

# The Social Sciences in Asian Forestry Curricula

*Papers from the Workshop held  
November 27 - December 2, 1988  
in Khon Kaen, Thailand*

Forestry/Fuelwood Research and Development  
(F/FRED) Project



PN-HBC-684

# **The Social Sciences in Asian Forestry Curricula**

*Papers from the Workshop held  
November 27 - December 2, 1988  
in Khon Kaen, Thailand*

Edited by Robert E. Clausi

Workshop presented by the Tropical Resources Institute of the Yale School of Forestry and Environmental Studies and the Regional Office for Asia and the Pacific of the United Nations Food and Agriculture Organization. Workshop sponsored by the United States Agency for International Development's Forestry/Fuelwood Research and Development (F/FRED) Project, for which Winrock International is the prime contractor.

1989

## ACKNOWLEDGEMENTS

The editor wishes to thank Dr. William Burch and Dr. Joseph Miller of the Yale School of Forestry and Environmental Studies for their assistance in editing this volume. The support for this effort provided by the United States Agency for International Development's F/FRED project and project implementor Winrock International is also greatly appreciated.

## CONTENTS

<b>Introduction</b>	1
<b>Social Science and the 'New Forestry' in Asia</b> Donald A. Messerschmidt	3
<b>Agroforestry Education and Training for Rural Development</b> R.S. Raros	27
<b>Forestry Education and Training in India and the Role of the Social Sciences</b> S. Chinnamani	30
<b>Education and Training on Social Forestry in Thailand</b> Niwat Ruangpanit	35
<b>Socioeconomic Aspects in Forest Management</b> Junus Kartasubrata	49
<b>Integrated Study on Social Forestry Planning and Implementation</b> Komon Pragtong, Sitthichai Ungpakorn, Preecha Arampongpan, Uraiwan Tankimyong, Yaouwalak Apichavullop, Lert Chuntanapap, David E. Thomas	71

## INTRODUCTION

The papers in this volume were contributed by some of the participants in the Workshop on the Social Sciences in Asian Forestry Curricula, held in Khon Kaen, Thailand from November 27 - December 2, 1988. The workshop was presented by the Yale School of Forestry and Environmental Studies' Tropical Resources Institute and the U.N. Food and Agriculture Organization's Regional Office for Asia and the Pacific, and was funded by the U.S. Agency for International Development through its Forestry/Fuelwood Research and Development Project (F/FRED), for which Winrock International is the prime contractor.

The first two papers in this volume, written by Donald Messerschmidt and Romeo Raros, take a broad view of the place the social sciences have in forestry practice and education in contemporary Asia. The papers by S. Chinnamani and Niwat Ruangpanit detail the state of forestry education in India and Thailand, respectively, and the degree to which the social sciences are integrated into these curricula. The final two papers, written by Junus Kartasubrata and Komon Pragtong et al., give examples of how lessons from the social sciences are being linked with technical forestry expertise to improve ongoing forestry projects in Asia.

Dr. S. Chinnamani is the Assistant Director General for Agroforestry of the Indian Council of Agricultural Research in New Delhi. Dr. Chinnamani received his doctoral degree in forest hydrology/soil and water conservation from Anna University of Technology, Madras, India. He has many years of research and project implementation experience throughout India in watershed management, land reclamation, and social forestry. In his current position, Dr. Chinnamani is responsible for guiding the agroforestry investigations being conducted at 32 regional research centers in India. Dr. Chinnamani is a board member of the Indian Institute of Forest Management, and is a senate member of Y.S. Parmar University of Horticultural and Forestry, Solan (HP), India.

Dr. Junus Kartasubrata is a professor in the Faculty of Forestry, Bogor Agricultural University, Bogor, Indonesia. Dr. Kartasubrata spent 25 years working as a practicing forester for the Indonesian State Forest Corporation. In 1980 he transferred to the Forestry Faculty from his position as the Corporation's Production Director in Java. Along with his teaching assignments, Dr. Kartasubrata conducts research and consults on social forestry, agroforestry, and upland development projects in Indonesia.

Dr. Donald A. Messerschmidt received his Ph.D. in sociocultural anthropology from the University of Oregon in 1974. Active in international development since 1983, Dr. Messerschmidt's professional work in social forestry and natural resources development includes teaching, research and consulting. From 1975 - 1987, Dr. Messerschmidt taught anthropology and development at Washington State University. From 1987 - 1989 he served as the Social Forestry Coordinator in the Forestry Support Program of the U.S. Forest Service and USAID, where his responsibilities included backstopping social science activities of the F/FRED Project. Dr. Messerschmidt is currently working on contract to USAID at the Institute of Forestry in Pokhara, Nepal.

Mr. Komon Pragtong is the Chief of the Community Forestry Development Branch of the Thai Royal Forest Department's National Forest Land Management Division. Mr. Pragtong received his masters degree in forestry from the Yale School of Forestry and Environmental Studies in 1974. He has extensive experience in forest village projects, community woodlots, and silvicultural research.

Dr. Romeo S. Raros is Head of the Department of Forestry of Visayas State College of Agriculture (ViSCA) in the Philippines. Dr. Raros received his doctoral degree in entomology from the University of Minnesota. He taught entomology at the University of the Philippines at Los Banos (UPLB) and did research on integrated pest management and other topics at the International Rice Research Institute before transferring to the UPLB College of Forestry in 1974. In the mid-1970s, Dr. Raros conceived and directed implementation of the Upland Hydroecology Program which brought biological, physical, and social scientists together to conduct research in the Philippine uplands. Dr. Raros continues to work with upland farmers from his base at ViSCA, where he has been a professor since 1982. As Head of the Department of Forestry--a post he has held for the past few years--Dr. Raros initiated the revision of the traditional B.Sc. forestry curriculum into one with greater emphasis on tree farming, reforestation, agroforestry, ecology, and social issues.

Dr. Niwat Ruangpanit is presently an associate professor in the Department of Conservation, Faculty of Forestry, Kasetsart University, Thailand, where he also serves as Associate Dean of the Faculty. Dr. Ruangpanit has bachelors and masters degrees in forestry and silviculture from Kasetsart University, and a doctorate in range ecology from Colorado State University. He served as National Project Director for Curriculum Development in Social Forestry at Kasetsart University between 1984-86. In addition to his academic duties, Dr. Ruangpanit has worked as a research fellow for the Ford Foundation and has been a consultant to various environmental and ecological projects in Thailand.

## SOCIAL SCIENCE AND THE 'NEW FORESTRY' IN ASIA

Donald A. Messerschmidt\*

*To start with I had to know something about the people, the country, and the trees. And of the three the first was the most important...*

*There are just two things on this material earth -- people and natural resources.*

(Gifford Pinchot, First Chief of the U.S. Forest Service)

### INTRODUCTION

This paper addresses several themes for the 'new forestry'--social forestry--in Asia. It examines current trends and the potential for foresters and social scientists to work together to create a strong, responsive, people-oriented enterprise. The discussion includes some of the basic elements of the social forestry paradigm, considering the roles of social scientists and the people in forest research, development and training. Examples are given, especially in reference to the regional Forestry/Fuelwood Research and Development (F/FRED) project in Asia, funded by the U.S. Agency for International Development (USAID).

### ON DEFINING SOCIAL FORESTRY

*...all forestry is social in terms of its rationale for practice, its venue of practice, and the socially approved incentive for practice.*  
(Burch 1988:75)

But all forestry is *not* social forestry. Nor, do I understand Burch to be saying that, if by *social forestry* we mean involving local people in decisions about the management and utilization of tree and forest resources. Distinguishing social forestry from other forms is one of the first steps in defining and understanding it (see Figure 1).

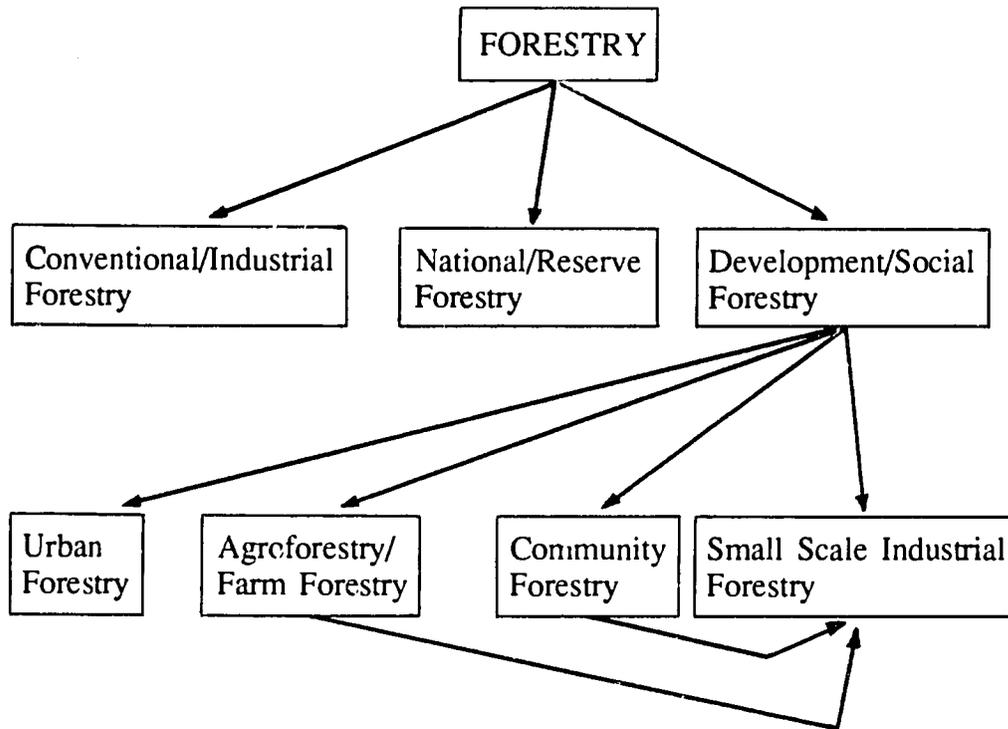
Social forestry is not, for example, the same as *conventional* or *industrial forestry* (which Burch calls "traditional forestry")<sup>1</sup>, defined as "maximizing biomass production for commercial output" (Burch, 1988:82). Conventional forestry "[calls] for a single product management of large tracts of forest, over a long rotation, by a highly centralized authority" (Mahat, 1987:111).

---

\*Social Forestry Coordinator, Forestry Support Program, Washington DC, USA.

Figure 1

Classification of Forestry Based on Local Decision Making



---

Nor is social forestry the same as *national forestry* or *reserve forestry*, which includes national parks, wildlife preserves, or other protected areas and forests grown simply for national beauty or as a symbol of national wealth. The management, decision making, and control of such forests is usually limited to foresters and rangers. With rare exception, local people are given little if any say in how these forests are managed or used (Messerschmidt and Pandey, 1988).

Rather, social forestry is concerned with "the total perceived and potential stream of social goods, services and benefits available from intervention in forested ecosystems" (Burch 1988:82). Ideally, in social forestry, the flow of goods, services, and benefits goes *two ways*--as *socioeconomic outputs* (e.g., products and earnings, important to survival) and, not insignificantly, as *socio-cultural inputs* (e.g., indigenous knowledge and tradition, important to resource management and utilization). These are only a few examples of the potential social inputs and outputs to and from a forest ecosystem.

A fundamental assumption of social forestry is that local people are involved in decision making. It assumes their participation in managing forests and trees as useful, productive, and sustainable resources. In defining social forestry I find it useful to consider it jointly as

'development/social forestry' incorporating four broad categories of people's involvement and decision making:<sup>2</sup>

1. Community-based or public action ('community forestry', 'village forestry', or 'urban forestry'),
2. individual initiative ('private forestry'),
3. group or private small-scale industry ('production forestry'), and/or
4. some aspects of agriculture-based forestry ('agroforestry' or 'farm forestry').

The social sciences have many roles to play, in all facets of development forestry. Social forestry belongs in research and extension of course, but it is in professional training of new foresters that we face one of the greatest challenges. This paper addresses the theme of social science in forestry training, as well as in research and extension. Extension and research have two important functions to play vis-a-vis training; these are providing 1) practical examples for classroom and field training and, ultimately, 2) the jobs for trained forestry graduates.

The rest of the discussion is predicated on three assumptions. Each is briefly defined, then discussed at length. They are:

1. On *Asian Forestry Leadership*--that the vision and sensitivity of many of today's Asian forestry leaders provide the foundation on which to develop a dynamic, responsive, and collaborative 'new forestry' in Asia, integrating appropriate concepts, strategies, and methodologies from the social sciences. This leadership already exists in several of the region's leading schools of forestry and in forestry research and development projects, thus providing good role models and examples.
2. On *Importance of the Social Sciences in Forestry*--that the cultural and economic social sciences have a unique and central role to play in developing the 'new forestry'. Evidence indicates that social science involvement in research, extension, and training leads to better all around, long-term forest planning, management, and utilization. Applied anthropology, in particular, has great promise in appropriate forestry development.
3. On *Understanding Constraints and Seeking Opportunities in Social Forestry*--that an important strength of social science is to insightfully balance an appreciation for constraints with an understanding of opportunities, and to effectively use that knowledge in collaborative work with other forestry professionals. Among the major strengths of social science methodology is its practice, or perspective, of holism, the study of the whole development context. An holistic, opportunity-oriented approach to people provides applied anthropology, for example, with the ability to encourage people's involvement, including the use of indigenous technical knowledge and traditional social and economic survival strategies in forestry planning and resource management, and to transfer the lessons of social forestry to the next generation of Asian foresters through socially appropriate professional training.

## ON ASIAN FORESTRY LEADERSHIP

*Asia has been in the forefront...in the gradual integration of the social and biological sciences in agricultural research and education... [and] there is a considerable trend of experience... to combine social sciences with applied... forestry programs.*  
(TRI, 1988:2)

It has become increasingly obvious that Asian foresters play a leading role in the promotion of socially sensitive, holistic forest policy and practices. Furthermore, social (community) forestry has become a topic of major interest and investment in several Asian professional forestry training institutions, with potential to set standards for the rest of the world.

It has been observed that, in some respects, the emphasis on social forestry in Asia puts Asian foresters ahead of their Western counterparts. In commenting on Western forestry, Burch notes that like Asia, "Forestry schools in North America and Europe have been facing somewhat similar demands (for more social awareness) from the general population. Yet, their solution has been more rhetoric about 'forests are for people,' and then back to the usual business..." In contrast, he says in Asia "we have a lively, pioneering group of professionals who understand the nature of changed conditions, have some idea of the 'causes' of these changes and are moving quickly to provide the means for resolving the new problems" (1987a:8-9). The examples of Thailand and the Philippines come readily to mind.<sup>3</sup>

Good social forestry curriculum depends on practical examples from the field, i.e., from research and extension. It also implies that the need (employment opportunity) exists for socially sensitive and skilled forestry graduates, both women and men, to work on field projects and on laboratory and research station programs. The potential for engaging Asian social scientists and social foresters in all facets of development forestry is well recognized and often commented upon. There are numerous examples demonstrating the importance of social science in Asian forestry projects.<sup>4</sup>

In multipurpose tree species (MPTS) research, for example, the Forestry/Fuelwood Research and Development Project, or F/FRED (a co-sponsor of the Khon Kaen workshop), has some of the greatest promise and potential for linking social science with biophysical forestry. F/FRED was designed to strengthen Asian leadership on MPTS research and development. Asian leadership on the project is expressed through the project's steering and research committees, to which both biological and social scientists are elected annually.

F/FRED also promotes a variety of other social science research activities. One is the development of a farm and village minimum data set for easy, computer-based access by researchers and planners. A regional social forestry research network has been created to conduct coordinated case studies of socio-economic variables affecting MPTS for small farm use. Special studies are under way to define the tree breeding objectives of Asian farmers. Short courses in social forestry have been held, and a variety of workshops, conferences and publications emphasizing the linkages between the social and biophysical sciences have been completed, with more planned for the future (F/FRED, 1987, 1988a-h).

The evidence demonstrates a high level of Asian leadership in these and other socially sensitive forestry initiatives. The reasons are clear: Asian foresters regularly address a range of critical sociological issues and opportunities, and compared with many of their colleagues in other world regions, they appear, on the whole, to be farther ahead in identifying and dealing with them. Although the social and community issues of Asia are quite different from those encountered by American and European foresters, we in the West can nonetheless learn a great deal from our Asian counterparts about both the socioeconomic and socio-cultural contexts of development forestry.

One leading Thai forestry educator has this to say about recent change in forestry perspective and need in the Asian context:

During the last decade...there has been increasing recognition of the important role forestry can play in alleviating poverty and raising the welfare of the rural people in developing countries. The practice of forestry for local community development (i.e., social forestry) requires new knowledge and skills and a reorientation of attitudes on the part of foresters and other forest workers. In other words, if this new approach of 'using forestry for the people' is to succeed, a new type of forester is required...

Traditionally, forestry education, with its emphasis on the biological and technical aspects of forest production, tended to ignore the social aspects of forestry... Social issues related to forestry were generally considered to lie beyond the responsibility of the forestry profession. Of course, this attitude was acceptable in the times when demographic pressures were low. However, the forestry profession in Thailand today is increasingly confronted with the effect of rising population pressure. The need for developing new approaches that integrate the productive, protective, and social roles of forests and the concept of forestry for local community development, are being accepted and considered very important (Rao, 1983).  
(Niwat Ruangpanit, this volume)

Increasingly, too, small farmers and villagers are being brought directly into the planning and management of successful forestry development activities (e.g., Messerschmidt 1987, 1988b; Messerschmidt et al, 1984; Messerschmidt and Pandey, 1988). Knowledge of the variables of farm and village forestry, based on the conventional wisdom of farmers, combined with rigorous research on the part of biophysical and social scientists, is critical to success. Project planners and implementors must be prepared to utilize sociological knowledge about farmers and trees, communities and forests, in order to succeed in meeting the needs of the people and in maintaining a sustainable resource base. This, in turn, requires well trained foresters and social scientists working together, appreciative of each other's professional agendas and needs, and sensitive to the sociological circumstances and potential of people's participation in forestry development.

The pragmatic engagement between social science and forestry is a reality at several Asian forestry schools (e.g., in Thailand and the Philippines) and is a topic of major interest in others (e.g., Indonesia, Nepal and Pakistan). After working with the Faculty of Forestry at Kasetsart University in Bangkok, social forester Burch has complimented them, speaking of his "good fortune to work with some outstanding scholars who were particularly open to new ideas and approaches and most tolerant of the theories and concepts of social science. Indeed, one can only wish that foresters in other regions would be equally open to making action meet prevailing rhetoric about community participation in forestry programmes" (1987a).

#### *ON SOCIAL SCIENCE FOR EXTENSION AND TRAINING*

*The forestry profession has before it a unique window of opportunity to take a leadership role in attacking...global problems. To do this we must embrace a philosophy of people-centered forestry, while retaining the traditional forestry-centered forestry. As forestry educators it is our responsibility to instill in our students this [new approach]...People centered forestry will allow our graduates to apply...knowledge of the physical and biological forest processes to the cultural and social environment in which they work.*

*Failure to seize this leadership opportunity will inevitably lead to increasing forest-resource-use conflict, and to the ultimate demise of much of the world's forested areas.  
(Paul Smith's College, 1988:1)<sup>5</sup>*

In the past, much of the wisdom of the social sciences was relegated to 'extension', as an 'add-on' to technical research and development (R&D) work. Recently, however, social scientists have become much more directly involved and are beginning to demonstrate the importance of their disciplines more broadly. In the F/FRED project, for example, there is an increased emphasis on collaboration between social scientists and biophysical scientists on MPTS research, and on assisting educators in developing social forestry curricula for professional training.

The F/FRED project is now pursuing plans to more clearly integrate social sciences by 1) *involving the farmer* (seeking to understand farmer knowledge, objectives, needs, and incentives about trees), 2) *providing interdisciplinary training* (holding short courses, seminars, workshops, and field exercises highlighting useful relationships between social and biophysical sciences), and 3) *assisting Asian forestry educators* (running special short course programs and assisting in the development of long term social forestry curricula, as in the Khon Kaen workshop).

### *Involving the Farmer*

In a recent paper, John Raintree and Marilyn Hoskins (of ICRAF and FAO, respectively) point out the historic separation of social and biological forestry from farmers and farming. They note that typical tree and forest research is of a kind in which farmers' needs and objectives are frequently unknown or ignored. They describe a common style of forestry extension in which farmers are viewed as passive receivers of the combined wisdom of the scientific community. And they conclude that most forestry extension is based on an agricultural extension model that in large measure simply does not meet the needs of society or forestry (Raintree and Hoskins, 1988).

To remedy the situation, Raintree and Hoskins encourage innovative ways to stimulate forestry/agroforestry R&D by bringing the scientists together with the farmers. This necessary marriage between R&D and farmers can take place in three complimentary ways, they say, by:

1. making use of indigenous technical knowledge,
2. giving local people the opportunity to define their own objectives, and
3. encouraging local people to participate in activating social processes involved in decision making and adaptation.

They advocate building a *bridge* of people's (farmers') involvement between research and extension, what they call a "unified research and development continuum" promoting both a "community-based synthesis" and a new "extension R&D" (1988:2 and passim).

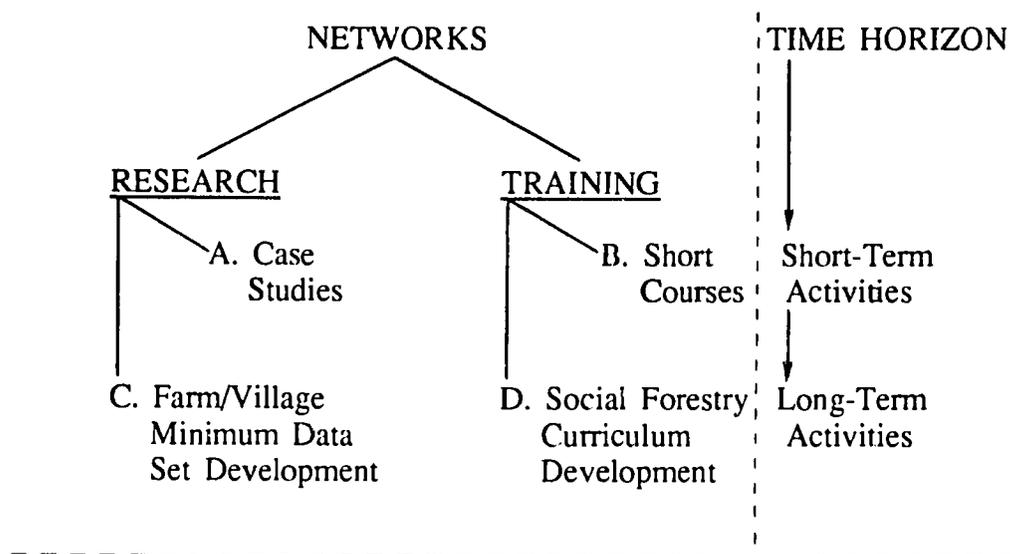
The same sort of bridge is needed between biophysical and social forestry. The F/FRED project on MPTS research has this objective, to promote collaborative and productive dialogue and knowledge exchange among forestry researchers, and by implication, with farmers. F/FRED is not a forestry extension R&D project, however. Its mandate is to strengthen the research side of the continuum; its primary beneficiaries are Asian researchers and national research institutions. Nonetheless, small farmers are the *ultimate* beneficiaries, and their involvement is critical to success (see Figure 2).

### *Providing Special Training*

The social sciences in F/FRED play an important role in bringing sociological sophistication and farmers' perspectives to bear on MPTS R&D. In part, as indicated earlier, this is being accomplished through special short courses, seminars, workshops, and conferences, the development of a comprehensive data base, and the production of project publications and other information services.

Figure 2

Social Forestry Network Development and Beneficiaries  
Interlinking Social & Biophysical Forestry in F/FRED



The Beneficiaries of F/FRED as both receivers and sources of information:

FORESTERS: The Immediate Beneficiaries. Principally as researchers and educators; also as policy makers, the users of both scientific and local indigenous technical knowledge (ITK), etc.

SMALL FARMERS: The Ultimate Beneficiaries. Including the landless and others; as multipurpose tree species (MPTS) growers, users, and experimenters (i.e., 'local researchers'), and as repositories of local indigenous technical knowledge (ITK), etc.

---

Recent short courses, for example, have brought social and biophysical foresters together for training in 'Forestry for Social Scientists' and 'Social Science for Foresters', as well as in 'Problem Solving for Agroforestry Research'. The rationale for the first two of these is described as follows:

An effective forester or social forestry officer should be equipped with adequate knowledge of social science methods in addition to his training in forestry and be able to integrate these in practice. The concept of social forestry requires a well integrated

approach to community development, with forestry as its foundation. At the same time, social scientists can be more efficient [effective] in implementing social programs in forestry if they have an understanding of forestry methods and how to apply them. (F/FRED, 1987)

The design of the problem solving course reads:

A variety of problems in conceptualizing, designing, implementing and managing applied agroforestry research reduce its effectiveness. This is true for [both] biological and social science research... [This short course] will help Thai agroforestry scientists and their institute to better design and conduct research on multipurpose tree species and on farm and village forestry that will serve resource-poor farm families as beneficiaries of the research. (F/FRED, 1988c)

Each of these is an important contribution, helping to link forestry and social science more closely. For the project to succeed in creating the necessary linkage between the sciences and the bridge involving farmers, however, an even more fundamental engagement is necessary--bringing social science knowledge and practice to the classroom. It was to this end that the special activity to assist Asian forestry educators was created with funding from the USAID Office of Rural Development.

### *Assisting Forestry Educators*

Several long-term professional training activities are being funded by the F/FRED project. These include advanced participant training for PhD. candidates in biophysical and social forestry in the United States, and assistance to Asian forestry educators in the development of social forestry curricula. The latter initiative has, perhaps, the greatest potential for positively affecting the greatest number of future Asian R&D foresters.

The 1988 Khon Kaen workshop on 'Social Sciences in Asian Forestry Curricula' was the first major activity of the F/FRED curriculum development activity. The workshop was implemented by Yale University's Tropical Resource Institute (TRI), and held in association with the U.N. Food and Agriculture Organization, Regional Office for Asia and the Pacific (FAO/RAPA), in direct support of its newly created Asian Forestry Educator's Network.

Asian forestry educators are well aware that the 'new forestry' requires innovation in curriculum development and in creating new institutional structures and policies to accommodate social forestry. The development of new courses, degrees, and career paths in social forestry needs careful attention. Courses in social science theory and method, including effective community development and communications techniques, are necessary. Social forestry as a academic subject also needs to be raised to equivalence with existing courses and

programs such as environmental science, ecology, agronomy, and botany, for example. Progressive forestry educators in the region know well the institutional constraints to getting all or even some of this done, but they need very little convincing about its importance. They only seek opportunities to get on with it.

### ON CONSTRAINTS AND OPPORTUNITIES

*The demand for tree products for use by the rural poor...poses an important challenge... Clearly, social and biological scientists must work together to understand how, where, and why farmers grow and use trees before they can successfully--with the farmers--improve the existing systems of tree use. (Mehl, 1988:20)*

The importance of social forestry in professional training for the new forestry is clear. In this section we return to some of its unique contributions and important issues in Asia. Two related questions are examined: 1) 'What are the constraints?', and 2) 'What are the opportunities?' for strengthening the bridge between social and biophysical forestry on the one hand, and between the forestry scientists and farmers on the other?

Social scientists are painfully aware in the literature (on agriculture and forestry development, for example) that a largely negative and reactive impression has been painted of local people, especially peasant farmers. Development technicians have been heard to express frustration that LDC farmers do not more eagerly adopt their new 'miracle' grains or improved fertilizers, for example, and disdain using energy efficient farm tools and other modern technologies. It is also thought by some that because most peasants are illiterate and cannot express themselves in 'scientific' terms, they must have little to offer in understanding or managing resources to improve their living conditions. There is great evidence, however, that peasant peoples are *highly rational* about choosing what form of 'progress' or what technologies to adopt or avoid.<sup>6</sup> All too often, however, their rationality is ignored in the compulsive drive of development agents and technicians to intervene.<sup>7</sup>

Similar skepticism is often expressed by developers about the role of social scientists. Recently, several arguments have been put forward to explain the historic reluctance to engage social scientists in development (see Brady, 1984; McCorkle and Gilles, 1987):

1. *Social Scientists have Insufficient Experience in Collaborative or Comparative Development Research.* This view is based in part on misconceptions about the social sciences--e.g., that because some social scientists are overly concerned with producing detailed case studies about esoteric customs and social patterns, and because some deal in what is generally considered to be 'common knowledge', that they are not to be taken seriously.
2. *Social Scientists have been Poorly Used or Ignored on Development Projects Until there is a Problem to Explain or Resolve.* One of the main roles for social scientists has been to evaluate what has gone wrong in failed projects and programs, after the fact.

This has resulted in the creation of a negative professional image among many developers.

3. *Social Science Applications are not Systematized or Generalized, Hence They Fail to Achieve Their Full Potential for Technical Development.* Some observers have suggested, for example, that 'predictive modeling' is necessary to make the best use of social science knowledge, to bring it into the development mainstream. Without the rigorous data gathering and analytical tools and models of the hard sciences and economics, for example, many development technologists simply ignore social science findings.
4. *Lack of Good Models for Interdisciplinary Collaboration in Academia (from which many developers are drawn) Predicates Low Collaboration Potential for Social Scientists in Development.* Generally speaking, the reward structures of academia create little incentive or experience in which to design and implement innovative interdisciplinary activities. Development suffers in this regard to the degree that development social scientists come from academia.

By and large, these arguments reflect historic truths. Recently, however, we have begun to see change. Many Asian social scientists and foresters, for example, are now actively involved in collaborative work in research for international development, on and off the academic campus. In the F/FRED project, collaborative interdisciplinary research is being developed for MPTS research, some of it within Asian academic institutions. (Another example of interdisciplinary research collaboration in Asia is the Royal Forest Department's Thailand Upland Social Forestry Pilot Project [TUSFP]. The TUSFP involves social scientists and foresters from Khon Kaen and Kasetsart universities with the forest villagers of northeast Thailand. [See Pragtong et al., this volume]. TUSFP is assisted by the Ford Foundation. There are other examples from the Philippines, Indonesia.)

Social scientists are now being engaged on forestry projects in many important ways, including R&D planning, implementation, monitoring, and evaluation. Among their strengths is their holistic perspective on the wider contexts of development, and their search to understand the constraints *and* to identify appropriate opportunities involving local people.

Predictive modeling is important for some aspects of development (e.g., socioeconomic factors). But many social scientists argue that their greatest strength lies in the ability to respond with strategic applications that reflect the often unique local conditions and the remarkable resilience and dynamic of local people, aspects of the human condition that are often lost or unaccounted for in statistical modeling exercises.

Some criticisms of the social sciences are, nonetheless, well-founded. We have made generally poor use of our knowledge and insights in the past, and have too often neglected to translate what we know to the development practitioners (Cernea, 1985c). Sometimes we get so bogged down documenting the 'constraints' that we ignore the 'opportunities'. The understanding of constraints is not *unimportant*, but neither does it present the whole picture. Several other

misapplications of social science in the context of Asian forestry have been pointed out by Taylor and Mehl (1988:1):

1. Social scientists do not always communicate their research results to the appropriate foresters and agriculturalists.
2. Many social scientists avoid the concise, firm recommendations that policymakers and program managers require.
3. A lack of replicable and comparative research prevents recognition of patterns and trends on social and economic factors.
4. There is a tendency to collect too much information not immediately relevant to the applied research needs.
5. Donor-driven research efforts lack coordination, resulting in considerable duplication of effort.

F/FRED social scientists are, in fact, planning a dual approach, seeking to understand both the constraints and the opportunities inherent in MPTS R&D. Their work focuses specifically on farmer adoption of new or improved tree species.

At an F/FRED conference on 'Research Methods for Farm and Village Forestry' (in Kathmandu, April 1988), nearly 60 economists, anthropologists, sociologists, and foresters from South and Southeast Asia identified eight key priority subjects for study. Among them are several topics in which there are potentially severe farmer constraints to the adoption of new or improved tree species. These include Property and Tenurial Arrangements (including land and tree tenure and tenancy, proprietary rights and restrictions, etc.), Population Dynamics (migration, population/resource pressures, etc.), and such other topics as Landlessness, Social Stratification, and Class (as they affect decision making, personal choice, conformity, and conflict).<sup>8</sup>

As our appreciation of the constraining factors has improved, so has our ability to identify and use existing opportunities to encourage, engage and enable people's participation in the effort to effect real improvement in resource management and in peasant life. The people themselves hold the keys to one of the most important opportunities for involvement--their indigenous technical knowledge and traditional resource management practices.

F/FRED researchers, for example, are now considering farmer definitions of 'Tree Breeding Objectives', and they are designing ways to conduct research, including species trials, on small farms (in addition to conventional tree research at forest research stations). Through on-farm research they are beginning to consider more carefully and realistically the variables that affect farmer choice of species, or community attitude about exotic vs. indigenous trees. Context specific, farmer-sensitive research helps researchers appreciate the very real constraints and potentials that exist.<sup>9</sup>

As this sort of appropriate, people-centered tree development increases, social science knowledge about people's perspectives on trees, their management of tree resources, and the vagaries of local forest and farm ecosystems will make better sense. This facet of social forestry focuses on listening, learning, and using the invaluable knowledge that farmers have, how they organize to manage resources and what variables (constraining and encouraging) affect their decisions about what trees to plant and manage, and for what purposes.

It is encouraging to note that social science knowledge of local options and the understanding of factors affecting farmer decisions are now being taken very seriously by Asian foresters. And, reciprocally, Asian social scientists are also learning more about the 'new forestry' to which the knowledge of local concerns and conditions is being applied. Many observers urge still more village- and farm-based research. *In situ* learning, they say, can lend realism and credibility to scientific results and recommendations, as well as to development innovations.

At the F/FRED workshop on 'Multipurpose Tree Species for Small-Farm Use' (in Pattaya, Thailand, October 1987), one elder statesmen of social forestry in South Asia made this plea:

Basic and applied research must be conducted side by side. The reasons why certain trees and crops are compatible while others are not need to be understood clearly... Many basic issues need to be understood before production and productivity can be improved... Scientists need to determine whether it is possible to select fast-growing, high-yielding, more compatible native tree species... Many challenges and opportunities await scientists embarking on this uncharted research. (Tejwani, 1988:23)

The intensity of the social scientist's concern with the research context can be both likened and linked to the tree biologist and geneticist's penchant for tightly controlled tests and trials. For the biologists, '*provenance trials*' are essential, as the standard experiments used "to discover geographic variation patterns" in the genetic makeup and adaptation of tree seeds. With this biogeographical knowledge, foresters seek to formulate rules to guide the best selection and use of tree seeds and seedlings in an ecological situation (Wenger, 1984:23). Similarly, social forestry studies are a kind of *social provenance research*, seeking to find the socio-cultural and socio-economic patterns and conditions that affect people's choices and use of species.

Provenance trials and research are really about better (more scientifically sound) resource management. The process of resource management has three elements and three actors. The elements are crop plants (trees), the environment (biogeography), and farmers who, with their knowledge, tools, and institutions, actually manage the resources by modifying and maintaining the ecosystem (Wilken, 1987:2). The actors are biophysical scientists (studying the biogeographical environment), social scientists (studying the biosocial environment), and farmers (who are part of the biosocial environment *and* are the ultimate plant/tree managers). Ideally, therefore, in order to increase scientific knowledge of the resource management process, provenance trials and research should be fully collaborative endeavors involving all

three elements and actors. This coalescence of knowledge and expertise should become a standard feature in tree and forestry research and should be taught by example in the forestry classroom.

One finding based on farmer involvement to date is local preference for indigenous MPTS species. When the F/FRED project began, planners selected a small number of exotic MPTS for intensive research.<sup>10</sup> While concentrating project resources on the exotics, it was easy to interpret farmer preferences for indigenous species as a constraint to scientific progress and change. Recently, however, their perspective of some F/FRED research cooperators has been changing, and they now see new MPTS research opportunities opening up with renewed study of indigenous species. Asian foresters have begun asking for native species to be much given more careful attention.

For example, at the F/FRED workshop 'Trees on Small Farms: Multipurpose Tree Species for the Arid and Semi-Arid Tropics' (in Karachi, November 1987), a Pakistani spokesman raised this point to the participants: " 'While exotic species may be introduced, indigenous species should not be forgotten,' he said, 'and improved tree management methods should be explored.' He combined his plea with the need to conduct research studies on private farms, 'so that communities may be convinced of (the) results and adopt the findings'." (Chief Minister for Sind, in Taylor and Medema, 1988:11)

At the same workshop, the F/FRED social scientist summed up these kinds of concerns:

We often hear that villagers need trees, and this is true. But it should be remembered that they already grow and use trees. We need to learn more about their established methods of growing, managing and using trees. Using their valuable indigenous knowledge in combination with scientific knowledge of tree improvement, we--researchers, extension agents, and government officials--can work more effectively with the rural poor to improve their livelihood and their lives. (Mehl, 1988:22)

In reaction to concerns such as these, Asian foresters have significantly expanded their vision of opportunity in social forestry by:

1. seeking the expertise of social scientists,
2. accommodating local preferences for indigenous species,
3. conducting research under real life farm and village conditions, and
4. seeking enlightenment from local farmer knowledge and traditional systems of organization to manage tree resources.

As reciprocal attention to forestry by social science occurs, a more positive, better informed, proactive, and progressive social forestry is emerging, one that seeks insight and understanding *from the people* and interdisciplinary collaboration *with social science colleagues*. This form of the 'new forestry' seeks opportunities for action coupled with the application of appropriate, sensitive, and responsible research to development projects, extension and training.

## CONCLUSION

As social scientists increase their involvement in applied forestry research and development, and as foresters seek out their expertise, the importance of social science skills and expertise and of social science perspectives and insights are gaining clarity and acknowledgement. The next important step is to take these lessons to forestry institutes and colleges throughout the region. The recent gains of social forestry insight and knowledge must now be brought home to the classroom, both to the next generation of Asian forestry leaders, researchers, and extension workers as well as, through them, back to the local people, the farmers, and others who are the ultimate beneficiaries. Then the 'new forestry' in Asia will have come of age and full circle, and its leaders and students will have met the challenge.

*Forestry is not about trees, it is about people. And it is about trees only insofar as trees can serve the needs of the people.*

(Jack Westoby, International Forester)

## NOTES

*Author's Note* Donald A. Messerschmidt, PhD., wrote this paper while working on contract as Social Forestry Coordinator to the Forestry Support Program, International Office of the USDA Forest Service, Washington DC. In this capacity he worked closely with the Office of Rural Development of the U.S. Agency for International Development (USAID), as a technical adviser on social forestry matters with special reference to the Forestry/Fuelwood Research and Development (F/FRED) Project in Asia. This paper is a revised and shortened version of a discussion paper prepared in 1988 for USAID, 'Social Science Activities in the F/FRED Project.' He thanks his associates at FSP and USAID, as well as the directors and participants in the Khon Kaen workshop for their valuable comments and suggestions for this paper.

1. The terms 'conventional' or 'industrial' forestry are preferred over 'traditional forestry' for categorizing that which concentrates on the commercial or industrial motive, in order to avoid confusion with 'traditional systems' of forest management and utilization that anthropologists and social foresters study, for example, among indigenous tribal and peasant peoples.

2. People's involvement and use of the forest include, of course, subsistence and minor commercial activities relying on both minor and major wood and non-wood forest products, including the important category of forest use for animal husbandry practices (e.g., pasturage).
3. For examples from *India* see Blair and Olpadwala, 1988; FAO/RAPA, 1985 (II):55-172; USAID, 1987 and 1988; Noronha and Spears, 1985; Slade and Campbell, 1986; for *Pakistan* see Cernea, 1985a; Dove, 1987; Qureshi, 1988; for *Nepal* see Arnold and Campbell, 1986; Griffin, 1988; Messerschmidt, 1987; Wormald and Messerschmidt, 1986; for *Thailand* see FAO/SIDA, 1988; FAO/RAPA, 1985 (VI):324-397; and Subhadhira et al, 1987; for the *Philippines* see Aquino et al, 1987; FAO/RAPA, 1985 (V):235-339; Fujisaka et al, 1986; Rebugio, 1985a and 1985b.
4. For an indication of Asian leadership in social forestry training, see the country and institutional program papers in FAO/RAPA, 1988; FFKU, 1988; and RECOFTC 1988. Specific to Thailand, see also Burch, 1987a; Ruangpanit (this volume); Redhead, 1987; Stevens, 1987; and Weisblat and Kearl, 1988.
5. This enlightened 'people-centered' perspective on forestry is part of the Global Strategies statement drafted by foresters from the developing world at the 1988 Paul Smith's College conference on 'Educating Forest Technicians into the 21st Century'. The conference was supported, in part, for the Forestry Support Program of the USDA Forest Service and the U.S. Agency for International Development.
6. An excellent explanation of peasant reluctance to adopt new things, in their own words, is found in the chapter entitled 'Let All Things Old Abide', in Wisner and Wisner (1971). For a defense of the 'irrational peasant', see Nair, 1979. The 'good farming' techniques of peasant farmers are also described in Wilken (1987). See Chambers (1983) for a thorough debunking of negative thinking about peasant knowledge, abilities, rationality, and participation and Chambers (1985) for a description of the 'professional revolution' that is necessary before development agents can take full advantage of farmer wisdom and knowledge.
7. For discussion of compulsive *intervention*, compared and contrasted with a more participatory and socially appropriate *innovation* for development, see Messerschmidt (1987); also Bajracharya (1984). See also: Bajracharya et al, 1987; Brokensha et al, 1980; Bunch, 1985; Cashman, 1987; Chambers, 1983; Cernea, 1985b; Fernandez, 1988; Lightfoot et al, 1988; Messerschmidt, n.d.; Rhoades, 1982, 1984; Uphoff, Cohen and Goldsmith, 1979; and Warren and Cashman, 1988, for further discussion of innovative approaches to participatory development.
8. The eight priority themes for study, as identified by the F/FRED Social Science Research Network participants in Kathmandu are (abbreviated):
  1. Existing and Potential Tree/Farm Forestry/Land Use Systems,
  2. Markets, Labor, and Unemployment Issues,
  3. Labor, Gender, and Age Issues in Farm/Village Forestry,
  4. People's Participation in Farm/Village Forestry,
  5. Property and Tenurial Arrangements in Farm/Village Forestry,
  6. Population Dynamics,

7. Landlessness, Social Stratification, and Class Issues, and
8. Program/Project Evaluation; Extension in Farm/Village Forestry.  
(Taylor and Mehl, 1988)

9. There is an important and growing literature on the role of farmers in development, including the growth of interest in on-farm research. While much of the literature deals with agricultural development, its relevance to tree and forestry research, and agroforestry, is obvious. For examples, see: Chambers, 1988; Engel, 1987; Chambers and Ghildyal, 1985; Chambers and Jiggins, 1986; Farrington, 1988; Farrington and Martin, 1987; Jiggins, n.d.; Lightfoot, 1987; Rhoades, 1984; Rhoades and Bebbington, 1988; Richards, 1985; Wilken, 1987. The ILEIA Newsletter is an excellent source of up-to-date study of farmer involvement in development (Information Centre for Low External-Input Agriculture, Kastanjelaan 4, P.O. Box 64, 3830 AB Leusden, The Netherlands.) These readings provide good case study materials for courses in social forestry and people's participation.

10. See discussions in Taylor and Medema (1988) and Withington et al (1988). Based on recommendations from the International Union of Forestry Research Organizations (IUFRO) conference held at Kandy, Sri Lanka in 1984, the F/FRED project selected eight MPTS species for priority study. They are (with a few of their common names):

- Acacia mangium* (*mangium*, black wattle, hickory wattle)
- Acacia auriculiformis* (wattle, *akashmoni*, *kasia*)
- Melia azedarach* (China berry, *bakain*, Persian-lilac)
- Leucaena leucocephala* (*ipil-ipil*, *leucaena*)
- Eucalyptus camaldulensis* (red gum, *ilachi*, *gond*)
- Azadirachta indica* (*neem*, *nim*, margosa-tree, *mind*)
- Acacia nilotica* (prickly acacia, Egyptian thorn, *babar*, *babul*)
- Dalbergia sissoo* (*sissoo*, *sisu*, Indian rosewood)

## REFERENCES

- Aquino, R.M., R.A. del Castillo, and E.V. Payuan. 1987. *Mounting a National Social Forestry Program: Lessons Learned from the Philippines Experience*. East-West Environment and Policy Institute, Working Paper No. 87-9. East-West Center, Honolulu.
- Arnold, J.E.M., and J.G. Campbell. 1986. Collective management of hill forests in Nepal: The Community Forestry Development Project. Pp. 425-454 in *Common Property Resource Management*. National Academy Press, Washington, DC.
- Bajracharya, D. 1984. Organization for energy need assessment and innovation: Action research in Nepal. Pp. 279-336 in M.N. Islam, R. Morse, and M.H. Soesastro (eds.), *Rural Energy to Meet Development Needs: Asian Village Approaches*. Westview Press, Boulder, CO.
- Bajracharya, D., R. Morse, and A. Pongsapich, et al. 1987. *Village Voices in Rural Development and Energy Planning: Participatory Action Research in Nepal, Bangladesh and Bhutan*. East-West Center Resource Systems Institute, Honolulu.
- Blair, H.W., and P.D. Olpadwala. 1988. *Forestry in Development Planning: Lessons from the Rural Experience*. Westview Press, Boulder, CO.
- Brady, N.C. 1984. Title XII in retrospect and prospect. *The Rural Sociologist* 4(4):269-277.
- Brokensha, D., D.M. Warren, and D. Warner. 1980. *Indigenous Knowledge Systems and Development*. University Press of America, Lanham, MD.
- Bunch, R. 1985. *Two Ears of Corn: A Guide to People-Centered Agricultural Improvement*. World Neighbors Publication.
- Burch, W.R., Jr. 1987. *Curriculum Development in Social Forestry at Kasetsart University, Thailand: Integrating Socio-Economic Concepts into Forestry*. Faculty of Forestry, Kasetsart University, with the Food and Agriculture Organization of the United Nations and the Swedish International Development Agency (FAO/SIDA), Bangkok.
- \_\_\_\_\_. 1988. The uses of social science in the training of professional social foresters. *Journal of World Forest Resource Management* 3(2):73-109.
- Cashman, K. 1987. *Seeing the forest for the trees: A participatory approach to sustainable food production*. A paper presented at the Farming Systems Research Symposium, 'How Systems Work', October 18-21. Unpublished.
- Cernea, M.M. 1985a. Alternative units of social organization sustaining afforestation strategies. Pp. 267-293 in M.M. Cernea (ed.), *Putting People First: Sociological Variables in Rural Development*. Oxford University Press, for the World Bank, New York.

- \_\_\_\_\_. 1985b. *Putting People First: Sociological Variables in Rural Development*. Oxford University Press, for the World Bank, New York.
- \_\_\_\_\_. 1985c. Sociological knowledge for development projects. Pp. 3-21 in M.M. Cernea (ed.), *Putting People First: Sociological Variables in Rural Development*. Oxford University Press, for the World Bank, New York.
- Chambers, R. 1983. *Rural Development: Putting the Last First*. Longman, London.
- \_\_\_\_\_. 1985. Putting 'last' thinking first: A professional revolution. *Third World Affairs/1987*, pp.78-94.
- \_\_\_\_\_. 1988. To make the flip: Strategy for participatory R and D for undervalued agriculture. *Proceedings ILEIA workshop*. (Information Centre for Low External-Input Agriculture, Leusden, The Netherlands) In Press.
- Chambers, R., and B.P. Ghildyal. 1985. Agricultural research for resource-poor farmers: The farmer-first-and-last model. *Agricultural Administration* 20:1-30.
- Chambers, R., and J. Jiggins. 1986. *Agricultural research for resource poor farmers: A parsimonious paradigm*. IDS Discussion Paper 220, Institute of Development Studies, Sussex University, Brighton, England.
- Dove, M.R. et al. 1987. *Miscellaneous Farmer Interest Studies (Baluchistan, NWFP, and Punjab Provinces of Pakistan)*. FPDP Reports Nos. 1-6, 8. Forestry Planning and Development Project, Islamabad, Pakistan
- Engel, P.G.H. 1987. Farmers' participation and extension. *ILEIA Newsletter*, 3. (Information Centre for Low External-Input Agriculture, Leusden, The Netherlands).
- FAO/RAPA. 1985. *Community Forestry: Socio-Economic Aspects*. U.N. Food and Agriculture Organization, Regional Office for Asia and the Pacific, Bangkok.
- \_\_\_\_\_. 1988. *Expert Consultation of the Asian Network on Forestry Education*. U.N. Food and Agriculture Organization, Regional Office for Asia and the Pacific, Bangkok.
- FAO/SIDA. 1988. *Forestland for the People: A Forest Village Project in Northeast Thailand*. U.N. Food and Agriculture Organization and the Swedish International Development Agency, Bangkok.
- Farrington, J. (ed.). 1988. Farmer participatory research. *Experimental Agriculture* 24(3).
- Farrington, J., and A. Martin. 1988. *Farmer participation in agricultural research: A review of concepts and practices*. Agricultural Administration Unit, Occasional Paper No. 9. Overseas Development Institute, London.

- Fernandez, M. 1988. Towards a participatory system approach. *ILEIA Newsletter* 4(3):15-17. (Information Centre for Low External-Input Agriculture, Leusden, The Netherlands).
- FFKE. 1988. *International Training in Social Forestry*. 2 vols. Faculty of Forestry, Kasetsart University, Bangkok.
- F/FRED Project. 1987. *Task Order No. 21, on 'Applied Social Science Workshops and Training'*. F/FRED-Winrock International, Bangkok.
- \_\_\_\_\_. 1988a. *Asia Interim Progress Report*. F/FRED-Winrock International, Washington, DC.
- \_\_\_\_\_. 1988b. *Asia Progress Report*. (Annual). F/FRED-Winrock International, Washington, DC.
- \_\_\_\_\_. 1988c. *Report on the MPTS Research Network Steering and Research Committee Meetings*. April 5-9, 1988, Kuching, Malaysia. F/FRED-Winrock International, Washington, DC.
- \_\_\_\_\_. 1988d. *Task Order No. 34, on the National Seminar 'People and Forestry in Thailand: Status, Problems and Prospects'*, September 1988, Chulalongkorn University Social Research Institute, Bangkok. F/FRED-Winrock International, Bangkok.
- \_\_\_\_\_. 1988e. *Task Order No. 43, on 'Problem Solving Short Courses for Agroforestry Research'*. F/FRED-Winrock International, Bangkok.
- \_\_\_\_\_. 1988f. *Task Order No. 49, on 'Definition of Tree Breeding Objectives for Multipurpose Tree Species in Asia'*. F/FRED-Winrock International, Bangkok.
- \_\_\_\_\_. 1988g. *Task Order No. 53, on 'Regional Social Science Network Study on Farm and Village Forestry Practices'*. F/FRED-Winrock International, Bangkok.
- \_\_\_\_\_. 1988h. *Update on Social Science Network Study, Revisions to Task Order 53, on 'Regional Social Science Network Study on Farm and Village Forestry Practices'*. F/FRED-Winrock International, Bangkok.
- Fujisaka, S., P.E. Sajise, and R.A. del Castillo (eds.). 1986. *Man, Agriculture and the Tropical Forest: Change and Development in the Philippine Uplands*. Winrock International Institute for Agricultural Development, Bangkok.
- Griffin, D.M. 1988. *Innocents Abroad in the Forests of Nepal: An Account of Australian Aid to Nepalese Forestry*. Anutech, Canberra.
- Jiggins, J. n.d. *Farmer Participatory Research and Technology Development*. Occasional Paper Series, Department of Rural Extension Studies, University of Guelph, Ontario, Canada. In Press.

- Lightfoot, C. 1987. Indigenous research and on-farm trials. *Agricultural Administration and Extension* 24:79-89.
- Lightfoot, C., O. de Guia Jr., and F. Ocado. 1988. A participatory method for systems-problem research: Rehabilitating marginal uplands in the Philippines. *Experimental Agriculture* 24(3).
- Mahat, T.B.S. 1987. Integrating forestry into community life. Pp. 111-114 in M.E. Stevens (ed.), *Regional Community Forestry Training Center for Asia-Pacific: Seminar Proceedings*. December 1987. RECOFTC, Faculty of Forestry, Kasetsart University, Bangkok.
- McCorkle, C.M., and J.L. Gilles. 1987. Stereotypes and roles of social scientists in international agricultural development. *The Rural Sociologist* 7(3):216-224.
- Mehl, C.B. 1988. The social science component of the F/FRED Project. Pp.19-22 in D.A. Taylor and L. Medema (eds.), *Trees on Small Farms: Multipurpose Tree Species Research for the Arid and Semi-Arid Tropics*. F/FRED-Winrock International, Washington, DC.
- Messerschmidt, D.A. 1985. Local participation in park resource planning and management. Pp. 133-140 in J.A. McNeely, J.W. Thorsell, and S.R. Chalise (eds.), *People and Protected Areas in the Hindu Kush-Himalaya. Proceedings of the International Workshop on the Management of National Parks and Protected Areas, May 1985*. King Mahendra Trust for Nature Conservation and the International Centre for Integrated Mountain Development, Kathmandu.
- \_\_\_\_\_. 1987. Conservation and society in Nepal: Traditional forest management and innovative development. Pp. 373-397 in P. Little and M. Horowitz (eds.), *Lands at Risk in the Third World*. Westview Press, Boulder, CO.
- \_\_\_\_\_. 1988. *Notes for the social science of forestry: Some approaches to interactive research linkages for development forestry*. Forestry Support Program, USDA Forest Service, International Staff, Washington, DC.
- \_\_\_\_\_. n.d. Community forestry management and the opportunities of local tradition: A view from Nepal. Forthcoming in A. Dani and J.G. Campbell (eds.), *Rural Institutions and Resource Management*. International Centre for Integrated Mountain Development, Kathmandu.
- \_\_\_\_\_. 1988b. Success in small farmer development: Paper Making at Pang and Nanglibang, Nepal. *World Development* 16(6):733-750.
- Messerschmidt, D.A., U. Gurung, B. Devkota, and B. Katwal. 1984. *Gaun Sallah: The 'Village Dialogue' Method for Local Planning in Nepal*. Resource Conservation and Utilization Project, Kathmandu.

- Messerschmidt, D.A., and S. Pandey. 1988. *State-of-Knowledge in Social Forestry*. Unpublished Draft Ms. Forestry Support Program, USDA Forest Service, Washington, DC.
- Nair, K. 1979. *In Defense of the Irrational Peasant: Indian Agriculture After the Green Revolution*. University of Chicago Press, Chicago.
- Noronha, R., and J.S. Spears. 1985. Sociological variables in forestry project design. Pp. 227-266 in M.M. Cernea (ed.), *Putting People First: Sociological Variables in Rural Development*. Oxford University Press, for the World Bank, New York.
- Paul Smith's College. 1988. Global Strategies for Educating Forestry Technicians into the 21st Century. Introduction and Recommendations. *Proceedings of an International Conference*, August 1988. Paul Smith's College and the USDA Forestry Support Program, Paul Smith, NY.
- Pragtong, K., et al. 1989. Integrated study on social forestry planning and implementation. In R.E. Clausi (ed.), *The Social Sciences in Asian Forestry Curricula: Papers from the Workshop held November 27 - December 2, 1988 in Khon Kaen, Thailand*. Yale Tropical Resources Institute, New Haven CT, USA. (This volume)
- Qureshi, J.A. 1988. *Traditional Responses to Farm Forestry Problems: The Punjab, NWFP, Baluchistan*. FPDP Report No. 7. Forestry Planning and Development Project, Islamabad, Pakistan.
- Raintree, J.B., and M.W. Hoskins. 1988. *Appropriate R&D support for forestry extension*. A paper prepared for the FAO Expert Consultation on Organization of Forestry Extension, March 7-11, Bangkok. FAO/RAPA, Bangkok.
- Rao, Y.S. 1983. *The Concept and Practice of Social Forestry*. FAO/RAPA, Bangkok.
- Rebugio, L.L. 1985a. *Social forestry as a development program*. Occasional Papers in Social Forestry No. 4. Social Forestry Program, College of Forestry, University of the Philippines at Los Banos.
- \_\_\_\_\_. 1985b. *Social forestry as a resource system*. Occasional Papers in Social Forestry No. 5. Social Forestry Program, College of Forestry, University of the Philippines at Los Banos.
- Redhead, J.F. 1987. *Social Forestry at Kasetsart University: Curriculum Development, Thailand*. Faculty of Forestry, Kasetsart University, with the Food and Agriculture Organization of the United Nations and the Swedish International Development Agency, Bangkok.
- Rhoades, R. 1987. *Farmers and experimentation*. ODI Discussion Paper, 21. Overseas Development Institute, London, England

- Rhoades, R., and A. Bebbington. 1988. *Farmers who experiment: An untapped resource for agricultural research and development?* Paper presented at the International Congress on Plant Physiology, New Delhi. International Potato Center, Lima, Peru.
- Richards, P. 1985. *Indigenous Agricultural Revolution*. Hutchinson & Co., London.
- Ruangpanit, N. 1988. Education and training on social forestry in Thailand. In R.E. Clausi (ed.), *The Social Sciences in Asian Forestry Curricula: Papers from the Workshop held November 27 - December 2, 1988 in Khor Kaen, Thailand*. Yale Tropical Resources Institute, New Haven CT, USA. (This volume)
- Slade, R.H., and J.G. Campbell. 1986. *An Operational Guide to the Monitoring and Evaluation of Social Forestry in India*. National Wastelands Development Board, New Delhi.
- Stevens, M.E. (ed.). 1987. *Regional Community Forestry Training Center for Asia-Pacific. Seminar Proceedings*. RECOFTC Report No. 1. RECOFTC, Faculty of Forestry, Kasetsart University, Bangkok.
- Subhadhira, S., Y. Apichavullop, P. Kunurat, and J.A. Hafner. 1987. *Case Studies of Human-Forest Interactions in Northeast Thailand*. NTUSFP Final Report 2. Northeast Thailand Upland Social Forestry Project, Bangkok.
- Taylor, D.A., and L. Medema (eds.). 1988. *Trees on Small Farms: Multipurpose Tree Species Research for the Arid and Semi-Arid Tropics*. Proceedings of the Network Workshop of the F/FRED Project, November 16-19, 1987, Karachi, Pakistan.
- Taylor, D.A., and C.B. Mehl (eds.). 1988. *Collaborative Research on Farm and Village Forestry. Report of a Workshop Held April 23-25, 1988 in Kathmandu, Nepal*. Winrock International-F/FRED Project, Morrilton, AR.
- Tejwani, K.G. 1988. Small farmers, multipurpose trees, and research in India. Pp. 13-25 in D. Withington, K.G. MacDicken, C.B. Sastry, and N.R. Adams (eds.), *Multipurpose Tree Species for Small-Farm Use*. Winrock International and International Development Research Council (IDRC), Washington, DC and Ottawa, Canada.
- TRI. 1988. *The Social Science in Forestry Curricula*. Sub-Project Proposal presented to F/FRED-Winrock International. Tropical Resources Institute, School of Forestry and Environmental Studies, Yale University, New Haven, CT.
- Uphoff, N., J. Cohen, and A.A. Goldsmith. 1979. *Feasibility and Application of Rural Development Participation: A State-of-the-Art Paper*. Rural Development Committee Monograph Series NO. 3. Cornell University, Ithaca, NY.
- USAID. 1987. *Madhya Pradesh Social Forestry Project. Project Assistance Completion Report*. U.S. Agency for International Development, New Delhi.

- \_\_\_\_\_. 1988. *Maharashtra Social Forestry Project. Project Assistance Completion Report.* U.S. Agency for International Development, New Delhi.
- Warren, D.M., and K. Cashman. 1983. *Indigenous Knowledge for Sustainable Agriculture and Rural Development.* IIED Gatekeeper Series No. SA10. International Institute for Environment and Development, London.
- Weisblat, A., and B. Kearl. 1988. *Building National Capacity in the Social Sciences: Insights from Experience in Asia.* Winrock International Working Paper No.1. Winrock International Institute for Agricultural Development, Morrilton, AR.
- Wenger, K.F. (ed.). 1984. *Forestry Handbook.* 2nd Edition. John Wiley & Sons, New York.
- Wilken, G.C. 1987. *Good Farmers: Traditional Agricultural Resource Management in Mexico and Central America.* University of California Press, Berkeley, CA.
- Wiser, W.M., and C.V. Wiser. 1971. *Behind Mud Walls.* University of California Press, Berkeley, CA.
- Wormald, T.J., and D.A. Messerschmidt. 1986. *Managing and Monitoring of Community Forestry Activities in Nepal.* Field Document No.12. Community Forestry Development Project and U.N. Food and Agriculture Organization, Kathmandu.

## AGROFORESTRY EDUCATION AND TRAINING FOR RURAL DEVELOPMENT†

R.S. Raros††

We are a nation of small farmers--our rural population lives in a culture of poverty, ignorance, ill-health and resentment. In them one finds a minimal sense of solidarity with the rest of the nation...Rural backwardness was built into the very social order...and an alienated mass sporadically (erupted) into violence over immemorial wrongs.

A.G. Samonte  
Chancellor, UPLB  
January, 1974

Anybody involved with rural development in upland communities in the Philippines knows that all is not well. First, we are dealing with one of the profoundest of human issues - survival against hunger; second, we are dealing with misused and abused lands, the so-called 'waste lands'; third, we are dealing with alienated, sometimes defiant, people; and, fourth, we are dealing with an aggravating environmental problem. Indeed, in the uplands, we are confronted with the realities of two mutually reinforcing conditions: social disintegration and ecological degradation. And if we are about to set agroforestry as a viable alternative strategy in rural development, the challenge is forbidding.

Forbidding because the profound human and environmental issues in the uplands reflect some serious inadequacies of the institutions dealing with them...inadequacies which, in the main, are products of an educational process that 'produced' manpower with limited consciousness of the inter-relations of edaphic, biotic and hydrologic considerations in proper landuse, and of the underlying socio-cultural and economic features of the human rubric upon which all landuse systems must operate.

The task calls for a reorientation of manpower education and training. It demands more than a substantive integration of knowledge and skills in technical agriculture and forestry; it obliges the social sciences to play the more aggressive, if not leading, rather than simply

---

†This paper originally appeared in the book *Training Agricultural and Rural Development Personnel for Agroforestry Education*. F.A. Bernardo, J. Sal Tan, and S.P. Sandoval, eds., Asian Association of Agricultural Colleges and Universities Publication, The Philippines, 1984. Used here with the author's permission.

††Professor, Department of Forestry, Visayas State College of Agriculture, Baybay, Leyte, Philippines.

supportive role. It summons the academe to transcend the intellectual status quo, and to relate its expertise to a higher level of social concern. It will be the task to sharpen this focus so that the educational process can be inspiring, enlightening, and activating.

#### A. The Technical Agenda

The relevance of a systems orientation in generating production technologies is well recognized. The approach is all the more appropriate in the uplands because subtractive ecological processes hinge tenuously upon fragile ecosystem attributes which when drastically disturbed are difficult to repair and/or compensate for. Considering the present state of the art, resource investments need to address two key areas where insights are severely limiting: water relations and nutrient cycles.

1. Water relations. In general, a systems view of the uplands considers the soil component as the principal medium of integration, the biota to constitute the interacting units, and water as the linking medium. The roles that water play pervade the whole system, and define and circumscribe all other substantive biophysical relationships therein. Water relations, indeed, make or unmake ecosystems.
2. Nutrient cycles. One important climatic feature of the humid tropics is that rainfall usually exceeds evapotranspiration. When monsoon rains have soaked the soil, part of the rainfall oozes away as base flow, part drains off as surface flow. The soil is leached and washed of nutrient elements and 'almost entirely ceases to act as stores of nutrients.' The biomass, instead, becomes the primary nutrient storehouse, and the elements, safe from the leaching and washing action of rain, are slowly released thru [sic] decomposition. The nutrient cycle thus largely depends on the integration of biomass production and decomposition, and their related microbial associations.

#### B. The Economic Agenda

Agroforestry systems inevitably are multiple cropping schemes for the production of cellulose, carbohydrates, and proteins. This multi-commodity feature of agroforestry presents great challenges to economics, the art of choice-making between competing alternatives. The challenges lie in putting more emphasis on the complementary and/or supplementary, rather than competitive, economic relationships of multiple crops...an emphasis that may bring forth the blooming of a unifying perspective in economics and ecology. This we need to do, for the development of our degraded uplands are both economic and ecological imperatives.

#### C. The Social Agenda

For years environmental issues in the uplands have emphasized the consequences of forest denudation on the national economy. The effects of droughts, flooding and siltation of waterways and reservoirs litter the newspapers. But, how about the smallhold farmers up there? Only superficial sympathies, sometimes even tinged with hostility, are given their

position; if actions have been taken on their account these have either been unproductive or, at best, tended only to multiply their needs.

Clearly, the problems are social as well as ecological. They arise when the effects of choices begin to strain the capacities of natural systems to satisfy human needs. Their amelioration depends as much on comprehending the forces affecting human behavior and understanding the ecological processes affecting ecosystem qualities as on finally integrating both these into a unifying, wholesome consciousness of mutuality and interdependence. Indeed, respected leaders have begun to ask: 'How do we humanize science and technology? What impact do development programs have on our values, and what values underlie our development programs?' Disquieting, hard questions these are, but are they not perhaps maiden signals of the human spirit revolting against 'careless' technologies and insensitive development programs?

# FORESTRY EDUCATION AND TRAINING IN INDIA AND THE ROLE OF THE SOCIAL SCIENCES

S. Chinnamani<sup>†</sup>

## *INTRODUCTION*

The forest in India has historically been considered a place of peace, worship, and enlightenment; an ashram, abode of great sages and Rishis. The great religious books, the Veda and Upanishad, were written in these peaceful abodes by teachers of high morals, ethics, and philosophy. The forest was a place of sport, where kings and commoners partook in the hunting of tiger, lion, and wild boar. The forest was also a place of danger, filled with wildlife and inhospitable people, who were constantly attacking civilized persons. In the past, people had good knowledge of the forest, its trees, plants, medicinal herbs, wildlife, and tribal groups. Forestry was taught as a social science, medicine, art, and knowledge of the eternal in the great university of Nalanda, among others. Thorough details of forest wealth were known at the time of Ashoka, Gupta, the Moghuls, and the other rulers of ancient India.

## *FORESTRY TRAINING*

The training of Indians to serve in the Imperial Forest Service began in 1867, when a group was sent to study forestry in Europe. Several hundred Indian foresters were trained in Germany, France, and the United Kingdom over the next sixty years. Advanced forestry education in India began with the establishment of the Indian Forest College at Dehra Dun in 1926. Forest rangers had been trained at Dehra Dun since 1878.

Currently, preparatory training for employment in the Indian Forest Service, State Forest Service, Rangers Forest Service, Foresters Service, and Forest Guard Service is given at numerous forestry colleges throughout India (Figure 1). The main purpose of this training is to produce good forest managers able to protect, afforest, and maintain Government forest lands. Although social rights on forests existed before independence and villagers were allowed to collect fuel and timber, and graze cattle in the forest, no social science training, except forest law and forest economics, was included in forestry curricula until recently. Greater emphasis is now being given to the study of social forestry, agroforestry, and farm woodlands.

Indian forestry education is both theoretical and practical, and is well balanced to make a good forest conservationist, manager, and afforestation specialist. Between 26 to 30 subjects are taught, including silviculture, mensuration, land management and soil conservation, range management, working plans, forest economics and valuation, forest protection, forest policy

---

<sup>†</sup>Assistant Director General (Agroforestry), Indian Council of Agricultural Research, New Delhi, India.

Figure 1

Two-tiered Indian Forestry Education

A. Government Forest Service Educational Training Courses

1)	Indian Forest Service	2 years	1 college
2)	State Forest Service	2 years	3 colleges
3)	Forest Rangers Service	1-2 years	7 colleges
4)	Foresters Service	1 year	31 colleges
5)	Forest Guard Service	1 year	
6)	Specialized training in forest management, logging, wildlife, and other subjects related to forestry.	6 months to 2 years	10 to 15 colleges

B. Indian Council of Agricultural Research: Its Agricultural Universities and Forestry Education Training Program

1)	Bachelors degree in Forestry	4 years	14 colleges
2)	Masters degree in Forestry	2 years	2 to 5 colleges
3)	PhD in Forestry	3 years	5 colleges
4)	Specialized training in soil and water conservation, agroforestry, grassland and fodder production, silvipastoral systems, and related subjects.	5 to 9 months	10 to 20 colleges

---

and law, social forestry, tribal welfare, geology, soil science, surveying, engineering, botany, zoology, entomology, mycology and plant pathology, forest utilization, and elective courses such as wildlife, accounts and procedures, and administration. Colleges are situated in Dehra Dun, Coimbatore, Burnihat, Kurseong, Balaghat, Chandrapur, Angul, Haldwani, Rajpipla, and Chikhalda, with training institutes for foresters and forest guards located in all States. Specialized training is also given in logging, wildlife, forest management, and other topics.

*FORESTRY EDUCATION*

Early attempts to teach forestry in university programs met with little success. Twenty years ago, a four year bachelor of technical forestry course was established at Calicut University, only to be quickly abandoned. Forestry, wood science, social forestry, agroforestry, and wildlife were then taught as special subjects at various universities in India at the bachelors and masters degree levels. Various universities awarded doctoral degrees in forestry and agroforestry during this period, but these degrees were taken in botany, zoology, geology,

economics, and engineering departments rather than separate forestry departments. No serious attempts were made to institutionalize forestry education within the university system because forestry was seen as a State monopoly in which outsiders would not be tolerated.

In 1976, the Indian Council of Agricultural Research (ICAR) recommended that forestry be included as a subject in 12 universities. This recommendation has been accepted and implemented, but great animosity still exists between the Government forestry training institutes and the agricultural universities. A series of dialogues has taken place and there is hope that the differences between the two sides will be resolved in the future.

Currently, four-year bachelors degrees in forestry are given by 14 agricultural universities. The social science courses taught as part of the bachelors degree program are:

- Elements of Sociology and Social Science
- Fundamentals of Psychology
- Tribal Welfare
- Forest Economics
- Community Land Management
- Social Forestry
- Public Organizations
- Rural Sociology and Publicity
- General Economics
- Communications and Extension
- Human Food and Nutrition

The topics discussed in two of these courses are outlined in Appendix 1. Besides degree offerings at the bachelors level, masters degrees in forestry are given by two to five universities, and doctoral degrees in forestry and agroforestry are given by five universities. The master of forestry curriculum also contains some social science courses. Short-term, specialized training in soil and water conservation, agroforestry, grassland and fodder production, silvipastoral systems, and related subjects is given by ICAR institutes and the agricultural universities (Figure 1).

Although a range of social sciences have been included as part of Indian forestry curricula, the main emphasis has been given to forest economics, forest policy, and forest law for the last two decades. While there is a great awareness of the need to increase the social science content of the curricula--as evidenced by the short-term courses and summer institutes being organized all over the country on topics such as rural management, tribal welfare, communications, home science, etc.--this issue still demands more attention.

## CONCLUSION

Forestry education is an age-old tradition in India. The nature of Indian forestry education has changed over the years to the point where a large system of Government institutes and agricultural universities offer forestry training. The social sciences play a greater role in this

training than they have in the past, but a wider perspective and curricula containing more detailed social science offerings is essential if India is to produce the type of foresters needed to properly address the challenge of managing the country's resources.

## REFERENCES

- Anon. 1981. *Research and Training Courses*. Forest Research Institute and Colleges, Dehra Dun, India. pp. 16-19.
- Champion, H.G. 1957. *Thoughts on Higher Forestry Education*. Seventh Commonwealth Forestry Conference.
- Chaturvedi, J.K. 1988. *Forest Management Education: A National Need*. Paper presented at National Seminar on Forestry Education and Training in India, Dehra Dun, India.
- Mishra, H.N., and K.S. Pruthi. 1988. *In-Service Training in Timber Engineering for Indian Forestry*. Paper presented at National Seminar on Forestry Education and Training in India, Dehra Dun, India.
- Mukherjee, S.K. 1988. *Training in Wildlife Management*. Paper presented at National Seminar on Forestry Education and Training in India, Dehra Dun, India.
- National Commission on Agriculture. 1976. *Report of the National Commission on Agriculture, Part IX: Forestry*. Government of India, Ministry of Agriculture and Irrigation, New Delhi, India.
- Singh, R.V. 1988. *Forestry Education and Training in India*. Paper presented at National Seminar on Forestry Education and Training in India, Dehra Dun, India.
- Thakur, M.R. 1988. *Faculty of Forestry Education*. Paper presented at National Seminar on Forestry Education and Training in India, Dehra Dun, India.

## Appendix 1

### Topics covered in two of the social science courses that are part of the Bachelor of Science degree program in Forestry

Soc. 101      Elements of Sociology and Social Anthropology      2 + 0 Sem.I

Introduction: nature and scope of sociology, relation with other social sciences, factors that shape our social life. Basic concepts of sociology; society, community association, institutions, interaction, communication, crowd, leadership, social groups; meaning and nature of social groups, primary and secondary groups, caste, class and race, group prejudices, control, folkways, mores, religion, morality, customs, laws, social institutions like family and marriage, economic institutions and political institutions. Social change: meaning of social change, factors of social change, obstacles to social change.

History and ethnological theory: methods and scope of cultural anthropology, ethnographic field work, personality and culture, the socialization process and youth organization, cultural ecology, structural functional analysis, society, economy, polity, kinship systems, religions, magic and witchcraft, social and cultural change with special reference to the Indian tribal population.

Soc. 304      Fundamentals of Psychology      2 + 1 Sem.IV

Origin and growth of psychology: definition, fields and methods of psychology. Bases of human behavior: receptors, effectors, and connections; heredity and environment. Growth and development: maturation and learning. Basic principles of behavior-perception process: sensation, attention, and perception. Learning process: classical and apparent conditioning, maze learning, acquisition of skills and transfer of training. Memory. Motivational and emotional behavior: needs, drives, and social motives. Intelligence and creativity: nature of and measurement of intelligence, achievement and creativity. Personality and adjustment/readjustment mechanism in personality.

Practical: Demonstration in laboratory of different theories and processes of learning, projective tests, puzzles, and problems of perception.

# EDUCATION AND TRAINING ON SOCIAL FORESTRY IN THAILAND

Niwat Ruangpanit<sup>†</sup>

## *INTRODUCTION*

The managers of forest resources have long given primary attention to timber production for industrial uses rather than to fulfilling the basic needs of local people. Rural people have enjoyed very little of the benefits derived from forest resources. The training of professional foresters in the past was influenced by the custodial approach to forest development. With this past attitude, forest resources in the tropics have deteriorated rapidly, causing shortages of wood, and contributing to the food and energy crises.

During the last decade, however, there has been increasing recognition of the important role forestry can play in alleviating poverty and raising the welfare of the rural people in developing countries. The practice of forestry for local community development (i.e, social forestry) requires new knowledge and skills and a reorientation of attitudes on the part of foresters and other forest workers. In other words, if this new approach of 'using forestry for the people' is to succeed, a new type of forester is required. But unfortunately, the corresponding changes in forestry education and training that are needed to support this change have been slow to develop. This paper considers the approach taken by the Faculty of Forestry of Kasetsart University in Thailand in planning the kind of training needed. Although designed for conditions in Thailand, the approach taken and the curriculum identified are worthy of consideration by other countries which are contemplating similar training programs.

## *DEVELOPMENT OF FORESTRY EDUCATION IN THAILAND*

The Faculty of Forestry at Kasetsart University, Bangkok, is the only academic forestry school in Thailand. The Faculty was founded as a forest ranger school under the Royal Forest Department in 1936, and was based in northern Thailand. In 1943, it became a part of the main core of Kasetsart University. The present academic departments are Forest Management, Forest Products, Forest Biology, Forest Engineering, Conservation, and Silviculture. In 1977, the university began granting a Bachelor's degree in Forestry, with majors in Forest Resource Management, Forest Products, and Forest Biology. The development of a Social Forestry curriculum was initiated in 1984. The Faculty now offers three forestry majors: Forest Resources, Forest Products, and Social Forestry.

In 1967 the Faculty established the first graduate program in silviculture. The Faculty now offers graduate studies in the five major fields of Silviculture, Forest Management, Forest Products, Watershed Management and Forest Biology, as well as an interdisciplinary graduate program in Environmental Science. Plans are at an advanced stage to begin training at the Ph.D. level.

---

<sup>†</sup>Associate Dean, Faculty of Forestry, Kasetsart University, Bangkok, Thailand.

In the past, the focus of both undergraduate and graduate programs has dealt primarily with forest resource management and utilization, especially for commercial and industrial purposes. The development of forestry education in Thailand can be roughly divided into the three periods outlined below (Ruangpanit, 1984).

#### *Classical or Traditional Forestry Education (1936-1960)*

Forestry education during this period was influenced by the British and the courses were mainly directed towards timber production, theoretically carried out on a managed, sustained yield basis. Forest Mensuration, Practices of Silviculture, Forest Botany, and Timber Management--particularly logging operations--were considered as the core courses of study. Approximately 500 forestry students graduated over this period and most of them went on to work as government officers. The forests were exploited and heavily utilized during these years, based on forest management practices that actually aimed at earning revenues with little investment in sustaining the forest resource. Without any conservation measures to mitigate the effects of exploitation, the resource base itself suffered gradual erosion.

#### *Multiple Use Forestry Education (1960-1985)*

Awareness of the essential part environmental stability plays in ensuring continued food production increased during this period. The forest performs the indispensable role of maintaining the ecological balance between natural resources and environment. Forestry education in this period, therefore, gradually changed from the traditional forestry to multiple use forestry. The indirect benefits and protective role of forests have been emphasized in course work, which has resulted in a reorientation of forestry students toward forest resources management instead of management of timber resources alone. Among the many new areas of forestry courses that have been developed in order to meet the concept of multiple use management of forest resources are Watershed Management, Wildlife Management, Range Management, and Outdoor Recreation, as well as environmental study and conservation.

Unfortunately, increasing population pressures plus the implementation of the National Economic and Social Development Plan resulted in the rapid decline of the forest area and consequent serious damage to the environment through floods, soil erosion and loss of agricultural productivity. Although forestry education in this period concentrated on the protective role in addition to the productive role of forests, the forested area of Thailand steadily decreased from 60 percent of the country's total area in 1960 to 29 percent in 1985 (Royal Forest Department, 1985). The situation continues to deteriorate, even though many foresters as well as the public have recommended that the government review all aspects of the transfer of forest lands to non-forest uses and take firm steps through appropriate planning and control to limit any future loss of forest lands.

#### *Social or Community Forestry Education: Development of the Curriculum in Social Forestry*

Traditional forestry education, with its emphasis on the biological and technical aspects of forest production, tended to ignore the social aspects of forestry, or consider them as having only secondary importance. Social issues related to forestry were generally considered to lie

beyond the responsibility of the forestry profession. Of course, this attitude was acceptable in the past when demographic pressures were low. However, the forestry profession in Thailand today is confronted with the effects of rising population pressure. The need for developing new approaches that integrate the productive, protective, and social roles of forests, and the concept of forestry for local community development, are being accepted and considered very important (Rao, 1983).

In recognition that forestry will, in the future, have to work more closely with rural communities, the Faculty of Forestry decided to develop a program to train undergraduates in the special skills needed for such work. In 1984, the Curriculum Development in Social Forestry Project (GCP/INT/363/SWE-Thailand) was initiated at Kasetsart University for the purpose of planning the specific training needed in Social Forestry, though in fact, many courses related to social forestry have been offered in the Faculty (e.g., agroforestry courses in Department of Silviculture) since 1981. The Faculty of Forestry established a Curriculum Development Committee of seven, composed of a Chairman and one Member from each of the six Departments. The Dean of the Faculty served as a permanent adviser, and FAO provided the services of a consultant to periodically assist the Committee.

It was considered important to identify the problems likely to be encountered by graduates in Social Forestry so that the training offered would make them most useful to their employers, largely the Royal Forest Department, the Forest Industries Organization, and other Government agencies. The Committee assessed the situation in several ways. Committee members travelled extensively throughout Thailand to study the wide range of conditions in agricultural and forest communities. Surveys were conducted in rural communities throughout the country and an opinion survey of a wide range of experienced people was made to ascertain their different suggestions on priorities for training in Social Forestry. Finally, a national workshop was held to discuss the results from the surveys, so that detailed planning would be based on a national consensus rather than solely on the views of academics.

The surveys carried out in agricultural communities and forest village settlements were designed to determine the role forestry plays in village life and the villagers' attitudes on how forestry could contribute to their development. As part of the survey of agricultural communities, the country was stratified into four parts, with six provinces chosen from each part, five districts from each province, one village per district, and four households sampled in each village. Interviews were carried out by Provincial Forestry Officers using a questionnaire for guidance. Many interesting facts emerged from this survey, including literacy levels, use of mass media, land ownership, employment, agricultural problems, sources of timber, poles and fuel, and the villagers' attitudes toward forestry.

A separate survey was made of a smaller number of forest villages established by the Forest Industries Organization and the Royal Forest Department. The inhabitants of forest villages were more aware of forestry's role in their lives than were inhabitants of agricultural communities. Their major concerns were for greater security, more farmland, and more income from their work in reforestation projects.

An opinion survey on priorities for academic training in social forestry, based on a questionnaire that listed all existing courses in the Faculty of Forestry curricula and gave suggestions for possible new courses, was administered to a broad spectrum of professional people, including ministerial and high level administrators, regional and provincial officials of the Royal Forest Department and the Forest Industries Organization, managers of wood-based industrial companies, teachers of the Kasetsart University Faculty of Forestry, and teachers of the Forest School, Phrae. Respondents were requested to check one of three columns opposite each of the courses listed: Essential, Desirable, Not Relevant. They were asked their opinions on the academic level at which Social Forestry should be taught. In addition, respondents were invited to add their own suggestions for new courses.

The results were very informative and enabled courses to be ranked in order of priority. Recommended courses ranged from Communication Skills and Forest Extension Methodology (92%) to Forest Resources Inventory (44%). Forty-five percent thought Social Forestry should be taught at both undergraduate and postgraduate levels, while 39 percent thought the subject should be taught at the undergraduate level only. The following are the major recommendations from the survey:

1. Closely related courses should be combined;
2. New courses should not be introduced by the Faculty of Forestry if similar courses are already taught in other Faculties of the University;
3. Courses in the Social Forestry curriculum should be general in nature so that graduates can work in many agencies;
4. The program name should be "Social Forestry" rather than "Community Forestry"; and
5. Teaching should emphasize moral education, human relationships, and the need for conscientious, hard work in social forestry development.

The results of the surveys described above were discussed at a National Workshop on Curriculum Development in Social Forestry, held by the Faculty of Forestry, 22-26 October 1984 (Faculty of Forestry, 1984). Discussion was focused on several important issues, including how to train forestry students to cope with the problems of local community development; the role that trained foresters can play in promoting forest activities that create rural employment and generate rural income, etc.

Based on the deliberations in the workshop, the Curriculum Development Committee decided that Social Forestry should form a major subject to parallel the existing majors of Forest Resources and Forest Products. Major subjects constitute a four year program leading to the Bachelor of Science in Forestry, and are comprised of two years of common General Education and Forestry core courses followed by two years of specialized courses. The Social Forestry major has the following distributional requirements:

1.	Basic Compulsory General Education Courses =	61 credits divided into:
A.	Science and mathematics	38 credits
B.	Language	9 "
C.	Sociology	6 "
D.	Humanities	6 "
E.	Physical Education	2 "
2.	Forestry Core Courses	26 credits
3.	Major Courses	46 credits
4.	Minor Courses (Electives)	14 credits
5.	Free Electives	3 credits
	Total requirement is	<hr/> 150 credits

The Committee had to strike a balance between courses of an anthropological or sociological nature and courses with specific forestry related content, bearing in mind the duties expected of a 'Social Forester'.

There has been much debate on the nature of a 'Social Forester'; i.e., should such a person be a sociologist with a veneer of forestry, or a forester with some sociological training? The decision to plan the Social Forestry major on the same common two-year foundation as the other Forestry major programs ensured a basic training in forestry. Finally it was decided on a balance of 'Required Major Courses' which included 21 credits from the Faculties of Social Science, and Economics and Business Administration, 21 credits of forestry courses, and 4 credits in Soil Science (Faculty of Agriculture). Details of the proposed curriculum are given in the Appendices.

The new curriculum in Social Forestry was approved by the University and Government Authorities for teaching to begin as of 1986. After a few years it will be possible to assess the usefulness of the courses chosen for the curriculum. Appraisal will almost certainly lead to changes, which is always to be expected in a new teaching program (Redhead and Ruangpanit, 1985).

### *REGIONAL COMMUNITY FORESTRY TRAINING CENTRE*

The establishment of the Regional Community Forestry Training Centre (RECOFTC) is a joint undertaking of Kasetsart University, the Government of Switzerland, and the Asian Development Bank. This project is intended to assist in training foresters for the countries in the Asia-Pacific, thereby helping to overcome the shortage of trained staff in the region.

As stated in the project proposal, the Centre will (i) collect information on community forestry, with particular emphasis on the Asia-Pacific Region; (ii) train vocational, professional, and other levels of participants from the region; (iii) organize seminars and conferences on Community Forestry when necessary; (iv) provide technical assistance in social/community forestry; and (vi) develop linkages with appropriate institutions in Thailand and other countries, so as to promote research in Community Forestry for further curriculum development.

The training course of the Centre has its emphasis in the following key areas:

1. Production systems of Community Forestry: courses include agroforestry, village woodlots, forest village systems as a means to integrate community forestry development, integrated watershed management, multiple product forestry, tree farming, and the economic aspects of community forestry.
2. Utilization of the products from the production system: courses include charcoal production, small-scale wood industries, and other associated forest-based production activities.
3. Social service aspects as well as on-the-job training in various aspects of ongoing community forestry in the region to acquaint the participants with field work.

The establishment of the Centre enables the countries in the Asia-Pacific Region to train staff in community forestry and related research. The trainees gain knowledge in this field so that they are able to carry out the implementation of community forestry projects in their respective countries.

Kasetsart University's social forestry curriculum and the RECOFTC, by producing foresters with the knowledge they need to work for the rural communities, promise to be of great use to Thailand and to the region as well.

#### REFERENCES

- Faculty of Forestry. 1984. *Proceeding of the National Workshop on Curriculum Development in Social Forestry* (in Thai), Faculty of Forestry, Kasetsart University, Bangkok, Thailand. 400 p.
- Rao, Y.S. 1983. *The Concept and Practice of Social Forestry*. FAO. Regional Office, Bangkok.
- Redhead, J.F. and Niwat Ruangpanit. 1985. *Curriculum Development in Social Forestry in Thailand*. A paper for the Thirteenth Session of the FAO Advisory Committee on Forestry Education, Mexico City, 26-38 June, 1985.
- Royal Forest Department. 1985. *Forest Land Areas of Thailand in 1985*. Satellite and Aerial Photogrammetry Section, Forest Management Division, Royal Forest Department, Bangkok.
- Ruangpanit, Niwat. 1984. *Forestry Education in Thailand*. KU-FINNIDA Symposium on Community Forestry, Kasetsart University, 17-18 January, 1984.

## Appendix 1

### Structure of the Social Forestry Curriculum

Curriculum for the Bachelor of Science in Forestry,  
Major in Social Forestry: Total Minimum Requirement 150 Credits\*\*

**1. General Education (61 credits)**

**A. Science and Mathematics (38 credits)**

CHEM	111 General Chemistry	5 credits
CHEM	221 Organic Chemistry	5 credits
PHY	117 Principles of Physics I	3 credits
PHY	118 Principles of Physics II	3 credits
BIO	111 Principles of Biology	3 credits
BIO	112 Laboratory in Biology	2 credits
ZOO	113 General Zoology	3 credits
BOT	114 General Botany	3 credits
MATH	111 Calculus I	4 credits
MATH	112 Calculus II	4 credits
STAT	111 Principles of Statistics I	3 credits

**B. Language (9 credits)**

ENG		9 credits
-----	--	-----------

**C. Social Science (6 credits)**

SOC	111 Introduction to Sociology	3 credits
ECON	181 Introduction to Economics	3 credits

**D. Humanities (6 credits)**

PHIL	102 General Philosophy	3 credits
PHIL	121 Introduction to Logic	3 credits

**E. Physical Education (2 credits)**

PH-ED	111 General Phys. Education I	1 credit
PH-ED	112 General Phys. Education II	1 credit

---

\*\* 1 credit = 15 hours lecture or 45 hours practicals, or a combination of both. Degree requirements are 150 credits, with a 2.0 GPA.

2. **Field of specialization** (86 credits)

A. **Core courses** (26 credits)

FOR MGT 111	Introduction to Forestry	2 credits
FOR MGT 221	Field Forest Mensuration	1 credit
FOR BIOL 111	Dendrology	2 credits
FOR BIOL 112	Field Dendrology I	1 credit
FOR BIOL 221	Forest Ecology	2 credits
FOR BIOL 222	Field Forest Ecology	1 credit
FOR ENG 111	Technical Drawing in Forestry	2 credits
FOR ENG 221	Forest Surveying I	3 credits
FOR ENG 222	Forest Surveying Practice	1 credit
CONSERV 111	Principles of Natural Resource Conservation	2 credits
CONSERV 112	Field Forestry	1 credit
FOR PROD 111	Anatomy and Identification of Wood	3 credits
SILVIC 111	Silvics	2 credits
SILVIC 221	Forest Plantation	2 credits
SILVIC 222	Field Silviculture I	1 credit

(SOCIAL FORESTRY MAJOR)

B. **Major Courses** (60 credits)

B.1. **Required Major Courses** (46 credits)

SOC 211	Introduction to Rural Sociology	3 credits
SOC 441	Principles of Community Development	3 credits
ANT 221	Introduction to Anthropology	3 credits
ANT 312	Thai Society and Culture	3 credits
PSY 111	General Psychology	3 credits
BUS ADM 111	Principles of Management	3 credits
COOP 111	Introduction to Cooperative Science	3 credits
SOILS 111	Introduction to Soil Science	4 credits
FOR MGT 331	Photogrammetry and Photo-interpretation	3 credits
FOR ENG 331	General Forest Engineering	2 credits
SF 311	Introduction to Social Forestry	3 credits
SF 312	Field Social Forestry I	1 credit
SF 313	Field Social Forestry II	1 credit
SF 421	Principles of Agroforestry	2 credits
SF 431	Forestry Extension	3 credits
SF 441	Economic Analysis of Soc.Forestry Projects	3 credits
SF 451	Small-scale Forest Products Industry	3 credits

B.2 Elective Major Courses (Select not less than 14 credits from the following)

SF	422 Agricultural Components of Social Forestry	3 credits
SF	423 Applied Agroforestry	3 credits
GOVT	111 Introduction to Political Science	3 credits
PSY	451 Introduction to Social Psychology	3 credits
PSY	473 Human Relations	3 credits
MKTG	111 Principles of Marketing	3 credits
MC	323 Propagation and Public Communication	3 credits
MC	324 Public Relations Techniques	3 credits
AG-EX	454 Public Speaking	3 credits
AN SC	111 Principles of Animal Husbandry	3 credits
AQUA	201 General Aquaculture	3 credits
FST	302 Principles of Plant Product Preservation	3 credits
FOR MGT	414 Forest Law and Administration	3 credits
FOR MGT	461 Public Relations in Nat.Res. Management	3 credits
CONSERV	341 Introduction to Outdoor Recreation	2 credits
CONSERV	451 Range Science	2 credits
FOR PROD	321 Forest Products Utilization	2 credits
FOR PROD	421 Minor Forest Products	2 credits
FOR PROD	475 Energy Conversion Technology from Wood	3 credits
B.3. <u>Free Elective Course</u>		3 credits

## Appendix 2

### Description of the Forestry Core Courses and Specialized Courses Offered in the Social Forestry Major

#### *Forestry Core Courses*

Forest Management 111 Introduction to Forestry Credits 2 (2 - 0)  
General forestry, history and development of the subject. Aims and objectives of forestry. Forestry and general land use, including the relationships between them.

Forest Management 221 Field Forest Mensuration Credits 1 (0 - 3)  
Use of various instruments in the measurement of logs, converted timber and fuelwood, measurement of individual trees and forest stands. Volume measurement of stem and measurement of trees for compilation of volume tables. This course is offered during summer camp.

- Forest Biology 111 Dendrology Credits 2 (1 - 3)  
Systematic relationships and identification of tree species by leaves, flowers, fruits, twigs; distribution and economic significance of the trees of Thailand.
- Forest Biology 112 Field Dendrology Credits 1 (0 - 3)  
Major trees species representative of Thailand with practical experience in collecting, identifying, and preserving botanical materials. (Summer camp)
- Forest Biology 221 Forest Ecology Credits 2 (2 - 0)  
Forest ecosystems; interrelationships of various ecosystem components, energy flow and nutrient cycling; concept of limiting factors, dynamics and development of ecosystems.
- Forest Biology 222 Field Forest Ecology Credits 1 (0 - 3)  
The relationship of organisms to their environments; ecological structure and dynamics of biotic communities. (Summer camp)
- Forest Engineering 111 Technical Drawing in Forestry Credits 2 (2 - 0)  
Applied geometry, orthographic drawing, pictorial drawing, auxiliaries, sectioning, dimensions, drawing of simple structures and constructions in forestry.
- Forest Engineering 221 Forest Surveying I Credits 3 (1 - 6)  
Distance measurement, chain surveying, leveling, contouring, angle and direction measurement, stadia surveying, traverse, plane tabling, surveying and mapping for forestry purposes.
- Forest Engineering 222 Forest Surveying Practice Credits 1 (0 - 3)  
Practical traversing, leveling, contouring and mapping. (Two weeks summer camp)
- Conservation 111 Principles of Natural Resources Conservation Credits 2 (2 - 0)  
Principles in the conservation of natural resources such as soils, water, forest, range, wildlife, minerals, human power, and others. The relationship between natural resources and human society. Impact on natural resources utilization. Methods and planning policy for future use.
- Conservation 112 Field Forestry Credits 1 (0 - 3)  
Conservation field studies. (Summer camp)
- Forest Products 111 Anatomy and Identification of Wood Credits 3 (2 - 3)  
Gross and microscopic structure of wood. Structure of wood in relation to defects, properties, and uses. The variability of wood. Identification of major commercial Thai timbers.
- Silviculture 111 Silvics Credits 2 (2 - 0)  
Environmental factors and their effects on silvical characteristics, reproduction growth, and development of forest vegetation. Interrelationships of genetic, physiological, and environmental factors.
- Silviculture 221 Forest Plantation Credits 2 (2 - 0)  
History of forest plantation. Seedling production and nursery management. Planting, tending, and evaluation of man-made forest.

Silviculture 222 Field Silviculture I Credits 1 (0 - 3)  
Field work in nursery and plantation techniques. (Summer camp)

*Social Forestry: Required Major Courses*

Sociology 221 Introduction to Rural Sociology Credits 3 (3 - 0)  
Rural-urban differences, rural population, rural social organization, agricultural systems, major rural social institutions, rural social differentiation and stratification, rural community power structure, impacts of urban and industrial growth on rural society.

Sociology 441 Principles of Community Development Credits 3 (3 - 0)  
Principles and community development processes, philosophy of community development, community development in Thailand and in Southeast Asia.

Anthropology 221 Introduction to Anthropology Credits 3 (3 - 0)  
Evolution, physical, and cultural differences of human races, civilization eras, technological systems, and technological change.

Anthropology 312 Thai Society and Culture Credits 3 (3 - 0)  
Culture and social structure of the Thai society, tradition, custom, institutions, and the way of living of the Thais in the four regions.

Psychology 111 General Psychology Credits 3 (3 - 0)  
Human behavior in natural environments; study method of psychology, growth, and development of human beings; influence of heredity and environment; perception, personality, motivation, learning and ability.

Business Admin. 111 Principles of Management Credits 3 (3 - 0)  
Introduction to business management, concepts and theory of scientific management, human relations approach, bureaucracy systems, structures and characteristics of business enterprises and entrepreneurs, business environment and its functions, management process, creative-thinking and decision-making techniques.

Coop. Science 111 Introduction to Cooperative Science Credits 3 (3 - 0)  
Origin, economic, and social background leading to cooperation; its meaning and aims; cooperatives in capitalist and other economic systems; comparative aspects of cooperatives and other enterprises; history of cooperation; principles, structures, types, objectives and functions of cooperatives; cooperative finance; cooperative integration; state and cooperation; cooperative movement in some selected countries; present trend of cooperatives; limitations, demerits, and problems in the cooperative development.

For.Management 331 Photogrammetry and Photo-interpretation Credits 3 (2 - 3)  
Principles and practices of aerial photogrammetry; aerial photo-interpretation; use of aerial photos in compilation of forest maps, in measurement of trees and forest stands, in estimating diameters and volumes, in forest inventory, in the control of field inventory, and in forest management.

- Soils 111 Introduction to Soil Science Credits 4 (3 - 3)  
Soils-plant relationships, genesis and classification of soils and their chemical, physical, and microbiological properties; plant nutrient elements in soils; fundamentals of managing, conserving, and preparing of soil; fertilizer usage in crop production.
- Social Forestry 311 Introduction to Social Forestry Credits 3 (3 - 0)  
History and role of forestry in the Thai economy; forestry in land use planning and rural development; community forestry production systems; tree species of special importance in social forestry; small-scale forest industries and rural development; forestry extension in rural communities; case studies.
- Social Forestry 312 Field Social Forestry I Credits 1 (0 - 3)  
Applied biology of intercropping; practical field study of agroforestry systems; field trials and demonstrations. (Summer camp)
- Social Forestry 313 Field Social Forestry II Credits 1 (0 - 3)  
Introduction to consumption studies and social surveys in rural communities, field studies in land use planning and forest village settlement. (Summer camp)
- Social Forestry 421 Principles of Agroforestry Credits 2 (2 - 0)  
Concepts of land-use systems and agroforestry; evolution of cash crops, animals, and forest crops; socioeconomic aspects of multiple land-use systems.
- Social Forestry 431 Forestry Extension Credits 3 (3 - 0)  
Institutional aspects of extension in rural development; forestry as a factor in social change planning; execution of forestry extension and mass-communication programs; application of extension principles to social forestry; conservation and recreation in Thailand.
- Soc.For.441 Economic Analysis of Social Forestry Projects Credits 3 (3 - 0)  
Formulation of social forestry projects; identification of project costs and benefits; financial and economic aspects of project analysis; project evaluation by comparing project costs and benefits and applying discounted measures of project worth; case studies.
- Social Forestry 451 Small-scale Forest Products Industry Credits 3 (3 - 0)  
Principles of processing technology applied to small-scale forest products industries; raw materials, types of products, and forest products industries in Thailand; principles of investment planning and wood machining technology; forest products for construction, furniture, packaging, sports goods, musical instruments, wood crafts and other products; production of charcoal, gums, resins, soil conditioners, and other products.
- Forest Engineering 331 General Forest Engineering Credits 2 (2 - 0)  
Building materials, building construction, carpentry and joinery, timber engineering, forest roads and bridge construction, minor engineering works in forestry.

*Social Forestry: Elective Major Courses*

Soc.For.422 Agricultural Components of Social Forestry Credits 3 (3 - 0)

Husbandry and ecology of annual and perennial crops intercropped with forest trees in agroforestry systems; study of selected smallholder enterprises based on livestock, fish, and insect species; culture and production of minor forest products as raw material for forest-based cottage industries.

Social Forestry 423 Applied Agroforestry Credits 3 (2 - 3)

Intercropping and grazing in agroforestry; factors dealing with the management of woody perennials, annual crops, and grazing; eco-physiological relationships of mixed plant communities; effects of agroforestry on the environment. Field trip required.

Government 111 Introduction to Political Science Credits 3 (3 - 0)

Governments, theories of governments, forms of administration and governments, political parties, pressure groups, public opinion, political institutions and philosophy.

Psychology 451 Introduction to Social Psychology Credits 3 (3 - 0)

The founding of social psychology, social psychological studies of attitudes, language, values, groups, and institutions as determinants of the interactions between individuals and institutions.

Psychology 473 Human Relations Credits 3 (3 - 0)

Principles and theories of the interaction between individuals and groups, policy and group processes, creation of working atmosphere, quality control circle, morale, measurement and evaluation.

Marketing 111 Principles of Marketing Credits 3 (3 - 0)

Nature and scope of marketing, development of marketing, consumer behavior, marketing mix and factors affecting consumer demand, methods of collecting data and marketing analysis.

Mass Communication 223 Propagation and Public Communication Credits 3 (3 - 0)

Principles, planning, and techniques of propagation and communication to the public at each socioeconomic level.

Mass Communication 324 Public Relations Techniques Credits 3 (3 - 0)

Types, advantages, and disadvantages of media used in public relations; creating, application, and assessment of public relations techniques.

Agricultural Extension 454 Public Speaking Credits 3 (3 - 0)

Principles, methods, and practice in administering public speaking; administering conferences, meetings, discussions, and group discussion.

Animal Science 111 Principles of Animal Husbandry Credits 3 (3 - 0)

Livestock industry in Thailand; principles of feeding, management and sanitation of farm animals; problems associated with animal production.

Aquaculture 201 General Aquaculture Credits 3 (3 - 0)

General knowledge of aquaculture, fishpond construction, fish feed and feeding, problems associated with aquaculture.

Food Sci.Tech.302 Principles of Plant Product Preservation Credits 3 (3 - 0)

Causes of plant product deterioration, factors affecting plant product preservation, preservation and processing techniques of plant products.

Forest Management 414 Forest Law and Administration Credits 3 (3 - 0)

Important forest laws and problems in forest-related laws, principles of forest administration.

Forest Products 321 Forest Products Utilization Credits 3 (3 - 0)

General properties of wood; major and minor forest products industries, and their economic importance; raw material used; harvesting and manufacturing processes; industrial trends.

Forest Products 421 Minor Forest Products Credits 3 (3 - 0)

Rattans, bamboos, naval stores, laro, tannins, fibre, and other economic products other than wood, their importance and industrial trends.

Forest Products 475 Technology of Wood-Based Energy Credits 3 (3 - 0)

Introduction to heat from various organic materials and biomass, mechanisms and technologies of conversion of wood into different fuel forms, evaluation of energy conversion efficiency.

Conservation 341 Introduction to Outdoor Recreation Credits 2 (2 - 0)

Development and philosophy of outdoor recreation, social needs and interests in outdoor recreation and natural environment, trends in recreation use and objectives in recreation for modern Thai society.

Conservation 451 Range Science Credits 2 (2 - 0)

Definition, scope and characteristics of rangeland; morphology and physiology of range plants; methods of inventory of range resources; forage nutrition; proper use and multiple uses of rangeland; interrelationship between range plants, animal, and other resources in forest range ecosystems.

For.Mgmt.461 Public Relations in Natural Resource Management Credits 3(3-0)

Principles and methods in public relations to enhance society's recognition of the importance of natural resources.

## SOCIOECONOMIC ASPECTS IN FOREST MANAGEMENT

Junus Kartasubrata<sup>†</sup>

A review is given of socioeconomic aspects in forest management, in particular in the fields of Industrial Forestry, Social Forestry and Agroforestry, and Management of Natural Forests. Case studies are presented in Thailand, the Philippines and Indonesia, most of which deal with concentrated efforts for development of degraded forest and land resources. These studies show that unless participation of local communities is integrated into the respective development programs, the projects concerned are doomed to fail. For integration to be successful, the managing forester has to be equipped with knowledge and skills in relevant social sciences to enable him to stand better for his task.

### *INTRODUCTION*

A study conducted from 1978 to 1981 by FAO within the framework of the Global Environment Monitoring System reports on the forest resources of tropical Asia. The findings of this report, which deals with 16 countries, represent the consolidated information available on a region-wide scale (Lanly & Rao, 1981).

According to the report, the total area under natural woody vegetation<sup>1</sup> in 16 countries of tropical Asia<sup>2</sup> in 1980 was 445 million ha or about 47% of the land surface. Indonesia, India, Burma, Papua New Guinea and Malaysia contained the largest extent of natural woody vegetation. The figures for the subregion are shown in Figure 1.

The most valuable forest formations are the closed broadleaved forests<sup>3</sup>, 292 million ha in extent. Indonesia, India, Burma, Malaysia, Papua New Guinea, and the Philippines, account for some 90% of the productive closed broadleaved forest areas of the region (Figure 2). The extent of closed broadleaved forests in the other countries of the region are 0.3 to 8.1 million ha or 0.1 to 2.8% respectively.

---

<sup>†</sup>Professor, Faculty of Forestry, Bogor Agricultural University, Bogor, Indonesia.

<sup>1</sup>Includes closed and open broadleaved and coniferous tree formations, bamboo forests, forest fallows, and shrub formations.

<sup>2</sup>Bangladesh, Bhutan, Brunei, Burma, India, Indonesia, Kampuchea, Laos, Malaysia, Nepal, Pakistan, Papua New Guinea, Philippines, Thailand, Sri Lanka, and Vietnam.

<sup>3</sup>Closed forests are stands without continuous grass cover, with trees whose crown cover a high proportion of the area, generally multistoried, and have not been cleared for agriculture in the last 20 to 30 years.

Figure 1

Extent of Woody Vegetation in Tropical Asia

	<u>Million ha</u>	<u>% of Region</u>
Insular SE Asia (Brunei, Indonesia, Malaysia, Philippines)	198	44
Continental SE Asia (Burma, Laos, Kampuchea, Thailand, Vietnam)	123	28
South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka)	84	19
Papua New Guinea	40	9
Total	445	100

(Source: Lanly & Rao, 1981)

Figure 2

Countries with Largest Closed Broadleaved Forests

	<u>Million ha</u>	<u>% of Region Total</u>
Indonesia	113.6	38.9
India	46.0	15.8
Papua New Guinea	33.7	11.6
Burma	31.2	10.7
Malaysia	21.0	7.2
Philippines	9.3	3.2

(Source: Lanly & Rao, 1981)

'Virgin' forests constitute approximately one-half of the region's productive closed broadleaved forests. Out of the total area of 97 million ha where no logging has taken place in the last 60 - 80 years, 39 million ha are in Indonesia, 14 million ha are in Burma and Papua New Guinea, 7.5 million ha are in Malaysia, and 3 million ha are in the Philippines.

Logged-over productive broadleaved forests amount to 58 million ha, of which Indonesia, Malaysia and the Philippines account for 75%. These are part of the area under the concessions that supply the bulk of tropical logs to international markets and for domestic processing.

Between 1976-1980, the total closed forest area deforested was 9 million ha, equivalent to some 1.8 million ha per year. If the current 0.6% average annual rate of closed forest deforestation continues, some 36 million ha of closed forest areas will have been converted to non-forest uses by the year 2000. This would represent a 12% decrease in the region's closed forest area.

The major cause of deforestation is shifting cultivation in the wake of logging operations. The scattered data relating to countries where estimates are available shows that some 30 million people are dependent on shifting cultivation. The extent of forest area affected by shifting cultivation is some 75 million ha. The most seriously affected areas, in descending order of severity, are Kalimantan in Indonesia, the northeastern and the dry central states of India, the central Philippine highlands, and parts of Burma, Thailand and Bangladesh.

Another important cause of deforestation is unorganized and spontaneous encroachment. This form of deforestation is most prevalent in the Philippines. In Nepal, the population pressure in the hills has caused people to migrate and encroach into forest lands. In Thailand, unrest in neighboring countries has resulted in an influx of refugees into the country, which has contributed to the deforestation caused by the encroachment of local people on forest lands.

Organized forms of settlement, generally government sponsored, also cause deforestation. Settlement schemes are common in Indonesia, Malaysia, and Sri Lanka, and, to a small extent, in Nepal.

The loss of forest land for construction of irrigation and hydroelectric projects is observed in almost every country, particularly in India and Sri Lanka in recent years. Mining destruction in Thailand, Malaysia, and Papua New Guinea has been reported.

Shifting cultivation, spontaneous forest encroachment, migration and settlement schemes, and illegal, unregulated logging operations may be considered as the main causes of deforestation in tropical Asia.

This situation does not mean that the forestry agencies in the region are not trying to stop the destruction. In many countries, forest police squads are deployed to guard the forest against all kinds of disturbances. But the protection effort has not been sufficient to counter the tremendous pressure on the forest. In this conflict of interests, foresters are in many cases pictured as enemies of the people.

In the 1970s, the governments and others in the region started to show great concern about the continuous destruction and future productivity of the forests. Serious efforts have been made to rehabilitate the degraded forest and land resources and to stop further destruction through national development plans.

Foresters started to reason that more attention should be paid to the needs of the people living in and around the forests. This new approach to forest use was discussed in Jakarta at the Eighth World Forestry Congress in 1978. The theme of the Congress was 'Forests for People', and areas of discussion included forestry for local community development, forestry

for food, forestry for employment promotion, forestry for industrial development, and forestry for quality of life. The Congress added its support to forestry's new fields of Social Forestry and Agroforestry.

### *INDUSTRIAL FORESTRY*

In this category of forestry activities we may include logging, wood based industries, and the establishment of industrial forest plantations.

Ghani (1987) gives a comprehensive report concerning a study of the socioeconomic characteristics of peat swamp logging workers in Sarawak. The report covers social and demographic aspects, income, consumption, health, employment, and working conditions. The study focuses on workers using the *pangkong* or *kuda-kuda* (mostly manual) method, since this is the most common and widely used method in peat swamp logging. Some highlights of this study are discussed in the following paragraphs.

The distribution of workers' age and sex shows that the majority (84.6%) are males. This is to be expected because of the physically taxing nature of the job. Female workers fill supporting roles to their male counterparts. They are normally employed as cooks, with their duties including washing and general cleaning besides cooking. The average age for the male and female workers is 28.7 and 26.5, respectively.

On the whole, the majority of the workers (89.9%) constitute young workers, whose age is between 16-40 years old. It is important for the workers to be fit in order to reduce skidding time and to maintain the aggressiveness of the skidding team in order to achieve the daily production target (i.e., one ton or 1.803 cu m per day). It is also important to note the significance of logging work to the young workers with respect to migration. Logging provides a chance for employment and hence could ease the rate of migration of young job-seekers to urban centers.

Concerning the workers' level of schooling, 70% of those surveyed had received formal education. For those who had formal education, the majority of them (59%) attended primary school and only about 11% had received secondary education. The majority of the workers who had not attended school were from the 46-50 age class. This reveals that young workers are more educated than their elders.

With regard to previous occupations, about 77.3% of the workers had worked as loggers in other logging camps. Others had diverse occupational backgrounds, such as fishermen, farmer, laborer, industrial worker, etc. This seems to indicate that logging was the first choice and main occupation among people in the area. This may be related to the high income they can earn from logging or because other job opportunities are scarce. It also indicates that most of the workers were employed in unskilled jobs.

One of the most important economic impacts of job generation is income. Unlike a wage earner who receives a fixed monthly rate, income of the logging worker fluctuates from one working season to another. Average monthly income varies for each category of worker. On

the whole, crew leaders had the highest level of monthly income, with an average income of \$381 per month, followed by the ordinary workers and cooks, with average monthly incomes of \$178 and \$148, respectively. The high average incomes of crew leaders was primarily due to the nature of the payment system used in the logging camps. Crew leaders have more responsibility and accountability to their subordinates and the company. In turn, they receive a substantial amount of commission from the company based on the tons of logs produced by their crews.

With regard to cash savings, the majority of the workers (69.2%) had none. Only 10% of the workers had savings of more than \$500. This can be explained by the fact that their present monthly income is low and only just enough to cover their basic needs. About 66% of the workers owned their own homes. This may be explained by the fact that 60% of the workers are married and are no longer living with their parents. More than half (51.3%) of the surveyed workers do not own any land, and 27.4% of the workers owned between 0.4 to 0.8 ha of land. A small percentage of workers owned 2 ha or more.

Concerning working conditions, it is calculated that the workers toil from 10-12 hours per day (including resting hours), with the effective daily working hours ranging from 7-9. The loggers start working at 6:00 A.M. and stop at 6:30 P.M.

All logging crews are governed by a logging contract, by which they are required to completely harvest the contracted logging blocks (18 ha). This work takes about 6 to 8 weeks, a period that can be defined as the working season.

The number of working days per year for all logging crews ranges from 108 to 240. The average number of working days is 183 per year. This means that the loggers work half of the available time per year. Logging in peat swamp forests is hard and heavy work, thus they require adequate time for resting.

The amount of logs produced per working season by a logging crew varies from crew to crew. Output ranges from 505 cu m to 2019 cu m per crew per working season. The value ranges from 33.7 cu m to 144 cu m per worker per working season.

### *Industrial plantations*

Udarbe (1987) reports on the activities of SAFODA (Sabah Forestry Development Authority) in establishment of large scale reforestation schemes, afforestation of scattered wastelands, and the concurrent promotion of forest settlement establishment. According to Udarbe, these activities take place within the frame of a social forestry program in Sabah.

The reason for embarking on this program is the rapid depletion of the natural forest resources in Sabah due to the rapid rate of logging operations, the irreversible damage to forests by the systematic large-scale conversion of forests to agricultural land, and the continuous practice of shifting cultivation. In order to provide an alternative source of timber for the industry, the State of Sabah has embarked on a program of commercial plantation and afforestation since 1973. By the end of 1986, a total area of some 49,000 ha of tree and rattan plantations had been established in Sabah.

Forest development activities were generally confined to remote areas far from human settlements until 1977, when an effort was made to afforest idle wastelands found in the relatively more populated areas of the West Coast and interior regions. This led to a new era of forest development where forest plantations were used as a tool for rural development. The implementation of these projects involved the participation of people living in the rural areas, thus giving rise to the birth of social or community forestry in Sabah.

The present objectives of SAFODA are to:

1. Convert wasteland and marginal agricultural land to productive forestry use.
2. Supplement the production of timber and non-wood forest products from the natural forest with products coming from man-made forests.
3. Encourage and promote active participation of the people in reforestation and afforestation work and provide mass employment.
4. Raise the living standard of the people through forest settlement schemes and the introduction of forestry-oriented land management.

To achieve these objectives three development strategies are pursued:

1. The establishment of large scale forest plantations.
2. The afforestation of scattered wasteland.
3. The promotion of private woodlots or tree farms.

On areas of continuous blocks of over 4,000 ha, commercial plantations will be established for the production of industrial wood or rattan. SAFODA has started three projects, two of which involve resettlement of local villagers into forest resettlement schemes, while the other is a purely commercial plantation of rattan not involving settlement. The resettlement schemes are located at Bongkol in the Bengkoka Peninsula and at Karamatoi, south of Keningau. In these schemes, people from isolated village inside the project area are offered permanent employment in the plantation and accommodated in the housing project. By grouping villagers into settlements, proper housing and other amenities such as water, electricity, and schools, can be provided.

Each settler gets a two-room house on a 0.1 ha lot. To instill a sense of belonging and ownership in the settlement, each settler is required to pay two days wages per month for the upkeep and repayment of the house. In addition, each settler will be allowed a share of the proceeds of the future sale of timber from the plantations through share certificates earned yearly up to a maximum of 15 shares, which is equivalent to a six ha lot of a developed plantation. From his share of the proceeds the settler repays SAFODA the remaining balance of costs for building his house and for the cost of the title survey of the house/lot.

The long gestation period of forest plantations makes it necessary to supplement the income of the settlers by introducing agroforestry projects, such as backyard or home garden projects that encourage settlers to plant fruit trees and vegetables, and rear fish or livestock within their home compounds. The settlers are also allowed to plant short-term crops, such as hill rice and corn, on newly cleared areas in the forest plantation, before or at the same time when that the trees are being planted. In addition, an area of approximately 200 ha is set aside near each housing settlement for the settlers to develop with suitable agricultural crops or to rear fish and livestock on a communal basis.

Development of resettlement schemes related to industrial forestry is also reported by Gintings (1981). In this case, resettlement means settlement of shifting cultivators--particularly those in logging concessions areas--into locations where introduction of sedentary agriculture is deemed possible. The scheme was initiated on the basis of Presidential decree No. 66 1971 which, among other things, stipulates that: 'The holders of forest utilization rights (logging concessionaires/timber exporters) will be charged with Additional Royalties for the special purpose of dredging, amelioration, and maintenance of rivers and resettlement of inhabitants of timber concession areas.' In a Presidential decree of 1974, the 1971 decree (which applied only to East Kalimantan) was declared valid for the entire territory of the Republic of Indonesia. As the resettlement scheme includes determination of the locations for resettlement, translocation of the population, determination of cropping patterns, implementation of crop cultivation (including site preparation, planting, harvesting, post harvest management and marketing), it is anticipated that the practice of shifting cultivation will eventually be replaced by sedentary agriculture.

Translocation and resettlement of inhabitants do not only take place from logging concession areas, but also from protection forests, natural reserves, recreation forests, and areas for agricultural estates. On the new locations, five ha of agricultural land is allocated to each household. Social services to the newcomers include schooling, health, and housing. Training and other facilities are given to develop agriculture, horticulture, animal husbandry, and cottage industry. People are encouraged to undertake self-help project activities, such as building and maintenance of village buildings and roads.

From the start of resettlement activities in 1973 to 1979, 7,686 households were resettled, covering 22 locations in 17 provinces. This translates into an average settlement rate of 1098 households per year.

The report does not deny that the success of the project still leaves much to be desired. Changing the way of life of a shifting cultivator to that of a sedentary agriculturist involves the transfer of appropriate skills and will therefore take a long time to accomplish.

The examples mentioned above from Malaysia and Indonesia show that in developing and managing industrial forestry activities, in these cases logging operations and establishment of industrial forest plantations, the forester needs additional knowledge and skills in social sciences such as social anthropology, sociology, development communication, labor relations, etc., besides having agricultural and pure forestry knowledge and skills.

## *SOCIAL FORESTRY AND AGROFORESTRY*

Social forestry and agroforestry are defined many ways. We can say that social forestry is a forest management system with a specific socioeconomic objective, whereas agroforestry is a land-use system with a specific production objective. In both cases, rehabilitation of degraded land and forest cover may constitute an intermediate goal.

Cruz and Vergara (1987) recognize immediate benefits and long term benefits which may be obtained from effective agroforestry systems. The immediate benefits consist of protection and amelioration of land and forest resources, including reduction of soil erosion, landslides, surface runoff, nutrient loss, and evaporation, and improvement of nutrient status, increase of soil organic matter content, improvement of soil structure, etc. The long-term benefits include increased and sustained crop productivity, improved socioeconomic status of rural inhabitants, stabilized land-use policy, and improved environmental conservation.

Wiersum (1984) mentions activities usually carried out in social forestry programs, such as awareness raising campaigns including extension, distribution of seedlings, tree planting, forest maintenance, harvesting, distribution and processing of products, with possible integration with non-forestry activities for rural development. The anticipated outputs of these activities are environmental protection, production for local communities, and creation of industrial resources which together support the more general objectives of socioeconomic development.

Because of the close relationship between social forestry and agroforestry, agroforestry usually (but not always) constitutes an important technology package in social forestry programs. In addition, social forestry programs usually include techniques for efficient organization of the participating communities concerned.

This strategy is, for example, pursued in the social forestry program in forest land in Java. Social forestry programs on forest land in Java were initiated in the early 1970s, before the term social forestry was universally accepted, under the names of 'prosperity approach', *ma-lu* (ranger-village chief cooperation), and forest village communities development (Kartasubrata, 1988). In 1984, the Department of Forestry embarked on a renovated social forestry program in cooperation with the Ford Foundation. The organization and implementation of the program seem better than those of the earlier mentioned programs in that it involves more interested groups and expertise in the society; e.g., non-government organizations for assistance in the development of rural communities, universities for research support.

The programs are carried out in Java as well as outside Java. The program in Java has as its objectives:

1. To reforest and ameliorate degraded forest lands.
2. To increase the income of poor farmers, living in the vicinity of those degraded forest lands.
3. To improve relations between *Perhutani* (State Forest Corporation) field staff with forest farmers.

An important aspect of this program is the activity to organize and educate forest farmers to make them equal partners in forestry work of Perhutani field staff. For this purpose, groups of forest farmers are established, which are anticipated to become the medium for two-way communication between foresters and farmers, i.e., 'bottom-up' and 'top-down' communication (Bratamihardja, 1987).

After diagnostic research carried out by graduate students from three Indonesian universities in 1984-1985, social forestry pilot projects were established in 1986 in 13 locations throughout Java. In 1987, another 30 locations were assigned as pilot projects. This rapid extension was proposed by the district foresters concerned, who felt that the strategy might help them in coping with encroachment problems in their districts, though they recognized an attendant risk of less quality in the management of the projects.

To operate the pilot projects, two social forestry field workers (SFFW) are assigned for each location. The SFFW receive six weeks training before beginning their field assignments. The training program is commissioned to Bina Swadaya, a non-governmental community self-help development agency. The objective of the training is (Bina Swadaya, 1986):

1. To develop knowledge, skill and proper attitude of the SFFW in order to enhance their ability in facilitating and cooperating local communities, in particular forest farmers groups.
2. To enhance the skills of the SFFW in stimulating local participation in a sustainable forest management scheme and to improve the quality of life of villagers, with due regard to their social, economic, and cultural aspirations.

The anticipated result of the training program is that the participants:

1. Will become familiar with the short and long term objectives of the social forestry program.
2. Will become more able to effectively establish relations with local communities.
3. Will become more able to identify problems and needs of the villagers in accordance with their aspirations.
4. Will become proficient in the art of management of the farmers groups.

Advanced training courses are organized periodically during the assignment of the SFFW in the pilot projects.

An account of the progress in one of the pilot locations may give a picture of the activities in a pilot project. Sukobubuk village is located in the Muria Patiayam area of the forest district Pati in Central Java. The topography of the area is hilly, with some very steep slopes. The forest condition around Sukobubuk village is severely degraded because of over use during the Japanese occupation and lack of management in the period of the war for independence.

Purwanto (1985) describes the forest land in this area as covered with 'a green carpet' of *lalang* (*Imperata cylindrica*) and other grasses, with some scrub and occasional, scattered trunk sprouts of *Eucalyptus alba*.

The process of degradation is currently aggravated by rapid population increase and low social mobility. Most of the villagers have become landpoor or landless farmers. Only 10.4% of the villagers own land of one ha and over; 60% are landless. It is understandable that the community depends on forest resources for their daily fuel, fodder, and miscellaneous food needs. The fact that forest products are often collected illegally is a source of tension between villagers and foresters; former reforestation programs have failed because of this conflict of interest between villagers and forestry. This was the reason why Sukobubuk has been selected as a pilot project of the social forestry program, which aims to restore degraded forest land and improve the socioeconomic conditions of the community through the active participation of the villagers.

After the necessary background information concerning the program has been given to villagers, two main activities are initiated, i.e.,

1. Establishment and development of forest farmers groups (FFGs).
2. Implementation of a suitable agroforestry system (locally known as *tumpangsari*) on the land to be restored and reforested.

Both activities are carried out simultaneously. FFGs are organized at the time *tumpangsari* plots are allocated. Each plot is a piece of forest land, usually 0.25 ha in area, which can be cultivated for a certain period by the participating farmers while the forest crops grow. By the middle of 1986, 65 farmers had enrolled as participants of the project and had been associated into two FFGs.

In the first meetings the FFGs aims and principles of the social forestry program are explained and the rights and obligations of the farmers and Perhutani as cooperating parties are stated. In later meetings, planting techniques concerning agricultural, horticultural, and forest crops are discussed. Besides the forestry staff concerned, extension workers of the local agricultural and horticultural agencies are invited to join the discussions on these occasions. The farmers are encouraged to put forward their own opinions and knowledge on the subjects being discussed.

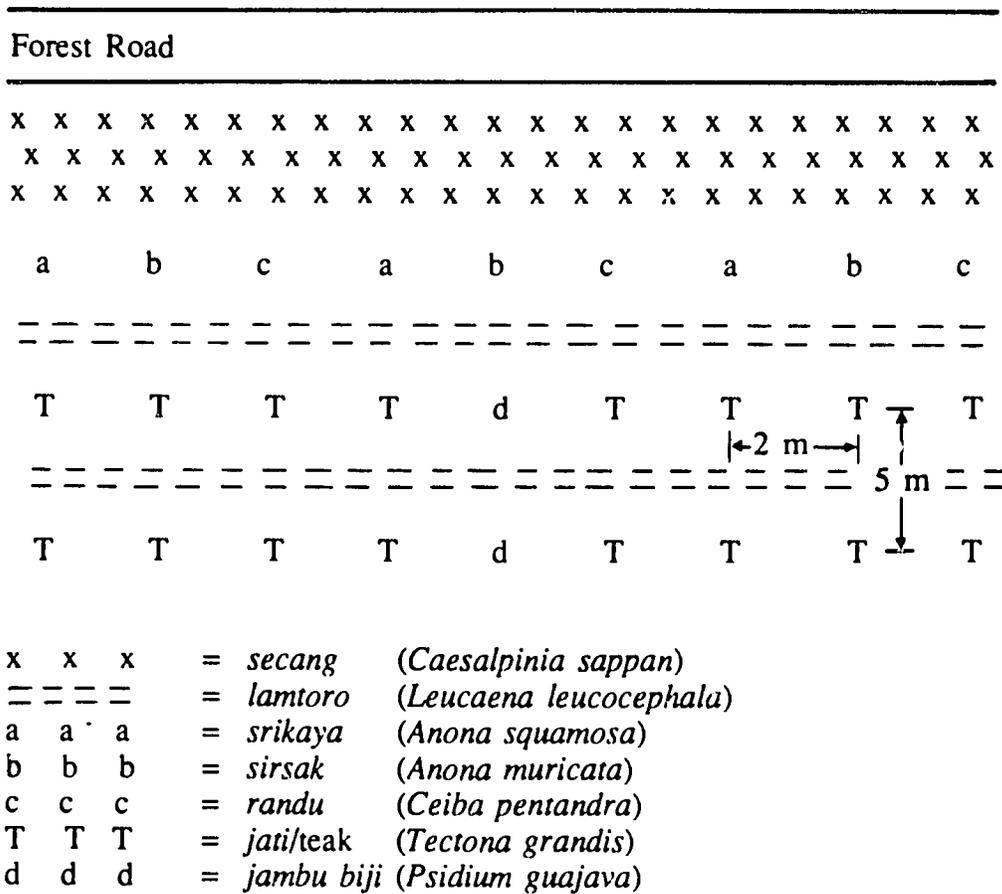
FFG members elect a chairman, secretary, and treasurer to manage their group. If conditions permit, these FFG officials get more land allocated to them than the standard 0.25 ha as compensation for their services. Other benefits are decided in the FFG meetings. For example, in Sukobubuk it was agreed that 2% of the first harvest will be allocated to the chairman, 0.5% to the secretary, 0.5% to the treasurer, and 2% to a communal fund. The use of this fund is in principle for productive purposes in the future. A total of Rupiahs 31,000 (about US\$ 20) was collected from the farmers after their first harvest. Other FFG activities include visits to successful similar projects, in particular horticultural projects.

The 30 ha agroforestry pilot plot is divided into allotments of 0.25 each. Some participants get more than one allotment for services to the project or by buying allotments of other farmers. The implementation of the agroforestry program includes four groups of activities; i.e., site preparation, seed preparation, planting, and tending. The layout of the agroforestry system in Sukobubuk is as shown in Figure 3.

All the food and horticultural crops, and eventually fuelwood and grasses from the agroforestry plantation, belong to the farmer, while the timber crops (also from fruit trees) belong to Perhutani. To make this clear from the outset, seed and seedlings of forest and fruit crops are provided by Perhutani, seasonal food crops are at the expense of the farmers. The first corn crop in the Sukobubuk pilot plot (of the high yielding Arjuna Bisi variety) was 6.48 tons/ha. This is high compared to average yields of local corn of one ton/ha.

Figure 3

Agroforestry System at Sukobubuk



Food crops and grasses are planted between the rows of perennial crops.

(Source: Perum Perhutani, 1987)

A special social forestry program in the surrounding areas of natural reserves and national parks is the 'buffer zone' program, organized by the Directorate General of Forest Protection and Nature Preservation of the Department of Forestry. Soedargo (1981) defines buffer zones as areas surrounding conservation forests, which can be utilized by local communities to meet their daily needs.

Alikodra (1986) mentions two kinds of activities in the implementation of the buffer zone program:

1. Activities with non-physical objectives, such as encouraging and enhancing consciousness among villagers concerning the need for nature conservation areas and national parks, through extension work and activation of local institutions.
2. Activities with physical objectives, such as enhancing socioeconomic conditions through increase of land productivity, development of tourism and recreation areas, encouragement of local industries, and improvement of infrastructure.

The aim of the 'buffer zone' program is to relieve the nucleus of the protected zone from encroachment, but at the same time provide local communities with facilities for their daily needs and enhancing local participation in nature protection.

Another type of Social Forestry program is organized by the Directorate General of Reforestation and Land Rehabilitation of the Department of Forestry. The program includes rehabilitation of degraded village lands, improvement of cropping patterns, and crop diversification (Sumadi, 1987). The aim of this program is:

1. To improve the carrying capacity of village land
2. To increase land productivity and income of villagers
3. To conserve natural resources (forest, land, water) and its functions.

The activities of this program are carried out in various ways, including the development of village forests and village gardens and the application of suitable cropping patterns. The activities are mostly carried out in demonstration plots, with favorable impacts anticipated to spread into the surrounding village lands.

In the village forests the farmers (in particular farmers with relatively large land holdings) are encouraged to plant about 2,000 trees per ha beside seasonal crops. The recommended tree species in moist West Java are principally *Albizia falcataria* and *Calliandra callothyrsus*, and in the dryer areas of Central Java, *Acacia auriculiformis*, *Dalbergia*, and *Gliricidia*.

Village gardens are mostly developed by small holder farmers in Java. In order to provide them information concerning the program activities, two kinds of plots are established; i.e., for demonstration of natural resource conservation and techniques of sedentary dry land farming.

It is obvious that knowledge of people and communities are essential in the above mentioned type of social forestry and agroforestry programs in densely populated areas. Forester familiarity with rural sociology and development communications will certainly be useful in the task of implementing social forestry and agroforestry programs.

### *NATURAL FOREST MANAGEMENT*

This part of the paper will deal with the type of natural forest management that addresses social problems, in particular encroachment and illegal occupation of forest land, besides overuse by excessive and illegal logging. Some of these issues have been discussed in the section on industrial forestry.

Many authors, such as Bayabos (1988) and Payuan (1987) from the Philippines, and Pragtong (1987) from Thailand, have presented excellent reports on the condition of natural forests in those countries and the problems faced because of the tremendous pressure being applied to this natural resource.

Bayabos (1988) asserts that the Philippines, of its total land area of about 30 million ha, had 17 million ha forested lands, of which 11 million ha was old growth or virgin forests. With the start of excessive logging operations from around 1934, the depletion of forests was faster than the regeneration, so that based on a destruction rate of 200,000 ha per year, it is estimated that the remaining old growth at present covers only one million ha.

Bayabos attributes the forest destruction to legal and illegal logging operations, slash and burn farming, pests and diseases, and forest fires. Payuan (1983) reported that slash and burn or swidden farming, locally termed as 'kaingin' accounts for at least fifty percent of the total forest destruction.

Payuan (1987) gives an overview of measures to arrest degradation of forest resources in the Philippines. For the 74 years from the promulgation of the 'Definitive Forest Laws and Regulations' (Royal Decree of the King of Spain) to the early 1960s, 'kaingin', or shifting cultivation, has been regarded as one of the major causes of forest destruction in the country. During this period, the government's response to the 'kaingin' problem was the adoption of punitive measures, such as the imposition of stiff penalties and fines, prosecution and ejection of 'kaingineros' from forest lands.

In the 1960s, a change in how the 'kaingin' problem was viewed took place. The socioeconomic basis of the problem was recognized, whereas it had been considered a purely technical and legal problem up to that point. This shift in orientation resulted in the initiation of massive information campaigns on forest conservation and national sectoral meetings to discuss the problems of deforestation with emphasis on shifting cultivation.

Increased forest degradation in the 1970s necessitated the government to adopt immediate measures to contain the shifting cultivation problem. 'Kaingineros' and other forest occupants were no longer prosecuted, provided that they are found within the forest zone as of the promulgation of the Philippine Forestry Reform Code on May 19, 1975. This also led to the

implementation of major people oriented forestry programs, such as the Forest Occupancy ('Kaingin') Management (1974), Communal Tree Farming (1979), the Family Approach Reforestation (1979) programs, among others. These programs later served as forerunners of the Integrated Social Forestry Program (ISFP), which was launched in 1982.

The ISFP is in line with the government policy to democratize the disposition of public lands and promote a more equitable distribution of forest benefits. It aims to uplift the socioeconomic condition of forest occupants and communities dependent on forest lands for their livelihood, while at the same time helping to develop and conserve forest resources. The ISFP recognizes the potential of 'kaingineros' and other forest occupants to serve as effective partners of the state, not only in forest development and conservation, but also in food production.

Beside results in terms of number of ISFP participants, area coverage of ISFP, number of planting stock produced and distributed, etc., interesting achievements are recorded in tenurial arrangements concerning the use of occupied forest lands; i.e., the issuance of Certificate of Stewardship Contract (CSC) and Community Forest Lease (CFL) by the Bureau of Forest Development (BFD).

A CSC is a document issued by the government to a qualified forest occupant giving him the usufruct right to peacefully possess and develop a parcel of land in the forest zone he presently occupies. A CSC covers the actual area occupied or cultivated, but not exceeding seven hectares. CSC applications are filed at BFD district offices. The BFD District Forester is authorized to issue CSCs covering areas less than five hectares, while areas above five to seven hectares are approved by BFD Regional Directors. Areas more than seven hectares would have to be approved by the BFD Director.

Unlike the CSC, the CFL is a contract entered into by and between the government and a forest community or association. The basic difference between CSC and CFL is that with the latter, the land is not granted to an individual but to a community or association, the members of which have agreed beforehand to use the area on a communal basis. The area covered varies from one community to another and often encompass relatively large tracts of forest lands. CFL applications are filed at the BFD District Offices but the approval has to be made by the Secretary of the Department of Natural Resources. Applications for CFL are treated on a case-by-case basis and careful attention is given to the capability of the community or association to develop the area. As with the CSC, CFL lease holders are obliged to conserve and protect the forest resources within and around the affected forest area.

As of December 1986, 61,124 CSCs and three CFLs had been issued. CFLs covered 3,431 family, tending forest areas totaling 16,119 ha. The ISF area covered by CSCs was 161,456 ha and area developed 121,873 ha.

Pragtong (1987) reports on various forestry programs the Thai Government has undertaken to cope with the degradation of the country's natural forest resources and overuse of forest products. The programs are carried out inside as well as outside forested lands and aim to involve people in forest management.

Earlier programs included the following arrangements:

1. Logging permit for the local wood feller, starting in 1901 in Pitsanulok Regional Division, North Thailand. This was to allow, on a short term basis, local villagers to cut wood for personal use and to assist local professional wood cutters.
2. *Taungya* system in forest plantation, started in 1906 in Prae, North Thailand. In the *taungya* system, landless farmers were allowed to intercrop in forest plantations.
3. Woodlots for community use, starting in 1956. The program allotted 20% of newly reserved land as common woodlots to serve as a source of fuelwood for local communities.
4. Integrated watershed development, starting in 1964. A watershed conservation and development committee was established which was assigned to:
  - o Draft work plans for watershed and sub-watershed management throughout the country.
  - o Devise criteria for retarding siltation in the reservoir of Bhumipol dam.
5. The people's voluntary tree planting program began in 1978 with the purpose of making the country green by planting degraded forest and public lands, temples grounds, and roadsides as sources of fuelwood and charcoal for the community, and for environmental protection.

These programs were later consolidated under the umbrella of Social Forestry Programs and were included in the fifth National Economic and Social Development Plan (1982-1986). The following two programs relate directly to natural forest management. The program for granting usufruct certificates in the National Reserve Forest (Pragtong, 1987) was initiated in 1979 to cope with the problem of forest encroachment. Under the program, each piece of land will be divided into two zones. The upper watershed area will be restricted and kept as forest. The land suitable for agriculture and previously held by landless farmers will be granted to the farmer under a usufruct certificate covering not more than 2.4 ha. The purpose of granting the usufruct certificate is to give incentive to invest in the land to make it more productive, thereby reducing encroachment into forest land. In 1986, 600,126 landless farmers were granted the usufruct certificate.

The forest village concept, which plays such major role in the Thailand Forest Village Program (Pragtong, 1988), was first used by the Forest Industry Organization (FIO) as part of its plantation program. In 1975 the forest village scheme was adopted by the Royal Forest Department (RFD) to solve worsening problems of poverty among people who choose to stay in forest lands. Participants in the RFD-managed villages are given the option to work as casual wage earners in forest plantations with allocation of some land for farming and housing, and provision of living amenities.

If applied in areas with strong land use conflicts between farmers and government, the forest village scheme is seen as a practical deterrent to wanton deforestation and to socioeconomic and political problems caused by the influx of people in national forest lands. Forest villages are thus envisioned to bring order among Thailand's multitude of forest dwellers (estimated to be about one million families in 1978), and to encourage people's participation both in protecting the country's forests and in rehabilitating deteriorated areas due to shifting cultivation. To date, there are 98 existing forest villages in Thailand, well scattered in the Kingdom's forest zones.

The following national guidelines are given to manage the forest village program:

1. Forest encroachers will be resettled in groups in non-watershed areas, each with an elected leader and a committee for village self-administration.
2. The government will allocate 2.4 hectares of land for farming to each family. No land title will be issued for such land, but users right permits will be given instead. The property is inheritable but non-negotiable. This is to prevent buying-up by scheming landlords.
3. The RFD and authorities concerned will improve the village compound, including provision of appropriate housing, vocational training, water resources, feeder roads, schools, health centers, agricultural credit, marketing service, and housing sites.
4. Priority for employment in government reforestation programs near the villages will be given to the village members.
5. After the village is established, an agricultural cooperative will be set up under the aegis of the Cooperative Promotion Department. It shall have the same rights and privileges given to other cooperatives. The RFD will issue a long-term land lease to such cooperatives as required.

The organization responsible for the forest village project is the National Forest Land Management Division in the RFD. Since the RFD began the forest village program, several problems have surfaced, which may be categorized as follows: social and agrarian problems, RFD-related problems, and project staff problems.

Because forest villages are established in deteriorated forest land already occupied by people, there is an obvious conflict of interest between the government and the villagers, and between old residents and newcomers. Among the more common sources of irritation is the 2.4 ha maximum limit of land legally allowed per family. Farmers occupying areas of more than 2.4 ha resent giving up land. This disagreement with the land allocation policy becomes even more apparent if the excess land is given to newcomers who cannot use the land properly. To minimize such conflicts, the project has given immediate relatives, also staying in forest land, top priority on the list of eligible recipients of such excess land. Moreover, a system of compensating for past land clearing had to be arranged between the previous landholder and the new occupant.

Other sources of conflict include grouping together villagers from different regions of origin, and the holding of large sections of forest land by influential people who use politicians to confuse villagers (e.g. by convincing them to ask for land titles instead of the mere rights permits). Project implementation is delayed by the need to erase misinterpretations about the project and provide a clear understanding of the project's purpose.

Concerning RFD-related problems, a big issue is the inadequacy of the RFD to provide sufficient numbers of interdisciplinary staff for the forest villages. The forest village needs at least six personnel to implement the project: a project chief, two sociologically inclined officers for village establishment, two biophysical specialists for forest plantations, and a secretary. As more village projects were established, the RFD found it difficult to provide the necessary personnel because of the limit put on the annual increase of employees.

Other problems arise with respect to mobile engineering for construction of roads and reservoirs. Infrastructure goals are often not met on time due to lack of funds. The lack of proper coordination between cooperating agencies and the RFD in developing the villages is also a major constraint. Since the village sites are usually vital forest lands, the RFD feels they should be forested and not cleared of trees, but the other authorities have other preferences.

Concerning staff problems, since most RFD personnel manning forest village projects have their background in forestry, they naturally do not feel quite comfortable when they work on projects using the integrated approach. Even foresters with five years experience with the RFD encounter difficulties with tasks such as community organization, socioeconomic analysis, and coordination with other authorities concerned with the project. It is therefore no wonder that in many forest villages there is an apparent imbalance between village establishment and forest plantation development.

It is clear from the examples above that other disciplines of knowledge in addition to forestry are needed when dealing with natural forest management problems related to land tenure on occupied forest land and the establishment of forest villages to deter further encroachment into forest land. Among other things, knowledge of tenure rights, community development, and methodologies of socioeconomic analysis is needed. This can be provided by inclusion of the necessary subjects into forestry curricula and by training forest officers in socially oriented skills.

#### *LESSONS LEARNED FROM CURRENT FIELD ISSUES AND PROSPECTS FOR THE FUTURE*

Our deliberations on various forestry activities, such as industrial forestry, conservation forestry, social forestry, agroforestry, and management of natural forests with respect to the possible contribution of social sciences, may be summarized as a review of the potential role of social sciences in social forestry. Although we have tried to identify specific social science related programs (social forestry programs) connected with specific fields of forestry operation, it is obvious that any social forestry program may be launched to cope with problems in any field of forestry activity, depending on the set of existing conditions. For example, the program of development of villages for forest dwellers ('forest settlements' in Sabah, 'forest

villages' in Thailand, 'resettlement programs' in Indonesia) can be launched to solve problems in industrial forestry (logging operation in Indonesia, industrial plantations in Sabah, and teak plantations by FIO in Thailand) as well as in management of natural forests, in particular with respect to the problem of persistent encroachment into forest land (forest villages by the RFD in Thailand).

The lessons learned and the problems faced in the establishment of forest villages and similar programs may be summarized as follows:

1. The strong desire to cope with the growing problem of forest land encroachment in Thailand has plunged the RFD into developing 21 forest villages all over the country, without first going into pilot projects to gain experience, develop expertise, and iron out implementation problems. The consequent lack of expertise in the integrated approach and the subsequent problems with personnel, budget, and heavy equipment have all combined to cause difficulties in implementing the various forest village projects. The progress attained in some projects is based mainly on the energy, resourcefulness, commitment, and personality of the project staff (Pragtong, 1988). The same constraints were faced in the implementation of resettlement programs in Indonesia (Gintings, 1981). In order to have a more orderly implementation of programs, and less wasting of resources, more attention should be paid to supporting research as a first step (diagnostic in character), followed by pilot projects for testing of the program principles and training of personnel. The lessons learned during the pilot phase should be spread via extension, which in turn will lead to the institutionalization of the program.
2. Participants in a forest village/settlement program need funds for their living and capital for their farming investments during the early phase of their stay on new land. They need to be provided with labor intensive jobs for their income, or they may have to be provided with financial assistance (grants or loans). Forestry activities, such as establishment of forest plantations, have great potential as income sources for forest villagers. This is the approach used in the resettlement project of SAFODA in Malaysia, where the settlement program is integrated with the establishment of commercial plantations that provide an alternative source of timber for industry and at the same time provide employment for the settlers. From their income, the settlers are not only able to pay their daily expenses, but are also able to repay their loans for housing. To supplement the settlers income, backyard homegarden projects and agroforestry schemes are initiated to provide the settlers with fresh staples, fruit, vegetables, meat, fish and even cash crops. The same principle is pursued in the social forestry program in Java, where food, fruit, and cash crops are planted by the forest farmers between the rows of forest tree crops. Assistance in marketing of the products may be required when problems arise in the marketing of the cash crops.
3. Some of the lessons learned from the implementation of the ISFP in the Philippines show that there is an urgent need to reallocate resources between the government, corporate forest land users, and upland people (Bayabos, 1988). Secure access to land resources in the face of perceived threats from lowland migrants and commercial interests is a critical concern for upland people in the Philippines. Upland development

projects have generally been initiated by outsiders in response to their perceptions of problems, with the local people minimally involved in planning and initial implementation. In this context, Bayabos recommends that a successful upland development must address issues of land security directly and seek to make a contribution to the income of very poor people.

4. Other lessons learned from the Philippines indicate that communities should be given an active role in all program activities. They should be trained to assist social forestry officers and should be involved in the planning, implementation and evaluation of project activities. On the other hand, social forestry officers should be cautioned not to raise undue hopes and expectations outside the scope of the program and they must be adequately trained and must work full time in the area. It should also be emphasized that their role is only facilitators, not the main actors in the development (Bayabos, 1988).

Some unfortunate experience may be reported in this respect for the social forestry program in Java. Social forestry field workers are recruited, after a three week training in community organizing, from the existing forest rangers. These rangers do not give up their original posts as 'forest police' officers, which cover a much larger area than the social forestry pilot projects. No wonder that they cannot devote full time to their social forestry work. As forest technicians, they may do their forest plantation work superbly, and thereby tend to use their limited time mostly for the work they were originally trained for and in which they feel more comfortable and experienced. In some of the pilot projects, this pattern has indeed brought about a decline in the activities of the forest farmers groups. It is also questionable whether the double face of forest custodian and forest community organizer can be maintained on the long run without damaging the goals of the social forestry program.

5. Seymour and Fisher (1987) disclose useful lessons learned from the Ford Foundation's decade of involvement in social forestry programs in the Philippines, Indonesia and Thailand.
  - o *Diagnostic research* represents a critical first step in the development of any social forestry program. This research provides a clearer picture of conditions and problems in the field, especially the interaction between the people and forest. Information and data gained during the diagnostic research phase becomes the basis on which the working group designs and directs the program.
  - o *Selection of appropriate pilot project sites* will provide good opportunities to test the basic assumptions and approach of social forestry. Although limited in scope and application by the specific site conditions, pilot project experience can give important direction to the development of a wider social forestry program.
  - o *The role of the working group*, formed as a first step of the three social forestry programs in Southeast Asia, serves to sponsor diagnostic research, plan program implementation, and monitor and raise attention to problems encountered once the program is underway. The primary objective of the working group is to

elicit the changes in government policy and procedures necessary to support the resolution of conflict over forest resources.

- o *Social forestry requires compromise* Compromise is a way to resolve conflicts that up to now have festered between the government, which sees its job as the production of timber and the protection of natural resources, and the community, which depends on the forest area for an important part of its subsistence needs. By giving the community the opportunity to use the forest area within the context of a clear and limited agreement, conflict can be resolved with benefits for both parties. Examples of compromise agreements include the 'Stewardship Contracts' in the Philippines and the renovated agroforestry contracts in Java.
- o The need for *community development expertise* represents a new problem for foresters, who up to now have seen their jobs as being limited to technical forest management and law enforcement. Community organization expertise must be developed within the Forestry Department environment through training. The community organization approach must then be enforced by the adjustment of staff responsibilities and changes in agency administrative procedures.
- o *Agroforestry* As forest-edge communities tend to be economically disadvantaged and depend on forest resources for subsistence, agreements and cooperation between the government and the community must include concrete benefits that can be felt immediately. Thus, social forestry programs must develop agroforestry systems that fit with the needs of program participants.
- o *Monitoring and evaluation* Routine monitoring of social forestry programs is an important activity to ensure program success. Program administrators and working groups must receive reports from the field to be able to assess the progress of the program.
- o *Institutional socialization* A social forestry program constitutes an enormous institutional challenge for a national forestry agency, not only from conceptual and technical viewpoints, but also in terms of the agency's attitudes and procedures. Fitting a new program into an existing government bureaucracy requires a slow and sometimes difficult socialization process.

## REFERENCES

- Alikodra, H.S. 1986. *Daerah Penyangga Taman Nasional* (National Park Buffer Zone). Paper presented at a scientific discussion concerning buffer zones of Natural Conservation Areas. PPLH-IPB, Bogor, Indonesia.
- Bayabos, Reynaldo C. 1988. Government Effort in Social Forestry: The Philippine Experience. *Proceedings of the Workshop on Community Forestry and the Community*, 23 - 26 May 1988, Kuching, Sarawak, Malaysia, The Canadian High Commission - CUSO.
- Bina Swadaya. 1986. *Kerangka Acuan dan Supervisi Peugas Lapangan Perhutanan Sosial* (Frame of Reference for Training and Supervision of Social Forestry Field Workers). Badan Pengembangan Swadaya Masyarakat, Jakarta, Indonesia.
- Bratamihardja, Mulyadi. 1987. *Social Forestry on State Forest Land*. Workshop organized by the Faculty of Forestry GMU in collaboration with FONC and FAO/RWED, 1 -3 December 1987, Yogyakarta, Indonesia.
- Cruz, R.E. de la and N.T. Vergara. 1987. *Protective and Ameliorative Roles of Agroforestry: An Overview*. EAPI East-West Center, Honolulu, Hawaii, USA and SEARCA College, Laguna, Philippines.
- Ghani, Awang Noor Abd. 1987. *Socio-economic Aspects and Policy Implications of Employment in Logging Operations in Sarawak, Malaysia: A Case Study*. Paper presented at the Regional Workshop on Strategies for Effective Implementation of Social Forestry Programs, March 30 - April 10, 1987, Los Banos, Laguna, Philippines.
- Gintings, A. Ngaloken. 1981. *Resettlement of People as an Effort to Control Shifting Cultivation* (Ind.). Forest Research Institute, Bogor, Indonesia.
- Kartasubrata, Junus. 1988. Review of Community Programs in Indonesia. *Proceedings of the Workshop on Community Forestry and the Community*, 23 - 26 May 1988, Kuching, Sarawak, Malaysia. The Canadian High Commission - CUSO.
- Lanly, J.P., and Y.S. Rao. 1981. Regional Synthesis. Pages 1 - 109 in *Forest Resources of Tropical Asia*. UN32/6.1301-78-04 Technical Report 3, Food and Agriculture Organization of the United Nations, Rome, Italy.
- Payuan, Edwin V. 1987. *Social Forestry Program. Country Report Philippines*. Bureau of Forest Development. Department of Natural Resources. Philippines.
- Perum Perhutani. 1987. *Agroforestry in Indonesia*. Perum Perhutani (State Forest Corporation), Jakarta, Indonesia.

- Pragtong, Komon. 1987. *Social Forestry in Thailand*. Paper presented at Southeast Asia Regional Social Forestry Meeting organized by Ford Foundation, 17 -19 March 1987, Pattaya, Thailand.
- \_\_\_\_\_. 1988. Thailand Forest Village. *Proceedings of the Workshop on Community Forestry and the Community*, 23 - 26 May 1988, Kuching, Sarawak, Malaysia. The Canadian High Commission - CUSO.
- Purwanto, Teguh. 1985. *Result of Social Forestry Study in Desa Sukobubuk, BKPH Muria Patiayan, KPH Pati*. Perum Perhutani, Jakarta, Indonesia.
- Seymour, Frances and Larry Fisher. 1987. *Emerging Lessons from Social Forestry Programs in Southeast Asia*. Paper prepared for the Workshop on Planning and Implementation of Social Forestry Programmes in Indonesia, 1 - 3 December 1987. Yogyakarta, Indonesia.
- Soedargo, Soemarjono. 1981. *Pengembangan Daerah Penyangga* (Buffer Zone Development in Conservation Areas). Faculty of Forestry, IPB, Bogor, Indonesia.
- Sumadi, Gunawan. 1987. *Implementation of Social Forestry on Private Land*. Workshop organized by the Faculty of Forestry GMU in collaboration with FONC and FAO/RWED, 1-3 December 1987, Yogyakarta, Indonesia.
- Udarbe, N.P. 1987. *Social Forestry - Sabah Experience*. Paper presented at the Regional Workshop on Strategies for Effective Implementation of Social Forestry Programs, March 30 - April 10, 1987, Los Banos, Laguna, Philippines.
- Wiersum, K. Freerk. 1984. *Developing Strategies for Forestry: A Conceptual Approach*. Working Paper, EAPI East-West Center, Honolulu, USA.

# INTEGRATED STUDY ON SOCIAL FORESTRY PLANNING AND IMPLEMENTATION

Komon Pragtong  
Sithichai Ungpakorn  
Preecha Arampongpan  
Uraiwan Tankimyong  
Yaouwalak Apichavullop  
Lert Chuntanapap  
David E. Thomas<sup>†</sup>

## *BACKGROUND*

On June 22, 1987, the Ford Foundation approved a grant of \$260,000 (No.870-0534) to the Thai Royal Forest Department (RFD) for support of the Thailand Upland Social Forestry Pilot Project (TUSFP). The thirty month project period of the TUSFP began on July 1, 1988. The objectives of the TUSFP are:

1. To develop practical field diagnostic tools, guidelines, and procedures, as the project conducts a set of pilot projects to demonstrate the operational feasibility of using community organizers to assist RFD field staff and local communities to develop land management plans for their areas.
2. To provide training for RFD staff and assistance for villages in the establishment of village-based agroforestry plant propagation facilities, including demonstrations and training for technologies incorporated into the local plans.
3. To strengthen the capabilities of RFD staff in social forestry systems.

The TUSFP is an innovative approach the RFD is testing in an attempt to better manage human-forest interactions and cope with the serious deforestation problem in the country. A key element in the project operation is to establish well-trained community organizers in the target villages. The community organizers are intended to serve as a link between villagers and RFD, to initiate participation and involvement of the villagers/target clientele in sustainable forest resource management that meets government forest policy.

The TUSFP relies on the efforts from various agencies regarding the integration of knowledge on social sciences and forestry. The social science expertise of Kasetsart University (KU), Khon Kaen University (KKU), and Chiang Mai University, is combined with the RFD's experience in forest policy and law to support the TUSFP. This paper presents how the project is progressing toward meeting its objectives.

---

<sup>†</sup>The authors work for a number of organizations in Thailand: Pragtong, Ungpakorn, and Arampongpan are with the Royal Forest Department; Tankimyong is with Chiang Mai University; Apichavullop is with Khon Kaen University; Chuntanapap is with Kasetsart University; and Thomas is with the Ford Foundation.

## SITE DESCRIPTIONS

Between 1985 and 1987, four working groups from RFD, KU, KKU, and CMU were formed to select the potential areas for project villages. Case studies on socioeconomic and environmental conditions of three selected villages in the Northern and eight villages in the Northeastern regions were conducted by CMU, and by KU and KKU, respectively (see map below). A brief profile of the project sites follows:

### *Northern Region*

Three pilot project villages are located in the upper watershed of the upper Ping River, which is administered by watershed management unit No.3 (Monung-Gate) at Tambon Pa-Pae, Amphor Mae-Taeng, Changwat Chiang Mai.

*Ban Kiu Tuay Moo 7*, Tambon Pa-Pae, Amphor Mae-Taeng, Changwat Chiang Mai. This village is situated in watershed area class 1A. The altitude of the housing area ranges 1,000 m to 1,600 m; the farming area ranges from 800 m to 1,300 m above sea level. The population of approximately 139 is mainly comprised of citizen and *Karen* people, making up 34 households. Traditional plantations provide the major source of income. At present, the large tea plantations belong to a small group of citizen people.

*Ban Pang Khum Moo 1*, Tambon Yang Moen, Amphor Samoeng, Changwat Chiang Mai. This village is situated in watershed area class 2. The housing area is at an altitude of 1,200 m. The farming area has been divided into paddy-fields, orchards, corn-fields, dry rice-fields, and opium plantations at altitudes ranging from 1,000 m to 1,500 m. The villagers



consist mainly of two large groups of *Karen* and *Lisu* and a small group of citizen people, with a total population of 824 in 100 households. The religions are Buddhism and Christianity. Some of the villagers also believe in the spirit world.

*Ban Khun Sa Nai*, Tambon Pongsa, Amphor Pai, Changwat Mae Hong Son. The watershed area classification of this village has yet to be done. The housing area lies at 1,200 to 1,300 m altitude while the farming area ranges from 780 m to 1,600 m. Farming areas are utilized for paddy-fields, corn-fields, dry rice fields, orchards and opium plantations. The population of 324 in 39 households consists mainly of *Mong*, citizen people, and Chinese of the *Haw* group. The religion is Christianity, with some believing in the spirit world.

### *Northeastern Region*

Pilot projects have been established in eight villages, spread through three provinces in the Northeast:

#### 1. Kalasin Province

Pilot projects have begun in four villages of two districts. *Ban Phu Hang* Moo 3, 5, and 8 are in Nong Kung Si district, and *Ban Non Amnuay* is in Tha Kkan Tho district. These villages are located in the Dong Mun Forest Reserve along the Huai Hin Lat, one of the minor tributaries in the western portion of the Lam Pao drainage basin, within the Chi watershed. Non Amnuay and Phu Hang are neighboring villages separated only by Huai Hin Lat. The distance between Non Amnuay and Phu Hang is slightly less than one kilometer. Both villages are quite similar in terms of the pattern of land use, including cash crop production on 60% of their crop land, rice cultivation on the remaining 40% of their land, and limited labor and land devoted to animal husbandry, agroforestry, and fishing. The cash crops depending exclusively on market sale are kenaf, cassava, maize, sugar cane, soy beans, gram, and sesame. Rice is a staple food crop. In addition to on-farm activities, the villagers in both villages also engage in small-scale trading, raising mulberry trees, and such handicraft activities as weaving mats, cloth, and making kerosene lamps.

In terms of forest product utilization, timber is cut for household use and sale, and fuel wood is collected for cooking, heating, and making charcoal. Hunting and the collection of non-wood products (including mushrooms, bamboo, bamboo shoots and vegetables for household consumption) are practiced in both villages and play a role in their market economies. The existence of formal and informal organizations in both villages is quite similar. Most formal organizations have been organized by government agencies to support government policies and programs. Also, due to deforestation problems in Dong Mun Forest, there are two RFD forest land management programs in both villages; i.e., Forest Village in Phu Hang and the STK land allocation program in Non Amnuay.

## 2. Chaiyaphum Province

Two villages in Nong Bua Daeng, *Ban Khok Sanga* and *Ban Thung Sawang*, are pilot project sites. They are forest margin communities lying in the shadow of Phu Khieo within the upper watershed of the Chi River in the western hills. Both villages represent the conditions in which no formal government program for forest management has been implemented. Brief profiles of these villages follow.

Ban Khok Sanga is located 11 kilometers to the northwest of Nong Bua Daeng district. The population of Ban Khok Sanga is approximately 456 in 81 households. The majority of villagers are farmers growing rice for household use and some other field crops (i.e., kenaf, cassava, mung beans, sesame, corn, and peanuts) for cash sale. Livestock and poultry are also raised. Two wells and three ponds supply the village with water. There is one primary school and one Buddhist monastery, but there is no hospital. In terms of forest resource utilization, there is timber cutting for cash sale, wood collection for charcoal, the collection of mushrooms, bamboo shoots, cutting bamboo, and hunting. These activities are an important part of the total economy of the village.

Ban Thung Sawang is located 30 kilometers to the west of Nong Bua Daeng district and consists of 78 households. Most villagers are farmers growing wet rice for household consumption, kenaf as a cash crop, and a few other field crops. Drinking water is obtained from two ponds and two irrigation weirs. There is one primary school, but there is no Buddhist monastery and no health care facility. Activities concerning forest product harvesting are similar to Ban Khok Sanga.

## 3. Nakhon Ratchasima Province

The villages of *Ban Sab Charoen* and *Ban Rat Samakkee* are pilot project sites. Both villages are located on the edge of the Tab Lan national reserved forest within the upper Mun watershed. In general, the village conditions of Ban Sab Charoen and Ban Rat Samakkee are very similar since the RFD Forest Village Program is operating in both villages. The major staple food produced by households in both villages is rice and the major field crops grown for cash are maize, peanuts, and kenaf. In terms of forest product utilization, Ban Sab Charoen is quite different from Ban Rat Samakkee. The cutting and sale of timber is only done in Ban Sab Charoen. This is one of the major sources of income for the residents of this village. But, other forest product harvesting is similar in both villages, i.e., wood collection for fuel wood and charcoal, gathering of mushrooms, vegetables, fruits, and hunting. The existing formal and informal organization in both villages are quite similar to project villages in Kalasin Province.

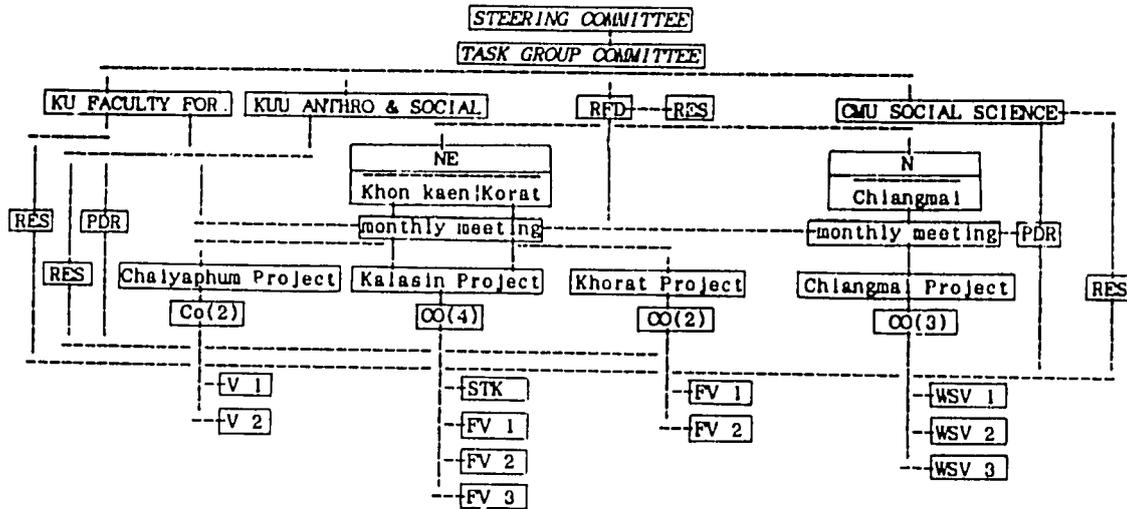
## ***PROJECT ORGANIZATIONAL STRUCTURE***

The project organizational structure (see Figure 1) consists of the following components:

1. ***Project Steering Committee*** Project policy and decision-making authority with membership from RFD, KU, KKU, CMU, Bureau of Budget, Civil Service Commission, National Economic and Social Development Department.
  2. ***Task Group*** Coordinates research and training programs; membership from RFD, KU, KKU, and CMU.
  3. ***Pilot Project Staff*** Project regular working staff consists of the following positions:
    - o Central RFD Staff provide guidelines for conducting project activities to staff at all levels, and include:
      - Project Director (NFLMD Director)
      - Deputy Director (NFLMD)
      - Associate Deputy Director (2) (WMD, NFLMD)
      - Assistant Director (4) (NFLMD)
    - o Regional RFD Staff serve as liaison between the project and regional office in providing support for field operations:
      - Coordinator for Nakhon Ratchasima Regional Office
      - Coordinator for Khon Kaen Regional Office
    - o Local Staff receive guidance from central staff to conduct their work and meet monthly to review progress, exchange ideas and problems:
      - Kalasin RFD Field Unit Head/Community Organizer Supervisor/Community Organizers (4)
      - Nakorn Ratchasima RFD Field Unit Head/CO Supervisor/COs (2)
      - Chaiyaphum RFD Field Unit Head/CO Supervisor/COs (2)
      - Chiang Mai RFD Field Unit Head/CO Supervisor/COs (3)
- Central and Regional Staff, and Field Unit Heads are regular RFD employees. Community Organizers are hired on a temporary basis by the project.
4. ***Linked Staff*** Provide research and training support to the project. Kasetsart University assists in mapping and aerial photo interpretation. Khon Kaen University and Chiang Mai University provide process documentation service and social science analytical advice for sites in the Northeast and the North, respectively.

Figure 1

TUSFP Organizational Chart



**INTEGRATION AND IMPLEMENTATION**

(October 1987-November 1988)

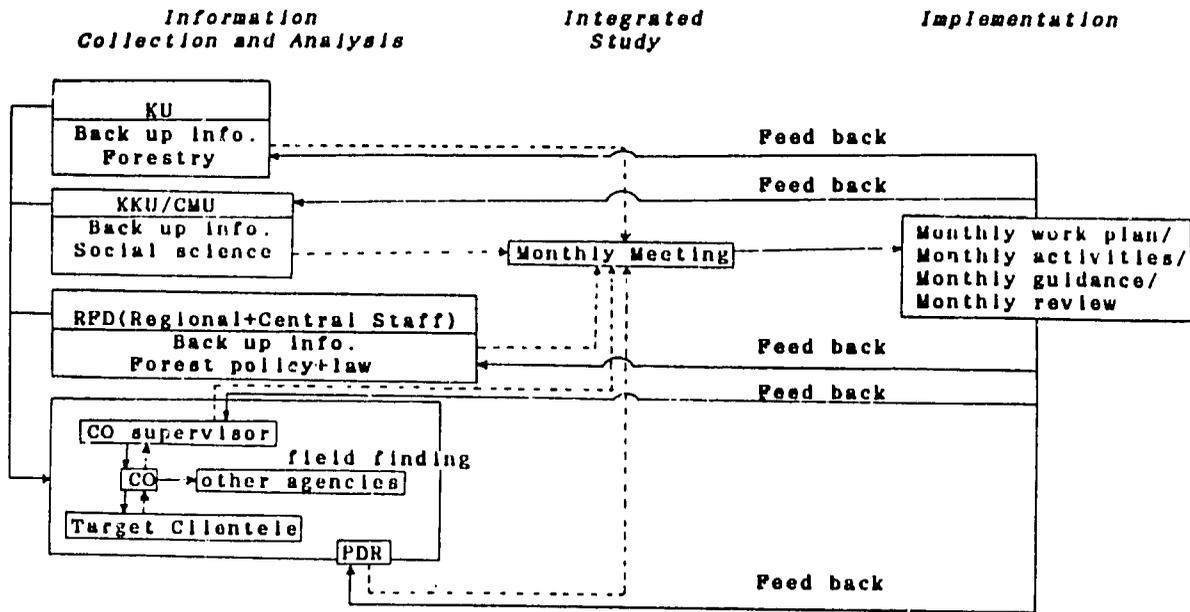
Project implementation can be conceptualized as an iterative learning process. The emphasis is on generating a flow of information regarding resources/communities interactions and incorporating elements found to be of significant relevance to local communities into the monthly activities/work plan/guidance by integrated study. (see Figure 2)

Critical to implementation of the project is the use of regular monthly meetings to facilitate information sharing and provide monthly activities, work plans, and guidance for each target community. As the figures show, information and knowledge of the local population/target clientele and their resources collected from multiple sources, are presented at each monthly meeting. Community Organizers present the resource and community information from their individual sites. All RFD officials involved report their policy, technical, and day-to-day management experiences. Researchers from the universities provide their observations and findings (KU - forestry aspects, KCU/CMU - social science aspects).

The planning of new activities, work plans, and guidance, as well as modifications and alterations of ongoing processes, takes place simultaneously at monthly meetings by incorporating relevant information (i.e., local knowledge and technologies, existing organizational potentials, and so on) into the activities being carried out in each community. Most, if not all, activities can be characterized as representing transitory steps in a cyclical learning process; i.e., integrated study is used to develop feasible, monthly community-based social forestry activities and, vice versa, monthly activities/guidance help in the revision and redefinition of the research issues and methodologies employed.

Figure 2

Conceptual Model of Integration and Implementation of TUSFP



*RESULT OF THE FIRST YEAR PHASE*

Based on the first year's results of the process of integration and implementation outlined above, the second year's work plan for each project village has been identified and finalized through the community organizers, with mutual agreement among the RFD, universities, and villagers. The following is one of the work plans to be implemented in the second year of the TUSFP.

Thailand Upland Social Forestry Pilot Project Planning  
Workplan for the Calendar Year 1989, Kalasin Province

1. Ban Phu Hang Moo 3, 5, and 8, Tambon Dong Mun, Amphor Nong Kung Sri.
2. Ban Non Amnuay Moo 12, Tambon Tha Kan Tho, Amphor Tha Kan Tha.

Duration: January - December 1989

Main

- Activities: A. Study to obtain basic information regarding the order of thinking, knowledge, and understanding of target clientele.

- B. Initiate long-term self-reliance of community regarding forest conservation, social forestry, agriculture, and forest management by using training and visit (T & V) and field trips.
- C. Preparation of community land and land use survey.
- D. Extension and development on social forestry work.
- E. Monitoring & evaluation.

Work plans for the other project sites have also been finalized, with a few contrasts in any activities depending on local conditions. It is expected that the project will be expanded in the near future, based on the integrated study approach discussed in this paper.