	0	(0.0)	7	(23.3)	3	(10.0)
Farm bunds	0	(0.0)	22	(73.3)	24	(80.0)
Public land and farmland	30	(100.0)	1	(3.3)	3	(10.0)
Total	30	(100)	30	(100)	30	(100)

The interesting contrast is between Nong Yang, where 100 percent of the respondents were in favor of public land and farmland planting, and Nong Lung, where there is no public land available and Ban Pong, where the woodlot was established on public land but not felt to be of the villagers. This is an indication of the need to take into account the social characteristics of the villagers when a tree planting program is planned.

Social Cohesiveness

In order to a achieve a successful establishment of a communal woodlot, it appears that village cohesiveness and a

strong sense of self-reliance within the village are necessary preconditions, as the contrast between Nong Yang and Ban Pong may suggest. Land availability would appear, on the other hand, to be a significant secondary factor, as shown by the responses from Nong Lung, where there is no public land available, and Ban Pong, where public land was used for the woodlot. These responses point in favor of planting on farm bunds which are privately owned.

The social cohesiveness factor is brought out in the response of the Nong Yang villagers, in reply to the question why they would join a woodlot project. Of the 30 respondents, 21 (70 percent) said they wanted to participate in a village activity, four (13 percent) said they would follow the leader, and only two (6.7 percent) said they would do it for the wood from the woodlot. And, as the subsequent experience of establishing the woodlot at Nong Yang showed, the "community" ideals were important in the success of the project.

Chapter 4

EXPERIENCE OF TREE PLANTING

In this chapter, we analyze the experiences of the tree planting in the study villages. We first look at private planting at Nong Lung, then a government-sponsored community woodlot at Ban Pong, before giving a more detailed account of the events that led to the establishment of the community woodlot in Nong Yang as a result of participatory action research undertaken in the project. The account is presented mostly from the perspectives of the villagers as told to the field researcher.

BAN NONG LUNG

The planting of ton sio in Nong Lung has a long history. According to Poh Ngern, a well-to-do man in the village, the ton sio were planted as long as 27 years ago in his fields. The seedlings were first obtained from Ban Tung Sawang, a village nearby when he went fishing. Nang Tongsoon, a well-to-do woman in the village, also planted her fields with ton sio along the farm bunds about the same time 30 years ago. The original motive for the planting was for the ton sio to hold the farm bunds during the rainy season so that the water was retained in the paddy fields. The bunds used to break very often. She had thought of planting bamboos, but these have too many thorns and make it difficult to work the rice fields. Then it was

discovered that the ton sio could grow well on the bunds without getting in the way of the rice plants, and the branches made good firewood. So the ton sio were kept on the bunds. More were planted using the seedlings from the planted trees. Planting of ton sio on the farm bunds is now common practice, and even now new plantings are being done.

The time for planting ton sio is at the beginning of the rainy season, before the rice planting begins. The farmers prepare the rice field and repair the bunds. In the process, the ton sio trees are cut and the wood is carried home to make firewood or charcoal. New seedlings are also planted at this time. The ton sio take about two to three years to grow to a size when they are ready for cutting. In the meantime, the farmer trims the branches which grow over the rice fields so that the tree does not give too much shade and interfere with the growth of the rice plant.

More recently, Eucalyptus seedlings have been distributed to villagers in Nong Lung, and there are now Eucalyptus trees also on farm bunds. But these have been planted mainly for use over a long-term. Villagers have in mind the use of Eucalyptus for house construction, using the tree as posts on account of its straight shape.

Harvesting the ton sio is done at the time of land preparation. The branches are trimmed and the wood is separated for various uses. Big stems are used for charcoal making and for bean pole. Smaller branches are used for firewood and chicken coops. Charcoal from ton sio is made with rice husk and

requires close attention when it is being made, otherwise the tree will all burn to ash. Villagers say they can obtain all the fuelwood they need from their own planting of ton sio.

There is hardly any trading in ton sio firewood or charcoal. However, there are a few villagers interviewed who make ton sio charcoal for sale to others within the village. These are poor farmers who have small amount of land so they need to supplement their income by selling the charcoal. Others interviewed said they did not want to sell their charcoal because they did not want to spend more time making the charcoal for their use, since it was difficult to find the trees for charcoal making.

It was observed that property rights over the ton sio were recognized and enforced (Sukaesinee et al. 1985). This may reflect the farmers' mutual recognition, given the shortage of other fuelwood sources in Nong Lung, that each is dependent on his own field bund plantings. It may be concluded that with the planting of ton sio, the villagers of Nong Lung have found a way to alleviate their fuelwood supply problem.

A problem with ton sio is recognized by some villagers. A number of villagers say that as a bund of ton sio becomes old, the root system develops and provides shelter for field rats. These come out to damage the rice crop later when the water has receded from the fields. However, when the roots are under water, fish seem to like them.

Some villagers do not now care much for the ton sio. Nai Ves, a middle farmer, said he could do without the rats from the

ton sio. However, to get rid of the trees he would have to dig up the whole farm bund and make it again, and he does not have the time to do that.

When asked about the idea of having a village woodlot to provide fuelwood for the village, the villagers interviewed said they would not be able to find land to implement the scheme. The village has limited public land. The only piece of public land available is eight rai, formerly used as the village cremation/burial ground. Now it is being used for growing mulberry trees in a silkworm raising project initiated in the village by a community development program officer, with 11 families benefiting from the project. Criticisms were voiced over the small number of beneficiaries from the silkworm project, but the land would still be too small for a woodlot to supply the needs of the whole village. In any case, there was a lack of urgency over the fuelwood situation due to the availability of the ton sio from the farm bunds. So the villagers were not too concerned about having a woodlot project.

BAN PONG

In 1981 the village of Ban Pong was selected for the implementation of the woodlot project under the USAID project. The village was having problems in the village pasture development project which was introduced by the Livestock Development Officer from the provincial administration. The village had a plot of about 500 rais which was earmarked for pasture development. Squatters on the land were evicted to make

way for the pasture. However, the grass did not grow well, and by the time of the woodlot project, there was not much left of the pasture except bad feelings. The Forestry Development Officer at the Forestry Development Research station at Huay Tha came to talk with the village headman who agreed to cooperate in the implementation of the woodlot project.

According to later accounts, there was little involvement of the villagers other than the village headman in the planning or early stages of the woodlot project. The CUSRI study (1983) reported that in Ban Pong, 45 percent of the villagers interviewed learnt of the project from the headman, while 38 percent knew about the project from observation. The attitude of the villagers was that such a project would be impossible to implement because the villagers were poor, uninterested in trees, and too busy making a living to take part in the project. As it turned out, the planting was organized with paid labor, rather than with voluntary labor contributed by the villagers. This bears out the view of the villagers that trees are of low priority within the village.

Even when the woodlot was established, there was little understanding about the nature of the project. It may be recalled that one important aim of the project was that the woodlot would be managed by the community and benefits are to go to the village. However, the majority of the villagers did not feel that the woodlot would be under their control. At the end of the first year after the woodlot project began, 38 percent of the villagers held the belief that the woodlot would belong to

the village. This is an indication of the lack of concern on the part of the villagers in the management of the common resources. Almost 25 percent of the villagers did not believe in fact that the woodlot would be given to the village, while the rest, almost 40 percent, were uncertain about the ownership status of the woodlot. This is a reflection of the failure to explain the role of the village in relation to the woodlot to the villagers from the beginning of the project.

The reason given for the disbelief and the uncertainty were given as that since the woodlot was established with government money, by hiring labor for the planting, the village could not own the woodlot. A small number of villagers looked upon the project as another government project which would benefit no one, based on their experience of the pasture project. A sizable proportion of villagers, 22 percent, said they had received no explanation about the project.

In the second year of the project, more effort was made to explain the objectives and the activities of the project to the villagers. More people now believed that the woodlot would now belong to the village, and the change in attitude could be attributed to the greater effort at explaining the project before the start of the planting.

In the same year, there was a change in the headmanship at Ban Pong. A new headman was elected as the old one retired at the statutory retirement age of 60. However, the new headman continued cooperation with the project and by 1986 had all the 500 rai in Ban Pong planted to <u>Eucalyptus</u> under the project.

However, the former headman continued to take interest in the project, and undertook to protect the woodlot from stealing and encroachment. As he described to our researcher,

> If it was not for him, there would be no forest left in Ban Pong. He guarded the woodlot, on the understanding that he would be paid 500 baht/month as guard. He had been paid only for the first few months of the woodlot, but this does not matter. He will claim his due when the trees are cut and the proceeds are distributed.

Thus the establishment of the woodlot in Ban Pong appeared to be an event typical of government projects. There was little involvement of the villagers in the planning and the execution of the project other than as hired labor. For these reasons, the CUSRI study concluded that the lack of the sense of belonging on the part of the villagers with regard to the project was due to the use of hired labor and lack of consultation.

Since the completion of the planting, no further action has been taken by the villagers in Ban Pong concerning the woodlot. The woodlot has become quite a "tourist" attraction in the eye of the villagers, who would wager that when a stranger comes to the village, the purpose of the visit would relate to the woodlot. As one villager told our researcher, "He has never been wrong" in this respect. However, with regard to other aspects of the woodlot, such as care and maintenance or clearing of the undergrowth there was no formal organized activity initiated by the village. The new headman even said that the use of the woodlot by the village was subject to the approval of

the Tambol Council, though he later changed his mind and said now the village was free to manage the woodlot any way it saw fit. There were differing views about who among the villagers were responsible for the maintenance and management of the woodlot itself. It appeared that the new headman had created a new committee to take care of the woodlot, but the old headman continued in his role of guard, and the arrangement about the village giving him his due is quite unknown to the new committee.

The growth of the trees in the woodlot has been less than impressive. Compared with Eucalytus seedlings planted around the houses at the same time as the woodlot, the woodlot trees are considerably smaller. Comparing the sizes of trees planted in Ban Pong at the time of the woodlot project: the trees in the woodlot planted in 1983 were on average 4.4 cm in diameter at 130 cm height, while the trees of the same age planted in the temple measure 8.5 cm in diameter at the same height, and the trees around the houses measure 10.1 cm dbh. For trees planted in 1981, the difference between trees in the woodlot and the house grounds is more striking. The former measures 12.1 cm dbh while the latter measure 19.4 cm dbh.

However, it can be said that most of the trees planted have survived, even if they have not grown well. The reason for the poor growth has been given as (1) poor soil and (2) poor quality of seedlings since the planting was done in a hurry to meet the project deadline, so there was inadequate preparation to obtain high quality seedlings.

As things stand, the village of Ban Pong now has a valuable asset in terms of the woodlot, but no organization and procedure to make use of this asset. So far nly a few cases of illegal removals have taken place. By and large, the woodlot remains unused. Furthermore, there is no plan to make use of the woodlot, other than the casually-mentioned idea of keeping it as a tourist attraction.

BAN NONG YANG

The village of Nong Yang presents a contrast to the two preceding cases in many respects, not least in terms of the cohesiveness of its population. The village recently elected a new headman after the old headman retired. But there remains a strong sense of village tradition, reflected in the practice of contribution from each household to communal work and a fine of 50 baht per day to each delinquent for noncompliance.

When the village was selected for the evaluation study, in March 1986, the village had already undertaken many development projects as were proudly described to the research team by the headman. These included a water tank project in which households built large cement jars for holding rain water for domestic use. There was also the Clean Latrine Project which installed covered latrines in the houses instead of the pit latrines formerly in use. The headman was willing to cooperate in undertaking the woodlot project together with the research team. It was said by the headman and repeated by many others that the village had been aware of the problem of fuelwood

supplies, but now that the researcher would be working with them in the village, they were certain that they would be able to make it a success.

The researcher took up residence in the village in April 1986. Already the village headman and council had decided that the village wanted to undertake a community woodlot planting. They had set aside two plots of land for the purpose. One was a plot of about four rais, originally earmarked for building a primary school but standing empty as the village did not get the budget for the building. Another was a burial site about 12 rais in size, located in the middle of the paddy field, at the boundary of the village. The site is used for burials of people who die unnatural deaths and are not cremated.

Soon after the arrival of the researcher, the village held a meeting to discuss village affairs. At this meeting, the researcher explained the purpose of the project. The villagers then discussed the arrangement to visit the Forestry Research Center at Huay Tha to see the plantations there. The visit was organized for a day in May. At the center, the villagers were received by the staff who explained about the activities of the center and showed them the Eucalyptus planted there. The villagers were impressed with the growth of the trees, saying that they would not want to cut the trees. At the center, the villagers also listened to a talk by Nai Pai, a workman at the center who had planted some Eucalyptus trees on his own land and had just sold the trees he planted four years ago at 120 baht a tree. He had 300 trees in 1.5 rai. The villagers were very

interested in this. Then the villagers went on to visit Ban Pong to see the woodlot there and to talk to villagers at Ban Pong.

In the month of June, the researcher returned to the village. By this time, the village had already agreed to go ahead with having the woodlot on the two sites. The researcher then observed how the village organized itself for the tasks of the planting. First there was the need to clear the school site. There were scrub bushes and bamboo growing in the site, as well as two large haystacks for cattle. For establishing the woodlot these had to be moved. The village meeting decided the date for the clearing, and also decided that each household would contribute one person to the work. In the meantime, the village was visited by the community development officer who came with a supply of seedlings. These were distributed to the households for planting privately.

The researcher made contact with the Forestry Research Center to consult about the technical details of the planting and arrange for seedlings supply. It was recommended that planting on the school site should be done as agro-forestry, with intercropping with beans and other crops. The villagers wanted to use the school site as a demonstration plot. However, at the burial site, the villagers decided that they would not clear the land entirely for agro-forestry, but would plant in rows only, with raised mounds for the seedlings to protect them from flooding.

The village meeting then discussed the clearing of land at the burial site to prepare for planting. At this point, the suggestion was made by an elderly, well-respected person in the village, that it was not good for the village to clear the burial ground and disturb the spirits. At this suggestion, the villagers began to waver. The researcher intervened to say that there may well be ghosts but he had not seen any. However, if there were, the village would only be planting trees to give them shade. The village headman said he would perform a ceremony to placate the spirits and inform them of the good intentions of the village in planting the trees. However, the villagers were not satisfied.

During the following few days the land clearing at the school site continued. The first real conflict arose when the haystacks were about to be moved. One of the owners of the haystacks objected to the removal, saying the trees could be planted around the haystacks, there was no need to move them. However, the researcher reasoned with him that this was a village decision to plant the plot as a whole, so that the haystacks would have to go. The village was ready to help him move the haystacks to wherever he wanted to have them. As a result the haystack owner agreed and led the group in clearing the haystacks himself.

As the clearing was going ahead, another problem surfaced, concerning the boundary of the school site. The owner of the land adjoining the school site had prepared the land bordering the site for planting shallots. It turned out that he had

encroached onto the school site unknowingly. However, he was unwilling to give up the plot, since he had invested quite a lot of money in it. Strong arguments followed and the party almost came to blows. However, the researcher assisted in the settling of the dispute, which was resolved by the man agreeing to give up an equal area on the other side of the school ground in exchange for the plot that he had taken from the school site.

Similar problems arose with the clearing of the burial ground site, in addition to the problem of disturbing the spirits. The researcher consulted the land registration officer, but was told that he could not locate documents relating to the boundary of the plot. He advised that the boundary could be demarcated by the village elders in the traditional ways.

The reservations about using the burial ground for plantation had built up since the problem of the spirits was raised a few days earlier. There were two parties, equally divided in the village. The monk, who was consulted by the researcher, was concerned about his standing in the community in case the village went ahead with the clearing and someone died, so he did not want to get involved. He also cited some examples of people in other villagers who had died after they had tampered with the burial grounds in their own villages. So he was inclined to be against the use of the burial ground for planting.

Meanwhile, the date was set for clearing the burial site. On the appointed day, only half of the households turned up.

Work was going very slowly, then people came from the village to the site to say that the clearing would disturb the spirits and bring trouble to the village. At this point the villagers at the site almost stopped work. The researcher went to the village to talk with leading personalities who were not cooperating with the clearing. The conversation revealed, however, totally different reasons for them not joining the clearing party. One said he was tired from farm work. The other said he was concerned that no one knew the boundary of the burial ground exactly, so the village could get into trouble over this.

Following the failure of half the village to show up for the clearing, the village held a meeting. It was agreed that those not present would be fined, in accordance with the traditional village practice on participation in community work. However, the decision was not accepted in good spirit. There was heated argument. However, one of the persons who did not go suggest that the next day those who did not work today would go, then on the third day, all would go. So it was accepted and the conflict was defused.

A further conflict over boundary arose, with a villager from the adjoining village who had been farming close to the burial site for many years. It seems that he had been encroaching on the burial site, and when the clearing was done, the culprit refused to yield. However, the villagers of Nong Yang were now on the offensive, and in the end the outsider had to give in. He agreed to a new boundary, set up and marked by a

new farm bund. The boundary dispute seemed to have united the villagers of Nong Yang and they were now saying that if it had not been for the woodlot project they would be losing their land due to the encroachment from other villages. In the end the land clearing at the burial site was finished with the villagers more united than before.

The final stage of the preparation for the planting was getting the seedlings. The researcher had arranged with the Forestry Research Center to have a supply of 2,800. However, the center was able to supply only 1,350, because it was also reserving some of its seedlings for distribution elsewhere and for use in its own projects. The researcher took this badly. He reported this at the village meeting, and apologized to the villagers that he had failed in his commitment to obtain the seedlings in sufficient number for the project as agreed. It is as if he had misled the villagers in carrying out the work on the land preparation and now he was not able to do his part. However, the villagers took kindly to him and said even with the seedlings that he had arranged it was sufficient for the purpose and he should not feel that he had failed.

On the following day, the villagers went ahead with the preparation for the planting. People brought their buffaloes to the school site to help plough the land for the planting. It was unprecedented in the history of the village, the headman said, that as many as 30 people turned up with buffaloes. It was impressive to see the buffaloes ploughing the field in line.

The event was an expression of the concern that the villagers had for the researcher to make him feel better.

In the end, both the school site and the burial site were planted with the seedlings obtained. The number of trees planted is 1,850. The school site is also planted with beans and sesame and other annual crops with the seeds the villagers had been given from the district agricultural officer. The village had decided to use the trees and the crop harvest from the sites for community development.

Since the planting, the headman has arranged for weeding and fertilizing of the trees, in accordance with the advice given by the Forestry Research Center staff. The grass growing in the woodlot sites was harvested for fodder and given to the buffaloes in the village which cannot not graze in the fields because the rice has been planted.

The establishment of the woodlot in the village of Nong Yang provides an instance of how a village community can create its own solutions to obtain resources for village development.

Chapter 5

IMPACT OF TREE PLANTING

In this chapter we consider the impact of tree planting on the village community. Three aspects are emphasized: the impact on the household, the impact on the community resource base, and the impact on the distribution of income and wealth within the village.

Impact on Individual Households

The clearest case of benefits from tree planting can be seen in Nong Lung village where the planting of ton sio has enabled the villagers to be self-sufficient in their fuelwood supply. The value of the trees planted can be assessed in terms of the addition to the household's income if the charcoal and the fuelwood obtained from the ton sio planted were to be calculated at market prices. The value is about 200 baht per household per year in the case of a household producing three sacks of charcoal from the ton sio. If the household makes the charcoal for sale the value of income is realized in terms of cash income.

In the case of Ban Pong, the immediate benefit of the woodlot was realized in the form of wage employment provided by the project for the establishment of the woodlot. However, this was a once-for-all benefit. The long-term benefit in the form of a sustained fuelwood supply for the use of the villagers has

so far not been realized. Though there are instances of removals of trees from the woodlot, the extent of such utilization is insignificant. However, the fact is that the village now has at its disposal an expanded resource base from which it can benefit if a suitable arrangement for such utilization can be worked out by the village organization. The benefits for households will depend on how such an organization decides on the distribution of benefits to the members of the village.

The issue for the Ban Pong woodlot which deserves some consideration is related to alternative uses of the land now used for the woodlot. Considering the history of the woodlot in the village, it may be said that the land had no alternative use when the woodlot project was established. Even though it was grazing land, it appears from interviews with villagers, especially those engaged in cattle feeding, that there has been no adverse impact on the overall supply of grazing land. The villagers could find sufficient grazing land in fields when the rice has been harvested. During the rice season, the cattle are grazed on public or private fields not used for rice growing, some distance from the village. So there seems to be no loss to farm landholders or animal owners as a result of the woodlot project.

However, an important point was raised by a poor woman resident of Ban Pong. She asked if it was necessary to plant the whole of the public land plot with the woodlot, when there were still people with little or no land within the village.

She sugested that instead, some part of the land could be rented out, the proceeds to go to a common fund for village improvement. In this way, the landless in the village could have some land to work on for their livelihood, while the village could also obtain funds. In this respect, if the process of project identification had allowed for greater participation by the villagers and more involvement was forthcoming from the poorer section of the community, perhaps there could have been more accommodation of the poor within the framework of the overall woodlot project.

In the case of Nong Yang, it is as yet too early to say how individual households will benefit from the woodlot planted by the villagers themselves, since the decision has been made to use the woodlot for communal purposes. One possibility is that the fuelwood harvested from the woodlot can be sold. The availability of the fuelwood from the woodlot would help to lower the cost of obtaining fuelwood for the villagers who buy the fuelwood from the woodlot. The village would also benefit from the sale of the wood from the woodlot.

Community Impact

In the case of Nong Lung, it seems that the planting of ton sio has been an all private undertaking, so that there is virtually no question of community level impact arising from the planting.

For Ban Pong, it is unlikely that the experience of the woodlot project has contributed up to now to development of

village capability to rely on its own resources. The project was planned and executed by the government agencies involved, with little participation from village personnel, except for some part of the wage labor. This is also reflected in the lack of a clear sense of belonging on the part even of the village headman about the woodlot. The lack of impact can also be seen in the absence of a village level organization to maintain the level of interest and activity of the villagers in the management and the planning of the woodlot in future. However, there are signs that with the interest taken by outside researchers in their woodlot, the villagers at Ban Pong may be getting a pride in their woodlot and would be motivated to take the responsibility for further developing the woodlot in the future.

All these rather negative conclusions are not applicable to Nong Yang. Here there seems to be a strong sense of community already present in the village. The undertaking of the woodlot project has helped to strengthen this sense of belonging by an example of success. In economic terms the value of the trees planted can be estimated, assuming some rates of survival of the trees in both sites. In addition to the direct yield of the trees planted, the village would be getting the product of the intercropped plants, as well as the grass made available from the weeding. But perhaps the most significant contribution of the project is not the economic gains but the sense that the villagers can make a reality of the concept of self-reliance by their own decision and contribution. The role of the researcher

in this case is one of supporting the villagers with information and contacts with the official agencies concerned, once the villagers decided on what they wanted to do.

Impact on the Distribution of Income

In assessing the impact on the distribution of income within the village, we have tried to identify members of the villagers who are least privileged. These were found to be small landholders or sometimes landless persons living in the village. They are present in all three villages and we have interviewed them during the study.

In Nong Lung, the poor still have some land on which they can plant the ton sio for their own use. The effect of tree planting has been to reinforce the existing pattern of land distribution and the consequent distribution of socioeconomic status.

In Ban Pong, the use of the public land for government projects had the effect of depriving some small landholders and some landless persons from having access to some land they could use for their livelihood. Instead, the organization of projects principally in consultation with the headman has tended to favor large-scale projects, such as the pasture project and the woodlot project. Thus the effect might be to worsen the chances of the poor in the village in meeting their basic needs. It is not known, in the absence of strong indications of intention of the village woodlot committee regarding the use of the trees in the woodlot, how the poor will be assisted by the woodlot.

Further study will need to be carried out over a longer period to ascertain how the distribution of benefits from the woodlot is in fact determined.

In the case of Nong Yang, again it is too early to assess the impact of the woodlot on the village resource base. It may be said, however, that the practice of requiring each household to contribute an equal part of labor for the community project is rather regressive. The burden of the contribution on a poor household would be felt more severely than on a richer household. However, in the interviews with the villagers, this point was not raised, and perhaps it is the case that the villagers do not consider such relative effects to be undesirable. The egalitarian attitude prevailing in the village is shown strongly in the debates over the organization of the workers for the land clearing. But the fact is that no one had complained to the researcher about this. It could be that the choice of association of the researcher with some villagers inhibited such airing of views. It remains to be seen how the distribution of benefits from the woodlot is organized when the trees are ready for harvesting in a few years time.

Chapter 6

IMPLICATIONS OF THE STUDY

What are the implications from the study? In this chapter we return to the issue addressed in the beginning as stated in the quotations from the World Bank's report and the statement of the Sixth Plan. It may be recalled that the Plan sets a target of planting by farmers for their own needs, but the modality of doing so is left out of the picture. The World Bank report highlighted the problems of implementation in connection with woodlot projects. It may be useful to consider this in terms of two aspects; (1) getting the participation of the villagers, and (2) what should be the role of the government in implementing a village woodlot project. In the final section, we consider the implications for the training of workers in social forestry.

Getting Participation of the Villagers

The first condition for getting participation of villagers seems to be that the woodlot project answers some felt need of the village. The contrast here is between Nong Yang, where the village articulated its need for the woodlot project, and Ban Pong, where the woodlot was perhaps of lower priority than some other needs of the village which were not in accordance with the government's available action. The case of Nong Lung demonstrates that when the need is felt strongly enough, the villagers are willing to take some action. But here the issue

shifts to one of individual versus collective action. The ability of the villagers individually to satisfy their needs may be limited, whereas if combined in collective action, the village as a whole would benefit more.

The villagers of Ban Pong said that on their own they would not have been able to plant all the 500 rai as was done under the USAID project. In this case, however, the village had the benefit of outside organization to provide the impetus needed to achieve the objective of collective action. The contrast with Nong Yang is that in the latter, the impetus is provided by the village community itself, with the outside party, in this case the researcher, acting only in a supporting and facilitating role.

To summarize, the conditions for getting village participation would seem to be

1. The project answers a felt need.
2. There are clear indications that collective action yields greater benefit than individual actions.
3. There is an organizational procedure to facilitate the participation of the villagers in practical terms.

ROLE OF GOVERNMENT

The premise of the Sixth Plan in regard to woodlots is that the planting will be carried out by the villagers who are the beneficiaries of the planting. So the question is what should

be the role of government to promote such village level initiative. To consider this question, it may be useful to break down the woodlot program into subsets of activities, starting from the assessment of needs and resources, project identification, and so on, to project implementation and distribution of project benefits.

Needs Assessment

At this stage, the government may take a subordinate role in articulating the needs of the villagers. It may be assumed that the best person to know about the problems of the village would be people in the village themselves. The problem is more in the articulation and definition of such needs, and the assignment of priority to such expressed needs. Again, it may be assumed that the village should be in the best position to carry out these tasks. However, the government has an important role to play in bringing to the awareness of the villagers its own wider perspectives about the standards and expectations that the nation as such aspires to. These would be, for example, expectations expressed in the national development plans, definitions of basic needs, and so on.

Resource Assessment

The village is also in the best position to assess local resources available to it for satisfying the identified needs. In this stage, however, the government can play a more active role in bringing to the attention of the villagers the resources

that the government can provide, for example, in the form of technical advice, cheap loans, or by removing institutional obstacles to village self-reliance. Often the villagers are not aware of what the government makes available to them, and more effort should perhaps be spent in providing information on this to villagers.

Project Identification

At the level of project identification, the government, as well as other outside agencies, can play a more active role in assisting the villagers to identify the project that would best meet their needs, given the resources that have been identified. The feasibility of the project should be analyzed in terms of technical requirements and organizational and material resources to implement the project. The impacts of the project on the village community need to be spelled out so that the villagers have a full understanding of the project implications in the context of the community.

Project Implementation

In implementing the project, the contributions of the villagers and the participating agencies as identified would have to be realized. In this regard, the role of the government would be to make sure that administrative obstacles and constraints do not hamper the village effort. The problem often encountered is that the villagers have contributed their agreed part of the work, but government support is only partially

provided by the agency directly concerned with the implementation phase, but not by the agencies which need to provide supporting actions to make a success of the project. This often arises from lack of coordination among the government agencies concerned for well known reasons such as different priorities, inter-agency rivalries, and so on. The effect of such failures, if they occur too often, can be to discourage a participatory attitude between government and the villagers, which makes it difficult to implement further projects.

With reference to the woodlot project itself, the constraints on village effort would appear to be the following:

1. Supply of seedlings.
2. Technical knowhow on how best to plan the woodlot.
3. Technical knowhow on how best to manage the woodlot for optimal benefits.
4. Clarity in the scope and authority of the village organization to manage the woodlot.

With respect to seedling supply, it may be envisaged that if the market for seedlings develops, it is likely that there will be commercial sources of seedlings which can help reduce the burden of the government in providing the seedlings for the village woodlot programs.

On technical know-how, it seems that at least for the Thai villagers, the familiarity with agricultural practice means demonstration is often adequate to impart the required

knowledge. If necessary, suitable training courses can be given to the villagers interested in acquiring the skills.

Clarifying Land Use Rights

The most important and the least costly support the government can make to promote village level forestry effort is to make clear that the village woodlot will be in fact **the woodlot of the village, by the village and for the village.** And with this commitment, the government should accompany the intention with a suitable institutional framework in which the village can in fact look after its own interest.

In conclusion, the role of the government in the promotion of village woodlots would be to act as a supporting partner in the village's quest for self-reliance.

TRAINING OF SOCIAL FORESTRY WORKERS

The conclusion that emerges from the research with regard to the role of the forestry worker is that he has to be able to work closely with the villagers. In order to achieve such a working relationship, the forestry worker has to obtain the confidence of the villagers in himself as someone who is working with them, and not against them. The roles of the livestock officer in relation to the Pasture Project can be contrasted with that of the Forestry Officer in the Woodlot Project in the case of Ban Pong. Yet, while the latter could achieve his objective of establishing the woodlot on the village public land, the subsequent participation of the villagers in the

management of the woodlot has not been forthcoming. This demonstrates the need to establish links, not only with the official leaders in the village, but also to have the broad-based support of the village population as a whole in the project. This is necessary, since the village community can then maintain continuity in the implementation of the project despite changes in the personnel of the official village leadership. For this purpose, the forestry worker will need to have an adequate understanding of how villagers live and work. This knowledge can best be gained by experience, and cannot be easily imparted by learning in the classroom only.

In addition to the need to obtain the confidence of the village population as a whole, the forestry worker will also need to help the villagers not only by giving technical forestry information, but also in settling legal and organizational conflicts, as the case of Nong Yang village demonstrates. Here, the researcher had to mediate between conflicting groups within the village itself about the allocation of responsibilities in carrying out the planting project. For this, the forestry extension worker would need to have an understanding of how groups can negotiate and resolve group conflicts. This may be considered a part of management practice, but with a very human as opposed to a mechanical efficiency-based view of the situation.

In the same village, the researcher also became involved with encroachment on the village burial site by someone from another village, and had to seek legal advice on the correct

situation. For this, he first needed advice on the legal position of the village boundary, and then had to know the legal procedure for defining it when the necessary official records are missing. Thus, knowledge of land legislation and administration is also required.

Lastly, it is possible to look ahead to the time when the trees planted in the village woodlots come to maturity and can be harvested. In Thailand, the utilization of certain trees is controlled by the Forest law. The forestry worker will be able to assist the villagers in their choice if he can inform them of the legal provisions with regard to the use of specific trees, both at the time of planting the trees and also when the trees are being harvested for use.

In sum, therefore, the requirement for the forestry worker would seem to be that he can

1. Work with villagers as partners.
2. Give technical support on forestry practice.
3. Give organizational and legal advice as appropriate.

In the light of these considerations, it is useful to reconsider the curriculum for the Social Forestry Major as offered by the Faculty of Forestry at Kasetsart University. It may be suggested that the share of the credits devoted to courses which would enable the student to work effectively within the village context is too low. To recall, this share is 26 out of 150 credits that he is required to obtain. In

particular, only two credits are allowed for field work directly related to Social Forestry. The rest of the relevant courses are designed for classroom teaching.

In our view, this allocation of time in the field does not allow sufficient scope for the student to experience and hence to understand the particular issues relating to Social Forestry in the village context. It may be suggested that a more extended course, with a high proportion of the study being done within the village, would be more appropriate.

Some consideration should also be given to making courses on the administration of forest laws, and on principles of public relations with reference to natural resource management, a part of the required courses, rather than being optional as they are at present in the curriculum. This could be done by removing other courses with lower priority to the optional major courses instead.

Appendix I

Name of Trees Referred to in the Text

Thai Name	Botanical Name
Arang	Peltophorum dasyrachis Kurz
Jik/Teng	Shorea obtusa
Kilek	Cassia siamea
Krabok	Irvingia malayana
Mon	Morus sp. (mulberry)
Sabaeng	Dipterocarpus intricatus
Sio/ton sio	Phyllanthus polythyllus

Appendix II

Journal of Ban Nong Yang
Supan Koon-Ya
June 1986

Arrived at Ban Nong Yang in the afternoon of the 8th. As soon as I arrived, the villagers came to talk. The village headman was also at home, a stroke of good luck. The headman said: on the 4th, the Acid and Saline Soil Project from the district office had given 900 seedlings to the village, and these had been distributed and planted by the villagers. Today happened to be the Boon Bang Fai day at Ban Nong Mee, six km from here, and on the way there lies Ban Go where people make stoves and earthen pots. The whole village is engaged in making these, he said, since they do not plant rice, the land there being flooded every year because the village is situated right on the bank of the River Mun. Then people came with seven bicycles, so I asked them to wait for me while I changed and I would go with them. I got on Pi Nu's bicycle and when we got to Ban Go, I asked to have a look around. Just before we got to Ban Go there was a large Siew tree, so I took a photograph of it.

When we got to Ban Go, we saw a lot of women busy at making the pots and the stoves. I took some pictures and then left for Ban Nong Mee.

At Ban Nong Mee, there was a large crowd. Some were gambling and betting. The Boon Bang Fai is an ancient ceremony. Every village holds the ceremony to ask for rain, and invites neighboring villages to join in with their "bang fais" (rockets). We stayed awhile, before going back to Ban Nong Yang.

When we got back to Ban Nong Yang, Khun Sunanchai was already waiting. He introduced himself as the new district community development officer. He just came in February. For tonight, he came to talk to the village about forming a saving group. He said Ban Phai Tambon had three poor villages--Ban Nong Sraung, Ban Nong Sala, and Ban Nong Yang. In the first two villages, such groups had already been formed, only at Ban Nong Yang is there no such group. The saving group project had been funded by Canada under the name of People's Organisational Development Project. The idea is to form saving groups to mobilize funds from the small savings of the villagers by collecting deposits, and the fund was to be managed by a committee. He came today to talk about the details and the expert had been invited to come to talk to the villagers on the 12th, in the afternoon.

At around 7 p.m., the headman hit the gong to call a meeting of the villagers. Khun Sunanchai said his piece about

the saving group. Nai Boon Ma, a villager, said he had seen such groups at Ban Pong and they did not seem to work. The villagers were rather cautious, because the idea was quite new to them. Nai Suban said it was a good idea. Saving 10 baht a month was better than buying the (illegal) lottery. A number of villagers asked me if it was a good idea to start a saving group. I said yes because when we became ill we could borrow from the fund without having to pay interest. Also we would not have to go to the district center to make the deposit, we could do it right here in the village. And most important, we would learn to work together.

Khun Sunanchai asked for a vote whether to form a saving group in the village. The majority said yes, so he arranged to come again on the 12th, and he would also show a film. The headman then said the district agricultural office had asked the villagers to go and collect seedlings, mainly of fruit trees, on the 11th, and the quantitiy for distribution was unlimited. Also he said there would be a meeting on the 12th about rice seeds, when details of the new variety would be given for the villagers from four villages including Ban Nong Yang.

The headman then went on to say I had returned this time to stay in the village--like a son in the house, like a bulb in the garden--to plant the woodlot together with the villagers. I did not say very much, since they knew me well already. We discussed the date for the land clearing. The villagers said let's do it tomorrow, starting at 10 a.m. and stopping at 3 p.m. In the early morning, everybody would go to work in his own field or have some other business, since this is already the rice growing season. Then in the afternoon, there are other things like cooking, getting the cattle back to the pen--so the meeting agreed to start the clearing the next day. As for the planting, a lot of suggestions were made--the whole village would plant together, or do it in groups--then it was decided that the whole village would do it together. The reason was that this was a small village, so it would be a show of village solidarity to do it together.

About the maintenance of the woodlot, it was agreed that at the school ground, the planting would be fenced, while at the burial ground they would put up a sign prohibiting trespass. They would also write a letter to headmen of neighboring villages asking them to stop their villagers from bringing their cattle to graze on the land. The meeting agreed to impose a fine of 50 baht for each seedling damaged. The headman and his assistants would constitute a committee in charge of imposing and collecting the fines. The fine money would go to the village's central fund. Finally, the headman asked everyone to cooperate in the land clearing. No excuse would be accepted, since everybody had his own work to do as well. People who could not come had to inform the headman in advance, and only households with sick people would be exempted. Those who failed to go would be fined 30 baht a day. This rule had been in use

since the time of the former headman. The meeting was then called off.

On the 9th, at around 11 a.m., the villagers began to arrive at the school site for land clearing. Altogether 51 households came. Another two households came to say they could not come: one was busy, and the other was sick. The clearing went smoothly. In the afternoon, the villagers got tired and wanted a drink, and some wanted to have a smoke, so it was decided that we would buy two bottles of whisky and four packets of cigarettes for the group. Today there was no problem. People were talking in a friendly way. In the evening, the group split up and each went home to his dinner, agreeing to meet again the next day to continue the work.

In the evening, I went to see the sick woman, Nang Wan, who had just come back from the hospital. She was not feeling better after the treatment. A witch doctor from Ban Som Poi was called in. He said the father and mother spirits were calling her to go with them. There was a ceremony to ward off the spirits.

On the 10th, continued with the land clearing, everything going smoothly as before. But in the evening, the provincial Land Development Officer came with the seedlings, 2,000 in all, with 1,800 of Eucalyptus, and 200 of jack fruits. His name was Methee Tammaateep. The distribution of the seedlings was in the project called "Trees for Community Use," and for this year, the poor villages in the province were getting 290,000 seedlings altogether.

On the 11th, the villagers went to collect the seedlings that the district was giving away. I also went to see about seedlings. I went to the Forestry Center, but Khun Samran was not in, neither was Khun Nopporn, so I went to see Dr. Pittaya. He suggested that the planting should be done as agro-forestry, with spacings of 2x2, 2x4, and 2x8 or 4x4 meters. The villagers would then be able to compare the effect of spacing on tree growth. The plot with 4x4 or 2x8 should be used as a demonstration plot. The land should be divided into five plots. In the first plot, only Eucalyptus should be planted, and in the second, only acacia. The planting in plots 3, 4 and 5 should be mixed Eucalyptus and acacia. In Plots 1-4, there should be intercropping with anything the villagers could find, preferably legumes, while plot 5 should be left with no intercropping. The total number of seedlings required would be 2,800 and Dr. Pitaya advised me to write out the details as a tree planting project to request the seedlings from the center. He would have them ready for collection on the 25th. He also offered to send two of his workmen to come and help supervise the planting. Then I returned to Nang Yang.

In the evening, I went around talking to the villagers about the seedlings they got from the district office. Khun

Chalermchai said there were only common varieties such as jack fruit, kapok, papaya, mangoes, and mayom. He did not fancy these, so he didn't take any. I asked whether there were any eucalyptus. He said there were some, not many, but the people at the district came earlier and had taken them all by the time the villagers arrived, so nobody from Ban Nong Yang got any eucalyptus.

On the 12th, the villagers went to a meeting at Ban Phai about rice seeds. They returned in the afternoon, to find Khun Sunanchai already waiting. It was already 3 p.m. before they started talking about the saving group. A man asked about the film that was promised, but he said he didn't bring any with him, except on a small screen. Eventually the saving group was formed, with 27 members. Others could join later. After the discussion on the saving group was over, I brought up the topic of the land clearing and told them about the contact for getting the seedlings, as well as describing the steps involved in the planting. Most people understood that quickly since they have been to see the agro-forestry demonstration plot at the center.

Nai Tongdee suggested that we should finish the land clearing in the three sites first, then we could decide on when to plant on which site. The land preparation for planting had to be done from the morning and would take a whole day to finish. He said we could not do everything as advised, we have to adapt the plan to our conditions. We would only do the agro-forestry at the school site, but not at the burial grould because there were a lot of big trees and big termite mounds. If we go to plough there and the ploughs get broken, who would buy new ones for us. Or if we broke our spades. Also, the burial ground is flooded, so we cannot do the intercropping. He then asked for a vote and most villagers agreed with him. He then went on to suggest that for the intercropping at the school site, we could use the seeds the village got from the district office, of beans, groundnuts and sesame. The planting would be for communal use--either for sale or for the villager's own consumption. There should be no problem. To this the villagers also agreed.

While the meeting fell into silence, Nang Paeng's father said it was not good to clear the burial ground. Look at Ban Som Poi, he said. The ones who cleared the burial ground there all died. At this moment, everybody became very interested. People mentioned dogs barking in the night, ghosts, etc. Everybody told a horror story. The main target was Nang Paeng's father who was the chief witch doctor of the village. When someone was ill, he would see what spirit was causing the illness. Nai Tongdee himself was also in agreement, saying he was afraid the ghost would break his neck.

The headman was caught in the middle, between fear and courage. He turned to me to say now what do we do, the villagers are afraid of ghosts. So I explained that there may

well be ghosts, as the villagers say, but for myself, I have not seen one since I was born. I then asked if the witch doctor himself had seen any ghost. I asked him for a straight reply. He said he had not seen one either. I then asked Pi Tongdee, who also said no. The headman also said no. So I went on to say that these elders have not seen any ghost, so why should we be afraid. Then, after the clearing, we would be planting more trees to give shade, so the ghosts should like that more. I said, if the ghost were to do anything, I asked that it do it to me first. Let nothing bad happen to the villagers of Nong Yang. I tried to boost the villagers' confidence, and some were persuaded, I think. The headman then said, never mind, on the day we begin the clearing, we would hold a ceremeony to inform the spirits. It would depend on how we tell the spirits. If we say we are doing good it will be good. Still, the villagers were not pacified. They continued to talk among themselves of ghosts. Finally the meeting was closed.

On the 13th, I went to see how Pi Chu prepared the logs for making charcoal. The kiln was of the Phi type, which was considered to be more easily made than the "Tao Ob" (enclosed kiln), but the latter gave more heat. Both were equally popular. Each firing would give about two sacks of charcoal, valued at about 60 baht/sack. Then I went to see Tao Ob belonging to Nai Sukr. He said before the rainy season came, the villagers would fell about three trees. The trunk would be used for charcoal making, the branches are used for fuelwood. The charcoal would be for use during the rainy season, and five sacks would be enough. Sometimes there would be some left for sale, but only a small amount. Fuelwood is used less during this time because the wood gets damp and it is also more difficult to find.

At 10 a.m. I went with the villagers to continue with the land clearing at the school site. We planned to move the haystacks and the bamboo bush. Before we started, a problem arose. The bamboo, which was growing on public land, actually belonged to Nai Pong, who was then objecting to its removal. An argument ensued between him and the other villagers. Nai Chandrawo, on the side of the villagers, said whoever was the owner, the bamboo bush had to go because this was public land, and the woodlot project was coming for sure. The village would have to be committed to its decision, otherwise, how can it set an example for other villages? A number of other villagers agreed with Nai Chandrawo. Finally, the owner of the bamboo bush gave in and allowed the bush to be removed. The headman then asked for the bamboo stems for use as fencing for the woodlot.

Next there was a problem about the haystacks. The owner was reluctant to have them moved also, complaining that the silly woodlot project was causing a lot of trouble. If the moving was not finished and his hay rot, who would be responsible? If it was decided to have a woodlot, why didn't

they make the decision from the beginning of the year, so he would not bring his hay here. Then, he did not see why the haystacks had to be moved. The trees could be planted around the stacks. So I went to explain to him that what we were doing we wanted to do well, not just doing for the sake of doing something. The majority of the villagers thought it was a good thing to have the woodlot, so the haystacks would have to go. I gave him the assurance that we would help move the haystacks in time. He only had to say where he wanted to put them. I said in this village, it would be possible to make a sacrifice for the common good. In the end, the owner himself led the villagers in moving the hay, and also brought a bottle of whiskey for the group. When they saw that one person was moving the haystack, other owners of the haystacks, of which there were five, had to agree to their removal also.

It was noticeable that every time there was an argument, the villagers would stop work to listen, then when the talking stopped, they would gather in groups to discuss among themselves.

While the men were digging up the bamboo and the women were moving the hay, another problem arose. The boundary of the school ground became the subject of dispute. To the west it bordered the land belonging to Nai Boonma, who was a senior member of the village committee. To the northeast, the ground touched land belonging to Nai Suree, and to the north it bordered on assistant headman Boon Peng and to the south Nai Tongchin. The school site was donated by Nai Buaban for building the village school. The land was measured out in 1972 and was recorded in writing with proper witnesses, but there was no title deed. The land was left vacant until today. The boundaries to the north and the south were no problem. The problem was in the west, where Nai Boonma and Nai Suree owned the adjacent land, and had encroached into the school site by about seven meters. So when the woodlot came and there was to be a fence, this became the subject of an argument, whether to leave the boundary as it was, or to go back to the boundary marked out in the original 1972 agreement. The villagers wanted to go back to the old agreement, so that Nai Boonma and Nai Suree would have to move back.

When the argument was going on, nobody worked. They all stood around to watch and make comments. Some said go get the District Land Officer. These people should be given a lesson. They are too clever by half and selfish. Nai Boonma and Nai Suree objected that they had been using this land for as long as they could remember. They would not mind in the least if it was just ordinary paddy field, but this was the land they used for planting onions, and they had already invested many thousands of baht in the land. Anyone dared to get him to move he would cut the face with a sword. The tone of voice was very angry. The village headman was very displeased. He answered back saying two old men refused to see the public interest. If they behaved

like this how can the village develop. In any case, there are witnesses who would agree that they have encroached on the public land. He said all this in a very loud voice, only stopping short of pointing a finger at the faces of the two men.

I was afraid the argument would go too far, so I went to the group to try to compromise. Nai Suree was then holding a knife in his hand. I said now there was nobody in the wrong, everything was the same as before. I am not asking for anyone to lose out or to gain. I respect everyone in the village. I would like to ask all of the men arguing to lead the villagers back to work. We would discuss the matter further in the evening. The argument then stopped, but the villagers did not stay quiet, but got into groups of two or three to discuss the situation. There were some in favor of leaving the land boundary as it was. As a matter of fact, Nai Suree was an older brother of the village headman. After we finished the land clearing, the bamboo bush was also finished. There were only the haystacks left. Nobody wanted to work on the hay stacks. Some were sitting, some were preparing to go home with their friends. Only the women were actually working, especially Pi Nu, who was leading the women in the work. They had moved three stacks, and just when they were starting on the fourth, the rain came, so we had to stop work.

In the evening, we had a meeting and the council of elders met with the former owner to discuss what to do. The talking went on for about an hour without any conclusion. So I said Paw Suree did not need to move, but he would have to give land in the northern side equal to the area he encroached. The total area of the school site would then remain the same, but the shape was slightly changed. The meeting came round to agreeing with this idea and we had dinner together. In the morning, we went to mark out the new boundary together.

The 14-15th were the Bang Fai merit making days, so most people were going to Ban Phai to join their relatives in the festivities. In the evening of the 14th, at Ban Phai, Khun Paibul came to give the improved rice seeds, exchanging 10 kg of the new variety for 12 kg of the traditional variety that the villagers have. These new seeds are Hom Mali 105 from the Rice Research Station at Pitsanulok belonging to the Department of Agricultural Extension. There was no limit to the exchange. Then I went round to see if the new seedlings have been planted. Most of them have not, the villagers saying they were waiting for a little more rain. It was noticeable that for going to the Bang Fai ceremony nobody said he was occupied. There was only Pi Nu's husband who said he had to get the ploughing on his field finished so that he could join the clearing of the burial ground on the 16th.

On the 15th, I went to the district office to see the land officer and the District Forestry Officer to ask about the title document for the burial ground and the actual extent and the boundaries of the land. The land officer couldn't give any

detail, saying he was new to the area and as the previous officer did not do the work properly he couldn't find the documents. However, he advised that the matter could be decided by convening the village elders to settle the issue. Then I went to the Forestry Officer to ask whether Ban Nong Yang was in the Forest Reserve Area. The officer was not in his office, nor was his assistant, so I came back to village. On the way out I met the Institute's car and the driver so I wrote a letter for Acharn for him to take back to Bangkok.

On the way back, stopping to watch the Bang Fai at Ban Phai, I saw the van belonging to the Social Action Party, with betel nuts and fish sauce for giving away to the villagers. The candidate was sitting as chairman of the Bang Fai competition. Then I went on to Ban Nong Yang. I went to chat with the monk at the temple about clearing the burial ground. I asked him if there would be any problem after the clearing. He said at Ban Som Poi two persons had died a few days ago because they were clearing the burial ground in their village. I explained that we would do the clearing and then replant with more trees. He went on talking in a disapproving fashion, saying it's up to the villagers. He was afraid that if there was trouble in the village, people would say it was because he led the villagers to do the clearing. Then I left him.

In the evening, a meeting was called to discuss what to do about the burial ground. We were about to start, at 8 p.m. when there was news that the sick villager, Nang Wan, had died. In the middle of the excitement, assistant Boon Peng's brother, who was the village madman, walked through the meeting absolutely naked. It took a while before the meeting could restore itself to some order. This time assistant Boon Peng did not attend the meeting, saying that he was tired from watching the Bang Fai and drinking.

The headman began the meeting, saying about Boon Peng that the leader should come to the meeting before the villagers. It is unseemly to let the villagers wait, he said in a serious tone of voice. Then he began on the burial ground. He said it was planned to clear the burial ground tomorrow, but now that someone had died, we cannot let it pass, we have to help make the coffin and get through the rest of the funeral rites. So the clearing was postponed to the 17th at the same time. Even then people were saying that the others could go first, they were afraid of ghosts. Nai Rian added that the other day he went to shoot birds at the burial ground but the gun would not fire. So I said we were going to replant to make the ground more shady, and the important thing is that the villagers would have wood for fuel and charcoal making. And it would set an example to other villages. During the the meeting, dogs were whining, because the assistant headman's brother was walking around naked. The old people in the village still held firmly to their belief in ghosts and spirits. Suppose the clearing was started before the death, I am sure the villagers would say that

this was because of the clearing. Finally the meeting agreed on the 17th as the date for the clearing. They would hold a ceremeony to ask permission from the spirits beforehand.

On the 16th, I helped the villagers make the funeral pyre at the temple. They used the Sabaeng tree, each villager bringing a log without being asked to. This is regarded as merit making. The rule about funeral rites is that if the death is from natural causes like an illness, they would cremate the body at the temple, paying the fee of 100 baht to the temple. But if the death is "Tai Hong" as when someone is killed in a car accident, the body would be buried at the burial ground for three years before being disinterred for a merit making ceremony. At 3 p.m. the cremation ceremony began with the religious rites, then the firing. The women would then leave while the men stay behind to watch the burning. During this time they play some betting games like "Hilo." At the cremation I met Khun Chamlong, a relative of the deceased, who was living at Ban Hua Nong nearby. He said he heard that the villagers were going to make a woodlot. He was interested and wanted to have more details. So I described the project to him and said the seedlings would be collected on the 25th, and that he was welcome to come along to see. He wanted to come along too and would like to buy some seedlings as well. I then asked him why he was interested. He said he had some land which was not good for rice growing, because of bad soil and lack of water to flood the land, so he had been planting bamboo and Yang trees there, but the Yang grow very slowly and do not give good charcoal. We then said farewell.

On the 16th, there was fun and games at the funeral. The young men and women of the village go to eat and talk and play at the funeral. The evening would end with eating "khao tom" at midnight. This would go on for three days normally.

On the 17th, the day of the clearing. 10 o'clock and no one had turned up at the burial ground. Only a few people were around. By 12 noon there were 28 persons. In the afternoon, assistant Boon Peng arrived, but he then just sat around talking with friends, not doing any work. Inside the village, there was an argument. Nai Pimpa, the headman's father, Nai Prem and Nang Paeng's father, who was the village Mho Tham, were forbidding people to go to the clearing. They said clearing the burial ground will bring the spirits into the village, there would be trouble. These people then appointed Nang Nual to go and call those who were at the clearing site to go back. When Nang Nual finished talking, the ones who were working stopped work. Only Nai Nuad, who was a man of reason, opposed the return and said where was the ghost, he was not afraid. But he was the only one. The village headman was a bit shaken, turning to ask me what then. I told him let those who were there already continue with the work. I would go back to the village myself then return.

I went straight to the house of Nai Pimpa. As soon as I arrived, he asked how it was going, were there many people? He said he was about to go too but there was no one at home. He was concerned that no one knew the boundary of the burial ground exactly. This was different from what he said earlier to the villagers. I asked him if it was a good thing that we should do the clearing and then replant the ground, and the trees would belong to the village. He said he agreed it was a good thing. So I said if you agreed, tomorrow could he bring the villagers to the site to help with the clearing. Since he was a well respected person in the village, simply going to watch would give moral support to the villagers working there. Then I went to see Nai Prem, who had said trees are no good for feeding babies. When I arrived, he said instead the planting was a good idea, but he was tired from ploughing his fields so he did not go, but he promised he would go the next day definitely.

I would say that the villagers can be classified into three groups: the first consists of the ones with modern ideas and beliefs, who have seen the world, believing in reason, daring to think and to act. This group is led by the headman. The other group is the old guards, like the Mho Tham, the witch doctor and so on, who were not many in number but their children had to heed their words. The third group consists of the lazy people who combine with the Mho Tham group to resist the clearing, trying to criticize and finding allies.

After the talking, I went back to the clearing site to encourage the 28 people already there. We went on until it was time to stop.

In the evening, there was a meeting and it was agreed that those who did not go would be fined 30 baht. As people came to the meeting, held at the crossroads, they separated into two groups--the ones who did not go sat on the western side facing east, and the others who went sat on the eastern side facing west, as though preparing for a football game. The headman was in the middle. At the beginning, the workers wanted to fine the nonworkers, but the latter group were about 25 in number, about equal. The nonworkers agreed to the fine, but insisted that it should be collected from everyone who did not go. Who would be responsible for the noncompliance, they said. Paw Liam, one of the non-goers, said the headman had not consulted the villagers. The headman replied that he had beaten his gong until it was going to break and had held meetings every night, but Paw Liam himself did not take any notice and did not cooperate. He was just talking selfishly. This was a bit strong, and the argument was heating up. Nai Boonma, who was the owner of the encroached land, and a useless village elder, said very well with the fine. He did not mind paying 30 baht, or even 60 baht a day he would pay. Then he went to give the money to the assistant headman. But the manner of giving showed he was very displeased. Then he said collect from everybody. And he would not give any cooperation. He would go on paying the fines. They were

talking very loudly and it was impossible to catch what was being said. I was afraid there would be a rift in the village. At that moment Nai Paeng said, let the 25 who did not go today go tomorrow, then we all work together on the third day. Then the talking calmed down. The headman then asked if the villagers agreed to Nai Paeng's suggestion. And it was agreed on. I then said there would be 25 persons on the next day, plus the headman and the assistant headmen, making it 28 as today. Those who were afraid of ghosts would work on the school site, moving the haystacks; those who are not afraid would go to the burial ground. Virtually all of the 25 then said none of them was afraid of ghosts. But they did not go because they were busy with their own work. These 25 were the ones who were finding allies to stop the clearing of the burial site, talking about ghosts and other things.

On the 18th, these 25 people went to the clearing, but the work was not yet finished. We had a meal together, the women bringing the food from their homes to the party.

On the 19th, the morning was taken up with determining the exact boundary of the burial ground. The former headman and the village elders said to the north and the south there was no problem. To the west and the east there would be because someone had encroached on the land. To the west Nai Ring of Ban Som Poi had encroached, while to the west the culprit was Nai Iam from Ban Non Silp. During the morning there was an alms-giving ceremony for the deceased with the whole village taking part, so there was a loudspeaker in use, and it was an opportunity to announce to the villagers the request for combined effort at the clearing. Someone from Ban Phai, who had come for the funeral, asked me about how we obtained the seedlings for the planting. I advised him to go to the Center at Huay Tha. They were distributing the seedlings starting from the 15th next month. I then asked him why he wanted to plant trees. He said he was getting to 60 and wanted to plant them for his children and grandchildren. So I said he could come to see the planting at the center on the 28th but he said he was busy that day. He also could not sit in a car too long because of his age. I left the merit making ceremony. The headman had asked assistant Boon Peng to send a vehicle to fetch Nai Ring and Nai Iam to talk about the boundary problem. Then the villagers began to leave for the burial site. Today 51 persons turned up, only two missing, one because of illness and the other was busy.

When Nai Ring came, he said in a loud voice that he had been using the land for a long time, why was he accused of encroaching on the land. He would not budge, even a quarter of an inch. That's what he said. The villagers stood around to listen. Nai Ring went on to cite this and that to say he was in the right. However, the former headman and the village elders insisted that the boundary was breached by Nai Ring. The headman was losing his temper and interrupted Nai Ring to ask

who permitted him to come in to plant the land, he could remember the boundary post was not where it stood today, even if he was not old he could remember. In the end I intervened. I said to Nai Ring that let us not take the matter up to the district, since we are brothers, but he should give in because the villagers of Nong Yang were insisting that he was encroaching and that they had evidence to prove it. If he had the land measured out according to the document he would lose more land, so let us talk about it like brothers. So Nai Ring was pacified and became more willing to talk and in the end he agreed to a new boundary line, and a new post was put in to mark the new boundary, moving from the old line by about six meters. After the agreement the villagers took up the work again. There remained the western side and Nai Iam. Nai Iam was coming on strong in the beginning also, but he was probably aware that he was encroaching in fact, so he agreed to settle on the new boundary quickly and a new farm bund was made to mark the new line.

At lunch the whole party ate together. Pi Nu and the headman's wife did the cooking and people contributed the sticky rice. After the meal there was a lot of talking. The general drift was that it was good that we joined together to do the clearing. If there was no woodlot project the whole burial ground would be encroached so this was the immediate benefit. A lot of people were saying this. Today the old villagers who were opposing the clearing also came in force, and they were actually leading the effort. This was seen when someone was resting too long they would urge him to go back to work. Also the other day they did not want to cut down the big trees for fear of bringing the ghosts into the village. Now it was Nai Pimpa himself who offered to buy the big Yang tree standing in the middle of the land. I felt like asking him why he forgot his words so soon. However, the villagers refused to sell the tree. Then they got back to work and continued until the evening.

The 20th. In the morning I went to the temple, planning to go on to help with moving the hay stacks afterwards. There were still two stacks left, belonging to assistant Kamta and Nai Paeng. Finishing the clearing at the temple then moved to the haystacks. As we were about to start, someone came to say the aunt of Nai Iam refused to accept the agreement reached yesterday on the boundary of the burial site. So I left the villagers to carry on with the work while I went to the burial site together with the village elders and the headman. The aunt was adamant, saying she had always been cultivating the land. The elders were also not budging. The talking went on for a long time then it rained. Just then the people moving the hay also finished.

In the evening, the elders came to eat at the headman's house. There were food and drinks and loud talking. The conversation was largely self-congratulatory.

On the 21st, the district public health unit was coming to talk about supplementary food for the children and other things about health care, so there was no work on the woodlot.

In the evening, the district agricultural unit came with the groundnut seeds for giving to the villagers, leaving them with the headman. There were two sacks of groundnut, and one of Tua Pum, a local variety of string beans. There were also 40 chicks, two for each poor household.

On the 22nd, went with the villagers to burn the tree branches and stumps left after the clearing at all three sites. It rained before we could quite finish the work. Around this time the villagers are busy with preparing their rice seedlings and ploughing. Some have already planted onions. Others were collecting fuelwood or making charcoal for use during the rainy season. It rained almost continuously the night of the 22nd.

The 24th, went back to go on with burning the branches and finished off the land preparation. The night of the 24th, there was a meeting of the villagers to decide who would go to see the demonstration plot and collect the seedlings. Then talked about ploughing at the school site on the 25th. We would take the whole day for it. Everybody was asked to leave off ploughing his own field for the day. It was planned that after the ploughing, people would go home to have breakfast and then come back with spade and shovel to prepare the planting plots agro-forestry style as seen from the demonstration plot. It had been decided earlier that the whole village would take part, and the plant for intercropping would be the groundnuts and the beans that the village had received from the district office. The produce would be sold, the money to go to the village fund. The question about what to do with the money would be decided on later. Then it was decided that the ploughing and agro-forestry would be done at the school ground only, but not at the burial site, because there was a lot of tree roots and because the ground was flooded and also the villagers did not want to plough over the burial ground. So it was understood.

On the 25th, I went to collect the seedlings from the Huay Tha Center. We met Khun Nopporn, and the villagers asked for 20 seedlings each. Then we came out to meet Dr. Pittaya. When we saw him, he said he had reduced the number of seedlings from 2,800 to 1,350 for planting at 4x4 for the whole plot. His men were also busy with work at the Center, and he thought the villagers could manage by themselves because they have seen the example at the Center. Please tell your Acharn not to come and say anything because I am wasting my time. I did not believe my ears that a Dr. would talk like that. I tried to keep calm and pleaded with him to get the original number of seedlings, but he refused. Then I gave him the letter requesting the 1,350 seedlings, which he signed the approval. Then he said you must understand me, I have my responsibility to the villages around here also, and I have my own projects. I did not want to speak

my mind at the time, my thought then was to give him a kick and then go. Then we said goodbye, and coming back by the Center to let the villagers buy 600 seedlings at 1 baht each. When we got there we found Khun Samran and Khun Nopporn were playing chess, so I told them we were short of the number of seedlings, could they suggest anything we might do. They said just to take what there was. They appeared to take no interest whatsoever. I began to wonder about these two fellows too.

I then left on my bicycle to go back to the villagers, and they had finished buying the seedlings. So we got back on the road, and on the way back we dropped in at the Central Security Command, to see about more seedlings. I saw Colonel Suchart and Lieutenant Perm and they gave us 200 acacia seedlings. Then we went back to the village. It was then about 4 p.m. The villagers were delighted, but I couldn't think of anything to say. I said we did not get as many as we had planned, let's think about what to do tommorrow. The villagers who went with me all understood. The 20 seedlings that each had asked for himself they gave to the central stock, and Pi Nu, who bought 600 seedlings also gave 100 to the project. So in the end we had altogether 1,350+200+200+100 = 1,850 seedlings. I felt sorry for myself and was touched by the spirit of the villagers. There were tears in my eyes. When the villagers saw that, they cried too. The atmosphere was charged, and I said my dear brothers of Nong Yang, if we did not have as many seedlings as we had planned, it was as if I had lied to you to work so hard at clearing the grounds and wasting your time taking you away from your own work and leaving your wives and children to eat rice with fish sauce and bamboo shoots. Then the matter turned out like this. I could not say anything to excuse myself. I could only say I was not lying to you but this is what he had told me at first. The villagers did not say anything, only that it did not matter if we could not get more seedlings, what we had was already quite a lot. Then the headman ordered the children to fetch the groundnut and bean seeds for shelling to get ready for the planting the next day.

The 26th, in the early morning, the villagers brought their buffaloes to the school ground, 23 buffaloes in all. In fact there were more, but there was no room to get to work. So the others got their spades and set to work on levelling the land. Altogether 57 people came, and they said this was the first time as many people as this turned up for village work since the founding of the village. The land preparation was finished at around 3 p.m. Then we got the string to guide the planting, and planted the Eucalyptus seedlings in alternate rows with the acacia and the beans and groundnuts. The seeders seeded and the waterers watered. Everybody was lending a hand. The work was finished on the same day. As soon as we finished the watering, it rained. Altogether the seedlings planted came to 578. The planting was done in 3x4, with 4 meters between the rows and three meters between each seedling.

On the 27th, we moved the seedlings to the burial site. It was decided to plant 4x4 so that the space between the rows could be used for burial. To cope with the flood, we made mounds for the seedlings above the water level. The planting went well and we planted 1,202 seedlings that day. Khun Sawang, the Community Development Volunteer, came to help with the planting all day. Then we ate together. Then it rained and Acharn arrived.

On the 28th, I spent the morning painting the signboard. Late morning the villagers worked on the fencing at the school ground, each person bringing two bamboo sticks. Took Acharn to see the sites.

On the 29th, finished the signboards, four in all and put them up.

On the 30th, checking data on various things and preparing to return to Bangkok. In the evening, I invited the villagers to eat together. I provided the food--bought five chicken, Pi Nu gave one and Pi Chu gave another, Paw Chan one more, making eight in all. The headman helped with vegetables and two jars of the local brew. The elders came with the strings to tie the wrist in accordance with their local custom. After the meal, at about 10 p.m., there was a little ceremony, going on till about midnight. There was a lot of singing and dancing. Everybody was quite merry until the end. I myself could hardly keep standing.

On the 1st July, returned to Bangkok.

A postscript: everyday, to go to the clearing, I wore my long pants. The grass would stick to the legs of the trousers, then I would change into a new pair to go to work. Everyday I noticed all the grass would be removed from the trousers. Someone must have been very kind and concerned about my well-being. I eventually found out who this was.

Appendix III

Journal of Ban Pong - Excerpt
Supan Koon-Ya
August,1986

Got off the bus then walked to the village, passing the woodlot on the way. Inside the woodlot there were a few villagers with a herd of cattle, about 20 heads in all. The soil looked as though the rain had not fallen for quite some time. In the village, people were sitting underneath the houses, which indicated that they had free time because of the dry spell. It was too hot to go out and do anything in the afternoon.

In the morning, I went to make a courtesy call on the Headman, then I asked about cattle raisers. The headman said everyone here had cattle, but the ones who had a big herd, more than 15, were Nai Ook, Nai Kiat, Nai Poon. The others had three to eight heads.

Then I asked about the landless. The headman named six, four of whom were widows. The rich in the village were Poh Sophon, Nai Samrit.

Asking about the Eucalyptus woodlot, he said last time someone came to interview him he had said permission had to be obtained from the Tambol Council. However, he wanted to change the answer to say that the permission from the Tambol Council was not required, he had remembered wrongly. So I asked what one had to do. He said, for cutting or other things to do with the woodlot, the village council had to be consulted. The village council now comprised 12 members: 1. Nai Surat 2. Nai Supan 3. Nai Mod 4. Nai Manop 5. Nang Tongkam 6. Nai Tongkam Kotma 7. Nai Tongbai 8. Assistant Kiat 9. Assistant Saeng 10. Assistant Lee 11. Assistant Piang 12. The headman.

I asked how often the village council met to discuss the woodlot. The headman said there were a few meetings where the council was requested to ask the villagers to help look after the woodlot. As for the management and utilization of the trees, there had been no discussion. This council had been in existence before the establishment of the woodlot, and the membership had not changed. Personnaly, the headman thought he wanted to use the trees for constructing the village reading room and a passenger's rest house. But this was only an idea, the trees were not big enough for use. Also this was the planting season so people would be too busy to come to a meeting.

The headman said he had told the meeting that the woodlot belonged to the village. If there was anyone to buy the trees when they were big, the money would be used for developing the village, like building roads, digging wells, repairing the temples and schools.

I asked whether anyone had complained about not having a place for grazing the animals since the woodlot was established. He said no one had complained to him. There was still plenty of space for grazing, people could keep their animals everywhere. At the time of establishment of the woodlot, grazing was prohibited in the woodlot area for one year. Then after one year, it was permitted again but there was little grass there and the trees were big and had a lot of roots so the grass did not grow so well.

I asked whether there was any idea to use the woodlot ground for some other purpose after the trees were cut. He said the land would be left to allow the trees to coppice since this would be in line with government policy.

At the temple, I talked with the abbot, who was a young monk, only 25 years old. When he saw me he asked if I came to see the Eucalyptus woodlot. He wanted to show me the seedlings that the temple was raising. There were about 120 seedlings, the abbot said. Some had been given to the villagers. These were prepared by the monks and novices at the temple from seeds gathered from the woodlot. He added that now this was the rainy season so he was in a hurry to plant the seedlings to fill the land in the temple. I asked him why he wanted to plant trees, so the abbot said he wanted the temple to be a peaceful area, with a lot of trees. Other trees did not grow so fast or were difficult to care for, unlike Eucalyptus, which was fast growing and the seedlings could be obtained easily. He wanted to leave the trees to grow, with occasional cutting when the temple had ceremonies to perform such as the Boon (puja) ceremony. Then the trees would be cut down to make five to six sacks of charcoal.

From the temple, I went round to look at the woodlot. Compared with the trees planted around the houses, the woodlot trees were not even half the size. Near the woodlot there was an empty plot in the middle of which there was a windmill connected to a pipe system to water the whole area. Near the windmill there was a small house, with chicken and ducks walking around, but there was nobody at home. Then I went to look at the pond, which has Eucalyptus trees planted along the bank. The trees were a lot bigger than in the woodlot.

Next morning I came across Poh Tin. He was collecting his charcoal. He is 70 years old and has land adjacent to the woodlot, to the west. He said he did not know who owned the woodlot. He has five cows and three buffaloes. A few years ago he used to graze them in the woodlot but now he used other

people's fields. There was no problem about finding somewhere to graze the animals since there was plenty of land around. There was also less grass now in the woodlot. Asked if he thought the trees should be cut down now he said he preferred to let them grow, it would be a pity to cut them down now.

What should be done with the woodlot, I asked him. He said he didn't know, it depended on the headman. I asked if he was in the woodlot committee and he said no. I asked if the woodlot was discussed in the village meetings. He said the villagers talked about it, as could be expected, but the headman never explained about who owned the woodlot.

From Poh Tin I went to Mae Wan, who keeps 15 heads of cattle. She owns five and the rest she is paid to look after, with the agreement to share the calves equally between the owner and the keeper. She said there was plenty of room to keep the cattle. She could use anybody's land. She preferred the woodlot for grazing because it was close to her home. Did she know who owned the woodlot, I asked. She said it belonged to the government. She would like to have the wood for building her house, but not now, when the trees were fully grown. She would feel sorry if the trees were cut down now. I asked her what should be done about the woodlot, and she said it depended on the headman. What was the use of the woodlot now, I asked. She said now she could graze her cattle there, and also there were the mushrooms. She was also proud to have the woodlot in the village so that people came to visit.

I asked if there was any discussion of the woodlot during the village meetings. She said she could not remember it was a long time ago. But as far as she could recall, no one had mentioned it. She had said to her friends in private that this woodlot was established by the government, so anyone who cut the trees from there would be put in jail, which is what she was afraid of, and she does not think anyone would dare to steal from the woodlot.

From Mae Wan, I went on to Nai Ook. He lived in an old house. Does he know who owns the woodlot? He said it belonged to the village, he could remember from the beginning the Forestry Department said so and told the villagers to take care of it. He had 13 cattle of his own. He had no problem finding grazing land for them because he can take them into someone else's fields. Now he liked to graze them in the woodlot. What benefit did he get from the woodlot? He said he collected the mushrooms to make soup with. What did he think should be done with the woodlot to make it useful to the villagers? He said he did not know. It would depend on how the villagers decide. He would go along with the decision. He was not expecting to benefit much from the woodlot in any case. Did he know there was a committee to look after the woodlot? He did not know this because there was no work or activity and there was no clear identification of the members. But he guessed it would have the

headman in it. Should the woodlot be changed for something else? He said if it was left to villagers, it would not be successful. The government would have to take the lead. The villagers on their own could not have planted this much and personally he was quite happy with the woodlot as it is.

Assistant Headman Kiat has 17 heads of cattle. In the dry season these are grazed in the rice fields. In the rainy season, they are grazed in a forest about 24 km from the village which is a public forest for the village. Sometimes they are also grazed in the Eucalyptus woodlot. He said there was no problem about finding grazing ground. In the first year grazing was prohibited, but it was allowed again in the second year because the trees were then big enough. At the time of the start of the project, he was already Assistant Headman. He said in the first year, 1981, the villagers were required to work on the project, but they refused to cooperate, so in the end they had to be paid, 34 baht per day. Did he know who owned the woodlot? He said it belonged to the village or the villagers. So what did he think should be done about the woodlot? Should the trees be cut now or left to grow? He said he wanted to leave the trees to grow. He had not thought about how to use the trees. He also said that before the village would do anything with the woodlot they would have to get permission from the Tambol Council. So why would they need the permission from the Tambol Council, since the Council had had nothing to do with it? He did not know, the Forestry Department said so. He also said that the Tambol Council never showed up to see the woodlot. The problem with the trees in the woodlot was that they did not grow well. He would like to have some fertilizer put in, but did not know where to get it from. I asked about any mention of the Eucalyptus woodlot in the village meetings. He said there used to be talk that the woodlot belongd to the village, so the village should help take care of it. The Forestry Department also came quite often in the beginning, but they never came now.

I joined Poh Sophon on his expedition to collect firewood. He used an Etan truck. He is a rich man in the village, and a number of people came to help. The wood had been cut and today it was to go and bring it back to the village. He said he had land still under forest, about 11 rai in all, which is covered with trees. The land was about two km from the village. I asked what he thought should be done about the Eucalyptus woodlot. He said since it belonged to the village, the Tambol Council should not have to be involved in the management of the woodlot. If the Tambol Council had helped with the maintenance of the woodlot, or provided some fertilizer, for instance, he would not be saying this. He had never seen the Tambol Council take any interest in the woodlot. The people responsible for looking after the woodlot also never changed, and the village committee never held a meeting to explain anything in a clear way. The old headman said one thing, the new headman said another. So he was confused, but he did not want to be bothered, since he was just an ordinary villager and he was not

expecting to benefit from the woodlot in any case. However, he thought it would be ideally good to divide the woodlot into four parts, and then set up four groups from among the villagers to take care of each part. The headman would be only seeing that the work was done. But this was only an idea.

I interviewed the former headman, Nai Kiatisak Siriwong. He said at the time of the project implementation, he took part in discussions with the officials about the project. The land was formerly simply a forest, which was being encroached on by villagers making rice fields and crop land in the area. Then in 1975, the Pasture Project was implemented under the direction of the Regional Community Development Officer from Ubonratchatani Province, with the Agricultural Officers from Sisaket and Surin. Then Khun Samran from the Forestry Center came to ask if the village would do the Woodlot Project instead. At first the whole village was called to a meeting, but this did not happen very often. Each time Khun Samran came, it would be himself who discussed with him. The reason people did not know about who owned the woodlot was because each time a meeting was called, only one person from each household would come. The meeting would be held at night, and would go on until late, so that when he got home, the rest of the family would be already asleep. Then they weren't told about the meeting. So now people still did not understand that the woodlot belonged to the village, and he did not know what to do about that.

He said the project began in 1978-79, with the land preparation and distribution of the Eucalyptus seedlings. People could take as many seedlings as they wanted, but only residents of Praibung and Khukhan districts were eligible. In 1980-1982, the planting was carried out with hired labor from the village, at the rate of 34 baht a day. After the planting was finished, some seedlings were stolen for planting on people's own land. Khun Samran then asked him to set up a committee to take care of the woodlot. The committee consists of five persons: the former headman himself, the present headman, Nai Prasit, Assistant Headman Lee, and Nai Chuai. There had been no change in the committee since it was formed in 1979, and Khun Samran even said that he would pay him specially for life, a sum of 500 baht a month, to take care of the trees. The money was paid for three months only. He has not met Khun Samran since then. Everyday now he would go to sleep at a small hut to keep watch on the woodlot. He said it did not matter if he was not paid by Khun Samran, but whenever the trees were sold he would collect his share of the money, or if it was not sold, he would take his share of the wood. He claimed that without him the woodlot would have been cut down a great deal. He said all this with the hope that he would still get his promised pay. I asked if anybody else in the committee knew about the agreenment to pay him 500 baht, and he said no. He said USAID had said that after seven years they would come to buy the trees at 1000 baht each and buy the seed at 1,000 baht per kg.

Assistant Headman Lee. He did not know that he was one of the five committee members, but he remembered that the former headman had asked him to help look after the woodlot. He said at the beginning, after the planting was finished, the woodlot was divided into plots for people to plant annual crops, but no one came to do any planting. Some said they could not be bothered, others said it was too far. In addition, everybody got the 4x10 m plots in the forested part of the land nearby, but since few people came to clear the land, only those who lived nearby carried out the clearing.

I asked him what he thought should be done with the woodlot this size, which was rather big. He said the trees should be left to grow big enough for use for some common purpose like making a rest house. And some part should be set aside for public or communal use. Another part should be sold to get money for village development. Another part should be given to villagers for their own use. But he did not want the trees to be cut yet since they were not big enough.

One reason why people did not understand about the ownership of the woodlot was that the official only came to talk to the headman, so the rest of the village was not informed. Since the time of the planting, there had been no discussion about how to use the trees. Asked if the land should be used for something else, he said the woodlot was good. The only drawback was that the former headman and the present one talked different things about the woodlot. The former headman said the Tambol Council had to be consulted before doing anything, but the new headman said this was not necessary. Then there were the woodlot committees. The former headman had one committee, and the present one had another. He himself was in both committees. But he did not know which one was the right one, and there had been no serious meeting to talk about the woodlot.

Nang Pan, a poor landless woman. She works for other people and is paid with rice. She eats ordinary, not sticky, rice. At the time when the village was distributing the 4x10 plots, there was no one to go and clear the land so she did not keep the land. She was also hired to do the planting. She knew the woodlot belonged to the village. If the trees were distributed, she would use them for making charcoal. Asked if the land should be used for something else, she said she would like to clear out the woodlot and then have the land distributed to the landless so they would have some land to work on. Or the land could be rented out to the landless and the rent would go to the community fund. Asked if she ever collected the wood from the woodlot, she said no, but she got the mushrooms from there often, the mushroom were delicious. She never heard anyone complain about the lack of grazing ground since the land was used for the woodlot, because there was still plenty of land left elsewhere.

From there I went to interview Nang Samut, who was even poorer than Nang Pan. She wanted to plant some trees, but she had no land. Where she was living, the land belonged to relatives who let her live there for free. I asked her what should be done with the woodlot. She said there was such a lot of land some of it could be given to the landless or the poor to live on. If the trees were distributed, what would she do with them? She said she would make charcoal and sell them to get money to buy rice. Now she was thinking of making charcoal but she had no land and no trees, so she could only go begging. Asked if she got any benefit from the woodlot, she said no, only the mushrooms from the woodlot were useful. She had no cattle. She got her allotment of the 4x10, but since there was no one to clear the land, she could not keep it.

Interviewed Nang Poon. She has 16 heads of cattle, and 10 buffaloes. She did not have any problem finding grazing land. Did she know who owned the woodlot? She said it belonged to the "Luang." Who was this? She said it was the King. Has she ever taken trees from the woodlot? No, she said, she was afraid of going to jail. Did she think it was a good idea to have the woodlot in the village? She said it was no good because no one had benefited from it. When the trees grow big, the government would come and cut them. But the land belonged to the village and Ban Pong should get some benefit from it. Now the government came to plant the land with the woodlot, so the village could not use it for anything else. Suppose there was no woodlot, the poor would have some land to live on, people would not lose the NS3 land certificate. She herself did not lose any land, but her relatives did, both the paddy fields and the homestead. So she could not say that this woodlot was useful, she said with evident frustration. Did she ever take part in discussions about the woodlot? She said no, but her son did, he said there was nothing much. Did she think the land should be used for something else? She said it would depend on the headman. She herself did not mind whatever it was, because these projects did not affect her one way or the other.

Nai Samrit Ketin. Did he know who owned the woodlot? He said it belonged to the village. How did he know that? He said the former headman told him. So why did some people not know this too? He said they were probably not interested or did not go to village meetings. When there was need for cooperation they did not cooperate so they were not well-informed. But he did not know what to do about this. He himself had known from the beginning of the project. Did he know who were the members of the committee? He said there were 12: the former headman, the present headman, Nai Lee, Nai Poon, Nai Saeng, and Nai Chuai, the rest he could not remember. But he had never seen the committee do anything or agree on anything about what to do with the woodlot, for instance how to distribute the benefit from the woodlot. There had been no change in the membership of the committee since it was formed. Did he know when? He said 1979, when the former headman appointed the committee. What did

he think should be done about the woodlot? He said when the trees are big enough they should all be sold and the money used for village development, in any way to be decided by the village. He said the trees should be cut, so that they would coppice again, and then when the trees are still small, the land could be used again for intercropping, then the proceeds from that could go to the village fund again. There would be two to three years before the trees are big again so the land would be fully used and not left idle. At present it was no use for intercropping since the roots of the trees are too numerous and there was not enough light in the woodlot for cultivation of other things. He said his ideas would be practicable if the headman was strong enough.

I asked him whether the trees should be cut now or left to grow? He said they should be kept. There were some big trees, he said, especially around the pond. These could be cut and sold to buy some fertilizer for the small trees. Or the fish in the pond could be sold. That would be better than letting the trees and the fish be stolen. There was a 30-member fish committee, and there was not yet a catch allowed. This money could be used to buy fertilizer to give to the small trees to encourage their growth. Then a village meeting should be called to get the villagers to help with the fertilizer application. The villagers would then feel also that the trees belong to them and would take better care of the woodlot.

Ban Pong village is rather dispersed, so when the meeting is called, not everybody could hear the "Kroh," and not everyone came to the meeting. This is one reason why some people did not understand about the various projects.

The projects that have been implemented would have been more successful if the villagers had been more involved. The village headmen, the old one and new one, talked differently about the projects, as shown by the example of the cutting of trees in the woodlot. One said this should be referred to the Tambol Council, the other said no. The woodlot committees were also duplicated, one formed by the old headman, one by the new. So this was confusing. The villagers also did not understand that the woodlot belongs to the village, so they did not feel very concerned about the trees in the woodlot. It would have been quite easy to ask for a little manure for the trees or for some cooperation from the villagers in taking care of the trees. But the headman was not making any move. In fact the villagers had some quite good ideas but they were not called upon to express them. There may be something else behind all this. Who knows?

PART IV

DEVELOPING POPULAR INSTITUTIONS AND POLICIES FOR FUELWOOD DEVELOPMENT

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The general findings from our village experiences are now brought together with the aim of advancing discussion and action toward forest and fuelwood program improvement. It will of course be recalled that our evaluations intensively involved only six village communities, in two quite dissimilar ecoregions of two separate countries. The conclusions advanced here, accordingly, are preliminary and exploratory. On the other hand, the participatory approach which they represent offers a means of modifying or sharpening these findings in new or contrasting situations.

Some Unifying Propositions

We first offer some unifying propositions that are drawn from the India and Thailand evaluations and provide a context for policy evolution that recognizes the intrinsic variety in village conditions and initiatives.

1. Legal and administrative regimes that define title and control of, and access to, land suited for forest and fuelwood use should reinforce, not contravene, the capabilities of popular local institutions in planning and managing forestry development. These popular institutions include organizations such as elected councils, and norms

of behavior such as common property forms or group sanctions for regulation of resource use. National legislation as well as administrative procedures and rules require reassessment and reformulation in order to promote the adaptive capacity of popular local institutions to meet new forest development opportunities.

2. People's degree of freedom in planning, managing, and benefiting from forest development is critically linked to their resource base and their social relationships, and specifically to the characteristics of their farming systems. Local needs and resource assessments are therefore essential starting points for forestry planning and development. Tree plantings generally require longer time periods for fruition than agricultural crops or livestock enterprises. The poorest rural groups, in terms of land and water resources, are least likely to be able to await the benefits of forest, as contrasted with agro-forest, investments. Agro-forestry, on the other hand, offers many elements of synergy, including the potential for early fodder production as well as food and cash crop enterprises.

   To realize these new opportunities, the fullest indigenous knowledge of local producers and users of crop, animal, and forest components must be brought to bear in the design of forest research and development programs. Village settlements are therefore the indispensable starting places for forestry and fuelwood planning,

research, field trials, and program development. Social groupings and land variations within a village, as well as those that extend beyond the individual village, are crucial to program design. These can be recognized, however, only when full and free communication and understanding are achieved within each village and between villagers and the participating agro-forestry institutions.

3. In India and Thailand, institutions responsible for forestry research, management, and education have taken important leads in designing new programs on the basis of locally-specific needs and resource configurations. Forestry professionals who took part in these evaluation studies and in the workshops where our findings were reported and assessed have identified early opportunities for strengthening this institutional base. In turn, forestry professionals will increasingly have an integral part in local planning that embraces agriculture, animal husbandry, irrigation and water management, soil conservation, and new work futures for women, men, and young people. While these sectors require closer integration in the immediate future to meet local development needs, their reinforcing effects for future development also require imaginative attention, supported by market and management research and development.

4. Participatory evaluations and action research, though supported to date only with short time and resource

budgets, have substantial promise in accelerating and deepening these trends. The seminars concluding our work in regions of India and Thailand pointed to direct opportunities for using a participatory style in combining local residents' knowledge of needs and resources with the technical and marketing knowledge of foresters and other specialists, thereby strengthening local capabilities for forest and fuelwood development.

We proceed by examining similarities and contrasts with respect to these propositions among the villages and regions in which we have worked, with related implications for action.

Trust, Law, and Popular Institutions

Village residents in India and Thailand who took part in these evaluative studies portray strikingly similar problems of mistrust, legal uncertainty, and forest land disputes. Ban Pong residents lack clear information on whether the village, Tambol Council, or Forest Department now owns title to, and disposition of, the village woodlot, its products, and the land it occupies. Nong Yang residents hear rumors that village forest land is in the process of being converted to forest reserve. Since village woodlots are a recent innovation, their status in forest law is ambiguous. It is evident that both the lack of a well-defined legal system of forest land rights and the failure to communicate legal status in clear terms are obstacles to rational decisions by villagers on plantings whose benefits can be realized only several years ahead.

Encroachments on village forest land are unresolved in Kunj, as of this writing, eroding the confidence of the village majority in revenue and forest officials. The need for elections to the Van Panchayat has been pointed out. Where local organization is weak, village common lands are often appropriated at least in part by influential landowners to till, lease out, or graze cattle. Such privatization of the commons may or may not lead to overexploitation, but does mean underutilization for the needs of the majority. Action by residents of Nong Yang to resolve two cases of encroachment, prior to community fuelwood planting, evidences the latent strength of group organization. Notably, in this case, the land record was not found and the land officer not present. The community's action was facilitated by the participant researcher.

To what extent can the law be effective in the face of such frequent but scattered disputes? Or are the law and its prevailing mode of administration inherently biased against secure rights on the part of disadvantaged citizens? The latter conclusion is reached by an Indian constitutional scholar, who advocates outright repeal of the Indian Forest Law and a fresh start based on indigenous rights (Singh 1986). On the other hand, as recommended by the international workshop, strengthening local institutions that represent the interests of the villagers, including the disadvantaged, would promote reform and improved administration of forest law.

Supporting recommendations are

1. Forest and land legislation and administrative rules should be reviewed and, as necessary, modified to ensure that farm families and communities have secure, long-term rights to the use and distribution of trees and forest products. As far as consistent with principles of equity and justice, these should take into account customary rights and regulations.
2. The role and functions of local institutions for forestry development and management, where existent, should be reviewed for lessons to be applied more widely, and for legislative and/or administrative measures to improve their operation. Existing local methods of common property management should be recognized in the process of strengthening the ability of local institutions to take a more active part in forest resource and technology innovations.
3. General prohibitions on forest cutting should be replaced by incentives for forest management that reflect priority uses of different species as well as biological needs for thinning of mature or overstocked trees.

The status of forest reserves located adjacent to or near village lands needs to be reviewed in consultation with the local communities. Often these lands are used to produce for outside markets, not catering to local requirements. In this

situation, communities generally do not feel responsible for the protection or management of these forests. Perhaps norms and methods for joint management can be developed by starting a dialogue with them. This would also necessarily imply giving local communities greater rights over use of products, say, when there is a program of thinning. The strengthening of local capabilities in forest planning and management would offer opportunities to start such a dialogue, while giving greater respect to the role of local communities in natural resource management.

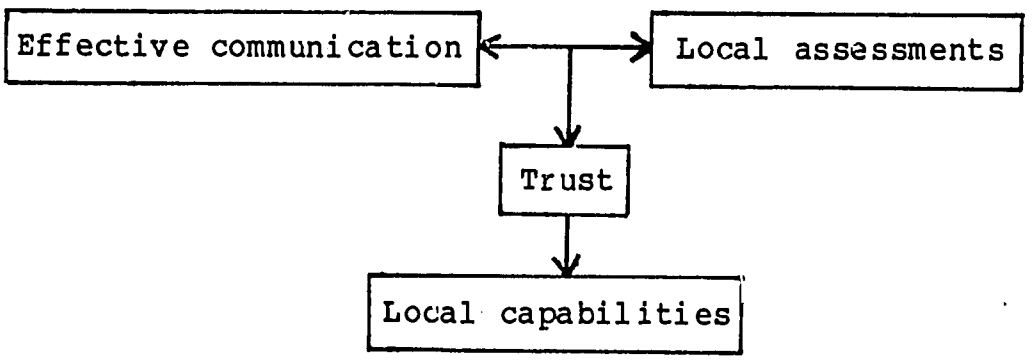
Strengthening Local Capabilities

Three of the six communities in which we worked intensively display effective, self-reliant local organization in developing and sustaining fuelwood plantings: Nong Lung, Nong Yang, and Silpar. In Nong Lung, this self-reliance has taken the form of individual farm forestry on rice bunds, with a technology used by most families in the village. In Nong Yang and Silpar, strong community organization has resulted in new as well as earlier initiatives to change and sustain farm, forest, and agro-forestry systems. Effective leadership and local organization in two other communities in Almora district, Falyati and Sangar, have resulted in sound forest management and development. Building on these examples, we feel it essential to introduce educational and organizational measures to strengthen the capabilities both of Forest Department and associated government personnel, and of local village organizations and individuals.

Lack of trust and communication between villagers and government staff have seriously reduced the usefulness of the Ban Pong village woodlot, up to this time. These negative factors together with local land disputes have left Kunj a highly fragmented village whose forest potential will not be realized until trust and processes of dispute resolution are created or restored. In Chausuli, several families and groups of families have initiated action for limited forest developmer and introduction of biogas technology. In this evolving situation, more progress can be anticipated if support agencies strengthen their patterns of communication and cooperation with village groups.

People's Capabilities in Forest Management. We have emphasized that local need and resource assessments are an essential foundation for a forestry and fuelwood development program. The assessment process, using participatory methods, can be a vehicle for rebuilding confidence and trust between villagers and forest departments. Local residents, as pointed out in the Thailand study, are in the best position to identify their most acute needs. Foresters and other specialists will need to develop the attitudes and capacity to listen to villagers' assessments of their needs, and to hear and assimilate local producers' knowledge and practices in farming and other indigenous land use techniques.

Relationships necessary for this evolution can be visualized as follows:



On this footing, dialogues and collaborative assessments can go forward. These assessments will face a host of issues: land capabilities; family food, fodder, and fuel requirements; women's roles in the choice of trees, collection, and marketing; crop, animal, and tree interactions; suitability of tested species; need for field trials of new or improved species; alternative technologies; labor commitments; marketing and market development potential; required silviculture practices; forest protection measures; and identification and negotiation of land use alternatives benefiting the majority of community residents.

The international workshop recommended steps for concurrent strengthening of village institutions and capabilities, and of government research and extension capabilities. Orientation and training requirements for this purpose are outlined in Figure 1.

Figure 1

DEVELOPING LOCAL CAPABILITIES

Village Institutions	Supporting Departments
Organization	Administration
Rights and just process	Time
Popular leadership	Incentives
Communication	Appropriate budgeting
Skills	Skills
Needs and resource assessment	Communication, dialogue
Project identification, appraisal	Rights, process
Negotiation, management, implementation	Project appraisal
Monitoring, accounting	Adjusting targets to local plans
Evaluation	Dispute resolution, win-win options
Village facilitators	Extension facilitators

Orientation and involvement of senior officials will be necessary in review and innovative reshaping of procedures to strengthen local institutions, and in orientation and guidance of extension workers. Techniques of management for working with village institutions must be evolved. Orientation and training of local forestry personnel and village representatives in both interpersonal and technical skills will be required. For this purpose, training sessions should be conducted in rural areas in

close interaction with village residents, and coupled with seminars for orientation of senior personnel. Dialogues, cases, and project appraisals developed through participatory evaluations will be useful training materials. Indigenous adaptation of the Handbook for Participatory Planning and Development with a Focus on Rural Energy (Morse et al. 1986) in national and local languages may be a useful step in this training sequence.

Forestry Research, Species Trials, and Extension. Once participatory assessments and project development are initiated in individual villages, the newly-developed skills can be extended to nearby environments. One of several organizing concepts may be appropriate for this purpose: a geographical area represented by a miniwatershed; an existing irrigation command area; a "recommendation domain" identified in farming systems research and development; a cluster or fringe of villages close to a forest reserve; a market-centered or development block area. Such extension of village-based planning to an intervillage area will pinpoint needs and sites for nurseries for tested species, and will reveal needs for new species trials on farms and public lands.

Marketing Systems and Fuelwood Plantation Success

In the pressing need to reforest areas, little attention is often given to the appropriate informal and formal commercial marketing structures. This is particularly true of community plantations where the distribution and types of benefits are

rarely well-defined at the time of establishment. Given the time frames involved with forest investments, this lack of attention to future markets and preferred end-uses by villagers is partially understandable. In both the Indian and Thailand community fuelwood projects, however, inadequacies in both informal and formal marketing systems present serious problems for villagers. These need to be addressed if long-term success of community woodlots and private tree plantings is to be realized.

An efficient marketing system prevents wastage and allows prices to reflect actual supply and demand conditions. If the number of plantations for fuelwood, timber, and other forest products is to expand beyond subsistence requirements, villagers will need access to the formal as well as informal household markets to make optimum use of their tree stands. Although the formal commercial wood markets are very different in India and Thailand, the agencies involved in both countries need to open or stimulate more actively these markets for fuelwood and other wood products.

In India, the dichotomy between the Corporation's controlled commercial wood product markets and the legally hazardous informal market creates serious barriers to private and communal fuelwood sales. Institutional recognition of the rights of the Van and Lath Panchayats to sell fuelwood and other products, if excess above subsistence needs exists, is necessary to increase such benefits as income generation and optimal end-use from these stands. Until such markets open up,

villagers will continue to prefer planting fruit trees since they have greater control over the possible commercial end-uses of the products from such trees. Without institutional acceptance of access to markets, the loss to the country in terms of slow development of rural plantations may be substantial.

In Thailand, while there are no direct institutional barriers to entry into the commercial wood sector, the actual markets for the Eucalyptus stands are uncertain. If the fuelwood stands are to be used to produce charcoal for commercial sale as well as household use, the Royal Forestry Department will need to adopt more flexible, appropriate regulations regarding charcoal production and sale. If the wood is to be used directly for fuelwood, which is questionable in some woodlots given the current age of the stands, then proper wood management education needs to be given to the villagers. In the case of selling the wood to a regional pulpmill, a possible option often put forth by the Royal Forestry Department, the economic viability of the mill is apparently quite uncertain. As described in the Thailand study, most villagers are unsure about actual uses of the woodlots due to the perception that the end-use(s) must, at a minimum, be reported to the Forestry Department. Thus, the economically optimum uses of the wood, which might bring the highest revenues to the villagers, may not be realized.

In both countries, there has been a lack of policy guidance and follow-up action by the appropriate government agencies to

ensure that the stands are properly maintained to maximize their economic or energy value to the villagers. Also, more attention needs to focus on innovative means by which villagers can manage their unique wood product marketing systems. Thus, government agencies will need to (a) develop the institutional regulations that allow efficient marketing of fuelwood plantation products and access to the commercial markets, (b) provide education and training on proper management of the forest stands depending upon villagers' expressed needs, and (c) encourage the development of villagers' marketing cooperatives, where appropriate, to overcome infrastructure and logistical constraints. Without such institutional support, the opportunities to villagers in terms of fuelwood and income, and to the country in terms of afforestation and increased wood production and utilization, may be seriously diminished.

Role of Participatory Evaluation and Action Research

To illustrate both the hard experiences and the exhiliration that are to be anticipated in participatory research, we have presented excerpts from the journal of Supan Koon-Ya with the Thailand study. We encountered important clashes of values as well as clashes of interest. In some communities in the Almora hills, for instance, women who have access to water and forest resources have higher value as marriage partners. Yet men in the community, as well as some older women, resisted moves on the part of younger women to change group practices in fuelwood collection and assume new

roles in forest management. We learned that "success" is a value-laden word, seen differently by different groups in a village or area. We found it necessary frequently to modify or adapt our planned research procedures. In sum we can say, "If everything goes smoothly in a research program, it means we are not learning the difficulties that exist."

The importance of lack of trust between villagers and officials, as a barrier to effective design and implementation of forestry policy and programs, gives special significance to action research and evaluations conducted in a participatory style. Our experiences in this regard further document the "transition of trust" identified by Michael Lipton (1986), in societies where earlier common property systems have been eroded or displaced by the modern State, but where new popular institutions are yet to take form. As Lipton points out, the number of transactions and needed "trusting relationships" within a community, and between communities and external markets, greatly increase when families and other community decision makers in established farming systems are considering the introduction of new technologies.

We feel, as researchers, that we have achieved at least modest ground in earning the trust of many of the community members and forest professionals with whom we shared these evaluation experiences. This trust is intrinsically rewarding in personal terms. It carries also the responsibility of seeking to act and report in ways that represent correctly the perspectives and positions of the people who have been involved.

To the extent the experience proves to be a step in rebuilding trust, and in clarifying the requirements of institutions to promote effective change, we commend the participatory approach and recommend continued efforts for its improvement.

REFERENCES

A. English Language References

Dani, Anis A., Christopher J.N. Gibbs, and Daniel W. Bromley. 1987. Institutional Development for Local Management of Rural Resources. Honolulu: East-West Center Environment and Policy Institute.

East-West Center Resource Systems Institute and Environment and Policy Institute. 1984. Research Proposal to the United States Agency for International Development. "Participatory Evaluation of Fuelwood Programs."

Gayfer, Julian. 1986. "The Success of Vanuatu's Local Supply Plantation Program in Meeting the Needs of the Nation and its Communities." Overseas Development Institute (ODI) Social Forestry Network, Network Paper 2a.

Grandstaff, Somluckrat W., Terry B. Grandstaff, Pagarat Rathakette, David E. Thomas, and Jureerat K. Thomas. 1986. Trees in Paddy Fields in Northeast Thailand. In Marten, Gerald G., Traditional Agriculture in Southeast Asia. Boulder and London: Westview Press.

Joshi, B.K. 1984. Evaluation of Social Forestry Projects in Uttar Pradesh. Lucknow: Giri Institute of Development Studies.

Kasetsart University, Faculty of Forestry. 1986. Forestry Curriculum.

Lipton, Michael. 1986. Common Property Resources, a comment. In ODI Social Forestry Network, Newsletter 2.

Meta Systems Inc. 1981. Baseline Survey Report, Volumes 1-13. Renewable Nonconventional Energy Project. Prepared for the National Energy Administration of Thailand and the United States Agency for International Development. Draft for researchers.

Morse, R., D. Bajracharya, A. Pongsapich, and others. 1986. Handbook for Participatory Planning and Development With a Focus on Rural Energy. Bangkok, Thailand: Chulalongkorn University Social Research Institute and East-West Center Resource Systems Institute.

National Economic and Social Development Board (NESDB), Thailand. October 1985. Energy Issues and Policy Directions In The Sixth National Economic and Social Development Plan (1987-1991), Volume 1.

NESDB, Thailand. October 1985. Rural Energy in Thailand: Issues and Policy Directions, Volume 3.

National Forest Land Management Division, Royal Forest Department, Ministry of Agriculture and Cooperatives, Thailand. 1984. The Village Woodlot: Its Implementation in Thailand. Submitted to the National Energy Administrtion, Ministry of Science, Technology and Energy under the Renewable Nonconventional Energy Project, Royal Thai Government and U.S. Agency for International Development.

Singh, Chhatrapati. 1986. Common Property and Common Poverty: India's Forests, Forest Dwellers and the Law. Delhi, India: Oxford University Press.

Subhadhira, Sukaesinee, Nongluck Suphanchaimat, Suriya Smutkupt, Suchint Simaraks, Weera Pakuthai, Kalalya Supannapesat, and Panada Petchsinga. 1985. Fuelwood Situation and Farmer's Adjustment in Northeastern Thai Villages. KKU-Ford Project, Socio-Economic Studies of the Farmers in Rainfed Areas of Northeast Thailand, Khonkaen University.

United Nations Food and Agriculture Organization (FAO) Regional Office for Asia and the Pacific and East-West Center Environment and Policy Institute. 1985. Community Forestry: Socioeconomic Aspects. Manpower and Technological Constraints in Community Forestry Projects and Programmes in Thailand.

Vergara, Napoleon, Charit Tingsabadh, Kersten Johnson, Varun Vidyarthi, and Richard Bowen. 1986. "Social Forestry Research Issues: Preliminary Problem Identification in Sisaket Province, Northeast Thailand." ODI Social Forestry Network, Network Paper 2b.

World Bank. 1985. Thailand: Issues and Options in the Energy Sector, A Joint Report of IBRD and NESDB, Thailand, Report No. 5793-TH.

World Bank. 1985. Rural Energy Issues and Options, Joint NDP/World Bank Energy Sector Management Assistance Program, Activity Completion Report No. 044/85.

B. Thai Language References

Intrapairoj, Arunee. 1986. Evaluation of Economic Returns from Fast Growing Forest Plantations. Master of Economics Dissertation, Chiangmai University.

Phutaraporn, Kobkul. 1983. Village Woodlot Projects. Chulalonglongkorn University Social Research Institute.

Ramitanond, Chalardchai. 1985. Social Forestry for Rural Development. Public Policy Studies Project, Social Science Association of Thailand.

Urapeepattanapongs, Chavalit. 1982. Production, Distribution and Consumption of Charcoal: An Economic Study. Forest Economics Section, Planning Division, Royal Forestry Department, Ministry of Agriculture and Cooperatives, Thailand.