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Sustaining Thailand's Forest Resources:  
A Case Study of Villagers' Values and Practices

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Montri Kunphoommarl

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of the requirements for

Ph.D. degree in Sociology

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**Sustaining Thailand's Forest Resources:  
A Case Study of Villagers' Values and Practices**

by

**Montri Kunphoommarl**

**A DISSERTATION**

**Submitted to  
Michigan State University  
in partial fulfillment of the requirements  
for the degree of**

**DOCTOR OF PHILOSOPHY**

**Department of Sociology**

**2000**

## **ABSTRACT**

### **SUSTAINING THAILAND'S FOREST RESOURCES: A CASE STUDY OF VILLAGERS' VALUES AND PRACTICES**

By

Montri Kunphoommarl

Deforestation is a huge problem in most developing countries including Thailand. Thailand is now in the process of granting local control over forest resources to villagers by having them participate in and become more involved with forest management activities. Thai's new constitution, the 1997-2001 development plan and recently enacted community forestry laws, give support to local forest management.

My study explores current forest management practices in a northern Thai village and how local attitudes contribute to conserving and sustaining forest and tree resources. The study site, "Nong Lom", is well known in this region for doing a good job of managing its forest resources. Although, there is industrialization nearby, Nong Lom has been and still is very much dependent on forest resources.

Differences among villagers in terms of gender, generation, educational background, socio-economic situation

(community participation and household wealth), and work dependency (farm, off-farm, forest) are taken into account.

Five values concerning forest resources management are identified and measured: state administration, local control, local knowledge, sustainability, and conservation.

One hundred and twenty-two households were surveyed by household questionnaire and 213 principal males and females were personally interviewed. Focus group discussions with various groups was used to get more in-depth information about forest management practices in the past and now.

Nong Lom villagers, as a whole (i.e. as a community) are generally very supportive of sustainable forest management practices and appreciate the local control that they now have. But there is some evidence that individuals and households that are more involved with and more dependent upon forest resources, that are more involved with and have a greater stake in the future of their local village, and that are more secure financially, are more likely to be supportive, through their behavior and attitudes.

The Nong Lom case suggests a number of policy changes that the Thai government could institute to help protect Thailand forest resources.



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MONTRI KUNPHOOMMARL  
2000

Delicate to  
My mother (Samran Kunphoommarl)  
1927-1994

## ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to a number of people who helped make this dissertation a reality. Special thanks are given to Professor Dr. Harry K. Schwarzweller, my major advisor, whom I have worked with most closely in producing this dissertation. More important, I am most grateful for his relationship like father-son which has inspired me, for his unwavering, intellectual views and guidance as well as encouragement and support throughout my study. For the members of guidance committee, Professors Chris Vanderpool and Thomas Conner, Department of Sociology, have contributed by their sights and encouragement. Professor George Axinn from department of Resource Development and Professor Daniel C. Clay from International Agriculture Institute have been helpful in providing valuable views and inputs on this research as well as willing to be my committee members.

I am very grateful to the Thailand-United States Education Foundation (Fulbright program) which enabled me to pursue my doctoral studies and I would like to extend my gratitude to Chiang Mai University, Thailand where I have worked in Department of Sociology and Anthropology for travel grant support.

Sincere thanks are also given to "Nong Lom" villagers whom provide frankly and valuable information on forest

management practices and values during the interviews and focus group discussions.

The greatest debt that I owe is to my wife, Sirinapa (Nid), who has been a wonderful companion and also works as my research assistant providing intellectual inspiration and insights throughout my graduate studies and this dissertation. All my love, Nid, I could not have done this without you.

Lastly, the people who have shaped my life most are my mother, who passed away during my studies in the United States, and my father. Whatever I achieve is due to largely to the love I have received from them.



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## CHAPTER 1

### INTRODUCTION

#### GENERAL PROBLEM

Thailand's forest resources continue to disappear at an alarming rate, averaging about 2.4 percent reduction per year (Sharma, 1992:542). According to the 1997 report of Office of Environmental Policy and Planning, Thailand's forest cover decreased an average of 2.73 million rai (0.44 million hectares) per year during the period 1961-1993. In 1993, there were 83.5 million rai (13.36 million hectares) or 26 percent of the country under forest cover with the most forest cover in Thailand's northern region.

The problems of forest degradation and encroachment in the past forty years reflect the interaction of many factors, such as logging, cash crop cultivation, pioneering, shifting cultivation and economic development policies that favor national security needs and the promotion of tourism (see Ramitanondh, 1989). The most significant visible impacts of deforestation were the terrible flooding and mudslides in the Southern part of Thailand in November 1988. Several hundred villagers were killed by logs that were carried along at high speed by the floods. These incidents led the Cabinet to draft Royal Decrees in January 1989 to ban all logging nation wide. Despite the ban on commercial logging, however, illegal logging continues as usual.

To sustain its forest resources, while the Thai people regard as very important, the Thai government, through the Royal Forestry Department (RFD), is promoting reforestation programs. Unfortunately, the forests are still gradually vanishing because those reforestation programs have seldom taken into account the needs of local people who are dependent upon the forest. It is also believed by the RFD that humans cannot live in harmony with the forest; forest management activities, therefore, tend to be initiated and administrated as top-down programs with limited involvement of rural people (Kashio, 1995).

After the Earth Summit in 1992, many RFD programs have also geared to achieve sustainable forest management. A new community forest section has been established in the RFD in order to support local forest management. Moreover, the RFD in cooperation with NGOs has come to the same conclusion as rural communities and academics, namely, that there should be a Community Forestry Bill which grants local control rights over forest resource management. A Community Forestry Bill has been drawn up and has been under discussion for several years. The government approved a draft of the Community Forestry Bill on April 30, 1996. After that there were three public hearings on this draft bill. On September 16, 1997, the committee of the public hearing presented its conclusions to the cabinet which approved the bill. However, the bill has yet to be voted on by members of parliament, which is the final process. Now,



the main controversial issue is how and to what degree should local rights be granted over management of forest resources. If this bill is enacted, residents in communities which have been located in the forest area for a long period of time (more than five years) will need to demonstrate their capacity and ability in managing the proposed community forest. Community forests will also be subjected to inspections by four different government organizations.

Although the RFD and related academic institutes have conducted research related to forests and forest products for many decades, there has been little research on sustainable management of forests and on traditional uses of forest resources by local people (Office of Environmental Policy and Planning, 1997). Hence, the RFD and government officials are not certain what to expect if management of local forest resources is turned over to village communities.

The current policy of the Thai National Economic and Social Development Plan (1997-2001) tends to place special emphasis on the involvement of local people in sustainable forest management. The concept of local control or local rights in forest management is becoming very popular among the RFD, NGOs, rural communities and academics involved in community based forest management system.

But, there is no doubt that more in-depth information about the capability and ability of local people in forest management is needed in order to strengthen the government's

commitment to sustainable forest management in the future. The general purpose of my study here is to investigate how local norms and attitudes of rural villagers can and do contribute to conserving and sustaining forest and tree resources at the village level.

### **SPECIFIC PROBLEM**

Community forests in Thailand can be classified into two types: outside-initiated community forests (supported by both government agencies and non-government organizations) and locally-initiated or indigenous community forests. Indigenous community forests are various kinds, such as ancestral spirit forests, funeral forests, headwater forests, soil conservation forests, temple forests, wildlife sanctuary forests, multipurpose forests, etc (Appendix A).

Many researchers in Thailand have focused their studies on various forestry issues such as: deforestation in the northeast (Thomas, 1988); tree planting activities (fuelwood in the northeast (Subhadhira, 198); teak in the north (Mekvichai, 1988); reforestation in general (Hongladarom, 1988); watershed management in the north and northeast (Perry and Dixon, 1986); local practices of community forestry in the north (Ganjanapan, 1992); community forest management in the north (Filipchuk, 1991, Puntasen, 1996, and Amornsanguansin, 1997); legal rights in forest management in Thailand (Chamruspanth, 1993); common property rights in the north (Wittayapak, 1994); and others.



Many researchers in other countries have studied community forest management issues (Gibbs and Bromley, 1986; Poffenberger, 1992; Molnar, 1981; Barlett et al, 1992). Other popular forestry issues that have been explored are: common property rights such as the work done by Wade (1987).

In Thailand, the terms "social forestry" and "community forestry" are used interchangeably. The basic elements common to both social and community forestry approaches, are:

1. Both approaches regard people's participation as a first priority and the basic criterion.
2. Both are umbrella terms for a wide range of forestry strategies, including community woodlot, agroforestry, farm forestry, reforestation/tree planting, watershed management and natural forest management.
3. The outcomes of social/community forestry, according to their proponents, should affect the lives of local people in positive terms, fulfilling local needs and uses, increasing income, and benefiting the poor people (summarized from FAO, 1978; Blair and Olpadwala, 1988:11; Gregersen and McGaughey, 1988:7; Cernea, 1991:342; and Arnold, 1987:126-128).

A very important common theme in the literature on social and community forestry is the aim of achieving sustainable forestry in Thailand as in most other countries. The general objective is to help forest dependent communities to sustain the forest resources that they are dependent upon, and to do so with the active involvement of various forest user groups. In the Thai situation, it becomes especially important to assess the capabilities of local people controlling and managing their forest resources

because the Community Forestry Bill will give them a chance to do so.

For these reasons, which I will discuss more fully later, I believe that the following questions should be researched in my study of the Nong Lom case:

What are some of the socio-cultural factors that facilitate the cooperation of rural villagers in forest resource management?

What characteristics of forest users help to sustain forest resources nearby the village?

What kinds of incentives promote cooperation among rural villagers and encourage sustainable forest resource management?

How can local village control over forest resources help to sustain forest resources?

Answers to the above questions are important in two ways. First, they will help to illustrate the related factors and the socio-economic characteristics of rural villagers as well as village norms concerned with sustainable forest management in the Thai context. Second, they will help the relevant government agencies and non-government organizations in promoting incentives for sustaining forest management among local people in the long term.

The main problem that I will investigate, and that will guide my research, is how local village norms, and the attitudes and perspectives of rural villagers can contribute

to conserving and sustaining forest and tree resources in Thailand. Nong Lom, the study site, is known as a village that manages its forest resources well. Focusing my study specifically on this village and various problems related to the local management of forest resources, I will explore the following sets of questions:

1. Current Practices, Norms, Attitudes: What kinds of practices are now being used to manage the forest and tree resources? What are some of the social and cultural dimensions related to these forest management practices? What are the villagers' beliefs, values and attitudes that re-enforce and help to maintain good forest management practices in this village?

2. Potential Social Discontinuities: What kinds of value conflicts might arise in the future to create social disturbances and make difficulties in managing forest resources at the village level? Are there important differences among households in their economic status, social group membership, and level of dependency on forest resources that might cause difficulties in how well the village will be able to manage its forest resources? Are there significant gender and generational differences in attitudes and perceptions associated with forest management?

3. Economic Transformation: What may we expect to be the changes in forest management and attitudes of rural villagers if more non-farm jobs become available in northern factories for this village? Will young villagers, when they

become heads of households, take care of the forest in the same ways and as well as their elders?

## **PURPOSE OF THE STUDY**

Forest resource management issues have become very important in Thailand as well as in many other developing countries because the misuse and mismanagement of forest resources in the past is causing huge deforestation problems that are seriously impacting upon Thailand's people and its ecosystem. Policies to reduce the rate of deforestation and to support the involvement of people in forest management activities are clearly stated in both the Thai New Constitution as well as in the 8<sup>th</sup> National Economic and Social Development Plan (1997-2001). These initial steps are being followed up this year, 1999, by formulation of the Community Forestry Bill which will concentrate on granting local control over forest resources. According to the Thai New Constitution, local control is also very relevant to current moves to reduce the size and cost of government by decentralizing and devolving responsibilities and activities to local people and by achieving a greater degree of involvement and participation by local stakeholders.

My research aims to explore the capacity and ability of local people to effectively control the use of forest resources and thereby to promote the conservation of forest resources. My research attention focuses on a village in northern Thailand that has been and still is very much

dependent on forest resources. I will examine the management practices and attitudes of the villagers to find out what can and should be done to strengthen sustainable forest management in the future. I shall take into account differences among villagers, their dependency on forest resources, their socioeconomic situation in the village, as well as generational, gender and educational differences.

My major research concern is to investigate how local village norms and the attitudes and perspectives of rural villagers can contribute to conserving and sustaining forest and tree resources in Thailand.

#### **FOREST MANAGEMENT IN THAILAND**

Thailand is located in the tropical zone and the country is covered by two main types of tropical forest- deciduous and evergreen. Deciduous forest are identified as mixed deciduous and dry-dipterocarp forest which evergreen forests includes moist evergreen, pine, mangrove and tropical rain forests. The country's area is 513,115 km<sup>2</sup> with a total forested area of 133,521 km<sup>2</sup>, about 26 percent of the total area (1993).

The current situation of forestry in Thailand has been rapidly reduced to agriculture and other land uses which can be seen in Table 1.1.

**Table 1.1** Forest areas in Thailand, 1961-1993

Year	Forested Area (Km <sup>2</sup> )	Percent
1961	237,628.5	53.32
1973	221,725.0	43.21
1976	198,417.0	38.67
1978	175,224.0	34.15
1982	156,600.0	30.52
1985	150,866.1	29.40
1988	143,803.0	28.03
1989	143,417.0	27.95
1991	136,698.0	26.64
1993	133,521.0	26.02

Source: Royal Forestry Department, 1994

Comparing forested areas by region, we found that the northern region has the most with about 75,231 km<sup>2</sup> in 1993 or 14.66 percent out of 26.02 percent of the total forest areas left throughout the country.

The historical background of forest management as well as future forest perspectives in Thailand are outlined in Table 1.2.

**Table 1.2** Chronology of forest management events in Thailand

Year	Forest Management Events
1896	Royal Forest Department (RFD) first established by King Rama V, the first Director-General was Mr. S. Slade, an English man from India.
1906	First forest plantation as Burmese Taungya system.
1941	First volunteer tree-planting later adopted the occasion of Buddha's birthday.  The Forest Act (in effect as the fundamental forest law of the country).
1954	Land Act established the National Land Allocation Committee (responsible for land allocation for farmers in new resettlement areas).
1960	Establishment of subdivision of National Parks, Wildlife Management and Watershed Management in RFD (Thai forestry students were sent to the United States of America. To study and bring idea for the multiple use of forests).  Forest Industry Organization (FIO) initiated large scale forest plantation in the North (Lampang province).  The Wild Animal Reservation and Protection Act started, revised in 1992.
1961	The National Park Act started.
1961-1966	The first Thai National Plan started targeting 50% of land remain forested (as FAO team experts recommended in 1948).
1964	The National Reserved Forest Act started.
1975	Forest Village Program started (to resettlement of farmers in the degraded forests and 144 villages throughout Thailand were organized between 1975-1983.
1981-1984	Village Woodlot initiated by the RFD.

**Table 1.2** (cont'd)

Year	Forest Management Events
1982	National Forest Land Allocation Program (STK) started (issue of long term land-use certificates to recognition of forest occupants' rights, but often results in increased in migration and forest deterioration).
1982-1986	Eucalyptus planting started as means to reforest degraded areas under the Fifth National Plan.
1983	Private Voluntary Organization (PVOs) by Population and Community Development Association started community forest project in Northeast provinces.
1985	First National Forest Policy (More local people private sectors, NGO and academic institutions involved).
1987	More activities on forest protection. Forestry villages and forest plantation were established.  Ford Foundation support a pilot project on social forestry (cooperatives with the RFD and three Thai universities: Kasetsart, Khon Khaen and Chiang Mai).  Thai Army launched (Green Northeast) Project (to rehabilitate environmental resources and raise income).
1988	Floods and land slides caused massive property damage and took over a hundred of lives in the South in November.  Communal Forestry or Traditional practices have continued by villagers (to meet their own needs for products and benefits derived from the forest) [See Appendix A for traditional Community Forestry Management].
1989	Forest concessions throughout Thailand have been banned because of 1988 flood incidents.



**Table 1.2** (cont'd)

Year	Forest Management Events
1990	Master plan of Thai Forestry sector prepared with services from FINNIDA, UNDP (including people and environment plan).  Reforestation scheme started through several projects (reforestation in protected areas, private forest plantation promotion, development of community forest and development of forest areas under the Royal Projects).
1991-1996	Khor Jor Kor program started (aimed to move 250,000 northeastern families from 14 million rai of land classified as degraded forest land and allocated 4.9 million for use for small farmers and 9.1 million turned to private sector for reforestation) and in 1992 this program was suspended.
1992	The Forest Plantation Act started.
1994	Permanent reforestation in commemoration of the Royal Golden Jubilee of His Majesty's Accession to the Throne on June 9, 1996 (RFD targeted areas of conservation zone, roadside, highway, railroad, riverbanks, school, temples compound and urban areas).
1997	Community Forestry Bill was approved by the Cabinet.

Note: Summarized from the following sources: Poffenberger (1990); Office of Environmental Policy and Planning (1997); Pratong (1993); Kongsangchai (1997) and Bello and others (1998).

#### **ORGANIZATION OF THE STUDY**

This dissertation is presented in seven chapters, beginning with the introduction chapter. Chapter Two reviews the literatures on deforestation problems and forest management practices, internationally as well as in the Thai context. More specific focus is given to joint forest

management and local forest management in terms of community-based forest management patterns and related attitudes toward forest management.

The research methodology and data collection procedures are provided in Chapter Three. General hypotheses and variables are also presented in this chapter.

The physical and contemporary situation (socio-economic structure and household economic dependency) of Nong Lom village and study site will be main theme of Chapter Four.

Chapter Five deals with the analysis and findings related to forest resources management practices (planting, utilization, protection and extension) by household principals. The differentiated roles between gender, age, education, work patterns, material level of living and community participation in forest management activities are shown and discussed. Chapter Six reports on the analysis and findings related to forest management values by villagers. I examine the perspectives of villagers on state administration, local control, local knowledge, sustainability and conservation.

A final chapter summarizes the major findings, draws some conclusion, and, insofar as possible, makes some influences about the finding relative to policy recommendations and avenues for future research.

## CHAPTER 2

### LITERATURE REVIEW

#### FOREST MANAGEMENT ASPECTS

"Forest management" is a term used to refer to a set of technical and social arrangements involved in the management of forests, including the protection, harvesting and distribution of forest products.

The annotated bibliography on Common Forest Resource Management (1993) notes that forest management consists of three distinct aspects: the technical or scientific aspect; institutional or organizational/sociological aspect; and indigenous or non-technical aspect.

Due to many constraints, forest management in all forested countries seems to be ineffective so the main work that needs to be reformed in the context of forest management should be considered.

Uphoff (1986) states that "Forest management in the past has too often been undertaken through national institutions (forestry department or corporations) with no more local institutional development than assigning a few technicians and many forest guards to look after the trees."

To confirm these ideas, it is observed that: "Forest departments themselves are also a form of social organization created to perform by using state investments, the functions of conserving managing, and developing

forests. As administrative bodies, forest departments are of a different organizational nature than the types of social units-organized population groupings-that have been discussed. But forest departments may play a critical role in fostering and encouraging the formation of such groups among users of fuelwood, and providing them with silvicultural, organization, and economic assistance to produce trees. Foresters, by and large, are still far from knowing how to accomplish the social side of their task, but they must learn to work with people as well as with trees." (Cernea, 1991)

Flaherty and Filipchuk (1993) believe that a significant difference exists between men and women in their knowledge of who owns the forest. Men, they observed, tend to think that the community owns the forest rather than the RFD, while twice as many women as men say they do not know who owns the forest. And men who feel that forest protection laws are significant difference also exists in the evaluation of the strictness of forest laws.

Attempts to decentralize forest control from the hands of the state to local organizations and local people seems to be the new direction of forest management nowadays.

#### **FACTORS RELATED TO FOREST MANAGEMENT**

The main factors relevant to forest management can be summarized from the related literature as follows:

## **1. Characteristics of Households and Household Principles.**

Below is a summary of literature dealing with sustainable forest management and characteristics of households and household principals.

Molnar (1981) notes that factors affecting the function of traditional systems of forest management are:

1. Village characteristic
  - Presence of strong local leader
  - Extent of existing forest resource
  - Land distribution & caste ethnic interaction
  - Degree and nature of local factionalism
  - Proximity of local markets
2. Forest management system characteristic
  - Unit of management
  - Inter-panchayat (village or local organization) relations
  - System of livestock management
  - Distribution of benefits
  - Group sanction for forest watchers & payment system
  - Extent of ownership of private trees
3. Other characteristic
  - Role of women & children
  - On-going development project
  - Role of local forestry personnel

Chhetri and Pandey (1992) find that the distance between the location of a community forest and the residence of its users is an important factor in the management of forest resources. Shorter distances between the resource and the residence of the users not only allows the community to monitor the forest better and at a lower cost but also lessens the labor costs of carrying forest products home.

Socio-demographic variables have been shown to have an effect on who joins environmental organizations. In a study of four groups of forest recreationists in Michigan, Nelson

(1987) suggests that certain socio-demographic (education, income, gender, residence location and ownerships of forested land) differences exist among the four groups. The group highest in education and income was the most likely to be members of preservation or conservation associations. These results are supported by another study, which explores a socio-demographic profile of Sierra Club members. It finds that members of Sierra Club tend to have more professional occupations and higher income levels than non-members (King, 1989).

Blinkley (1981) concludes that levels of income and education of NIPT landowners are related to decisions not to harvest.

Chhetri and Pandey (1992); Jodha (1990) and Pandey and Yadama (1990) observe that the more homogeneous the users are in their ethnic, social and economic backgrounds, the greater the chances of sustainable forest management.

Ostrom (1990) and Pandey and Yadama (1990) find that the smaller the forest area and the more clearly defined the boundaries of the common land, the greater the possibility for initiation and continuation of management.

Ostrom (1992) notes that if a smaller number of households are involved, costs of communication and decision making will be lower.

Chhetri and Pandey (1992); Pandey and Yadama (1990); and Panday (1992) report that local ownership of land and

trees is an important factor that helps explain the local incentive to manage forest resources.

Jodha (1990); Pandey and Yadama (1990) and Wade (1992) say that the more vital a resource is to household survival, the greater the chances of its continued successful management.

Pandey and Yadama (1990); Baral and Lamsal (1991); and Chhetri and Pandey (1992) from their case studies observe that the tree species that local people were more likely to protect are the hardwood tree species that the villagers use for multiple purposes.

## **2. Work patterns of Households Principles.**

Below is a summary of literature on work patterns of household principals in forest management.

Mekvichai (1988) shows that few people in the teak-bearing region gain from the teak industry and few local jobs (most unskilled) and services are generated by the industry. Most locally initiated teak-based activities, including small-scale teak carving and furniture making by many villagers, is illegal. Increased local access to the remaining teak resources should be strengthened as one means to develop the region and to control further degradation of the forests.

Thomas (1988) observes that village opportunities for labor utilization affects the extent of forest cover and that the growth of wage opportunities shifts does not

necessarily reduce the labor allocated to cooperative village activities.

Vityakorn (1993) notes that socio-economically, the trees-in-paddy fields agroecosystem enhances the multiresource base of the rice-paddy agroecosystem of small farmers.

Wickramasinghe (1993) summarizes that in using forest/tree products, women are concerned with fruit/food, fuelwood and fodder, whereas for men the first and second priorities (in most communities in South and Southeast Asia) are construction materials, handicraft materials, and products for occasional users and charcoal.

### **3. Participation in Forest Resource Management**

Below is a summary of literature on community participation in forest management.

Subhadhira S. and others (1987) find that people are willing to invest a great deal of effort and cash to avoid having to change their cooking habits and mostly non-production activities consumed fuelwood. The promotion of tree growing for fuelwood on private land in houseplots and on paddy dikes should be emphasized.

Barlett and others (1992) suggest that there are seven criteria to be examined for each user group: User group identification; forest protection, afforestation; utilization of dry forest products; utilization of green forest products; decision-making; and user group conflict. They further conclude that the effectiveness of forest user



groups greatly depends on the prior existence of an indigenous forest management system.

Gilmour (1988, 1989), drawing from his experience in central Nepal, implies that recognition of increasing scarcity of resources prompts local people to participate in the protection and management of resources.

Gilmour (1988, 1989) generalizes that the more scarce the nearest forest resource is, the higher the private planting as well as the higher the interest to participate in community management systems.

Jodha (1990); Ostrom (1990); and Pandey and Yadama (1990) notes that the greater the comparative expectation of rewards relative to costs, the higher the participation in sustainable resource management.

Pandey (1988); and Pandey and Yadama (1990) find that the higher the trust among the members of a user group, the greater the participation in successful management.

In their study of NIPF landowners in the Ozarks, Greene and Blatner (1986) suggest that those who have contact with a forester are more likely to manage their timber than those who have no contact.

Agrawal and Yadama (1997) indicate that of the various forms of participation examined - regular elections, frequency of meetings or investment in monitoring and protection-the most important is the level of investment in monitoring and guarding; the higher investment in formally

guarding community forests in associated with better forest condition.

## **COMMUNITY FORESTRY MANAGEMENT**

Below is a summary of related research and literature relative to local control in forest management.

Perry and Dixon, (1986) report that inadequate local involvement, and insufficient local management of community resources hinder water and fuelwood development in sampled villages of watershed management.

Flaherty and Filipchuk (1993) observe that one of the characteristics of forest management in Thailand is very much top-down administration. The involvement of rural people in policy making is extremely limited. The majority of respondents in their study feel that villagers should be responsible for managing the local forest.

Ganjanapan (1992) posits four lessons learnt from local practices of community forestry in Northern Thailand:

- 1) community forestry is a locally-initiated forest management system with the aim to protect watershed forest.
- 2) material benefits from the forest are perceived as an integral part of the subsistence farming system.
- 3) community forestry has cultural and moral basis that under collective rights of subsistence which are implemented in response to the ever-changing nature of the threat.
- 4) local organizations are essential in the realization of the moral principles and the continuation of the communal practices.

Gibbs and Bromley (1989) note that frequent reference throughout the literature on Community Forest Management is

made to local systems of organization and control, described, sometimes in the same context, as "indigenous" and "traditional" in contrast to those which are externally sponsored or linked. Locally-initiated forest management, in other words, can be called collective forest management. Collective forest management refers to all kinds of forest management carried out on the basis of group action. It includes any management situation in which the forest tenure and management responsibility is vested in a specific group or collectively, such as a lineage, class or caste (communal management), a village or community forestry, uses identified by religion or gender, a cooperative and so forth. Collective management also requires three factors: a decision-making structure, distribution of forest products and the ability to exclude outsiders.

Fisher (1991) reviews different studies and came across 32 locations spread all across Nepal where local people had been managing forest resources on their own initiative. Local people selectively collect forest resources for their subsistence use.

Chhetri and Pandey (1992), however, find that local people have protected forests even in areas where forest resources are plentiful and are easily accessible.

Fisher (1988); Jodha (1992); and Ostrom (1992) believe that the less government intervention in management, the greater the chances of sustainable indigenous management.

Chambers (1987) observes that rural families are more likely to protect and make better use of forest resources when they are assured of their use of the trees they plant.

Amornsanguan and Routray (1998) conclude that

1. The patterns of forest use and management by local communities have evolved in accordance with the extent of the community's dependence on the forest resource based on ethnic background, population pressure, cropping pattern, and intervention of government policy.
2. Socio-economic factors, such as educational level and income did not have much influence on the perception of forest management and conservation practices among the local communities.
3. Customary laws established by the communities have contributed considerably to effective community forest management.
4. The degree of awareness of conservation and management of forests by local communities increased from distant far-downstream communities to upstream communities within the watershed area. Awareness of the need to conserve the forest is strongly linked to people's dependence on the forest for harvesting various food products and for water, both for agriculture and domestic use.
5. Local people perceive community organizations to play an important and effective role in forest management.
6. The laws and regulations imposed by the state have not restricted the use of forests by local communities in terms of access, rights to uses and sharing benefits from the forests.

Chamarik and Santasombat cited in Puntasen (1996) outline eight conditions for a community to look after its own forest resources.

First, there must be a strong sense of community within the kinship group. This may involve some form of mutual assistance amongst relatives and neighbors, sometimes based on an exchange of labor, and a sharing of common beliefs and traditional practices. Second, there should be mutual benefits for the common users of forest, water and land resources. These resources must be a vital part of the inputs of the production process, and require the mutual conservation of forests. Such common benefits

- include a common ideology or culture such as forests for burial sites of forests for ancestor spirits.
- Third, the forest, water and land resources need to be well preserved through maintenance of the community forests. Such maintenance is an integral part of a sustainable agricultural system.
- Fourth, the community requires a strong leader with wisdom and vision to adopt exiting local practices to the changing nature of the socio-economic and political situation.
- Fifth, there must already exist some forms of people's organization in the community, such as villages or people's committees for forest conservation, or other related organizations such as irrigation control organizations, Tambon Councils, village committees or a committee for forest patrol.
- Sixth, there must have been a long tradition in recognizing some resources, such as forest resources, as the collective property of the community. These resources must be managed by the community to provide mutual benefits for, and fair distribution to, all members.
- Seventh, the community must be a state of permanent settlement with certain criteria of social composition and levels of resource use. Despite possible differences in social composition, different members must feel that they belong to the same community. In terms of resource use, resources must not be the rapidly exploited to the point that their use cannot continue at the same level in the future.
- Eighth, the community must have a prevailing resource utilization network of its own.

## **ATTITUDES AND VALUES ON FOREST MANAGEMENT**

Below is a summary of related research and literature on the attitudes/values of household principals toward forest management.

Pandey and Yadama (1990) note that people's perception about resource scarcity varies from place to place. This might be one of the factors that explains why people in some areas take initiative to protect their neighboring forest even when they have plenty of resources around them, whereas

in other areas people do not start protecting the neighboring forest resources even when resources are scarce.

Beliefs and attitudes are found to be hierarchically arranged, and influenced by socio-demographics and information about natural resources and farming. Having information about forestry and forest management is a key variable in dispelling uninformed beliefs about forestry issues and in effecting who decides to harvest (Hodge, S. 1993).

Fortmann and Kusel (1990) report that gender, education and forest work experience but not residential status have significant effects on forest environmental attitudes.

Padmanabhan (1981) describes the hierarchical model as operating on the following premises: 1) that people respond to objects or concepts in three ways-with beliefs (about the status of the world), attitudes (emotion or affect) and behavior; and 2) where objects or concepts are logically arranged, these beliefs, attitudes and behaviors will be related.

In a Michigan Study, Nelson (1987) observes that a small to moderate amount of variance in attitudes about timber management is explained by differences in social memberships- forest recreationists (hunter or anglers) or those politically active in the forest management process in Michigan, who had either requested information or commented on Michigan's forest management policies.

Greene and Blatner (1989) find that owners who managed or sold timber expressed financial objectives for their woodlands, rather than aesthetic objectives.

Kellert (1979) reports that the attitudes of special interest group members tend to be more polar than non-members.

### **JOINT FOREST MANAGEMENT**

The meaning of joint forest management can be summed up as S. S. Negi (1996). The term joint forest management means involving people in the management of forests, particularly in the decision-making level. The main constituents of the participatory approach to forest protection and management are (i) giving the local communities as stake in the well-being of the forest by giving a share in the produce; (ii) developing institutions at the local level to provide a forum for developing the participation approach and to manage the sharing of responsibilities and benefits; (iii) list the help of committed non-governmental organizations, schools colleges, women's organizations and youth clubs to act as a catalyst in this process.

The scopes of joint forest management in India are discussed by Poffenberger and McGean (1996):

1. Objectives:

- meet local needs equitably for diverse range of forest products through natural forest regeneration under community protection.

- extend authority to communities to control forest access and allow local management.
  - regenerate 30-50 million hectares of degraded under productive forest land.
  - manage for biodiversity, ecological sustainability, and environmental benefits.
2. Who:
    - clearly defined and organized formal and informal community user groups (ave. 10-100 households) supported by the forest department.
    - focus on most forest-dependent women, tribals, landless.
  3. Where:
    - state forest lands (protected and reserve).
  4. How:
    - community organized.
    - emergence of community concern and ability to act.
    - diagnosing social and ecological opportunities.
    - defining rights and responsibilities (products, benefits-sharing, protection).
    - microplanning process (access controls, silvicultural operations to enhance natural regeneration).
    - legitimizing authority of community management group.
  5. When:
    - based on process of community activism and interest.
    - expansion based on spontaneous encouraged spread to other villagers.

In India, gender equity initiatives and localization in joint forest management are summarized in the report of the World Commission on Forests and Sustainable Development (1999) as follows:

Lobbying for making the State Joint Forest Management (JFM) order more gender sensitive resulted in the majority of State governments amending their earlier orders to make at least one man and one woman eligible for village institutional membership. Some States have now provided for at least one-third of the managing committee members being women. Such changes in the policy framework have started



bringing more women into the JFM process and they have begun to make clear their priorities.

Some of the most promising experiences of dryland forestry management come from India where Joint Forest Management (JFM) scheme have emerged as a highly influential force in restoring India's degraded forest lands (Poffenberger and McGean, 1994). JFM is a variant of community forestry widely adopted in India, in which responsibility and benefits are shared by local user groups with government forestry departments. As of now, 16 of 25 states in India have issued JFM agreements covering about 2 million hectares of forests. JFM agreements are an increasingly influential worldwide model in attempts to reverse deforestation trends and uplift disadvantaged rural groups (Jeffery, 1997).

In some regions of India, self-initiated community efforts to manage forests have proved more effective at regenerating forests than government support JFM programs (Krishaswamy, 1995). Without waiting for supportive policies and judicial decisions, through the 1980s and 1990s thousands of communities began protecting their degrading forests, primarily in eastern India's tribal forest tracts. Often with little or no outside help from government, NGOs or donor programmes, village leaders began recognizing the environmental crisis confronting them as their once densely forested hills were denuded. Communities formed hamlet-based forest protection groups and halted cutting and

grazing, often initiating rapid regeneration of the natural forest.

After joint forest management implementation in India, the lessons of experience, from World Bank studies, have been concluded and cited by Arnold (1998). JFM provides a means whereby the state transfers some of its rights and responsibilities to locally constituted forest protection committees.

The primary objective of the process is to introduce joint management so that local perception are factored into decision-making. The inclusion of local perceptions requires the active involvement of people in planning, management and decision-making as well as in implementation. In practice, participation has been limited to protection activities and wage labor for crop establishment.

This is also reflected in the observation that JFM is associated with protection and planting rather than with management and decision-making. The introduction of JFM has formalized the role of the community in protecting the forest. There are positive incentives based on perceived benefits for both forest departments and forest protection committees under JFM. JFM optimum resource management requires the active participation of local stakeholders within an overall regulatory framework.

## CHAPTER 3

### RESEARCH APPROACH AND PROCEDURES

#### SELECTION OF THE STUDY SITE

Nong Lom village was selected as a study site for a number of reasons:

1) In the past, Nong Lom was dependent on forest resources. Recently, since 1979, the village have acquired greater control of the surrounding forest. It seemed to be doing a good job and the forest was obviously responding in a positive way.

2) Nong Loom was situated in a lowland region close to the urban areas of Lamphun province and not far from the Northern Industrial Estate (about 15 kilometer away). Nong Loom was experiencing urban pressure because Thailand's modernizing and industrializing economy has expanded into this tambon and many young people commute to work in the factory nearby. The local forest management experiences gained from this village could be applied to other semi-urban settings as well.

3) Socially, Nong Loom was homogenous and villagers share common cultural and social traits; there were no minority or even hilltribe groups. In many ways, this village represented the general type of lowland village throughout the region.

4) The characteristics of this village were interesting and suggested some possibilities for useful follow-up study in the future. It was a medium size village and there were social and economic variations in terms of various household types (alone, conjugal, nuclear, etc.), material level of living (much, some, less, no), various types of work (on-farm and off-farm job) and level of forest dependence.

5) There was a wide-range of forest management practices represented in this village. Villagers used their forest resources for the purpose of food, fuel, fodder, timber, cottage industry and medicine. The activities of tree planting, forest utilization, protection and extension were implemented by a number of groups with different degrees of involvement.

6) The village setting was in a semi-urban context. It was close to the city of Lamphun province where industrial expansion was occurring nearby and we could begin to see the effects of economic transformation. On the other hand, this village was surrounded by a forest area which villagers could easily access and use.

#### **SURVEY POPULATION**

Every household in this village (138 households as of 1998 official surveyed) was planned to include in the survey. Either principal adults (husband or wife) would provided information on the household. As it turned out,

122 households were interviewed. The main reasons for missing 16 households were as follows:

Two households had already moved out of the village to other villages. Two households migrated to work elsewhere and rarely stayed in the village during field survey period. One household just moved to this village and they did not know anything about forest resources. One household, both household principal male and female, worked as vendors all seven days a week, coming back home only late nights and left very early mornings.

Nine household heads were in the older age (mostly more than 70 years old) lived alone in the house; their daughters or sons lived in other houses nearby. They did not have any activities concerning with farm or forest so I skipped them. One household head had a problem with his physical and mental health and it is difficult for him to concentrate with the interview.

It was also planned to interview two principal adults in each household. Both husband and wife in each household will be interviewed separately. Two hundred and thirteen principals adults (100 males and 113 females) were interviewed in this study. From the household interview of 122 households, there were thirty-one principal adults (22 males and 9 females) were missed. The main reasons for missing thirty-one adults were as follows:

Fourteen household principal males worked elsewhere during the data collection period and eight household males

were missed due to principal females were single, separated or divorced.

One household principal female stayed with her relatives in other province during the field survey and eight household principal females were missed because principal males were single, separated or divorced.

#### **HYPOTHESES SETTING**

My overall general hypothesis is:

Individuals and households that are more involved with and more dependent upon forest resources, that are more involved with and have a greater stake in the future of their local village, and that are more secure financially, are more likely to be supportive, through their behavior and attitudes, of good forest management practices, of sustaining local forest resources, and of granting their village greater control over its forest resources.

This hypothesis argues that "stake-holders" -those people that have a vested interest in the local forest resources- will be more likely to want local control, will be more likely to have faith in local knowledge, and are more likely to be concerned about the long term protection of local forest resources. Older people, and those who have little education and are poorer, also have a greater stake in the local forest resources. But, those that are not as dependent upon the forest for their livelihood, and/or hold

off-farm jobs, are less likely to have a vested interest in the local forest resources.

Initially, three sets of value-orientations were specified relative to forest management practices and the control of local forest resources: local vs. state control of forest resources; local, indigenous knowledge vs. outsider, expert knowledge; and sustainable forestry for future generations vs. using forest resources now to help the local economy. Later, from analysis of the interview data, local and state control were treated as two separate orientations for further analysis, and a fifth value-orientation, conservation, was derived from the sustainable forestry set of items.

Two sub-sections of working hypotheses (participation in forest activities and values relative to forest management) were set up and discussed.

#### **1. Working Hypothesis on Participation in Forest Activities**

The degree and nature of involvement of villagers in forest resource management and in the utilization of forest resources is, of course, a variable behavior. From what I've observed, and from my examination of the literature on this, I expect that, in Nong Lom village, there will be differences in the degree and nature of involvement by individuals in forest management activities in terms of:

- a) gender;
- b) age;
- c) education;
- d) farm work;

- e) off-farm work;
- f) forest work;
- g) material level of living;
- h) community participation.

a) Gender

In the Thai context as well as in other Asian countries, men are responsible for outside work, including local forest management while women are responsible for household work and forest products collection. It can be assumed that men usually communicate with outside organization, such as Royal Forestry Department and development extension workers from other government and non-government organizations. They also work in public eye on forest related activities, such as forest fire protection, forest guard, etc.

Women usually stay at home and take care their children so they will care more about the present income and benefits gained from the forest (see Flaherty and Filipchuk 1993; Molnar 1981). The different roles of men and women are traditional and easily found in rural households.

b) Age

Older people usually have learned about the outcome of deforestation in this village before it became better in the last 20 years. They also use forest products for their livelihood then they seem to care more about local forest management while the younger usually commute to work off-farm in the northern industrial estate which makes them no time to think much about what happens to forest areas (see



Perry and Dixon 1986; Gilmour 1988, 1989; and Pandey and Yadama 1990).

c) Education

More educated people (over 6 years in school) have more access to information from outside world and tend to find work outside farm and use less forest products. They seem to participate in forest activities less than the less educated people who work on farm and use forest products for their livelihood and income because of time limitation to do so.

d) Farm Work

Local people who are more involved with farm work, I believe, are more likely to participate in local forest management than local people with less farm work involvement.

There is a strong working relationship between farming and forestry. Local people who are more involved with farm work use forest products for their consumption and income, such as food plant, small animals, and fuelwood. They also usually raise their livestock in the forest or nearby.

e) Off-farm Work

Local people with more off-farm work involvement are probably less likely to participate in local forest management than local people with less off-farm work.

Due to the expansion of industrial activities into this village by the establishment of Northern Industrial Estate in Lamphun province, lots of local people get off-farm jobs

and commute to work six days a week. Local people with some or much off-farm work seem to get higher pay than work on farm and spend more time on their jobs longer than on forest resources management in the village. So local people with more off-farm work may not pay as much attention on forest management activities. They are no longer as dependent upon forest resources.

#### f) Forest Work

Local people with more forest work involvement are more likely to participate in local forest management than local people with less forest work. They are more dependent upon forest resources.

The results of previous forest research shows that a village close to the forest area will use and care more about forest resources than a village further away. It is expected that local people who use forest resources more will take care of forest resources more than the non-forest users (Chhetri and Pandey 1992 and Amornsanguan and Routray 1998) because they can gain benefits from the forest.

#### g) Material Level of Living

Local people in households with higher material level of living are probably less likely to participate in local forest management than local people in households with lower material level of living.

In rural Thailand's social structure, those with less material wealth, the poorer, are usually in need of forest

products and daily income earning from forest products sales so they will participate more in any community activities or forest activities in order to protect their forest as a source of income.

#### h) Community Participation

Local people with higher levels of community participation are more likely, I believe, to participate in local forest management than local people with lower levels of community participation. Participation in village group activities helps the participants interact with other members more and this provides more opportunity for group members to participate in forest management activities than non-group members. They are the community leaders and, in a forest-dependent village like Nong Lom, will be the spokespersons for sustainable forestry.

## **2. Working Hypothesis on Values Relative to Forest Management**

The orientations of villagers relative to how forest resources should be managed will vary, depending on how much use they make of local forest resources, what their stake is in the future of Nong Lom village , and in a general way what their own level of material resources are. For exploratory purposes, I am focusing on the following:

- a) gender;
- b) age;
- c) education;
- d) farm work;
- e) off-farm work;
- f) forest work;

- g) material level of living;
- h) community participation.

a) Gender

In Thai villages, men are head of households, usually household decision-makers and are responsible for providing the household income. Rural Thailand tends to be a patriarchal sound organization (at least in appearance). Men will have more contact with other local people and any government agencies and non-government organizations related to development activities. Men seem to receive and can access various sources of forest resource management information than women and have more chance to participate in various types of forest management activities.

Women are usually left behind, stay at the back of men so it is difficult for them to express ideas or criticize any village problems in public. Their main jobs are to be responsible for housework and for taking care of their children. Therefore, it is rare for them to contact any government agencies and non-government organizations. Then, women probably have a positive attitude about state intervention in forest management.

b) Age

Older people gained knowledge about forest management from their own experience in the past. They will tend to believe that what they have done in the past will also be better for the forest situation now.

Younger people learn about forest resource management from the school they attended and from various other sources

of information. This probably makes younger people more concerned about forest management rules and regulations implemented by government agencies.

c) Education

In this area, formal education is and has been provided by government agencies. Local people who are more schooled are probably more trusting of government system than the local people with less education.

Also, local people had less school probably depend more on forest resources and therefore believe in local village management and their own knowledge and experiences. They are probably more concerned about forest management practices that affect sustainability and conservation.

d) Farm Work

Local people who do farm work are also more likely to depend on forest resources, because the relationship between farm and forest in the ecosystem is relatively strong.

Local people who do not do much farm work need more assistance from the government in terms of secondary work to supplement their income. So they are more likely to favor government support or state intervention.

e) Off-farm Work

Villagers who are more involved in off-farm work would be more likely, I believe, to favor state administration and less likely to favor local control, local knowledge, sustainability, and conservation.

Most local people with much off-farm work depend less on farm and forest related activities because they can earn income from other sources. They do not care or pay less attention to the local control, local knowledge, sustainability, and conservation.

But, on the other hand, local people with less off-farm work depend much on farm and forest related activities and care much about forest management in the village.

f) Forest Work

Local people who do a lot of forest work probably want to protect the benefits they derive from the forest more than do local people who are not as dependent on the forest. So they are more likely to favor local control, local knowledge, sustainability and conservation.

g) Material Level of Living

Wealthy or well-to do families may not care much about the benefits obtained from the forest because they get income from other sources. But, they probably like to talk and meet with government staff and accept that it is the government's job to protect and manage the forest.

On the other hand, the poor are in need of forest products and want immediate benefits from forest resources, so they will favor local control of forest resources and the goal of sustaining forest resources in the long run.

h) Community Participation

Group participation and village leadership roles probably means that the individuals are more likely to

support government agencies. Most village group representatives come from the well-to do families (see Jodha 1990 and Fisher 1991).

The non-group members usually are poorer and depend much on forest resources uses so they care more about local control because they can have easier access to forest resources and for the future.

### **QUESTIONNAIRE DESIGN**

Two main types of questionnaires were prepared to obtain information on household characteristics and on individual forest management activities and opinions relatives to forest management values. Both questionnaires are appended (English translation). The details of each questionnaire were discussed below:

**1. Household Schedule:** A household questionnaire was designed to obtain information on household structure, such as household composition, material possessions, land tenure, and economic dependency. The interviewer asked about the number of dependents in each household, household socio-demographic data, household assets, size of farm land holding, land acquisition and uses of land, and household economic dependency in terms of on-farm-labor, off-farm labor, forest dependency and household work.

## **2. Individual Attitudes and Activities Schedule:** Both

husband and wife in each household were interviewed separately about forest management practices and his/her attitudes on forest management values.

2.1 Individual work patterns: The details of work patterns of each respondent about farm activities, off-farm work, local non-farm income-earning activities, including industries work were obtained. Type of work in terms of full time, part time, and season job was also examined.

2.2 Individual participation in village activities: Group membership participation and involvement in various activities as well as the level of involvement in forest management activities was obtained.

2.3 Individual attitudes and perspectives: Each individual was asked to state opinions on five opinions on battery of 48 items which had been devised to tap various kinds of values relative to the management of forest resources. Basically, the respondent was presented with a statement in and was asked to indicate whether he/she "strongly agrees", "agrees", "disagrees", "strongly disagrees", or "undecided".

## **DATA COLLECTION PROCEDURES**

In this study, documentary research, focus group discussion and field survey were used as follows:



**1. Documentary Research:** Documents were collected from various sources, including topographic map and other maps; local government official records (at provincial, district and tambon levels); related documents; articles and journals both in Thai context and other countries; and interview with state foresters and forest management officials.

**2. Focus Group Discussions and Key Informant**

**Interviews:** Group discussions were conducted by selecting and inviting a set of participants. The participants were organized into various groups with the total number of 3-8 participants in each group as follows:

- 1) a set of elders (to talk about the village history);
- 2) the village leaders;
- 3) the forest village committee.
- 4) a group of women;
- 5) some off-farm workers;
- 6) villagers dependent on forest resources;
- 7) villagers who used herbal medicine;
- 8) villagers who were involved wood crafting.

Guideline questions were prepared to get more in-depth discussion for each group session.

Key informants were also interviewed, including state forester; informal leaders; school teachers; and Buddhist monk. The purpose of these in-depth interviews was to get

more information about forest management activities of the villagers at all ages and their opinions about local forest control as well as their concerns about the intervention of government agencies and non-government organizations in community forest management.

**3. Field Survey:** Two types of questionnaires were used for the field survey: household questionnaire and adult principals questionnaire.

Both questionnaires were pre-tested in Pa Pauy village in the same tambon in order to reword and develop the interviewing step before the interviewing sessions in Nong Lom village.

The household questions were asked head of the household or a household representative who knew well about the household situation. These interviews were done after studying all related village documents and secondary sources such as village record, village baseline survey, village and tambon situations. Most of the household questionnaires (about 80 percent of total 122 household) were administered personally by the researcher with help from a research assistant. Household question were also asked before the adult principals were interviewed. During the household interview, the researcher had a good chance to get into the house and observed household assets in order to evaluate household wealth.

The household principals questionnaire was administered by a research assistant and two interviewers (graduate

students of Chiang Mai University). There was 213 household principals interviewed. Household principal male and female were separately interviewed at the same time so that they could provide frank answers to the attitude/value questions.

## **MEASUREMENT PROCEDURES**

The measurement of household and individual main variables were planned and summarized as follows:

### **1. Household Variables**

The main household variables in this study were household type, household material level of living, and household dependency (farm, off-farm and forest).

#### **1.1 Household Type**

Household type was assessed by looking at household member composition, the main type consisted of lone adult household; conjugal household (husband and wife with no children); nuclear household (husband and wife with children); extended household (two families living together usually had kinship relations); and incomplete household (mother or father alone living with son or daughter or both).

#### **1.2 Household Material Level of Living**

Household material level of living was measured by counting the number of material possessions in each household, house condition, house type, house construction, and rating house. The material possessions were car/van, pick-up truck, motorcycle, refrigerator, television, radio,

gas stove, bed, dinner table, sofa, electric fan, telephone, washing machine, sewing machine, plowing machine, and video. They were rated by yes (=1) or no (=0).

House condition was measured in terms of how long house was built and rated as old (=0) or new (=1). House type was rated as one story (=0) or two stories (=1). The house construction was rated as made of wood (=0), mixed (=1) or made of brick (=2).

The rating house was done by researcher's observation. Three types of houses were grouped as: bad (=0), average (=1) and good (=2).

After scoring the material level of living, house condition, house type, house construction, and rating house, the reliability analysis scale (Alpha) was used to measure the correlation of each item. Two items (house condition and house construction) were found not correlate with other items which were "thrown out" in the final scale. Then, only 18 items was used in the final scale score analysis. The outcome of reliability coefficients alpha score was 0.78.

### 1.3 Household Dependency

Household economic dependency was used as main variables to classify three work types of each household: farm activity, off-farm work, and forest activity. These three household activities were assessed by rating into four groups: none, little, some and much work.

## **2. Individual Variables**

The main characteristics of individual household principal variables in this study consisted of gender (in terms of male and female); generation (in terms of younger, middle, and older); and education (no school, 6 years in school, and more than 6 years).

The other individual variables were work activity, community participation, villager's values on forest management.

The individual household principal work activities were measured on farm, off-farm and forestry by using time spent in each work. To score farm work activities, both time spent in rainy season and dry season were used by rating each season as none (=0), little (=1), some (=2) and most/much (=3). The total scores of farm work was 6 which means they do most farm both in rainy season and dry season (7 points scale with reliability coefficient scale  $\alpha = 0.67$ ).

Off-farm were rated into full-time off farm work (=2); part-time off-farm work (=1); no off-farm work (=0). The another job (supplement job working at home to gain income, such as cloth pitching, handicraft work, etc.) was included in off-farm work which were rated into had another job (=1) and no another job (=0). The total score was 3 (4 points scale) with the reliability coefficient scale  $\alpha = 0.23$ .

For forestry work, three categories were used:- time spent in rainy season (none =0, little = 1, some =2,

most/much =3); time spent in dry season (none =0, little = 1, some =2, most/much =3); and the level of forest uses assessed by the respondents (none =0, little = 1, some =2, most/much =3). The total score was 9 (10 points scale) with the reliability coefficient scale Alpha = 0.76.

The community participation were measured as village governance and village voluntary groups. Village governance consisted of village committee, village forest committee and Tambon administration organization. The level of participation was rated as active (=1) and not active (=0) participation and the total score was 3 (4 point scale). The reliability coefficients of this scale Alpha was 0.30.

The village voluntary groups, there were totally eight groups: women's group, occupation group, agricultural group, saving group, school committee, temple committee, public health group, and water pump group. The rating score used were participation (active = 1, not active =0) and group leader (group leader =1, not group leader =0). The total score was 16. The Alpha score for testing reliability coefficients for these 16 items was 0.59.

In addition, the villagers' perspectives on forest management values were also measured by using forty-eight item questions which were discussed in detail in Chapter Six.

## **SURVEY PROCEDURES**

The survey procedures were described how this research was done in terms of foci of survey and analysis strategy.

### **1. Foci of Survey**

Respondents were asked to provide information about their households and themselves by using a schedule of questions. The household information was about household history; household census (household types, socio-economic status of household members); household material level of living; land; farm and livestock data; household income sources; household farm; off-farm; and forest work and dependency on forest resources.

The individual information was aimed to collect individual characteristics, farm, off-farm, forest work, community participation in village groups, participation in forest management activities, and responses to forest management attitudes or values.

### **2. Analysis Strategy**

From my review of the relevant literature and my discussions with villagers (focused interviews, key informants), I expect that gender differentiation is a very important factor that influences the kind of farm and non-farm work that individuals do, their participation in community activities, and their forest management activities. Gender, therefore, will be used as a main "conditioning variable" at the individual level in

conjunction with age (generation), education, and work statuses (farm, non-farm, forest).

Further, the household situation must be taken into account in determining how an individual's characteristics and work influence his/her forest management values. For example, even if an individual work off-farm and is not engaged in any forest activities, his or her opinions about how the local forest should be managed will be influenced by whether or not other members of his household are dependent upon forest resources for their livelihood.

Processing of the survey data will be done by computer. Standard descriptive statistics, such as frequency distribution, percentages, means, and cross-tabulations, are used to analyze both individual and household data. Factor analysis and correlation statistics are also used to assess the determinants of forest management values.

The results derived from these analyses are reported in the following chapters.



## **CHAPTER 4**

### **NONG LOM VILLAGE**

Nong Lom is a village in Tambon Sri Bua Ban, Muang district, Lamphun province in northern part of Thailand. It is about 560 kilometers from Bangkok, the capital city; 45 kilometers from Chiang Mai province; and 15 kilometers from Lamphun province (see Maps 1 and 2). Lamphun province is heavily forested with 50 percent of total area in forest land. In Tambon Sri Bua Ban, five of the eleven villages, including Nong Lom, have access to the forest surrounding their villages. Nong Lom is a medium size village situated in a plain area surrounded by a mountain range. This forest area is now used as a headwater and utility forest.

#### **LOCATION AND SETTLEMENT**

Below I will briefly overview Nong Lom's geographic setting and its agro-climatic conditions, natural resources, infrastructure and settlement history.

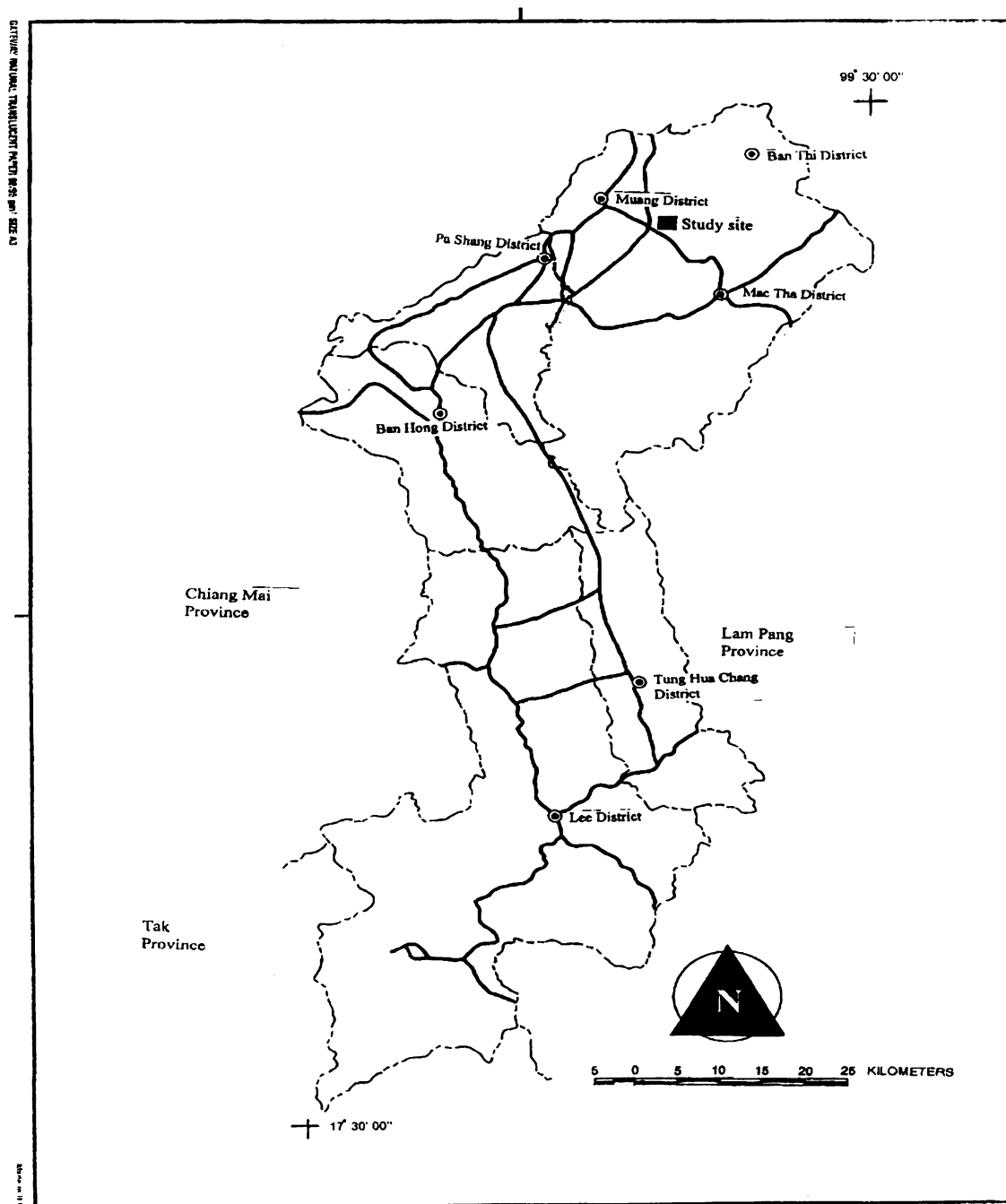
##### **Geographic Setting**

Nong Lom village lies between 18°26' and 18°30' N latitude and between 99° 02' and 99°05' E longitude. The area covers 7.68 square kilometers or 4,800 rai. It is bordered by Ban Pa Puay and Ban Pa Bong.

Map 1 Map of Thailand and Lamphun province



Map 2 Map of Lamphun province and the study site



In the former times, these three villages: Ban Pa Puay, Ban Pa Pong and Bang Nong Lom used to be the same administrative village. As the population increase and local administration expansion, Ban Pa Puay and Ban Pa Pong were separated.

Nong Lom village is on a nearly flat plain with undulating, rolling terraces with slopes of 0.2 percent, Nearby hills have 5-12 percent slopes. Surrounding there are mountains with slopes of more than 35 percent with average height is about 600-1,000 meter.

#### **Agro-climatic Conditions**

The climate of the area is tropical rainy and tropical savanna. There is a 6 month rainy season and a 6 drought season. According to the Lamphun meteorological station, the rainy season is during June-October, with an average rainfall of 1,032.50 millimeters in 1998 or about 106 days of rain. Winter is during November-February with average temperatures of 25°C. Summer is during March with average temperatures of 33°C.

According to the Department of Land Development's 1998 surveyed, soils in Nong Lom village are highly acidic (pH=5.0-7.0) and low in organic matter. There are three subsoil types. Soil number 5 is rather suitable for paddy fields in the rainy season and for planting short rotation crops, such as beans/garlic after harvesting rice fields.

Soil number 48 and 56 are not suitable for paddy fields but some orchard and fruit tree, such as mango, can be grown with more fertilizer inputs. Soil number 62 is the mountainous area with slopes more than 35 percent and is not suitable for any cultivation. Because of these types of soil, villagers usually cultivate the field rice only during the rainy season. However, for the last three years, many fields are kept idle due to low amounts of rainfall.

### **Natural Resources**

There is no irrigation water in this village, except for three man-made ponds available for public use. The ponds are a government initiated project. Long ago, the main source of water for agriculture came from underground hot spring water but nowadays, it comes mainly from rainfall because the underground water is scarce and expensive water pumps are needed to access it (Photo 1).



**Photo 1** Underground spring water in the rice field

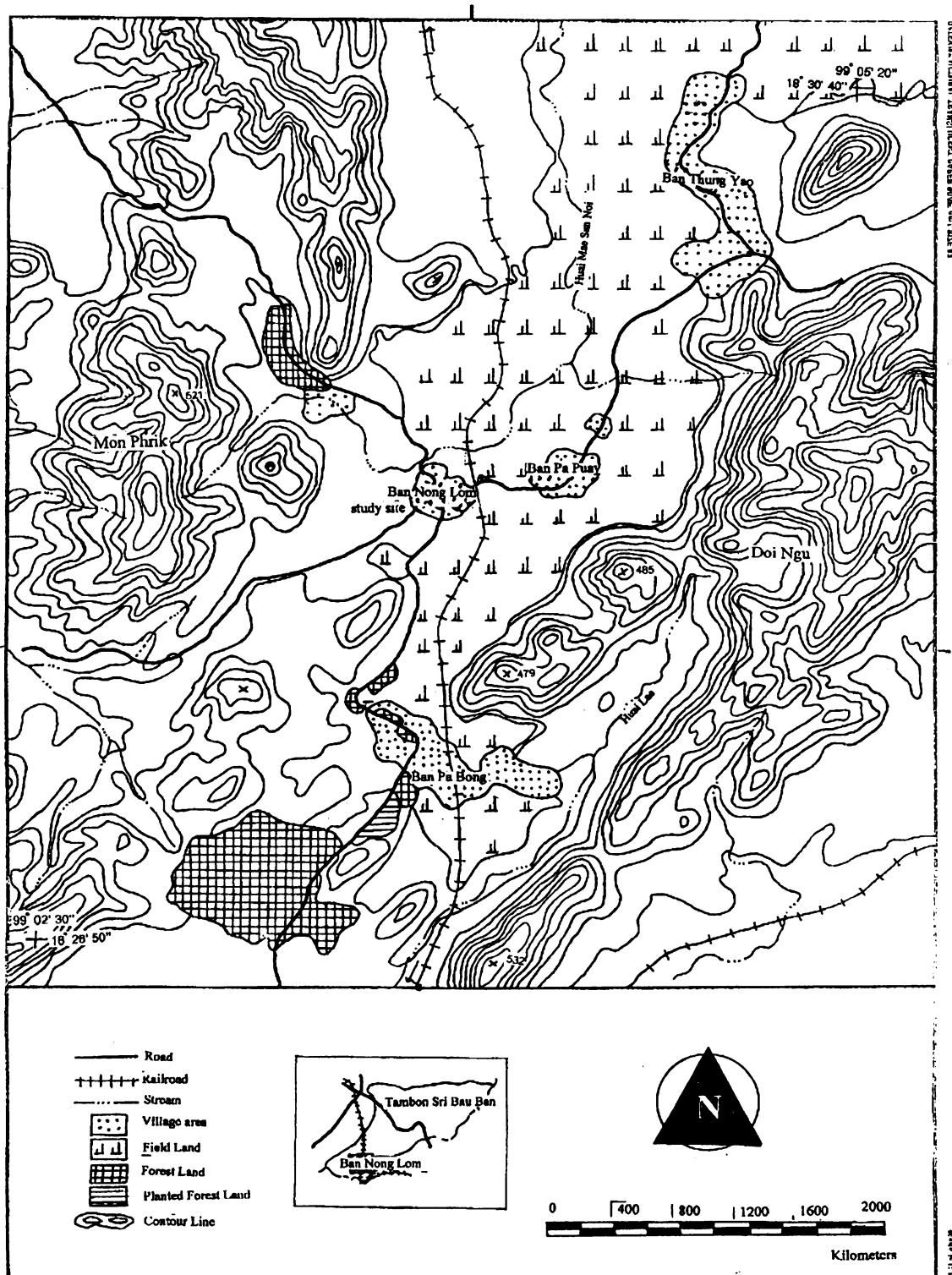
A small river runs through the village but it does not have much water. Two water pump tanks have been constructed to use underground water which is purified and piped to every household for domestic uses as tap water. Most villagers buy bottled water for household consumption because they are not sure about water quality from tap water.

The forest in this village as well as in Lamphun province consists of a combination of mixed deciduous, dry-dipterocarp, and dry evergreen forest. Some of the common trees associated with teak (*Tectona grandis*) in the mixed deciduous forest include Pradu (*Pterocarpus macrocarpus* Kurz), Rang (*Pentacme siamensis* Miq.) and yang (*Dipterocarpus alatus* Roxb.).

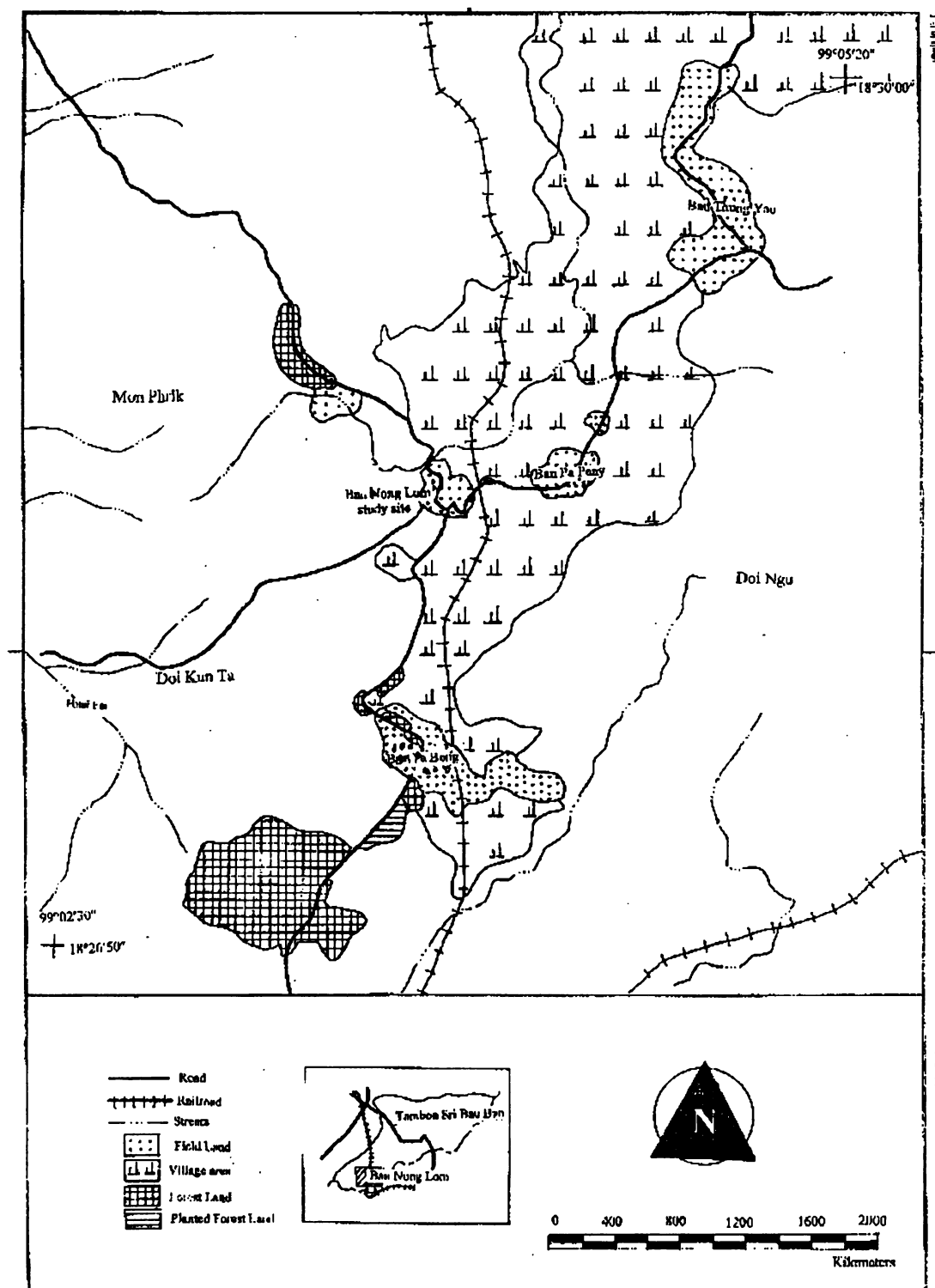
Nong Lom village has forest reserve areas of 2.72 square kilometers or 1,700 rai, as shown in Map 3 and 4. The surrounding hills and mountain (call "Doi" in Thai) of Nong Lom Village are named as follows:

In the north, there are Doi Yod, Doi Kwang and Doi Pa Ruak. Doi Yod is mainly used wood for construction. In the east, there are Doi Tam Ta and Doi Ngu. In the south, there is Doi Kun Ta, which is a reforested area and prohibits any tree-cutting. In the west, there are Doi Mon Prik, Doi Luang, Doi Pa Kok and Doi Pa Yay. All forest Doi, including Doi Kun Ta, can be used for food collection and small animal hunting.

Map 3 Map of Nong Lom village and its forest area



Map 4 Map of Nong Lom village and its contour





Only Doi Yod is available for tree cutting for household construction. But permission is required from the village forest committee and village committee.

Near Doi Pa Yay out of the village boundary, there is a place called Nong Bua where forest protection ceremony takes place once every year (Photo 2). In the middle of village area, there is also public land inside the village boundaries where forest protection ceremony takes place once every year but not at the same time as Nong Bua (Photo 3).



**Photo 2** Spirit house used for forest protection ceremony at Nong Bua



**Photo 3** Spirit house used for forest protection ceremony at village public land

### **Infrastructure**

Access to neighboring villages, Tambon Pa Sak and Tambon Mae Tha of Mae Tha district and the city of Lamphun, is much easier now for villagers since the construction of a local asphalt road and a paved government road. Private motorcycle is the most convenient vehicle for transportation within and among villages in this Tambon and also for off-farm household principals to work in the Northern Industrial Estate (about 13 kilometers away) as well as in the city of Lamphun. The regular commuter (buses pick-up trucks) from Nong Lom village to the city of Lamphun and to the Northern Industrial Estate are available everyday at specific hours. Two public telephones, located in front of the school and at the opposite side of local shop near village entrance, are

available (Photo 4). Private telephones are used generally in many village households.



**Photo 4** Public telephone and electricity pole in front of Nong Lom village

There is a railway station. Nong Lom station is located at Ban Pa Bong (two kilometers from Nong Lom village) which, in the past, was the main transportation to Lamphun city and Chiang Mai city as well as to Bangkok (Photo 5). Nowadays, no one uses the train for travelling because it is inconvenient to wait long hours for a train to come, and it comes only 4 times a day.





**Photo 5** Railroad and local road track to Lamphun city

Electricity is provided to every household. A small electric rice mill is owned by former village headman. Most households mill their rice there. Marketing facilities are quite well developed in Lamphun city. Villagers can sell their products either at the farm or take them to the market place in downtown Lamphun.

### **Settlement History**

The main reason why people migrated into this area in earlier times was because of population pressure and land scarcity in their areas of origin. The first wanderers came to Nong Lom area in 1897 from nearby villages of Tambon Pa Sak (3-5 kilometers away). It then took a whole day to go

back and forth for their cattle raising. Nong Lom's area at that time had fertile soils with forest cover and underground water (hot spring) running all year long. Eventually, many households came to settle here and to build new homes here. In 1919, a temple was founded in order to serve Buddhist religious beliefs. In 1924, more households settled in this area. They were mostly relatives coming from many villages in Tambon Pa Sak.

Until 1933, the village was officially founded with thirty households and the first village headman was appointed. Table 4.1 traces the village history and significant events. In 1939, a local school was started using the temple compound for classes. In 1941, a new school building was built on new land which was bought near the temple.

From 1933 until now, there have been ten village headmen. The first seven served in their positions only for a few years, but the last two village headmen served for longer periods of 20 years each, beginning in 1957 and 1976. Both of them were heavily involved with a lot initiating forest protection schemes.

Due to the development path toward modernization, railroad was constructed from Bangkok, the capital city, to Chiang Mai, the second largest city. And it passed through Nong Lom village. Timber cutting for railroad construction and firewood for the steam engine train were main causes of deforestation in Nong Lom's area during 1952-1956.

In 1957, a new village headman advocated forest management reform with village rules and regulations aimed at protecting the Doi Pa Kok forest area. However, some forest utilization conflict occurred among the forest users and non-forest users. This conflict ended with forest protection extended to Doi Tam Ta, Doi Ngu and Doi Pa Yay in 1975. In 1974, the health problems of villagers were improved when a government health center was opened.

Since 1976, a new village head was elected and strong forest protection was advocated. A village forest committee was established with written rules and regulations for forest uses and protection (in 1979). In 1981, the forest conservation area was extended to Doi Pa Ruak and, because of water qualities, a village water pump was constructed and piped to many houses. Later another water pump was set up for the other household cluster.

Electricity came to this village in 1982 so that every household has access to it. In 1985, forest conservation of Nong Lom village was extended more forest protection to Doi Mon Prik and Doi Kun Ta. The number of wild animals increased very fast. In this year, the village forest committee gave formal permission to allow timber-cutting for house construction for new married couples.

Nong Lom has achieved a good reputation by winning the first prize for forest preservation from the Ministry of Agriculture and Cooperatives and, in a later year, Nong Lom

also won the first prize for village development in Lamphun province from the Ministry of Interior.

More road improvement occurred after that and a new paved way and local road connecting this village to other village in the same Tambon and Tambons nearby as well as to Mae Tha district were developed quickly and became more convenient. Telephone service also came into this village eight years ago under a government-initiative project.

In 1993, "community forest" became a new concept in forest management. An attempt was made to add a community forestry curriculum for primary schools, and this idea was piloted in Nong Lom's school. Nong Lom school children now know more about forest resources surrounding their village. Because of the low quality of soil, the Department of Land Development, in 1996, supported a project in this village aimed to increase farming efficiency through soil development and also to support some pond-making activities. Current village headman was elected in 1999.

Currently, the village committee is seeking a government forest management grant to work on the following forest protection activities: training on forest resources; improving Nong Bua place for forest ceremony purposes; increasing forest fire protection; purchasing tree seedlings.



**Table 4.1** Village history: significant events

Gregorian Year	Buddhist Year	Event
1897	2440	- First wanderers to Nong Lom area
1919	2462	- Temple founded
1924	2467	- Initial Settlement of households
1933	2476	- First Village headman officially appointed
1939	2482	- Local school started
1952	2495	- Timber cut for railroad construction
1957	2500	- New headman advocated forest management reform
1961	2504	- First forest management rules instituted; Doi Pakok forest protected
1972	2515	- Conflict among villagers on forest utilization
1974	2517	- Health center opened
1975	2518	- Forest conservation (Doi Tam Ta, Doi Ngu, Doi Pha Yay) extended
1976	2519	- New headman elected, strong advocate of forest protection
1979	2522	- Village forest committee established - Written rules and regulations for forest uses and protection
1981	2524	- Forest conservation area extended (Doi Pa Ruak) and village water pump constructed
1982	2525	- Electricity provided

**Table 4.1** (cont'd)

Gregorian Year	Buddhist Year	Main Event
1985	2528	<ul style="list-style-type: none"> <li>- Forest conservation area extended (Doi Mon Prik, Doi Kun Ta)</li> <li>- Wild animals on increase</li> <li>- First formal permission by forest committee to allow villager to cut timber for house construction</li> <li>- Village wins forest preserve award from Ministry of Agriculture and Cooperatives.</li> </ul>
1986	2529	- Village wins first prize from Ministry of Interior for village development in Lamphun province
1987	2530	- Road improved from Nong Lom village to Muang District and Mae Tha District
1989	2532	- Rice plowing technique changed from using buffalo to plowing machine
1992	2535	- Telephone use started
1993	2536	- Community forestry curriculum started in school
1996	2539	- Land development village project started
1999	2541	- Current village headman elected
2000	2543	- Village seeking government forest management grant

#### CONTEMPORARY SOCIAL SITUATION

Below I will overview Nong Lom's contemporary social situation, including: population, households, culture and beliefs, rhythm of activities, and its social institutions and groups.

## Population

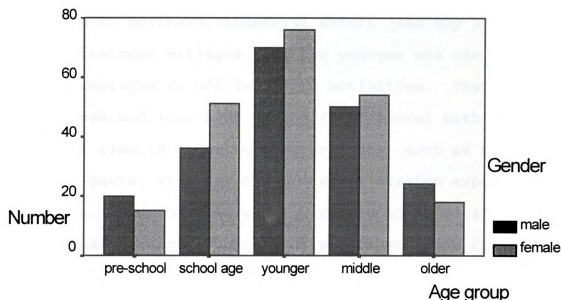
The total population in Nong Lom was 444 persons in 138 households; there were 230 males and 214 females according to the official surveyed data in 1998. In this study, the total surveyed population was 414 persons in 122 households; there were 200 males and 214 females (Table 4.2 and Figures 4.1). The main age groups which draws roughly about 60 percent of the total population are the younger and the middle age groups who are adults mostly married, working to fulfill their household income.

**Table 4.2** Population surveyed of Nong Lom village (1999), by age and gender

Age Group	Gender		Total N
	Male	Female	
Older (>59)	12.0	8.4	(42)
Middle (40-59)	25.0	25.2	(104)
Younger (20--39)	35.0	35.5	(146)
School children (6-19)	18.0	23.8	(87)
Pre-school (<6)	10.0	7.1	(35)
Total % (N =)	100.0 (200)	100.0 (214)	(414)

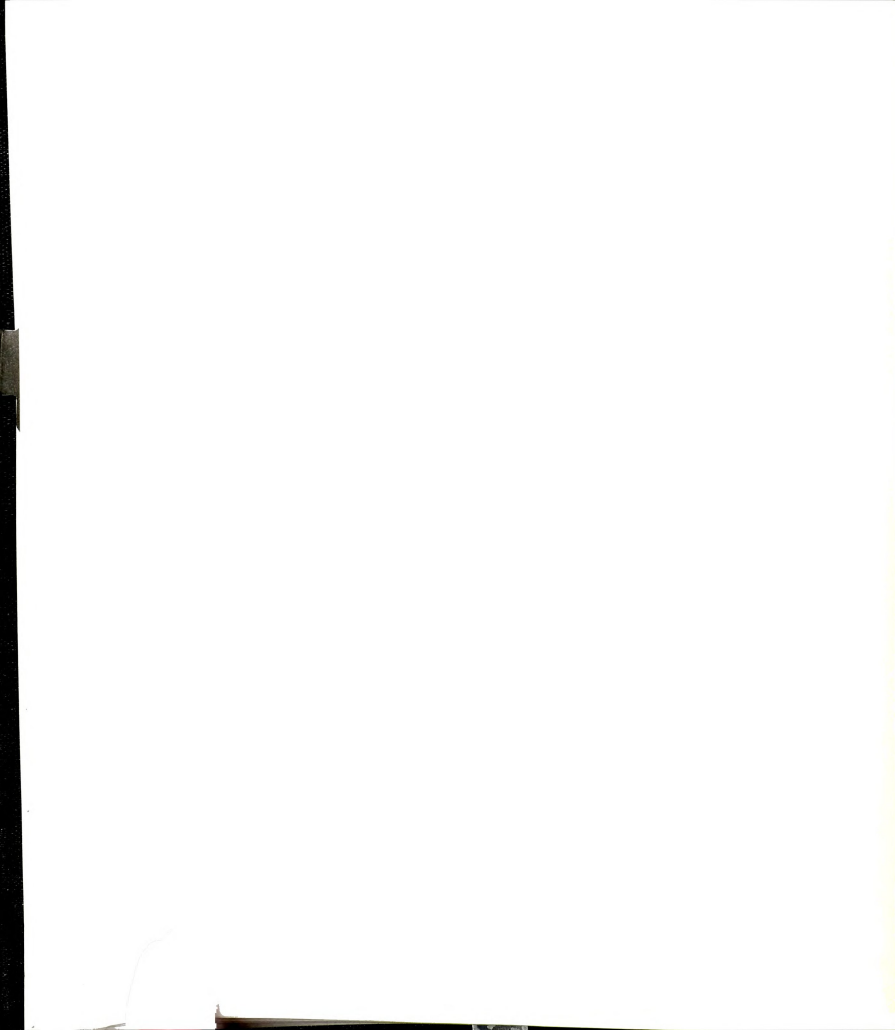
The mean age of the surveyed population is 32.6 years. Comparing the number of children and adults in this village, it is found that there are 70.5 percent of adults between 20 and over years of age while the children both in pre-school and school age are only 29.5 percent of the total.

**Figure 4.1** Population surveyed of Nong Lom village (1999), by age and gender



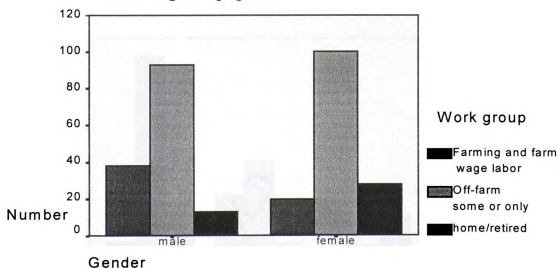
From the total 414 population surveyed there were 292 persons, including 144 males and 148 females. The occupation of adult population surveyed in Nong Lom consists of farming only and farm wage labor accounting for 23.4 percent of the total adults; off-farm work some or only accounting for 52.6 percent and the rest 24.0 percent engaging in housework, retired or have no work (as shown in Table 4.3 and Figure 4.2). Most farming are paddy field cultivation (mostly glutinous rice) and longan garden. Some villagers raise livestock, including cows, buffaloes, pigs, chicken and duck.

It is also found that males work on farm activities more than females while females have off-farm work more than male. Most of the older and middle age groups work for



farming activities while most younger age group engages solely in off-farm work which work in various types of factories in Northern Industrial Estate (see Map 5). It is common with most villages that the younger who can work hard will be employed in off-farm work activities. They work six days a week and long-hour period (8-10 hours) both day time and night time in order to make products, such as clothes, electric parts, etc. for the orders of foreign export factories. Most of them usually retire at 35 or 40 years of age because factories want to hire cheaper labor for young and new workers. After retirement, they will work on their own farm land and also work as temporary off-farm wage labor, such as construction worker for male, cloth pitching for female, handicraft work for older at their home. The number of off-farm younger adults between male and female are not much different.

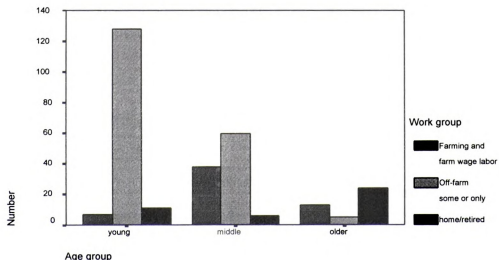
**Figure 4.2** Occupations of adult population in Nong Lom village, by gender



**Table 4.3** Occupation of Nong Lom adults, by age and gender

Occupation	Gender						Total
	Male			Female			
	old er	middle	young er	old er	middle	young er	
Farming only	41.6	32.0	2.9	11.1	18.5	-	(40)
Farming and on farm wage labor	4.2	-	1.4	-	1.8	1.3	(4)
On-farm wage labor	-	12.0	2.7	-	9.3	1.3	(14)
Farming and off-farm wage labor	4.2	44.0	38.6	11.1	48.2	31.6	(102)
Off-farm wage labor	4.2	12.0	51.3	5.5	11.1	54.0	(91)
Housework	-	-	-	16.7	3.7	7.9	(11)
Retired/no work	45.8	-	2.9	55.6	7.4	3.9	(30)
Total % (N =)	100.0 (24)	100.0 (50)	100.0 (70)	100.0 (18)	100.0 (54)	100.0 (76)	(292)

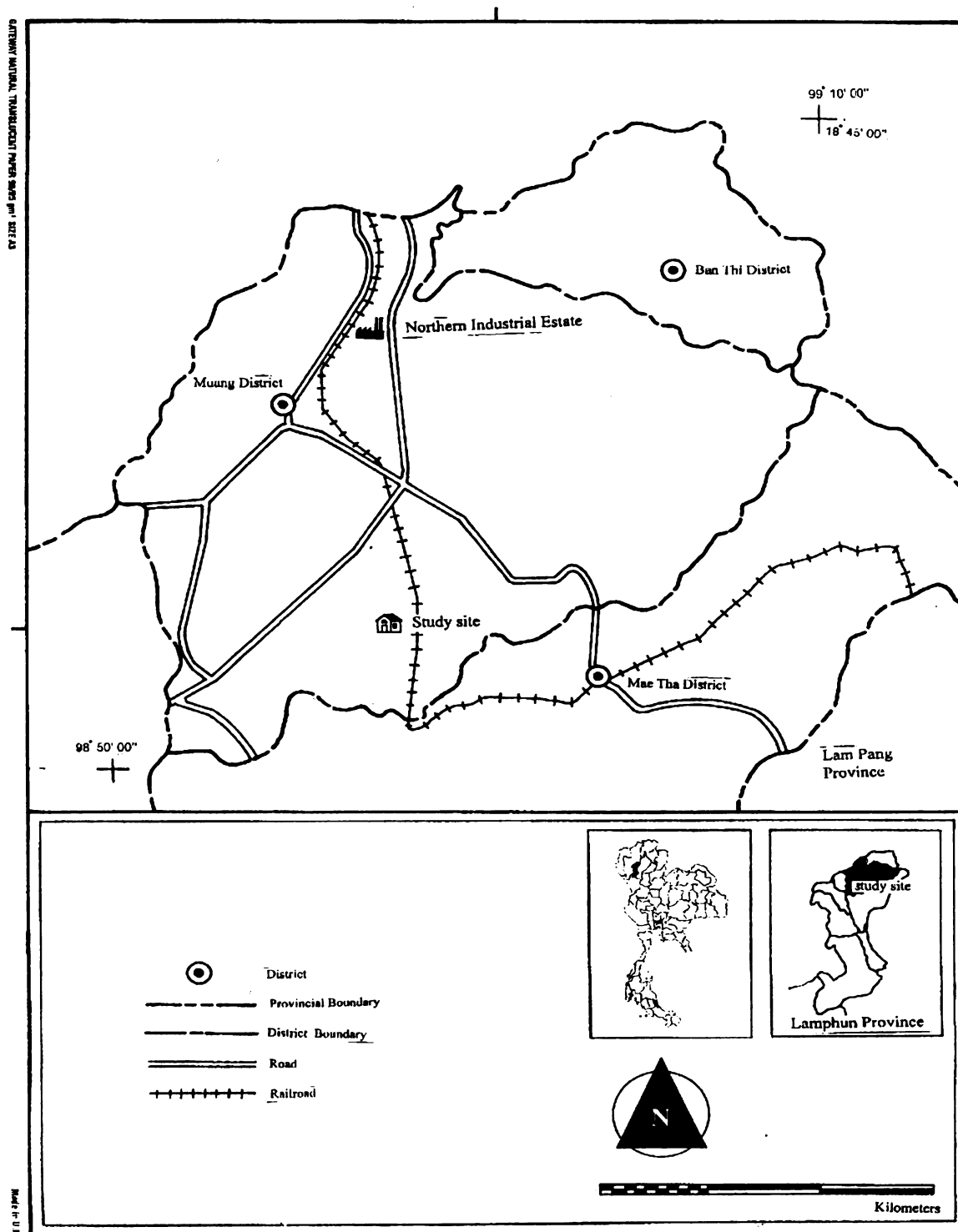
**Figure 4.3** Occupations of adult population in Nong Lom village, by age







Map 5 Map of Muang district and the study site





## **Households**

Nong Lom households can be categorized into 5 main types (Table 4.4): lone adults (9 households or 7.4 percent); conjugal family households (11 households or 9.0 percent); nuclear family households (68 households or 55.7 percent); extended family households (29 households or 23.8 percent) and incomplete nuclear family households (5 households or 4.1 percent). These five types of households are generally found elsewhere in contemporary rural Thai villages.

The average number of household members is 3.4 persons with the total member range between 1-6 persons. Each household type is discussed below:

**Lone adult households** consist of six males and three females. One male is retired from farm work. Seven of the lone adults are in the middle age group (40-59 years of age), including five males (two work on farm activities; two work on farm labor and one works off-farm) and two females (one works on farm and the other works off-farm). Only one lone female (31 years old) is younger, and she works off-farm. Three of the nine are single males who have not married (their age are 58, 47, and 42); the others had been married but their spouses had died (one male and two females) or they are divorced (two males and one female).

**Conjugal family households** consist of two older couples, seven middle age couples, and two younger couples.

The two older couples are retired farmers and rent out some of their lands to others. They received some income as remittances from their sons and/or daughters who are working and living elsewhere.

**Nuclear family households** are mainly couples with one or two young children (79.4 percent). The remainder (20.6 percent) are couples with one or two adult children with or without younger children. The occupation of household heads consist of farm work (20.6 percent); off-farm work (20.6 percent); both farm and off-farm work (54.4 percent); and retired farmers (4.4 percent).

**Extended family households** are relatively common in Nong Lom. They consist of two generation households without a child (10.3 percent); two generation households with children (79.4 percent); and two generation households with children and a sib (10.3 percent). The percentage members of extended family households who work on farm are 51.7 percent working some or much and 48.3 percent working little or none and engage in off-farm work are 82.8 percent working some or much and 17.2 percent working little or none.

**Incomplete nuclear family households** include an older woman with one adult female child; a middle man with one adult male child; a middle age woman with one young child; and a middle age woman one young child; and one older woman with one adult female child and a granddaughter. They are not engaged in farming; 60 percent work off-farm.

**Table 4.4** Types of households in Nong Lom

Household types	% of household	N
Lone adult	7.4	9
- Male	(4.9)	(6)
- Female	(2.5)	(3)
Conjugal (husband and wife, no children)	9.0	11
Nuclear (husband and wife with children)	55.7	68
Extended (two families living together)	23.8	29
Incomplete nuclear (mother or father with son or daughter)	4.1	5
Total %	100.0	122

### Housing

The housing and settlement pattern in Nong Lom village consists of three clusters located along the railroad and asphalt road connecting to neighboring villages. The typical house is one story with space underneath used for cattle and/or buffalo (see Photo 6). About a decade ago, water buffalo for plowing replaced were by the small tractor. Thus, many houses have rebuilt a new downstairs room under the main floor. Houses are mostly made of wood and brick.

Of the total 122 households surveyed, more than half (59.7 percent) of their houses were built more than 10 years ago and only 20.5 percent have been built within the past 5 years. Most new houses are built in the modern style, using all brick except for windows and doors which are still made



of wood (see Photo 7). Owners of the new houses are usually younger adults having full-time, off-farm work.



**Photo 6** House of poor household in Nong Lom village



**Photo 7** House of well-to-do household in Nong Lom village

## **Culture and Beliefs**

The people of Nong Lom, culturally and historically, are considered truly "northerner" or "khon muang" or "Lanna" people. Northern Thai or Khon Muang dominate the population of the upper North, i.e. Chiang Mai, Chiang Rai, Lampang, Lamphun, Phayao, Phrae, Nan and Mae Hong son. Even though Nong Lom people are khon muang, almost all were born in Lamphun and call it home. Most of khon muang in Lamphun province are Yong people. They speak a distinctive northern dialect which is slightly different from the central Thai language. Nonetheless, they usually understand the central Thai language-an official language used in school, government administration and the mass media. There are no hill tribes or other ethnic group in this village.

The beliefs of Thai people are associated with Thai Buddhism. The most important among these beliefs is the doctrine of Karma which asserts that every action or thought has its consequences, either in this time or in a future. If a person performs a good act, that person attains (bun) and there will be good consequences for that person. Similarly, evil acts result in demerit (bap) and in bad consequences for that person. These beliefs make villagers provide the monks with food, do good things and participate in religious activities as well as in connecting forest ceremonies with religious activities.

Thai people are polite in manner so there are not many disputes or arguments among groups at village meetings.



Informal discussion about village activities and forest resources occurs, but is free of patron-client relationship. Apparently, there are no factions or group conflicts among villagers, and these may be so because most of the villagers are relatives, either by blood or marriage.

### **Rhythm of Activities**

The main seasonal rhythm of village activities is patterned in terms of farm work, off-farm work, forest work and socio-culture activities, as shown in Table 4.5. The farm work rhythm is dominated by rice cultivation, which starts with plowing in May or June and continues through the harvesting period in November. Other shorter periods of activity involve the growing of peanuts, onions, garlic and various kinds of vegetables. These dry period crops are usually grown after paddy cultivation for duration of 3-4 months. Longan is main fruit orchard crops grown in this area. It takes at least five years to benefit from selling them. Tamarind and mango are also grown in the villages, mostly in the household compound or home garden. Rice straw is also used for cattle feeding and sold to traders from Mae Tha district who need rice straw for their onion and garlic plantations.

Off-farm work is mainly as wage laborers in factories in the Northern Industrial Estate and nearby. Most of younger adults are working in these factories. Middle age women and older adults usually do cloth pitching by order at

home while middle age men usually work as construction laborers in nearby villages, tambons or in the city of Lamphun. Some older men do handicraft work, such as basketry. The younger men who do not work off-farm do handicraft work by order at home. There are six males who work continuously on different styles of wood crafting (see Photo 8). Moreover, there are about eight households where one or more of the adults work as vendors all year long, selling different products seasonally.

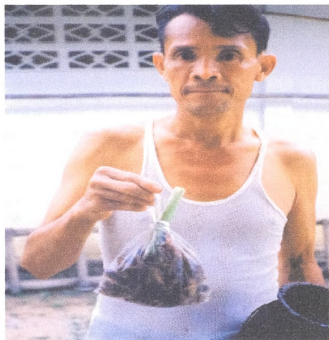


**Photo 8** Wood crafting by younger villager at his house compound

Most of villagers use forest products for food, such as ant egg gathering, small animal hunting, mushroom, bamboo shoot gathering (see Photo 9). Some of them sell their excess to their neighbors and sometimes market them at the



roadside shop of the village. Herbal medicines are also collected by older males who know about medicinal plants. Charcoal making is a very popular money-making activity in this village (see Photo 10).



**Photo 9** Small animal hunting by forest-dependent middle age villager



**Photo 10** Charcoal making by older villager at his home garden

**Table 4.5** Seasonal rhythm of village activities

Activity	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>Farm</b>												
Rice cultivation						←	→					
- Rice plowing						←	→					
- Rice harvesting										←	→	
Peanut/chilly						←	→					
Garlic/onion/ vegetables	←	→										
Longan orchard												
- nourish										←	→	
- harvesting							←	→				
Tamrind/mango	←	→										
Keep straw for cattle and sale											←	→
<b>Off-farm</b>												
Full-time work	←	→										
Cloth pitching/ wood crafting/ handicraft (basketry) etc.	←	→										
Temporary construction work	←	→							←	→		
Inter-province vendors	←	→										
<b>Forest</b>												
Ant egg gathering			←	→								
Small animals/ frog hunted	←	→										
Mushroom gathering						←	→					
Bamboo shoot gathering						←	→					
Herbal medicine collect	←	→										
Charcoal making	←	→										
<b>Socio-culture</b>												
Buddhist lent						←	→					
Yee Pang festival											←	→
Songkran festival				←	→							
Ritual for water/ forest spirit						←	→					
School year	←	→				←	→					

The main social and cultural activities are related to traditional and religious beliefs, such as Buddhist lent,

Yee Pang or Lo Kra Thong Festival, Song Kran festival (Thai New Year on April 13) and Forest spirit ceremonies.

### **Social Institutions and Groups**

The main social institutions in Nong Lom village are the primary school, temple, health center, public health care center (clinic), grocery stores, and a rice mill. The two important village social (non-family) group types are village governance (formal groups) and a number of village voluntary group (informal groups).

The primary school is for grade 1-6 and serves three villages: Nong Lom, Pa Puay and Pa Bong villages (see Photo 11). After finishing grade 6, students in Nong Lom village further their studies at secondary schools in Tung Yao village in the same Tambon or go to schools in Lamphun city.



**Photo 11** Nong Lom's local school

All villagers in Nong Lom village are Buddhist so a temple was established in this village at the time the village was first settled (see Photo 12). Most of the older people will meditate at night time on the Buddhist day.



**Photo 12** Nong Lom's temple

A local Health Center is available for providing medical care in Nong Lom and neighboring villages. Serious cases are sent to the district hospital in Lamphun city. Moreover, there is a public health care center run by a village health group that is trained by staff from the Ministry of Public Health.

The grocery shops in this village can be divided into three types. The first type (2 shops) sells mostly fresh vegetables, plus some dry food, canned food, and household

supplies. The second type (2 shops) also sells some fresh vegetables, but mostly dry food and household supplies (see Photo 13). The first and the second types are different only in the size of the shop and the amount of supplies available. The third type (one shop) sells only dry food and some household supplies. There is only a rice mill in this village.



**Photo 13** A grocery shop in Nong Lom village

The formal village governance groups consists of three elected committees namely, the village committee, the village forest committee and the Tambon Authority Organization (TAO) committee. All of these three governance groups are important in terms of work assignments. They engage in all kinds of village development activities. The





village committee consists of 12 persons, or 5.6 percent of the surveyed household principals. The village forest committee consists of 16 persons, or 7.5 percent of the surveyed household principals. Only three representatives (a village head and two elected villagers) from Nong Lom village work at the Tambon level. The present village committee is all male and was elected in 1999 for a 4 year period (Total 4.6).

**Table 4.6** Participation of household principals in village governance groups

Activities	# of members	% of household principals
Village committee	12	5.6
Village forest committee	16	7.5
Tambon authority organization	3	1.4
Total N	(31)	(213)

There are a number of volunteer groups in Nong Lom: women's group, saving group, occupational group, agricultural group, public health group, water pump group, the school committee and the temple committee. Table 4.7 reports the percentage of active participants and leadership status in each voluntary group. The "active participation" here means that the members of volunteer groups attend the every group meetings and activities. The "leadership" means that each member has been elected a group committee by group members. The group members are generally both male and female, except for the women's group, which is only for women and the temple committee, which is all men. All

individual voluntary groups have their own aims and activities. Some meet regularly and some do not

**Table 4.7** Participation of household principals in village voluntary groups

Groups	% of household principals
Savings group	
- active participation	25.4
- leader	2.3
Women's group	
- active participation	18.8
- leader	6.1
Public health group	
- active participation	8.0
- leader	6.1
Occupational group	
- active participation	7.5
- leader	0.5
Agricultural group	
- active participation	7.0
- leader	0.9
School committee	
- active participation	5.6
- leader	5.2
Water pump group	
- active participation	2.8
- leader	2.8
Temple committee	
- active participation	2.2
- leader	1.9
Total N	213

More than half of the household principals (52.6 percent) do not participate in any of village governance or voluntary groups. The number of activities that household principals participate in ranges from 1-6 groups (Table 4.8).

**Table 4.8** Multiple participation of household principals  
in village voluntary group activities

Number of activities	% of household principals
None (no participation)	52.6 (112)
One (one group)	18.3
Two	13.6
Three	8.9
Four	6.6
Total % (N =)	100.0 (213)

## **ECONOMIC DIFFERENTIATION**

Below I will overview Nong Lom's economic situation and how the village and its people are differentiated in terms of their material level of living, farmland ownership, income sources, and economic dependency.

### **Household Material Possessions**

Nong Lom households have many different kinds of material possessions. For purposes here, I focused on the following: electric fan, television, refrigerator, gas stove, radio, motorcycle, bed, washing machine, sofa, pickup truck, dinner table, type of house, telephone, sewing machine, plowing machine, video and van car (Table 4.9). These material items are ranked on the basis of percentage of household processing them. An estimate of the condition of the house was done by the interviewer.

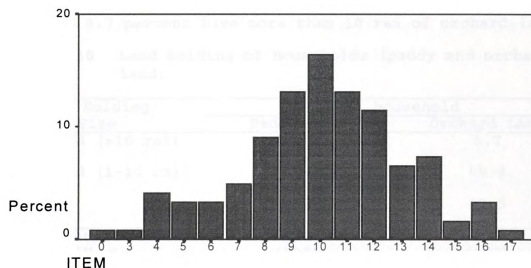
These household material possessions are used as a measure of the material level of living of each village household. The scale includes 17 material items (one point each) and the rating of house condition by the interviewer as shown in Figure 4.4. To assure the reliability of the 21 points scale (18 items) of household material level of living, an item analysis was done (Alpha test). For descriptive purpose, the scale is collapsed into 3 categories: scores between 0-6 indicates households with a low material level of living (12.3 percent of total household). Scores between 7-12 indicates households with a mid range material level of living (68.0 percent). Scores of 13 or higher indicates households with a high material level of living (19.7 percent).

**Table 4.9** Material possessions of households

Material items	% of household
Electric fan	97.5
Television	96.7
Refrigerator	89.3
Gas stove	88.5
Radio	82.5
Motorcycle	78.7
Bed	78.7
Washing machine	64.8
Sofa	54.1
Pickup truck	44.3
Dinner table	41.8
Two stories house	39.2
Telephone	32.0
Sewing machine	20.5
Plowing machine	20.5
Video	16.4
Van car	5.7
Interviewer's rating of house condition (good)	19.7



**Figure 4.4** Scale score of the material level of living in Nong Lom



Note: Mean score = 10.5  
Alpha = 0.78

(N = 122)

#### **Farmland Ownership**

The amount of farmland owned to a large extend indicates the amount of agricultural production. In 1988, the average size of farmland holdings in northern Thailand was 14.26 rai and about 9.84 rai in Lamphun province (1 rai is a square with 40 meters sides, or 0.16 hectare or 6.25 rai = 1 hectare). I have classified the households in terms of how much land (paddy and orchard land) they own: more land (> 10 rai), less land (1-10 rai), and no land (Table 4.10). Here, I separate farmland holding into paddy land and orchard land because there are different types of crops grown.

About 29.5 percent of the households have no paddy land and about 38.5 percent have no orchard land. Only 19.6 percent of the households have more than 10 rai of paddy land and 5.7 percent have more than 10 rai of orchard land.

**Table 4.10** Land holding of households (paddy and orchard land)

Land Holding' Size	% of household	
	Paddy Land	Orchard Land
More Land (>10 rai)	19.6	5.7
Less Land (1-10 rai)	50.9	55.8
No land	29.5	38.5
Total % (N =)	100 (122)	100 (122)

Note:	Paddy land	Orchard land
	Mean = 5.78 rai	Mean = 3.07 rai
	Minimum = 0	Minimum = 0
	Maximum = 30	Maximum = 30

### Income Sources

Most of the households earned some cash income from one or more of the following sources: farm products sold; forest products sold; off-farm work; and remittances from adult children who live and work elsewhere.

Most of those who are engaged in farming mainly grow rice for household consumption. Only a few households (12.3 percent) sell some rice. Fruits, especially longan which is the most popular in this area and other kinds of fruits, such as mango and tamarind, are also sold in some quantities (18.8 percent). Chickens are raised by every household for household consumption and sometimes for cash



income. There are 5 households that run a big pig farm on the village outskirts.

Mainly forest products are food and vegetables (16.4 percent), such as mushrooms, bamboo shoots, which household members can easily collect or gather throughout the year. Most of these forest foods are use for household consumption but some are sold for cash income.

For off-farm work, most of the households earn some income from either the principal male (70.5 percent) or the principal female (57.4 percent). Adult males often commute to work in nearby villages or migrate out to the city while females have responsibly for taking care of their children, doing housework, and may be working elsewhere in the village. Some households get remittances from their children or siblings (12.3 percent).

**Table 4.11** Sources of cash income, by households

Sources of cash income	% of household	
	some/much	little/none
Farm produce sold		
Rice	12.3	87.7
Vegetables	9.0	91.0
Crop/fruit	18.8	81.2
Livestock	32.8	67.2
Forest produce sold		
Fuelwood	1.6	98.4
Vegetables	16.4	83.6
Wild animals	2.5	97.5
Herbal medicine	0.8	99.2
Wood for house construction	-	100.0
Wood for local industry	-	100.0
Off-farm work		
Husband	70.5	29.5
Wife	57.4	42.6
Adult children	28.7	71.3
Remittances	12.3	87.7
Total N =		122



## **Economic Dependency of Households**

The degree of economic dependency of Nong Lom households on farm, off-farm, and forest work activities varies a lot. I assessed the degree of dependency on these three work by collective measure of all household adult members' work and relative to other households which classified into four levels: none, little, some, and much work.

Table 4.12 shows that most are heavily dependent upon off-farm income (78.8 percent). But, surprisingly, a large proportion (63.1 percent) also are very dependent on the forest as a source of income or food. And, almost half (47.6 percent) rely heavily on food grown on their farms.

Nuclear family households, which are younger, tend to be the most dependent on off-farm work (88.2 percent). Extended family households which usually are a mix of younger and older generations, also are very dependent on off-farm work (82.8 percent). Extended family households, which generally, include an older couple, are most dependent on forest resources.

What is especially interesting and relevant to this study is that nearly two-third of these households depend at least to some extent on forest resources for their livelihood.

**Table 4.12** Farm, off-farm, and forest dependency, by household type

Household type	All house holds	Lone adult	Con jugal	Nu clear	Ex tended	In complete
Farm dependent						
much	9.0	33.3	18.2	5.9	6.9	-
some	38.6	-	27.3	45.6	44.9	-
little	19.7	-	-	20.6	24.1	60.0
none	32.7	66.7	54.5	27.9	24.1	40.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Off-farm dependent						
much	23.9	33.3	27.3	20.6	27.6	20.2
some	54.9	-	27.3	67.6	55.2	40.0
little	8.2	-	9.1	5.9	13.8	20.0
none	13.1	66.7	36.3	5.9	3.4	20.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Forest dependent						
much	16.3	11.2	9.1	17.6	20.7	-
some	46.8	33.3	36.3	50.0	51.7	20.0
little	26.3	44.3	27.3	25.0	17.2	60.0
none	10.7	11.2	27.3	7.4	10.4	20.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total N =	(122)	(9)	(11)	(68)	(29)	(5)

Table 4.13 shows the relationship between household level of farm dependency and off-farm dependency to forest dependency. Households very dependent on their farm resources are somewhat less likely to depend also on forest resources. But in general, what is observed from Table 4.13 is that the dependency of Nong Lom households on forest resources is not determined by their level of dependence on off-farm work or on farm work. Forest resources are probably supplemented to other resources of livelihood. Age of household members, families traditions, and ease of

access to the forest probably have more to do with a household's reliance on forest resources.

**Table 4.13** Forest dependency of households, by farm and off-farm dependency (percent)

Farm or off-farm Dependency	Forest Dependency			
	Much	Some	Little/ None	Total % (N)
Farm dependency				
much	-	45.5	54.5	100.0 (11)
some	23.4	48.9	27.7	100.0 (47)
little/none	14.1	45.3	40.6	100.0 (64)
Off-farm dependency				
much	20.7	34.5	44.8	100.0 (29)
some	13.4	55.2	31.4	100.0 (67)
little/none	19.2	38.5	42.3	100.0 (26)

Table 4.14 shows the relationship between amount of farmland owned and the level of forest dependency of households. Again, it appears that the dependency on and utilization of forest resources can not be explained by whether or not a household is depended on other sources of income and food, such as their agricultural land holdings. Forest resources, in other words, are a concern of most households in Nong Lom village, regardless of their dependency on farm or off-farm work.

**Table 4.14** Forest dependency of households, by farm land holding size

Paddy Land or Orchard Land	Forest Dependency			
	Much	Some	Little/ None	Total % (N)
Paddy Land				
much	10.0	40.0	50.0	100.0 (10)
some	16.2	43.2	40.6	100.0 (37)
little/none	17.3	49.4	33.3	100.0 (75)
Orchard Land				
much	-	100.0	-	100.0 (1)
some	20.8	45.8	33.4	100.0 (24)
little/none	15.5	46.4	38.1	100.0 (97)

## **Nong Lom's People Speak: Concerns About Forest Resources Are Important**

The following summarizes what I learned from my focus group interviews with different groups of people in Nong Lom. It reflects their perspectives on various problems relative to the forest resources surrounding their village. In particular, we discussed how things were in the past, what is happening now, and what they'd like to have happen in the future.

Before the settlement of this village, the area was covered with forest there were many wild animals. Since the 1950s, lots of trees were cut down in order to construct the railroad from Bangkok to Chiang Mai city, the second largest city in Thailand. Most of the wood and lumber was used as fuel for steam engine trains and used as railroad sleepers for railway track. Road construction to connect the villages, tambon and districts, as well as occasional forest fires helped reduce the forest density. Forested hills and mountains surrounding the village boundary suffered because in this water scarce area the underground water, of there was much in former times, was being diverted to agricultural cultivation. These changes could be seen even by the younger generation. In the 1970s and 1980s, there was a period when forest conservation was promoted. Even though villagers kept on using forest resources in different ways the forest flourished. Villagers now are concerned about

forest resources both in terms of forest protection or conservation and forest utilization for various purposes.

Those who use the forest a lot and are dependent upon forest resources, noted especially the following:

1. The forest produces food for consumption, such as mushrooms and bamboo shoots. Fuelwood is collected, but only for household use. Wild animals, such as rabbits and snakes are used mainly for household consumption and only the excess is sold to neighboring households. Forest resources are used for food mainly on a daily basis by most household, including the off-farm work households, because this helps reduce household expenditures.

2. Forest resources can be used for cash income. There are about four households that depend very much more on the forest than do other villagers. They sell forest products to their neighbors and traders for quick money. Usually they spend about two to three hours a day collecting things in the forest and this earns them about the same as they get from minimum off-farm wage a day. For them, the forest means everything for their lives. However, most forest collectors in Nong Lom select forest products very carefully so as not to collect them all, and this exclude unnecessary or unusable forest products. They want to make sure that there will be something left over for their next uses.

3. Forests are important as a source of medicinal plants. The traditional uses of medicinal plants are





practiced in some households, especially by the older people. They may collect some specific tree species which can relieve certain health problems, such as achieving body pains after the rice field work, and they can cure gallstones caused by bad drinking water. The medicinal doctor will collect plants to use as well as for selling to other villagers.

4. Trees are used for construction purposes, particularly to build house for newly married couples. However, permission for tree-cutting must be obtained from the village forest committee. In a few cases, such permissions are not granted.

To conserve forest resources, various activities have been implemented by Nong Lom village:

1. Forest rules and regulations are issued as a tool to control overuse of forest resources, which caused deforestation problems in this area long ago. The forest village committee is responsible for taking care of forest resources in place of all villagers.

2. A forest boundary survey was done in order to identify which hills/mountain (Doi) surrounding the village can be used or not. Villagers also know which forested hills/mountains can be used for any specific purpose. For example, it is prohibited to cut trees in Doi Pha Yay and Doi Kun Ta.

3. Forest fire protection is implemented by the cooperation of RFD (Forest Protection unit stationed in this

tambon). This office helps by providing ten fire extinguishers for village fire protection activities and patrol control groups to assist villagers in stopping fires when there are big and dangerous forest fire during January-March each year. However, the villagers, especially younger people and school children have also participated in bringing water from their own houses to stop fires occurring in the hills close their houses.

4. The village committee and village forestry committee have set up a forest plan in order to conserve the forest and, at the same time, to manage to use so as to benefit all villagers.

5. Tree plantings are arranged at various sites, in the forest areas and on public lands. These events involve participants from most households and of all ages. There are tree planting activities usually in Nong Lom as well as in all villages in Thailand on special days, such as the King's or Queen's birthday, important Buddhist religious days, and Buddhist Lent. Usually seedlings or small trees of various species are provided by the RFD.

6. A "Protect the Forest" ceremony is done once a year in June. It aims to give the forest spirits specific food and ritual activities. There are two small religious houses built on village public land and in the forest nearby (3 kilometers away). It is believed that this ceremony will cause it to rain a lot and thereby make the once flourishing forest to appear again.

7. "Protect Forest" slogans are made by school children. They place the written words on wooden plaques and post them on the way to the reserve forest in order to give moral support to forest preservation.

8. Forest management workshops and training sessions are held occasionally at the Tambon level. Most village committee and village forest committee members have had a chance to attend.

The relationship between villagers and forest resources can be summarized as village voice as follow:

Elders (see Photo 14) thoughtfully compare forest resources in the past (30 years and more) with the present (the last 5 years). And, surprisingly, they believe that the amount of trees and wild animals nowadays is nearly the same amount it was in earlier times. They are convinced that current village regulations, such as restricting the cutting down of trees in the forest has helped to conserve forest resources.



**Photo 14** Focus group discussion with elder group



The village committee (see Photo 15) believes that village people control of local forest resources is a necessity because without the cooperation of villager forest conservation would not be effective. Local people must be involved. Last year, Nong Lom villagers fought very hard to stop a capitalist entrepreneur from Lamphun city who claimed some part of the surrounding forest land as his own saying he had bought it a long time ago. He wanted to harvest the trees. Most villagers went to obstruct the big truck from invading into their forest area. They explained where the boundary was. The big dispute between these villagers and the entrepreneur's hired laborers lasted for many hours and finally the intruding entrepreneur surrendered and said that he had mis-read the land map.



**Photo 15** Focus group discussion with village committee



The village forest committee dealt with at least two cases of cutting down trees without permission. The committee discovered this because they found the cut-down wood that was left in the forest. Some wood is used for village activities, such as making fences for the public pond.

Two villagers failed permission for tree-cutting from the village forest committee because the committee's criteria had not been met.

Off-farm workers in the village have also gone to the forest on holidays (usually on Sundays) to collect forest products, such as plants and small animals for household consumption. They regard forest resources as their own source of food.

Craftsmen in this village also collect some food products from the forest but they do not go to the forest often because they have a lot of work to do at home. The traders from Mae Tha district provide them with all the necessary wood material; the craftsmen are paid for their work by day or by piece.

Some villagers are very dependent on the forest and spend much time on food gathering or small animal hunting. They collect some forest products every day and earn some money from trading them. They prefer to conserve the forest because they can earn their living from it. Comparing with the past, they believe that nowadays they can get more products from the forest.

Women group members also use forest products for home consumption purposes and to earn supplemental income from products sold.

Generally speaking for Nong Lom villagers, the forest is a source of food and income. Villagers want to protect the forest in order to utilize it and keep it for their next generations by preventing forest deforestation not only from forest fire but also from the greed of human neighbors.



## **CHAPTER 5**

### **NONG LOM'S FOREST RESOURCES:**

#### **MANAGEMENT PRACTICES AND SHARED RESPONSIBILITY**

This chapter deals with forest resource management in Nong Lom village. It focuses on the socio-economic characteristics of household principals and their participation roles in forest management practices. Gender roles (male and female) are discussed and compared. Differentiation between men and women in forest management tasks and responsibilities is the main theme.

#### **CHARACTERISTICS OF HOUSEHOLD PRINCIPALS**

The household principals (adult spokespersons) surveyed in this study consist of 213 persons (100 males and 113 females), between the ages of 21 and 82 years. Three age groups are considered: younger adults (20-39 years); middle adults (40-59 years); and older adults (over 59 years). The mean age for total household principals is 43.7 years (Table 5.1).

Table 5.1 shows also that there is very little difference in education levels between principal males and principal females. A few more of the men have had some further education beyond the sixth grade level.

Generally, it is believed in rural Thailand that females do not need higher education because after marriage

their husbands will take care of everything and women need only be responsible for housework. A few household principals have been in school more than 6 years, especially at college and university level. Four men have graduated from college. Only one of them has graduated from a university and become a member of Tambon Authority Organization. Two of them became active members of village voluntary groups and the last one moved to this village in 1999 so he has not yet joined any volunteer group.

**Table 5.1** Characteristics of household principals (adult spokespersons for surveyed households)

Characteristic	Percent	
	Male (N =100)	Female (N = 113)
Age		
younger	42.0	48.7
middle	40.0	43.3
older	18.0	8.0
Education		
none	2.0	7.1
1-6 years	82.0	84.1
> 6 years	16.0	8.8

Note:      Mean age    = 43.7  
               Minimum    = 21  
               Maximum    = 82

Table 5.2 shows the relationships between work activities of household principals and their gender, age and education. Work activities are scored by amount of time spent by the household principal in farm, off-farm, and forest work. The total possible score for farm, off-farm, and forest work are 6, 3, and 9, respectively (see Chapter 3).

Farm work scores include time spent in rainy and dry season. Off-farm work score is rated by full-time or part time job and another job he/she pursued. Forest work is measured by time spent in the forest during the rainy and dry seasons. The level of forest use is assessed by each respondents' rating (see Chapter 3 for more details).

Males tend to work more on farm activities (3.3 score) and forest activities (5.2 score) than females (3.1 and 4.5, respectively). The middle age group (3.7 score) works more on farm than the other two age groups. Household principals with 6 years in school are more likely to work on farm than the other two educational groups.

Interestingly, women are more involved with off-farm activities than men. Younger people are also more involved in off-farm work. The household principals with more than 6 years in school do more off-farm work than the other educational groups.

Men are more involved with forest activities than women; but both men and women have high scores on forest work. Those with more than 6 years in school tend to work more on forest activities than the other two educational groups.

**Table 5.2** Work activities (scores) of household principals by gender, age and education

Characteristic (sex, age, education)	Average score work activity		
	Farm	Off-farm	Forest
Gender			
Male	3.3	2.1	5.2
Female	3.1	2.4	4.5
Age			
older (>59 yrs.)	2.6	1.3	3.5
middle (40-59)	3.7	2.0	5.1
younger (20-39)	2.9	2.8	5.0
Education			
none	1.6	1.6	4.6
6 yrs in school	3.4	2.3	5.0
> 6 yrs in school	2.5	2.5	3.9
Average score (all principals)	3.2	2.3	4.8
Total possible score	6	3	9

#### **GENDER AND FOREST MANAGEMENT PRACTICES**

Thirty-three forest management practices are listed and classified into four main types (Table 5.3). They are: planting/ nurturing (9 activities); utilization/harvesting (9 activities); protection (7 activities); and extension (8 activities).

Table 5.3 reports the percent of principal males and principal females who engage in the various forest management activities, whether in the past or more recently. Males are more involved than females in all forest management activities, except one: donating money for forest protection. This is because it is mostly women who handle all household expenses.

Men have a much greater role in extension activities (attend forest training, participate in conflict solving, discuss with neighbors and village leaders, contact with forest officers and NGOs, make suggestions, and monitor forest activities) because of two main reasons. First, all village committees and village forest committees as well as most of household heads are men. Thus, men have more chance to do forest extension activities. Second, women who participate in such activities are mostly involved in women's group activities.

**Table 5.3** Forest management activities of household principals, by GENDER

Activity	% engaged in activity					
	Male	Female	Male		Female	
	Total (N=100)	Total (N=113)	Recent	Past	Recent	Past
<b>PLANTING/NURTURING</b>						
Plant tree garden	78.0	70.7	59.0	19.0	61.9	8.8
Plant tree farm	58.0	51.3	41.0	17.0	44.2	7.1
**Plant tree public land	93.0	79.7	86.0	7.0	73.5	6.2
Plant tree forest	87.0	78.8	81.0	6.0	70.8	8.0
Select tree to plant	32.0	34.6	24.0	8.0	31.9	2.7
Decide where to plant	35.0	24.8	23.0	12.0	23.0	1.8
Fertilize young tree	29.0	22.1	25.0	4.0	21.2	0.9
Water young tree	33.0	24.8	29.0	4.0	22.1	2.7
Take care/keep tree from animal	50.0	42.5	46.0	4.0	40.7	1.8
<b>UTILIZATION/ HARVESTING</b>						
Firewood collect	59.0	57.6	33.0	26.0	31.9	25.7
**Charcoal making	72.0	36.3	29.0	43.0	17.7	18.6
Food plant collecting	95.0	96.5	86.0	9.0	90.3	6.2
* Herbal collecting	24.0	12.4	20.0	4.0	9.7	2.7
* Wild animal hunting	50.0	35.4	41.0	9.0	29.2	6.2



**Table 5.3** (cont'd)

Activity	% engaged in activity					
	<u>Male</u>	<u>Female</u>	<u>Male</u>		<u>Female</u>	
	Total (N=100)	Total (N=113)	Recent	Past	Recent	Past
Small wood collect for small scale activity	23.0	21.2	20.0	3.0	16.8	4.4
* Wood collect for construction	46.0	31.0	22.0	24.0	15.9	15.1
Forest product collect for sale	47.0	42.5	42.0	5.0	38.9	3.6
Rear domestic animals in forest	44.0	40.7	2.0	42.0	3.5	37.2
<b>PROTECTION</b>						
* Offer forest spirit protect	74.0	58.4	70.0	4.0	56.6	1.8
**Draft forest rule/regulation	71.0	38.1	56.0	15.0	32.8	5.3
**Keep forest guard	13.0	0.0	8.0	5.0	0.0	0.0
**Prevent forest fire	73.0	38.9	65.0	8.0	34.5	4.4
**Donate money for forest protect	15.0	32.7	14.0	1.0	29.2	3.5
Contribute labor for forest protect	89.0	79.6	82.0	7.0	75.2	4.4
Contribute food for forest protect	18.0	11.5	17.0	1.0	11.5	0.0
<b>EXTENSION</b>						
**Attend forest training	47.0	14.2	32.0	15.0	10.6	3.6
**Participate in conflict solving	59.0	19.5	51.0	8.0	16.8	2.7
**Discuss with neighbors	80.0	51.3	74.0	6.0	51.3	0.0
**Discuss with local leaders	71.0	23.0	62.0	9.0	21.2	1.8
**Contact with forest officers	34.0	5.3	24.0	10.0	3.5	1.8
**Contact with NGOs	22.0	0.9	14.0	8.0	0.9	0.0
**Make suggestions	57.0	11.5	45.0	12.0	8.8	2.7
**Monitor forest activity	72.0	42.5	64.0	8.0	40.7	1.8

Note: Asterisk indicates some gender differentiation in activities ( $\chi^2$  significance >0.5)

The wording of each item in Table 5.3 as presented to the interviewee is noted in the English translation of the questionnaire, Appendix C and D.

Table 5.4 reports the gender differentiated forest management roles as determined by a chi-square ( $\chi^2$ ) test (omitting those where no gender differences are observed). Eighteen of the thirty-three forest management activities show statistically significant differences. The positive gamma of seventeen differentiated roles indicates that the degree of association (perfect, moderate and weak) is in direction of males. Only one differentiated role (donating money for forest protection) is done more by women than by men.

**Table 5.4** Summary of gender differentiated roles in forest management activities

Activity	% differentiated roles		Gamma Level
	Male	Female	
PLANTING/NURTURING			
**Plant tree public land	93.0	79.7	.55
UTILIZATION/HARVESTING			
**Charcoal making	72.0	36.3	.64
* Herbal collecting	24.0	12.4	.38
* Wild animal hunting	50.0	35.4	.29
* Wood collect for construction	46.0	31.0	.31
PROTECTION			
* Offer forest spirit protect	74.0	58.4	.34
**Draft forest rule/ regulation	71.0	38.1	.60
**Keep forest guard	13.0	0.0	1.00
**Prevent forest fire	73.0	38.9	.62
**Donate money for forest protect	15.0	32.7	-.47



**Table 5.4** (cont'd)

Activity	% differentiated roles		Gamma Level
	Male	Female	
<b>EXTENSION</b>			
**Attend forest training	47.0	14.2	.61
**Participate in conflict solving	59.0	19.5	.71
**Discuss with neighbors	80.0	51.3	.58
**Discuss with local leaders	71.0	23.0	.78
**Contact with forest officers	34.0	5.3	.80
**Contact with NGOs	22.0	0.9	.94
**Make suggestions	57.0	11.5	.82
**Monitor forest activity	72.0	42.5	.55

Note: Negative Gamma indicate degree of association in direction of female

\* = Statistically significant at  $p < .05$

\*\* = Statistically significant at  $p < .01$

#### **SOCIAL STATUSES AND FOREST MANAGEMENT PRACTICES**

The following section discusses the relationships between social statuses of household principals and forest management activities. The term "social statuses" refers to age, education, wealth, and community participation. From Table 5.5-5.8, each social status for males and females will be discussed:

##### **Age**

Table 5.5 displays the relationships between age and forest management activities, by gender. Planting trees in the garden (usually fruit trees) is more likely to be done by younger people and especially by younger men. Younger men who have off-farm work are also aware of their future life after retirement from factory so they grow fruit trees,

such as longan and mango for future benefit. On the other hand, rearing domestic animals in the forest (cows, buffaloes), is typically done by older people, especially older women. Further, collecting small wood for small scale activities (such as basket-weaving) is especially the task of older women. Table 5.5 also shows that contacting forest officers and monitoring forest activities is not only a man's role (Table 5.4) but is also a job assumed by many elderly women, often those who are widowed. Clearly, contributing labor for forest protection (fires, etc.) is young man' job.

**Table 5.5** AGE and forest management activities (observed differences), for males and females

Activity	Gamma (age and activity) *	
	Male	Female
Plant tree garden	-.47	-.21
Small wood collect for small scale activity	NO	.54
Wood collect for construction	.05 <sup>a</sup>	NO
Rear domestic animals in forest	.36	.54
Contribute labor for forest protect	-.45	NO
Contact with forest officers	NO	.66
Monitor forest activity	NO	.43

Note: \* Only those forest management activities are reported here for which significant differences (<.05) are observed ( $\chi^2$  test of differences). For all other activities (N = 26) no differences are observed. All 33 activities are listed in Table 5.3.

a = skewed distribution.

## Education

Table 5.6 shows the relationships between education and forest management activities, by gender. Education is not a factor that affects whether men collect firewood and food plants; most do. But the more educated women are less likely to collect firewood and food plants in the forest; for women, education makes a big difference. Likewise the more educated women are not likely to be involved in rearing domestic animals in the forest.

On the other hand, most extension activities (discussions with neighbors, contact with forest officers and NGOs, and making suggestions) are roles assumed by the more educated men because education makes men more confident to do this kind of job. Basically, monitoring forest activities is a male job, but it is also done by less educated women who have more time and are interested in keeping their eyes on forest activities.

**Table 5.6** EDUCATION and forest management activities (observed differences), for males and females

Activity	Gamma (education and activity) *	
	Male	Female
Firewood collecting	NO	-.60
Food plant collecting	NO	-.86
Rear domestic animal in forest	NO	-.91
Discussion with neighbors	.28	NO
Contact with forest officers	.64	NO
Contact with NGOS	.68	NO
Make suggestions	.64	NO
Monitor forest activity	NO	-.59

Note: \* Only those forest management activities are reported here for which significant differences (<.05) are observed ( $\chi^2$  test of differences). For all other activities (N = 25) no differences are observed.

## Wealth

Table 5.7 shows the relationships between household material level of living and individual forest management activities, by gender. Men from wealthier households are more likely to be engaged in the following six activities: planting trees on the farm, watering young trees, offering forest spirit protection, drafting forest rules/regulations, attending forest training, and discussing with neighbors. This is because they seem to have higher social status which all villagers accept and they also have more free time to participate.

Women from wealthier households are more likely to be engaged in monitoring forest activities. Men from less wealthier households are more likely to be engaged in collecting forest products for sale because they need some extra income.

**Table 5.7** MATERIAL LEVEL OF LIVING and forest management activities (observed differences), for males and females

Activity	Gamma (household material level of living and individual activity) *	
	Male	Female
Plant tree farm	.56	NO
Water young tree	.28	NO
Forest product collect for sale	-.44	NO
Offer forest spirit protect	.24	NO
Draft forest rule/ regulation	.48	NO
Attend forest training	.49	NO
Discuss with neighbors	.71	NO
Monitor forest activity	NO	.03

Note: \* Only those forest management activities are reported here for which significant differences (<.05) are observed ( $\chi^2$  test of differences). For all other activities (N = 25) no differences are observed.



### **Community Participation**

Table 5.8 shows the relationships between community participation level and forest management activities, by gender. Both men and women who are more involved in community participation are more likely to be engaged in planting trees on their farm and in collecting small wood for small scale activity. Men who are more involved in community participation are more likely to be engaged in the following five activities: protecting trees from wild animals, herbal collecting, wood collecting for construction, rearing domestic animals in forest, and drafting forest rules and regulations.

Women who are more involved in community participation are more likely to be engaged in the following six activities: offering forest spirit protection, contributing food for forest protection, attending forest training, discussing with local leaders, contacting NGOs, and monitoring forest activity. There is only one activity, selecting trees to plant, that women who are involved less in community participation are more engaged in. This means that knowledge and decision-making on tree species selection are mostly individual interests not concerned with group membership status.

**Table 5.8** COMMUNITY PARTICIPATION LEVEL and forest management activities (observed differences), for males and females

Activity	Gamma (community participation level and activity) *	
	Male	Female
Plant tree farm	.56	.38
Select tree to plant	NO	-.14
Take care/keep tree from animal	.46	NO
Herbal collecting	.59	NO
Small wood collect for small scale activity	.48	.37
Wood collect for construction	.40	NO
Rear domestic animals in forest	.56	NO
Offer forest spirit protect	NO	.42
Draft forest rule/ regulation	.65	NO
Contribute food for forest protect	NO	.69
Attend forest training	NO	.46
Discuss with local leaders	NO	.26
Contact with NGOs	NO	1.00
Monitor forest activity	NO	.43

Note: \* Only those forest management activities are reported here for which significant differences ( $<.05$ ) are observed ( $\chi^2$  test of differences). For all other activities (N = 19) no differences are observed.

#### WORK ACTIVITIES AND FOREST MANAGEMENT PRACTICES

The following section compares the relationships between the work activities of household principals and their forest management activities. The main work activities focused on here are farm, off-farm, and forest work. The results are shown in Table 5.9-5.11.

## **Farm Work**

Table 5.9 shows the relationships between farm work involvement and forest management activities, by gender. Both men and women who are more involved in farm work are more likely to plant trees in their home garden and to make charcoal a lot because they have enough land to do so. Men who are more involved in farm work are more likely to do the forest related and forest extension activities than men who are not as involved in farm work. This is especially so for the following activities: rearing domestic animals in the forest, offering forest spirit protection, drafting forest rules/regulations, preventing forest fires, participating in conflict solving, discussing with neighbors, and making suggestions.

Women who are more involved in farm work are more likely to collect wood for small scale activities and for construction than women who are less involved in farm work. This is probably because they need some supplemental income from handicraft work, as is also the case for elder men who cannot collect wood by themselves.

Men who are not as involved in farm work are more likely to seek extra income from collecting forest products. Women who are less involved with farm work are more likely to donate money for forest protection, to contact forest officers, and to make suggestions on forest issues. This may be because their income from farm products is low.



**Table 5.9** FARM WORK INVOLVEMENT and forest management activities (observed differences), for males and females

Activity	Gamma (farm work and activity) *	
	Male	Female
Plant tree garden	.59	.41
Take care/keep tree from animal	NO	.43
Charcoal making	.61	.50
Small wood collect for small scale activity	NO	.58
Wood collect for construction	NO	.56
Forest product collect for sale	-.43	NO
Rear domestic animals in forest	.39	NO
Offer forest spirit protect	.56	NO
Draft forest rule/ regulation	.54	NO
Prevent forest fire	.49	NO
Donate money for forest protect	NO	-.44
Participate in conflict solving	.42	NO
Discuss with neighbors	.77	NO
Contact with forest officers	NO	-1.00
Make suggestions	.40	-.64

Note: \* Only those forest management activities are reported here for which significant differences (<.05) are observed ( $\chi^2$  test of differences). For all other activities (N = 18) no differences are observed.

### Off-farm Work

Table 5.10 shows the relationships between off-farm work and forest management activities, by gender. Both men and women who are not much involved in off-farm work are more likely to plant some trees on their own farm land. Making charcoal, offering forest spirit protection, attending forest training, and discussing with local leaders are mainly men' jobs, especially those who do not work off-

farm because off-farm workers usually do not have time to do such activities by themselves.

The activity that men who work off-farm are more likely to be engaged is planting trees in their garden. Women who work off-farm are more likely to attend forest training courses because they are probably quite young and can concentrate well on various forest training topics and issues and they also want to get some knowledge for their alternative work. Women who work off-farm rarely participate in monitoring forest activities because they do not have enough time and are not expected to do so because they are too young and are not involved much in forest activities.

**Table 5.10** OFF-FARM WORK and forest management activities (observed differences), for males and females

Activity	Gamma (Off-farm work and activity) *	
	Male	Female
Plant tree garden	.61	NO
Plant tree farm	-.46	-.59
Firewood collecting	NO	-.46
Charcoal making	-.43	NO
Rear domestic animal in forest	NO	-.38
Offer forest spirit protect	-.52	NO
Attend forest training	-.49	.58
Discuss with local leaders	-.47	NO
Monitor forest activity	NO	-.50

Note: \* Only those forest management activities are reported here for which significant differences (<.05) are observed ( $\chi^2$  test of differences). For all other activities (N = 24) no differences are observed.

## **Forest Work**

Table 5.11 shows the relationships between degree of forest work involvement and forest management activities, by gender. Men who are most involved in forest work are likely to be engaged in the following activities: planting trees on public lands, selecting trees to plant, deciding where to plant trees, offering forest spirit protection, and preventing forest fires.

Women who are most involved in forest work are more likely to be engaged in different forest activities than men who are most involved. These activities are: fertilizing young trees, watering young trees, protecting of trees from animals, food plant collecting, wild animal hunting, and forest product collecting for sale. Both men and women who are most involved in forest work are more likely to engage in contributing labor for forest protection because they understand the importance and relationship between forest and farm.

Table 5.11 also shows that men and women who are more involved with forest work are more likely to be engaged in activities that are mostly related to tree and forest utilization and protection. They care much about the forest and want to preserve the forest in a sustainable way.

**Table 5.11** FOREST WORK INVOLVEMENT and forest management activities (observed differences), for males and females

Activity	Gamma (forest work and activity) *	
	Male	Female
Plant tree public land	.69	NO
Select tree to plant	.50	NO
Decide where to plant	.57	NO
Fertilize young tree	NO	.71
Water young tree	NO	.47
Take care/keep tree from animal	NO	.37
Food plant collecting	NO	1.00
Wild animal hunting	NO	.39
Forest product collect for sale	NO	.49
Offer forest spirit protect	.43	NO
Prevent forest fire	.63	NO
Contribute labor for forest protect	.84	.46

Note: \* Only those forest management activities are reported here for which significant differences ( $<.05$ ) are observed ( $\chi^2$  test of differences). For all other activities ( $N = 21$ ) no differences are observed.

#### SHARED RESPONSIBILITIES IN FOREST MANAGEMENT

The roles of rural villagers involved in forest management in Nong Lom are to some extent determined by their personal characteristics: gender, age, and education. Their activities in the forest are also affected by their farm work involvement, off-farm work, and forest work. Further, some differences are observed in terms of their material level of living and their community participation. Because only one activity is done more by women than by men, a table of differentiated roles favoring women will not be

shown. The roles favoring men are reported in Table 5.12 and 5.13.

Table 5.12 summarizes the relationships between males' forest management practices and these social statuses. It suggests that older men are less likely to plant trees on public land maybe because they are not as strong as younger men. Both older and younger men are similarly involved in other forest activities; age doesn't make any difference.

The more educated males are more likely to be involved in extension activities relative to forest management: discussions with neighbors, contacting forest officers and NGOs, and making suggestions about forest issues.

Table 5.12 also shows that villagers who have a higher material level of living are more likely to engage in forest preservation, offering forest spirit protection, and drafting forest rules and regulations. Males who are wealthier in terms of material level of living are also likely to have a greater stake in the extension of forest activities management, including attending forest training and discussing with neighbors.

Men who are active members of village voluntary groups are more likely to participate in the utilization of forest products (herbal collecting and wood collecting for construction) and also in forest preservation (draft forest rules and regulations).

Generally speaking, gender (being "male") seems to be a more important factor than any of the other social statuses.

However, it should be noted that, in the case of men, education and wealth are associated with being more involved in the extension of forest management activities. Men with more wealth and those active in village groups tend to be more involved with forest preservation activities. Age and education of males do not affect any forest utilization and preservation activities.

**Table 5.12** (MALE PRINCIPALS) Summary of relationships between male specified forest management practices and social statuses

Forest Activity*	Social Status**			
	Age	Educa tion	Weal th	Parti cipate
Plant tree public land	-	0	0	0
Charcoal making	0	0	0	0
Herbal collecting	0	0	0	+
Wild animal hunting	0	0	0	0
Wood collect for construction	N	0	0	+
Offer forest spirit protect	0	0	+	0
Draft forest rule/ regulation	0	0	+	+
Keep forest guard	0	0	0	0
Prevent forest fire	0	0	0	0
Attend forest training	0	0	+	0
Participate in conflict solving	0	0	0	0
Discuss with neighbors	0	+	+	0
Discuss with local leaders	0	0	0	0
Contact with forest officers	0	+	0	0
Contact with NGOs	0	+	0	0
Make suggestions	0	+	0	0
Monitor forest activity	0	0	0	0

\*Note: Tests only those activities that are gender differentiated significantly toward males (Table 5.4).

\*\*Note: Relationships noted are significant at .05  
0 = not significant  
N = Chi-square significant, Gamma negligible.

Table 5.13 summarizes the relationships between males' forest management practices and their work involvements. It shows that men who do a lot of forest work are likely to have a greater stake in preservation of the forest in terms of offering forest spirit protection, fire prevention, and planting trees on public land.

"Farm" workers are similar to "forest" workers but they are clearly more heavily involved with forest preservation than those who do not work much on the farm, especially in the following activities: offering forest spirit protection, drafting forest rules and regulations, and fire prevention. Farm workers are also more heavily involved in the extension of forest management activities by participating in conflict solving, discussing problems with neighbors, and making suggestions on forest issues.

"Off-farm" workers are less likely to need to make charcoal for sale, not like "farm" workers. In other words, they are more likely to buy it from others who make charcoal because they do not have enough time to do so themselves. Due to time constraints, "off-farm" workers are less likely to be involved with the formal parts of forest management, such as attending forest training; discussing problems with forest leaders; and offering forest spirit protection.

But it can also be noted that gender (being "male") seems to be a more important factor than type of work. It is surprising that farm involvement in forest activities

does not make much differences in forest protection for males. Neither does off-farm work.

**Table 5.13** (MALE PRINCIPALS) Summary of relationships between male specified forest management practices and kind of work involved

Forest Activity*	Kind of Work Involvement**		
	Farm	Off-farm	Forest
Plant tree public land	0	0	+
Charcoal making	+	-	0
Herbal collecting	0	0	0
Wild animal hunting	0	0	0
Wood collect for construction	0	0	0
Offer forest spirit protect	+	-	+
Draft forest rule/ regulation	+	0	0
Keep forest guard	0	0	0
Prevent forest fire	+	0	+
Attend forest training	0	-	0
Participate in conflict solving	+	0	0
Discuss with neighbors	+	0	0
Discuss with local leaders	0	-	0
Contact with forest officers	0	0	0
Contact with NGOs	0	0	0
Make suggestions	+	0	0
Monitor forest activity	0	0	0

\*Note: Tests only those activities that are gender differentiated significantly toward males (Table 5.4).

\*\*Note: Relationships noted are significant at .05  
0 = not significant



Further, I also examined those forest management activities where there were no significant differences were observed between women and men (Table 5.3). Gender differences may be linked with other social status variables or with work involvements.

Table 5.14 summarizes the relationships between forest management activities and the various social statuses and kinds of work involvements when gender is controlled (as reported in Table 5.3). It shows that most of these other forest management activities (about two thirds) are not affected by status/work involvement conditions even when gender is taken into account. But, in some cases they are.

**Age:**

It is especially, interesting that younger men and women are more likely to plant tree in their gardens than older men and women. Older men and women are more likely to rear domestic animals in the forest. Younger men are more likely to contribute labor for forest protection than older men. Older women are more likely to collect wood in the forest for small scale activities.

**Education:**

Women with higher education are less likely to work in the forest, especially in collecting firewood, collecting food plants, and rearing domestic animals. Moreover, less educated women seem to utilize more forest products, both for food and sale.

**Wealth:**

There is some indication that men from wealthier families are more inclined to plant young trees on their land and to water younger trees, while men from less wealthy families are more inclined to collect forest products for sale.

**Community Participation:**

It is observed that both men and women who actively participate in village voluntary groups are more involved in planting trees on their farm land and collecting small wood for their small scale activities. Men who are more involved with community group are more likely to protect trees from wild animals and to rear domestic animals in the forest. Women who are more involved with community groups are more likely to contribute food for community groups are less likely to select trees to plant.

**Farm Work:**

Both men and women who are more likely to involve in farm work are more likely to plant trees in their home gardens. Particularly, women tend to do more of selecting trees to plant, protecting young trees, and collecting wood for small scale activities. Rearing domestic animals in forest is rather men's jobs.

**Off-farm Work:**

Off-farm work is not an important factor affecting these forest management practices. Obviously, if a person

does off-farm work, he/she will be less likely to have a farm or to be dependent on firewood collection, planting tree on farm, or rearing domestic animal in the forest.

### Forest Work:

Those who are more involved in forest activities are likely to be more directly doing various practices. Particularly women tend to do more of the nurturing things of fertilizing young trees; watering young trees; and protecting trees from animals. Both men and women who engage much on forest work tend to contribute labor or food for forest protection activities.

**Table 5.14** Summary of non-gender differentiated roles in forest management activities and social statuses and kind of work involvements

Forest Activity	Conditional Effects on Forest Practices						
	Age	Edu ca tion	Weal th	Par tici pate	Farm	Off- farm	Fo rest
Plant tree garden	-B	o	o	o	+ B	+M	o
Plant tree farm	o	o	+M	+B	o	-B	o
Plant tree forest	o	o	o	o	o	o	o
Select tree to plant	o	o	o	-F	+F	o	+M
Decide where to plant	o	o	o	o	o	o	+M
Fertilize young tree	o	o	o	o	o	o	+F
Water young tree	o	o	+M	o	o	o	+F
Take care/keep tree from animal	o	o	o	+M	+F	o	+F
Firewood collecting	o	-F	o	o	o	-F	o
Food plant collecting	o	-F	o	o	o	o	+F
Small wood collect for small scale activity	+F	o	o	+B	+F	o	o
Forest product collect for sale	o	o	-M	o	-M	o	+F

**Table 5.14** (cont'd)

Forest Activity	Conditional Effects on Forest Practices						
	Age	Edu ca tion	Weal th	Par tici pate	Farm	Off- farm	Fo rest
Rear domestic animals in forest	+B	-F	o	+M	+M	-F	o
Contribute labor for forest protect	-M	o	o	o	o	o	+B
Contribute food for forest protect	o	o	o	+F	o	o	o

Note:      o = No relationship observed.  
              B = Significant relationships observed for both  
                       men and women  
              M = Significant relationships observed for men  
              F = Significant relationships observed for women

The general conclusion is that gender differences are very important and seem to be a more important factor than other social statuses or work activities. Men are more involved than women in most forest management activities (17 activities). The social statuses and farm work activities of women and men have somehow effect on forest management activities. However, there are many forest management activities that are not gender differentiated.

## **CHAPTER 6**

### **SUSTAINING AND CONTROLLING NONG LOM'S FOREST RESOURCES:**

#### **VILLAGERS' PERSPECTIVES**

This chapter focuses on values associated with forest resource management. The perspectives and concerns of local villagers, as determined by analysis, focus on five main issues. They are: state administration, local control, local knowledge, sustainability and conservation. Each of these values is explored relative to the various social statuses of individuals in this village and to their work involvements.

#### **ASSESSING VILLAGERS' PERSPECTIVES**

Through direct personal interviews, each of the principal males and principal females was asked to respond to a series of 48 questions that referred to a number of issues that seemed to be important to them. These issues were phrased in different ways and, initially, grouped into three sets: state vs local control; local knowledge vs expert knowledge; and forest sustainability vs economic use now. Later, after analysis, five forest management values were drawn from the responses of villagers to the 48 questions.

To better understand the five forest management values that are here being explored, it is important to provide a brief overview of the measurement procedures.

Responses to the original three sets of questions (48 items) were analyzed in a number of ways. Factor analysis and item analysis were done for each set.

The factor analysis technique is used as an exploratory tool to make sense of a large number of correlations between attitude variables and to determine the presence of underlying dimensions that influence the particular responses. Are the responses in a set pointed toward the same issue? For two sets, it was decided that they should be divided because they were oriented toward somewhat different perspectives. Factor analysis helped to assure the validity of the value measures that were constructed.

This was followed by an item-analysis of the five sets, to establish the internal consistency of each measure. The alpha reliability coefficient was used as a criterion. Items that did not fit well into the set were dropped from the scale.

Results of the item analyses of the five scales are reported in Tables 6.1 to 6.5. The mean scores are for each of the five point Likert type response categories. Percent agreement refers to the combined percent of "strongly agree" and "agree" with respect to the underlying factor. Some of the items were reverse scored in order to reflect the factor

being measured (these items are marked with a double asterisk).

## **SPECIFYING FOREST MANAGEMENT VALUES**

### **State Administration**

Since the establishment of Thailand's Royal Forestry Department in 1896, protection and control of the forests were under governmental authority, which expanded forestry offices and forest staffs in every province and at the district level by introducing many reforestation programs to recover the degraded forest areas. From 1980 through 1988, the transition period, RFD collaborated with local communities in the forest management process. After the logging ban in the Forest Concessions Act of 1989, RFD introduced many tools related to local control of forest management, including the draft of Community Forestry Act which aimed to transfer authority to those local communities practicing forest protection in the community forestry land. However, RFD still has administration work on community forestry activities, reforestation and national park preservation, forest fire protection, and other forest work related job. There are some forest related activities such as forestry training, forest fire protection and visits by forestry extension workers going on in Nong Lom village. The attitudes and values of villagers about such RFD activities is a concern, for if villagers, in general, trust the government agencies then the situation is good for

cooperation between the local forest committee and those agencies.

Table 6.1 shows the set of nine attitude items dealing with state administration of the local forests and the percent of villagers who agree with each of the statements. There is considerable support for state administration, though a large minority (mostly are male with young and middle age group and 6 years in school) do not favor government intervention. In general, it seems that the villagers would have the government step in especially if local control cannot do the job.

**Table 6.1** VALUING STATE ADMINISTRATION: percent of household principals expressing agreement with specific statement (N =213)

Short label: items phrase	Percent	Mean
State manage properly: If a village shows that its forest resources can not be managed by village properly, the state should take over.	75.2	2.14
* State more justice: Forest officers should manage village forests because they can do justice to villagers.	59.7	2.42
* State can solve most problems: Government forest officers can solve most village forest management problems.	59.6	2.54
* State rules should be obeyed: State and district forest management rules are usually right, therefore villagers should obey.	53.5	2.63
* State's rule/regulation are not good: Government forest rules and regulations often do more harm than good in Nong Lom.	**53.1	2.56
* State should manage: Forest officers of the Royal Forestry Department who work for the government should manage village forests.	50.7	2.85
* State always manage well: Government forest officers can always manage village forest well.	43.2	2.93





**Table 6.1** (cont'd)

Short label: items phrase	Percent	Mean
* State do not understand village situation: The outsiders, such as government forest officers, usually do not understand village situation so they can create local forest management problems.	**38.0	3.08
* State should manage in place of villagers: Forest resources belong to all the Thai people, therefore village forest resources should be managed by the state.	32.9	3.47

Note:       \* = items included in eight-item value scale.  
          \*\*= items are reversed-scored for scale (not  
              here).

### **Local Control**

Local forest management has been practiced in many villages throughout Thailand and Nong Lom village is one where forest management by local villagers has been implemented for a period of twenty years. Nong Lom villagers have set up a village forest committee to manage the forest resources with its own rules and regulations. Anyone breaking the rules and regulations will be punished by paying fines. Forest guards are also available to manage forest resources. The attitudes of local villagers about the capacity of their villager forest committee and village committee to manage the forest resources wisely is a concern, for if such support is lacking then local control will not be effective.

Table 6.2 shows the set of nine attitude items dealing with local control of forest resources, and the percent of villagers who agree with each of the statements. It is

clear that Nong Lom villagers are strongly in favor of local control. They believe that rules should be obeyed, but they do not feel that state intervention is necessary. Villagers can be trusted to do the job.

**Table 6.2** VALUING LOCAL CONTROL: percent of household principals expressing with specific statements (N =213)

Short label: items phrase	Percent	Mean
Local rules sensible: Village forest rules and regulation are usually sensible and should be obeyed.	96.2	4.45
Villagers should manage: Village forests should be managed by villagers who are using the forest.	88.7	4.33
* Villagers can be trusted: Local villagers can be trusted to do a good job in managing their village's forest resources.	86.0	4.28
Villagers need not obey: A villager who disagrees with a village forest management rule should not have to obey that rule.	**76.5	4.09
* State shouldn't interfere: If a village shows that its forest resources can be managed by village properly, the state should not interfere.	57.2	3.4
* State help not needed: Village leaders and village forest committee can manage village forest resources very well without help from the state.	54.0	3.38
Government officials unnecessary: Village forests should not be managed by outsiders, such as government officials.	56.3	3.21
State rules not sensible: State and district forest management rules are usually not very sensible and therefore need not be obeyed by local villagers.	39.5	3.01
Disagree villager needn't obey: A villager who disagrees with a state or district forest management rule should not have to obey that rule.	20.6	2.29

Note:       \* = items included in three-item value scale.  
              \*\*= items are reversed-scored for scale (not here).

## **Local Knowledge**

Local knowledge of forest management in Nong Lom village can also be called indigenous knowledge which villagers have gained from their experiences in using the forest and in practicing forest resource management. Rural villagers usually learn from their elders and neighbors about what kind of tree species should be collected and used for household consumption to meet some part of their nutritional, cooking and/or health needs. Moreover, they also have some knowledge about utilizing marketable forest products for income-earning activities as well as for construction materials.

However, indigenous knowledge is sometimes in conflict with conventional forest knowledge derived from the forest experts. Foresters usually have technical knowledge which they learn from academic institutes and research. Forest experts and staffs determine the selection of certain tree species that should be used for specific purposes and then they extend this knowledge to rural villagers.

The comparison of internal or local knowledge with external or forest expert knowledge on forest management is a concern. To what extent do Nong Lom villagers trust expert knowledge?

Table 6.3 shows the set of ten attitude items dealing with the values of local knowledge (as compared with expert knowledge). There seems to be good balance. Villagers are supportive of the local know-how about forest management.



But, they also trust the kind of information that can be provided by outside experts. What is especially interesting is that local knowledge is not seen as the only kind of knowledge that should be followed. There is respect, at least by a sizable proportion of Nong Lom villagers, in expert knowledge.

**Table 6.3** VALUING LOCAL KNOWLEDGE: percent of household principals expressing agreement with specific statements (N =213)

Short label: items phrase	Percent	Mean
* Local knowledge easily transferred and applicable: Traditional forest management techniques are more easily transferred and applicable than modern forest management methods.	76.0	4.15
Local knowledge more unique: Local knowledge about forest management has many secrets that state forest management foresters do not understand.	60.6	3.57
Local knowledge fit well with village situation: Forest management knowledge obtained from government forest officers usually does not fit very well into the local situation.	51.6	3.36
* State knowledge is always better: Forest management knowledge obtained from the Royal Forestry Department is always better than forest management knowledge comes from local people and their personal experiences.	**49.3	3.29
* State knowledge is better method: Modern methods of forest management are usually better than the traditional ways.	**48.8	3.12
* State knowledge should be followed: Villagers should follow the forest management practices recommended by the state/district forester rather than doing thing the ways they have always done before.	**48.8	3.20
* Local knowledge is always better: Local knowledge about forest management practices is always better than forest management knowledge comes from the Royal Forestry Department.	45.6	3.23

**Table 6.3** (cont'd)

Short label: items phrase	Percent	Mean
Local knowledge better adopted and applied: Forest management practices of a village can be adopted and applied into practice well with other villages.	45.5	2.94
* Local knowledge is sometimes wrong: Local knowledge on forest management practices is sometimes wrong and we should think carefully before accepting what local people say.	**31.5	2.7
Local knowledge may be bad practices: The traditional forest management practices that villagers thought were good, may actually have been bad.	**24.4	2.62

Note:     \* = items included in six-item value scale.  
           \*\*= items are reversed-scored for scale (not here).

### **Sustainability**

The benefits obtained from forest resources can be described as short and long term. The short term use of forest resources is aimed at fulfilling the needs of all dependents in each rural household much more than about whether forest products in the future will become scarce or not. Meanwhile, the long term perspective emphasizes the sustainability of forest resources for the benefit of future generations. To what extent do Nong Lom villagers look to the future?

Table 6.4 shows the set of ten attitude items dealing with the value that Nong Lom villagers place on sustaining their forest resources for future generations. There is no doubt that they look to the future and want their children and grandchildren to have use of the forest and to enjoy the

benefits of the forest. All of the principal adults who were interviewed said that they agreed that "village forest resources should be protected for the benefit of future generations." Only about 20 percent believe that "We should use forest resources to fulfill our needs first and later plan ahead how we manage our local forests." There is great support for taking care of the forest.

**Table 6.4** VALUING SUSTAINABILITY: percent of household principals expressing agreement with specific statement (N =213)

Short label: items phrase	Percent	Mean
Protect forest for benefit of next generation: Village forest resources should be protected for the benefit of future generations.	100.0	4.90
* Carefully and wisely uses forest: We should use our forest resources very carefully and wisely, then our children can have forest left and can inherit something good from our generations.	99.1	4.82
* Reserve forest for future generation: We should use forest resources carefully because there will not be forest left in the future.	94.9	4.69
* Do not treat forest better now: No matter how badly the village forest is treated today, there will always be some forest resources available for future generations.	**93.4	4.61
Not worry about how next generation take care of forest: Past generations did not worry much about our generations in how they treated local forest resources so we should not have to worry much about the next generations.	**86.8	4.24
* Use forest as much as now: Village forest resources should be used as fully as possible now, because we do not know what the future will be.	**85.4	4.31
Consume forest a lot make bad impact: If we use or consume our forest resources a lot today, there will be bad impact on the happiness and well-being of future generations.	81.6	4.26



**Table 6.4** (cont'd)

Short label: items phrase	Percent	Mean
* Future can take of forest: The future is very uncertain therefore we should use our forest resources today and let tomorrow take care of itself.	**81.6	4.05
* Use as much as forest: Village forest resources should be used as much as they can be.	**81.2	4.19
* Need not to plan for future use: We should use forest resources to fulfill our needs first and later plan ahead how we manage our local forest.	**80.8	4.13

Note: \* = items included seven-item in value scale.  
 \*\* = items are reversed-scored for scale (not here).

### Conservation

Forest resources in Nong Lom can be easily accessed and used by rural villagers because this village is surrounded by forest area. Where the forest is used much for various purposes such as here, it is sometimes called a "Supermarket" for rural villagers. Forest resources are usually used as a main income source because forestry products are basically used for subsistence. However, many forest lands are kept and reserved as national parks or watershed areas and as beautiful places. Forest resources can be used for economic purposes now in terms of cash income or for natural conservation as watershed areas and as preserved lands for aesthetic reasons. Conservation becomes an important value in forest management. To what extent do these villagers feel that the forest should be protected even if it means that use of the forest will be less.



Table 6.5 shows the set of ten attitude items dealing with the value Nong Lom villagers place on conserving the forest and of keeping it basically as it is for future generations to enjoy. A large majority of the people do not favor conservation of forest resources but rather are more concerned about using the forest resources for present economic purposes and for food. About 16 percent of the villagers believe that "forest resources should be exploited as fully as possible for the economic benefit of Thai people." On the other hand, a strong minority, about 30 percent, believe that "the forest should be kept as a natural conservation area."

**Table 6.5** VALUING CONSERVATION: percent of household principals expressing agreement with specific statement (N =213)

Short label: items phrase	Percent	Mean
Land conservation: Forest rules and regulations should be taken the benefits of forest resources to conserve land quality into account.	92.0	4.36
* Forest should be exploited for economic benefit: Forest resources should be exploited as fully as possible for the economic benefit of the Thai people.	**83.6	4.09
Should protect of the national treasury: The forest is a national treasury therefore it should be protected and reserved by not letting anyone use.	70.0	3.78
Forest should be preserved: The forest should be kept as a natural conservation area.	69.5	3.68
* Forest need not for beauty and peace place: Economic benefits obtained from the forest are much more important than preserving the forest as a place of beauty and peace.	**60.5	3.51
Only village adjacent should use forest: Forest resources should be used only by a village adjacent to the forest as food and income sources.	**39.0	2.83

**Table 6.5** (cont'd)

Short label: items phrase	Percent	Mean
* Forest is for village income and food purpose: An objective to conserve the forest is to let local villagers use forest produces as income or food.	**31.9	2.66
Prohibit forest product collection: Forest should be prohibited against collecting of forest products and wildlife hunting.	17.8	2.05
* Forest rule include forest uses for food and income: We should take into account how dependent some villagers upon forest resources for their income or food as a criteria for forest rules and regulation.	**17.4	2.31
Forest use not for income: Villagers do not need to use forest resources for food or income because they can earn their income from farm and off-farm work.	16.5	2.00

Note:       \* = items included in four-item value scale.  
              \*\*= items are reversed-scored for scale (not here).

## **FIVE VALUE SCALES**

Five value scales were constructed from the 48 attitude items. The item included in each of the five scales are noted by asterisks (\*) in Tables 6.1-6.5. Table 6.6 summarizes the reliability analysis of these five forest management scales.

Table 6.6 summarizes the reliability analyses of these five forest management value scales (maximum score, mean score and Alpha). Each item in the summated scale is scored from 1 to 5. State administration is an eight-item scale, local control a three-item scale, local knowledge a six-item scale, sustainability a seven-item scale, and conservation a four-item scale. The Alpha scores indicate that each forest

management value measure is reliable with Cronbach's Alpha ranging between 0.61-0.76.

**Table 6.6** Five forest management scales: mean score and reliability

Values	Maximum Score*	Mean Score	Std. Dev.	Alpha
State Administer	40	22.48	6.16	0.76
Local Control	15	11.06	3.11	0.70
Local Knowledge	30	19.69	4.90	0.71
Sustainability	35	30.74	4.29	0.72
Conservation	20	12.56	3.45	0.61

Note: \* = Each item in the summated scale was scored from 1 to 5.

Table 6.7 shows the inter-correlations of these five forest management values and the descriptive statistics (mean and standard deviation). Pearson's Correlation Coefficients reveal four correlations among the five forest management values in this set.

There is a positive correlation between state administer and local knowledge (0.36). This means that villagers who value state administration highly are also likely to value local knowledge highly and vice versa. This may be because of good relationships between villagers and forestry officers and the strong support received from government. Villagers also believe that their own 20-year-experience of managing their local forest is appreciated by the government officers.

Another positive and strong relationship is between sustainability and conservation (0.48). Villagers who value sustainability highly are also likely to value conservation highly and vice versa. This is not too surprising, for in many respects it would be expected that these two values would be associated. Nong Lom villagers use their forest resources mainly for consumption (not so much for cash gain) and they also care about future use in the long run.

There are also two weaker inter-correlations among the five forest management values. A positive correlation is observed between state administer and sustainability (0.19). Perhaps those who more strongly value sustainability are also more likely to favor governmental intervention.

The other correlation is a negative relationship between local control and conservation (-0.18). Villagers who more strongly value local control are less likely to favor conservation of forest resources.

**Table 6.7** Inter-correlation of forest management values

	State Administer	Local Control	Local Knowledge	Sustaina bility	Conserva tion
State Administer	1.000	-.009	.361**	.194**	0.49
Local Control		1.000	.103	-.105	-.181**
Local Knowledge			1.000	.056	-.122
Sustainability				1.000	.479**
Conservation					1.000
Mean	22.48	11.06	19.69	30.74	12.56
Standard Deviation	6.16	3.11	4.89	4.29	3.45

Note:       \*\* = Correlation is statistically significant at the 0.01 level (2-tailed).



## GENDER AND FOREST MANAGEMENT VALUES

Table 6.8 presents the relationships between gender and the five forest management values by comparing the mean scores of males and females using ANOVA (analysis of variance) as the significance test. It shows that gender differences (male and female) are associated with the valuing of state administer, sustainability and conservation. Though significant, the differences are not strong but in all these cases are greater for males than females. It may be that men are more concerned about maintaining forest resources for future generations and are more likely than women to see government agencies in a favorable light.

Men have a lot of chances to share their knowledge with outsiders and to perceive the problem of deforestation impact, so they are concerned about maintaining forest resources for future generations. Further, rural Thai villages tend to be patriarchal and, as head of the household, men assume the role of contacting government agencies or the village governance committee in the name of household.

**Table 6.8** Forest management values, by GENDER (Mean)

Forest Management Values	Male	Female	ANOVA
State Administer	23.44	21.63	.032*
Local Control	11.23	10.91	.459
Local Knowledge	20.34	19.11	.066
Sustainability	31.40	30.16	.035*
Conservation	13.13	12.06	.024*

Note: \* = Statistically significant at 0.05 level.





Table 6.9 shows the inter-correlations of the five forest management values by gender. In some important respects, the male and female patterns are very similar. But there are interesting differences. Both males and females show strong relationships between valuing local knowledge and valuing state administration, as well as between valuing conservation and valuing sustainability. The conservation/sustainability linkage is understandable because villagers tend to value their forest resources and want to protect them for future use. But the association between local knowledge and state administration values remains puzzling. It may be because forest officers provide strong financial supports and also let local people manage forest resources in their own ways.

Among women, valuing local control and local knowledge are associated, and valuing state administration and sustainability are associated. Women are likely not to be confident in contacting government officers and are afraid of life-style changes. This is not so for men. Among men, valuing conservation is negatively associated with both local knowledge and local control. They are likely not to value local knowledge and local control because they know how to use and manage their forest resources but emphasize "conservation" in keeping or preserving the forest for the future.

**Table 6.9** Inter-correlations of forest management values,  
by gender

	State Adminis ter	Local Control	Local Know ledge	Sustain ability	Conser vation
<b>MALE</b>					
State Admin.	1.000	-.069	.404**	.156	-.003
Local Control		1.000	-.024	-.090	-.230*
Local Knowledge			1.000	-.035	-.205*
Sustainability				1.000	.398**
Conservation					1.000
Mean	23.44	11.23	20.34	31.40	13.13
Standard Dev.	6.82	3.29	5.13	3.66	3.34
<b>FEMALE</b>					
State Admin.	1.000	.050	.282**	.205*	.060
Local Control		1.000	.230*	-.135	-.157
Local Knowledge			1.000	.042	-.087
Sustainability				1.000	.517**
Conservation					1.000
Mean	21.63	10.91	19.11	30.16	12.06
Standard Dev.	5.39	2.95	4.61	4.72	3.49

Note:      \* = Correlation is statistically significant at  
                 0.05 level.  
             \*\* = Correlation is statistically significant at  
                 0.01 level.



## **SOCIAL STATUSES AND FOREST MANAGEMENT VALUES**

Gender is an important variable that seems to affect differences in how various forest management alternatives are valued. Here, to further explore what it is that explains variations in the feeling that villagers have about various forest management issues, four other social status variables will be considered: age, education, family material wealth, and level of participation in community affairs. These four variables are selected because they are important differentiating characteristics of villagers.

### **Age**

Table 6.10 presents the relationships between age group (older, middle and younger) and the five forest management values by comparing means of older, middle and younger age groups by using ANOVA (analysis of variance) as the significance test. It shows that age affects valuing local control, local knowledge and conservation. But only conservation is statistically significant value at 0.05 level.

Younger villagers appear to value conservation more than older villagers. This is because younger villagers are less likely to depend on forest resources due to their off-farm work. They seem to use less forest resources so they are more likely to think about keeping the forest as a natural conservation area.

Older villagers appear likely to value local control and local knowledge more than younger villagers but the

differences are not statistically significant. However, maybe this is explained because the older people have more experiences on taking care forest resources over the past 20 years and tend to use more on their knowledge.

**Table 6.10** Forest management values, by AGE (Mean)

Forest management values	Age			ANOVA
	Older	Middle	Younger	
State Administer	22.15	21.72	23.27	.221
Local Control	12.04	11.34	10.54	.046
Local Knowledge	21.56	19.98	18.90	.033
Sustainability	30.69	30.28	31.19	.356
Conservation	11.19	12.07	13.40	.002*

Note: \* = Statistically significant at 0.05 level.

### Education

Table 6.11 presents the relationships between education (no school, 1-6 years and over 6 years) and the five forest management values by comparing means of the educational group using ANOVA (analysis of variance) as the significance test. It shows that education affects valuing state administer, local control, sustainability and conservation. But only local control is statistically significant value at 0.05 level.

It maybe that the less educated, because they are more dependent on forest resources, value local control more than those who have more education. The educational effect on valuing local control is very strong because villagers with



less education do not have as much confidence to contact government officers.

**Table 6.11** Forest management values by EDUCATION (Mean)

Forest management values	Education			ANOVA
	no school	1-6 years	> 6 years	
State Administer	23.30	21.94	25.81	.010
Local Control	13.40	11.32	8.42	.000*
Local Knowledge	21.30	19.51	20.27	.431
Sustainability	26.70	30.84	31.62	.006
Conservation	10.10	12.52	13.81	.014

Note: \* = Statistically significant at 0.05 level.

### Wealth

Table 6.12 presents the relationships between material level of living (no/less, some/much) and five forest management values by comparing the means of material level of living using ANOVA (analysis of variance) as the significance test. It shows that material level of living affects valuing state administration and sustainability. All of these are statistically significant at 0.05 level.

Villagers who are wealthier tend to be more concerned about sustaining forest resources and tend to look to government agencies to administer those resources. The wealthier villagers are likely not to use forest resources primarily for present economic purposes, but they seem to look to the future more and think about sustainability.





They also have higher social status which make them more confident to contact with outsiders.

**Table 6.12** Forest management values, by MATERIAL LEVEL OF LIVING (Mean)

Forest management values	Material level of living			ANOVA
	no/less	some	much	
State Administer	19.70	22.12	24.98	.001*
Local Control	12.09	10.95	10.89	.246
Local Knowledge	19.87	19.44	20.37	.524
Sustainability	28.09	30.83	31.80	.003*
Conservation	10.96	12.81	12.59	.056

Note: \* = Statistically significant at 0.05 level.

### **Community Participation**

Table 6.13 presents the relationships between level of community participation and the five forest management values by comparing the means of community participation level using ANOVA (analysis of variance) as the significance test. This table indicates that there are no statistically significant differences between level of community participation and any of the five forest management values. It is maybe because the activities of voluntary groups in this village are not directly concerned with forest management practices.

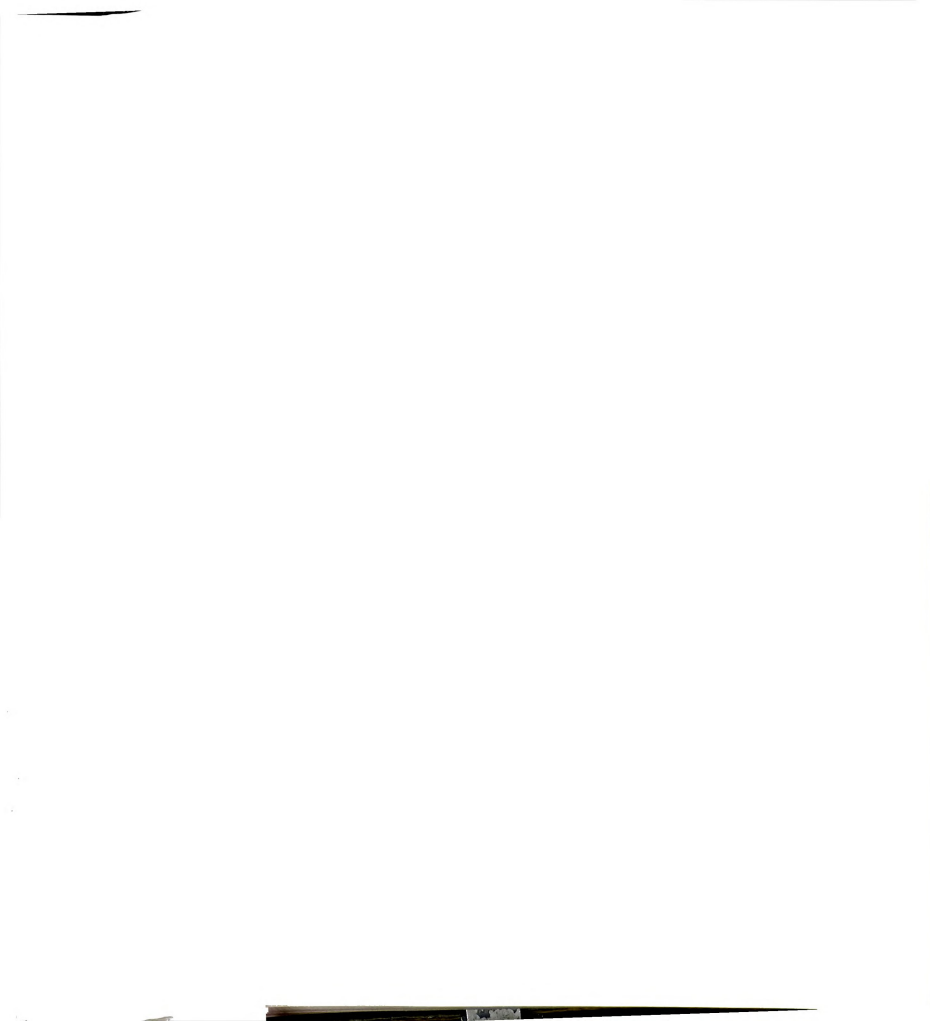
**Table 6.13** Forest management values, by level of COMMUNITY PARTICIPATION (Mean)

Forest management values	Community Participation		ANOVA
	some/much	no/little	
State Administer	23.06	21.96	.192
Local Control	10.72	11.37	.132
Local Knowledge	19.88	19.51	.580
Sustainability	31.15	30.38	.189
Conservation	12.60	12.53	.871

Note: There is no statistically significant.

#### **WORK ACTIVITIES AND FOREST MANAGEMENT VALUES**

Social position in the village, particularly age and education level, does seem to contribute to how villagers perceive the various forest management issues. Local control especially seems to be an important concern of villagers who are older and who are less educated. Here, to further explore what determines how villagers perceive these issues (i.e. what determines the emphasis they place on certain forest management values), three kinds of work activities will be considered: farm work, off-farm work, and forest work. It was hypothesized that the kind of work involvements villagers have will have some affect on the way they perceive the various forest management issues.



## Farm

Table 6.14 presents the relationships between level of farm activity (some/much and no/little) and the five forest management values by comparing the means level of farm activity using ANOVA (analysis of variance) as the significance test. It shows that value on sustainability of forest resources is associated, though weakly, with farming activity. Villagers dependent on farm tend to be more concerned about the future of their local forest.

There are no statistically significant differences between level of farm activity and the four other forest management values: state administration, local control, local knowledge and conservation.

**Table 6.14** Forest management values by level of FARM ACTIVITY (Mean)

Forest management values	Farm activity		ANOVA
	some/much	no/little	
State Administer	23.24	21.96	.136
Local Control	11.02	11.09	.884
Local Knowledge	20.20	19.34	.209
Sustainability	31.76	30.06	.004*
Conservation	12.71	12.46	.613

Note: \* = Statistically significant at 0.05 level.



## **Off-farm**

Table 6.15 presents the relationships between level of off-farm work (some/much and no/little) and the five forest management values by comparing the means of level of off-farm work using ANOVA (analysis of variance) as the significance test. It shows that villagers who are doing a lot of off-farm work are less concerned about maintaining local control of forest resources. This maybe because of time constraints to participate in forest resource management activities.

Surprisingly, there are no statistically significant differences between level of off-farm work and the other four forest management values: state administration, local knowledge, sustainability and conservation.

Off-farm workers are still concerned with forest resources, not only by themselves but also by their household members. They will depend on the forest resources as same as all the villagers, especially after they retire. They have a chance to contact and get familiar with outsiders so they are more confident in contacting with government officers.

**Table 6.15** Forest management values, by level of OFF-FARM WORK (Mean)

Forest management values	Off-farm work		ANOVA
	some/much	no/little	
State Administer	22.90	22.14	.372
Local Control	10.30	11.68	.001*
Local Knowledge	19.06	20.20	.092
Sustainability	31.01	30.52	.409
Conservation	12.92	12.27	.177

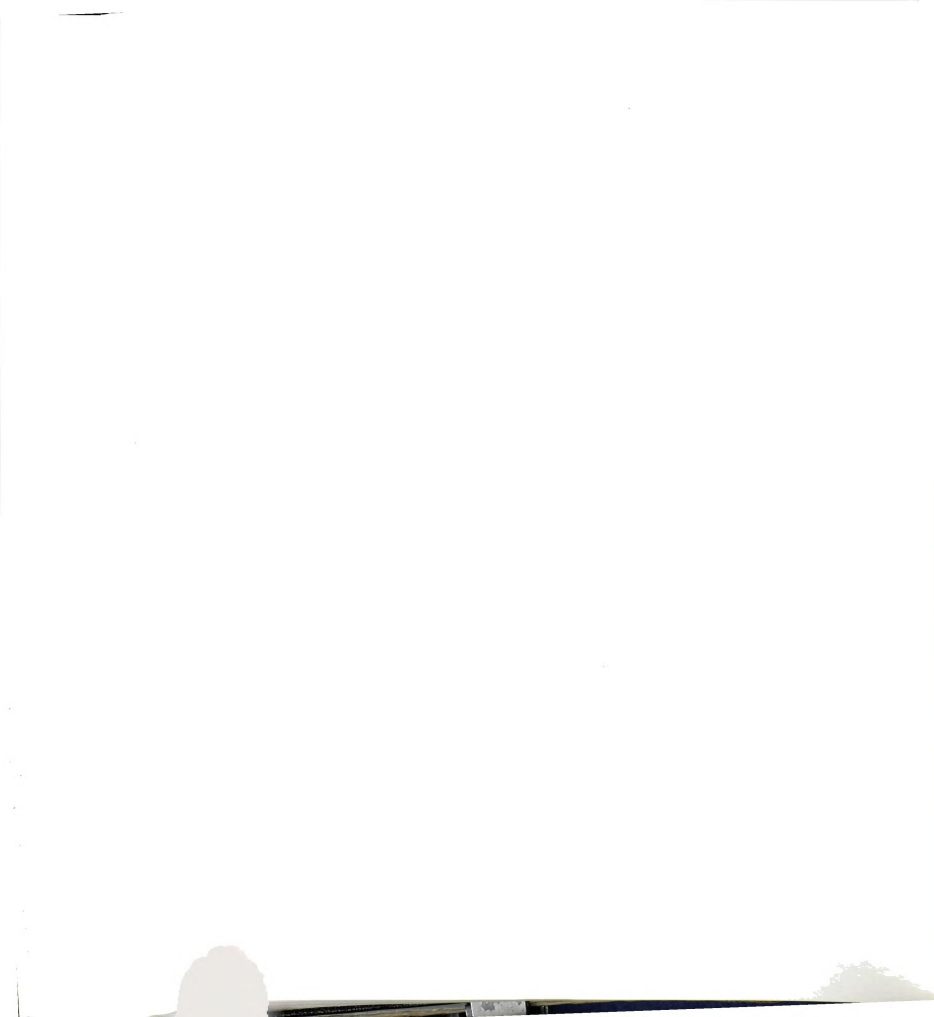
Note: \* = Statistically significant at 0.05 level.

### **Forest**

Table 6.16 presents the relationships between level of forest activity and the five forest management values by comparing the means of forest activity level using ANOVA (analysis of variance) as the significance test. It shows that there are no statistically significant differences between level of forest activity and all five forest management values.

Villagers who have lot of forest work are likely to favor state administration and local control. It is maybe because they want some supports from government and they also trust in village forest committee's work. Those villagers are also likely to favor sustainability and conservation. It is maybe because they depend on forest resources for their present and future uses and they learn that they need to protect forest resources for the next generation.





**Table 6.16** Forest management values, by level of FOREST ACTIVITY (Mean)

Forest management values	Forest activity		ANOVA
	some/much	no/little	
State Administer	22.69	22.20	.566
Local Control	11.08	11.03	.910
Local Knowledge	19.48	19.96	.487
Sustainability	30.75	30.73	.961
Conservation	12.80	12.24	.241

Note:        There is no statistically significant.

#### **MULTIVARIATE ANALYSIS**

Table 6.17 summarizes the results of the above seven sets of the correlation analyses between forest management values and the various social status variables and the kinds of work that villagers are engaged in. It appears that men and women tend to emphasize different things relative to these issues. But gender differences, applying especially to sustainability/conservation values and to faith in state administration, are not especially strong. Age and education seem just as strong, though not having the same pattern as gender. Surprisingly, the effect of work activities on forest management values is weak, as is the level of community participation and the material wealth of the individual's family.



Comparatively, older villagers are more likely to favor local control and local knowledge while younger villagers seem more likely to value conservation of forest resources.

The more educated villagers are more likely to favor state administration, sustainability, and conservation, while the less educated villagers seem more likely to value local control of forest resources.

Villagers who are more active in group participation are very similar to those who are less active in terms of forest management values.

Wealthier villagers are more likely to value state administration and sustainability.

Household principals who have a lot of farm activities are more likely to favor sustainability.

Villagers who have less off-farm work are likely to value local control. But there are no significant effects of off-farm on the other four values. This is very surprising.

Level of forest activities does not seem to affect forest management values.

**Table 6.17** Summary: Correlates of forest management values\*

	State Adminis ter	Local Control	Local Know ledge	Sustain ability	Conser vation
Age	0	+	+	0	-
Education	+	-	0	+	+
Material level of living	+	0	0	+	0
Level of group participation	0	0	0	0	0
Farm activity	0	0	0	+	0
Off-farm work	0	-	0	0	0
Forest activity	0	0	0	0	0
Gender	Males Higher	0 NS	0 NS	Males Higher	Males Higher

Note: \* = Observed relationships are statistically significant at 0.05 level  $p > .05$ .  
(0 = not significant)

But, how an individual villager perceives these forest management issues, and how the various alternative types of management or management goals are valued, depends on a combination of factors, with some being more important than others. For example, is gender more important than off-farm work in predicting forest management values? To explore this, a multivariate analysis was undertaken.

A regression analysis, reported in Table 6.18, was used to explore how well a set of variables (gender, age, off-farm work, and forest dependency) explains forest management values (state administer, local control, local knowledge, sustainability, and conservation).

Some other variables (education, material level of living, community participation, and farm activity) were not included in this regression analysis. The main reason for

this is that these four variables do not strongly differentiate the villagers nor did they seem to have much influence by themselves on the forest management values.

Table 6.18 shows that gender has a large and statistically significant independent effect on three of the five forest management (state administer at  $p \leq 0.05$ , sustainability at  $p \leq 0.05$ , and conservation at  $p \leq 0.01$ ). Age has statistically significant effect on local knowledge (older age) at  $p \leq 0.05$  and conservation (younger age) at  $p \leq 0.01$ . Off-farm work has only effect on local knowledge (less off-farm villagers) at  $p \leq 0.05$  and forest dependency has no statistically significant relationship on any forest management values.

**Table 6.18** Regression analysis for household principal' s forest management values<sup>a</sup>

Variables	State Adminis ter	Local Control	Local Know ledge	Sustain ability	Conser vation
Gender	.164* (2.016)	.022 (.138)	.093 (.913)	.164* (1.404)	.201** (1.388)
Age	-.090 (-4.281)	.100 (2.426)	.203* (7.705)	-.113 (-3.752)	-.315** (-8.431)
Off-farm work	.029 (.357)	-.176* (-1.096)	-.017 (-.171)	.015 (.130)	-.040 (-.280)
Forest dependency	.053 (.372)	.051 (.179)	.070 (.388)	.026 (.126)	.022 (8.568)
Constant	22.032	11.115	15.248	31.244	15.804
R <sup>2</sup>	.035	.062	.067	.035	.110
Adjusted R <sup>2</sup>	.016	.044	.049	.017	.092
F	8.155	8.258	7.227	16.608	10.858

Note: a. = unstandardized coefficients in parenthese  
 \* = significant at  $p \leq 0.05$   
 \*\* = significant at  $p \leq 0.01$

## SUMMARY

The main outcomes of this exploration of values associated with forest management can be summed up as follows:

There is considerable support for state administration, though a large majority of Nong Lom villagers favor local control, not government intervention. Local knowledge is also important and villagers are main supporters but they still trust some kind of information learned from the outside experts. In addition, villagers are also very much in favor of sustaining and preserving forest resources for the next generation, but some, particularly those who are very dependent upon forest resources, also want to have benefits from the forest resources for present economic purposes. All five forest management values scales were constructed from the initial 48 question items. In terms of reliability, they are acceptable, with Cronbach's Alpha scores ranging between 0.61-0.76. A correlation coefficient matrix of the five forest management values shows the follows: First, there is a positive and strong relationship between state administration and local knowledge. Villagers who value state administration highly are also likely to value local knowledge highly and vice versa. Second, there is a positive and strong relationship between sustainability and conservation. Villagers who value sustainability highly are also likely to value conservation highly and vice versa. Third, there is a positive but weak

correlation between state administer and sustainability. Villagers who more strongly value sustainability are also more likely to favor governmental intervention. Fourth, there is a negative and weak correlation between local control and conservation. Villagers who more strongly value local control are less likely to favor conservation forest resources.

Do villagers of different social status positions in Nong Lom and with different kinds of work involvements tend to have different perspectives on forest management issues? In addition to gender, which is a very strong factor in this rural village, four other status variables and three work involvement variables were considered.

Household principals who favor state administration are more likely to be males with more education (over 6 years in school), doing off-farm work, and from wealthier households. Household principals who favor local control are more likely to be in older age group and with less education. Household principals who favor local knowledge are more likely to be in the older age group. Household principals who favor sustainability are more likely to be males with more education (over 6 years in school), doing farm work, and from wealthier households. Household principals who favor conservation are more likely to be males, younger, and more educated (over 6 years in school).

The results of my regression analysis confirms that gender and age are very important, and probably the main



determinants of differences in villagers' perspectives about forest management issues. But, it is important to note that people in this village tend to be strongly in favor of sustaining the local forest resources. There is strong agreement on many of these issues, and where there are differences, they are not strongly conflicting.

Gender has a large effect on predicting state administer value. Men are somewhat more likely to favor state administration of the forest, maybe because they have more faith in government, government agencies, and the expertise of outsiders. Gender also has a positive and large effect on predicting sustainability value. Gender and age have positive and negative large effects on predicting conservation value.

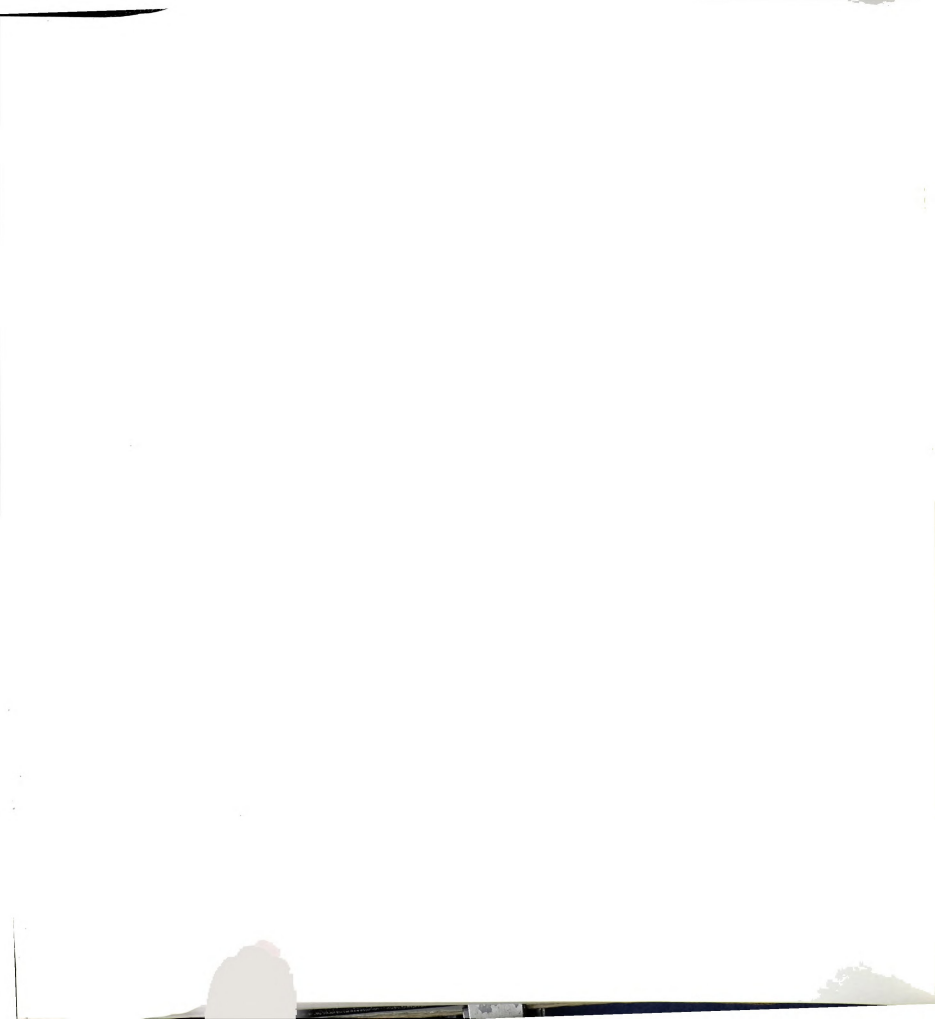
Age has a positive and large effect on predicting local knowledge value. Older people are more likely to value local knowledge about forest management. Off-farm work has a negative and large effect on predicting local control value. Villagers who work off-farm are less likely to favor local control in forest management.

In sum, gender is an important variables that affects forest management values. Men are somewhat more concerned about maintaining forest resources than women, and especial favor on state administration, sustainability, and conservation. In addition, the main social statuses that affect on forest management values are: age (on conservation), education (on local control), wealth (on



state administration and sustainability). But community participation seems to have no effect on any forest management values.

The main work activities that have affect forest management values are: farm work (on sustainability), off-farm work (on local control). But forest work seem to have no effect on any forest management values.



## CHAPTER 7

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The main objective of the present study was to explore the capacity and ability of local people to effectively control the use of their local forests, both public and private, and thereby to promote the conservation of forest resources. It examined the forest management practices and attitudes of villagers in a northern Thai village that has been very dependent upon local forest resources but is now becoming more drawn into the industrialization of this part of Thailand. What can and should be done to strengthen sustainable forest management in the future? Differences among villagers were considered in terms of socio-economic statuses (gender, generation, education, wealth, and community participation) as well as kind of work involvements (farm, off-farm, and forest).

"Nong Lom" village, which is well known in this region for doing a good job of managing its forest resources, was purposively selected as the study site. Field work was conducted to collect the necessary information. Two types of survey questionnaires were used. A household census questionnaire obtained information from 122 households. Household principal adults (100 males and 113 females) were interviewed separately. Focus group discussions with various groups were conducted to get more in-depth

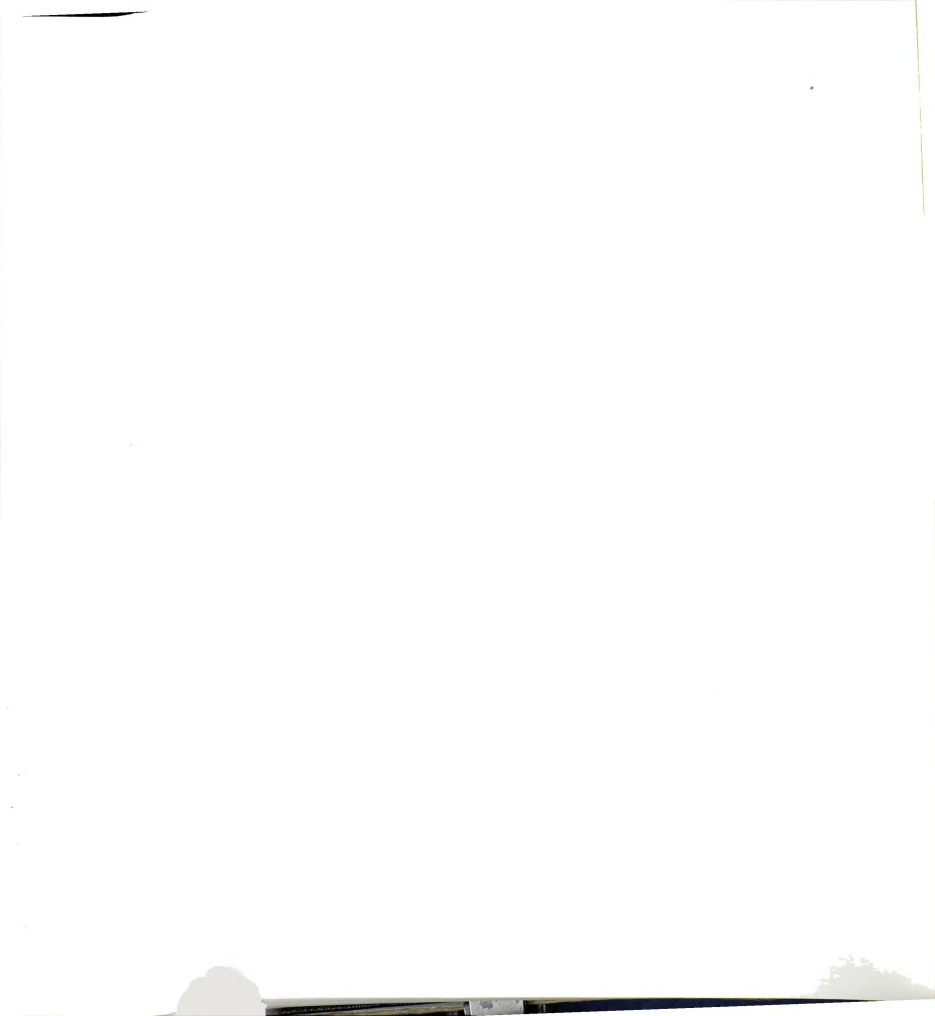
information about forest resource management practices in the past and now.

## **RESEARCH HYPOTHESES**

An overall general hypothesis guided the research:

Individuals and households that are more involved with and more dependent upon forest resources, that are more involved with and have a greater stake in the future of their local village, and that are more secure financially, are more likely to be supportive, through their behavior and attitudes, of good forest management practices, of sustaining local forest resources, and of granting their village greater control over its forest resources.

This hypothesis argues that "stake-holders" ---those people who have a vested interest in the local forest resources--- will be more likely to want local control, will be more likely to have faith in local knowledge, and are more likely to be concerned about the long term protection of local forest resources. Older people, and those who have little education and are poorer, also have a greater stake in the local forest resources. But, those that are not as dependent upon the forest for their livelihood, and/or hold off-farm jobs, are less likely to have a vested interest in the local forest resources.



## **FINDINGS SUMMARIZED**

The findings are here summarized (briefly) in terms of two major concerns: forest management practices and values about the use and management of forest resources.

### **Forest Management Practices**

Nong Lom village is very close to forest areas and forest resources, and its villagers, historically, were very dependent on forest resources. Villagers have used forest resources for many reasons but mainly for household consumption and income. Villagers have also done various forest management activities, including tree planting, forest products utilization, forest protection, and forest extension both in the past and present time.

From the findings ,it can be clearly seen that there are differentiated roles in forest management practices among the villagers of Nong Lom. Nong Lom is still organized in traditional ways, and gender differences are very important. Men are somewhat more involved in forest management than women, and play a much greater role in forest extension activities. But, surprisingly, most of these forest management activities are not affected by other statuses or work involvements. Most villagers who work off-farm are just as likely to be involved in some forest activities as are their neighbors. All villagers in Nong Lom, in one way or the other, use the forest and/or involved with forest activities.





Social statuses, such as age, education, wealth, and community participation differentiate forest management activities to some extent. But, finding from this study show that the effects of education, wealth, and community participation are not very great, and the effect of age, independent from gender is not important.

Types of work (farm, off-farm, and forest work) also differentiates forest management practices, to some extent. Villagers who work more on their farms or in the forest tend to be more involved with forest management activities than villagers who work less; it is the opposite for off-farm workers. Off-farm workers are less likely to be involved in forest management practices; they do not have the time and they are not as dependent on forest resources for their livelihoods.

The research findings show that villagers who are more supportive of good forest management practices are likely to be older people, less educated, more involved in community participation, more work on their farms and/or in the forest.

### **Forest Management Values**

Nong Lom villagers, without exception, believe that "village forest resources should be protected for the benefit of future generations." Sustaining their forest is a very strong value held by Nong Lom villagers. Most of them (87 percent) very clearly say NO, they disagree with the idea that "past generations did not worry about this



generation in how they treated local forest resources so we should not have to worry much about the next generations." Instead, they say (99 percent) that "we should use our forest wisely, then our children can have forest left and can inherit something good from our generation."

Some Nong Lom villagers feel so strongly about this that they favor conserving the forest. But, most are concerned about the present economic uses of the forest, because they depend on forest resources. These, though, are a small minority. Only 20 percent of the household principals who were interviewed say they must use forest resources now, for present benefits, even at the expense of future generations.

Local control is an important value in managing Nong Lom forest resources. Although, local people are likely to favor local control, they are also not against state administrative control in case local control is not possible or ineffective. State control of forest resources can be implemented only through strengthening local forest management.

A large majority of Nong Lom villagers favor local control and want village forests to be managed by villagers (88.7%) and also trust villagers to do a good job in managing forest resources (86.0%). However, villagers also would have the government step in, especially when local control cannot do that job. Government support is needed in

terms of giving advice or financial support to the village committee and village forest committee.

Villagers who value state administration highly are also likely to value local knowledge highly and vice versa. Nong Lom villagers are supportive of local know-how about forest management (more than 70%) but they also trust the kind of information that are provided by outside experts (50%). They do not reject external knowledge but they rather want to apply this knowledge into their local situation.

Villagers who are more supportive of sustaining forest resources are younger, more educated, wealthier and more active in community groups. Regardless of the kind of work they do, sustaining forest resources is a valued goal. Villagers who want more local control are likely to be older, less educated, poorer, not in off-farm work, but work more in the forest. Older people who are less educated, wealthier, participate more in community groups, and work more on their farm are more likely to greater more faith in local knowledge.

## **DISCUSSION**

Nong Lom village manages its forest resources very well, and can and should be regarded as a model for community based forest management systems. All of the people in this village are involved one way or the other in relating to the forest. The forest plays an important part

in their lives, and even those who work in off-farm jobs in Nong Lom or in nearby factories, regard the local forest as a resource that they want to maintain for themselves, when they get older, and for future generations.

In this traditional Thai village, gender is an important factor in determining how forest practices are carried out. The division of labor in forest activities is heavily influenced by gender, to a lesser extent also by other social statuses, and not much by the individual's work involvements. It seems that everyone in the village has some part to play in doing things that help to sustain the public forest lands and private lands that are so very important to them.

Some villagers are more "outside-oriented", favoring state administration of the forest. Most are more "inside-oriented", favoring local control. The outside-oriented are more likely to be men, younger, more educated, from wealthier families, and working mainly in off-farm jobs. The inside-oriented are more likely to be women, older, less educated, from poor families, and doing farm work.

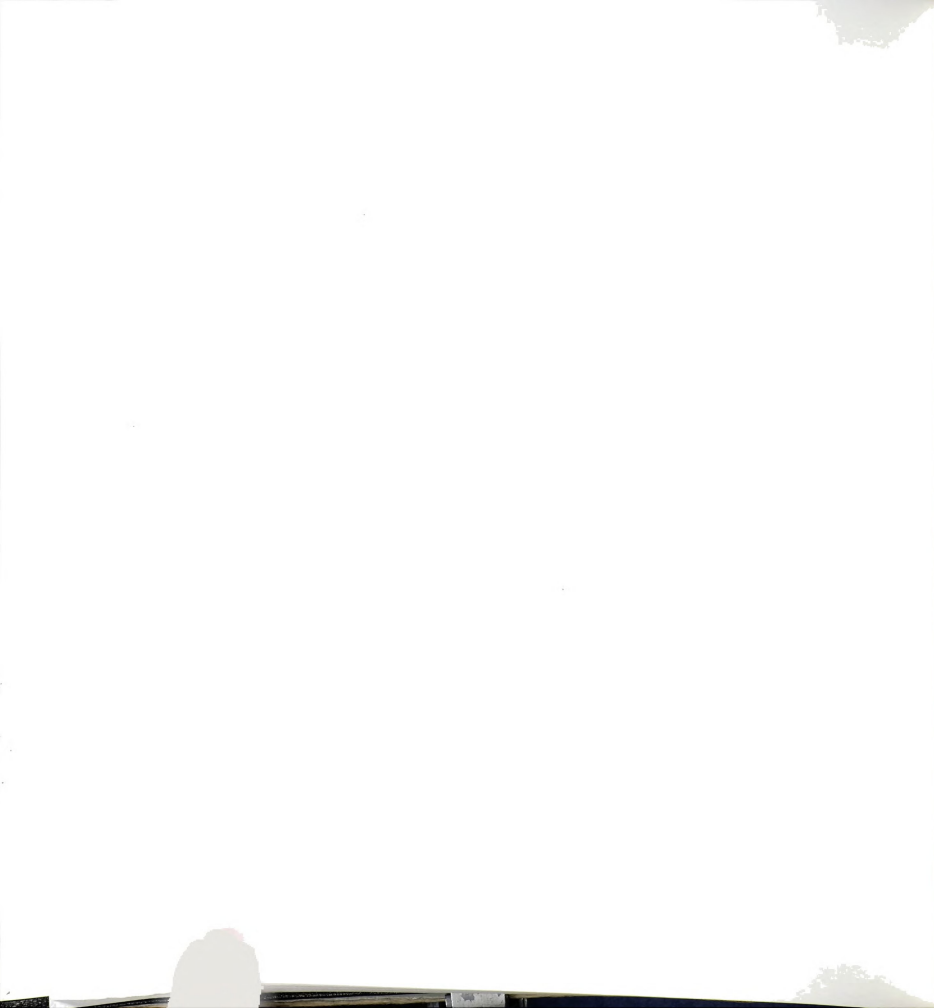
In general, however, Nong Lom villagers, and probably villagers like them in other parts of rural Thailand, see state administration of the forest as useful when local control is ineffective or fails. State experts too are not regarded as threats, as long as they respect local knowledge and do not try to impose their outside authority on the way villagers have been doing things for a long time. The

local forest is best managed, the data from this study seem to say, when the local committee collaborates closely with state experts, and vice versa. Both must respect each other. The goal is to sustain the local forest for the use and enjoyment of future generations.

## **POLICY IMPLICATIONS**

This study provides a sort of "insider's view" of the structure of a rural Thai village and how forest management activities are carried out in the village. It suggests what social and community forestry programs should take into account in the planning and implementation of their projects. Rural Thai people are very supportive of good forestry practices and will follow them and see to it that their neighbors follow them if they have a chance to do so.

Local forest management should be decentralized so that there is smooth collaboration between state agencies, the village forest committee, and the local people. Plans should be made together for the development of forest resources, the organization of villager roles in such efforts, the use of and respect for indigenous knowledge, and the kind of assistance, both expert knowledge and financial support, that the government will provide. Villagers from all status levels and regardless of what kind of work they are engaged in should be included in such development planning. There is a sensible, though traditional, division of labor in villages like Nong Lom.



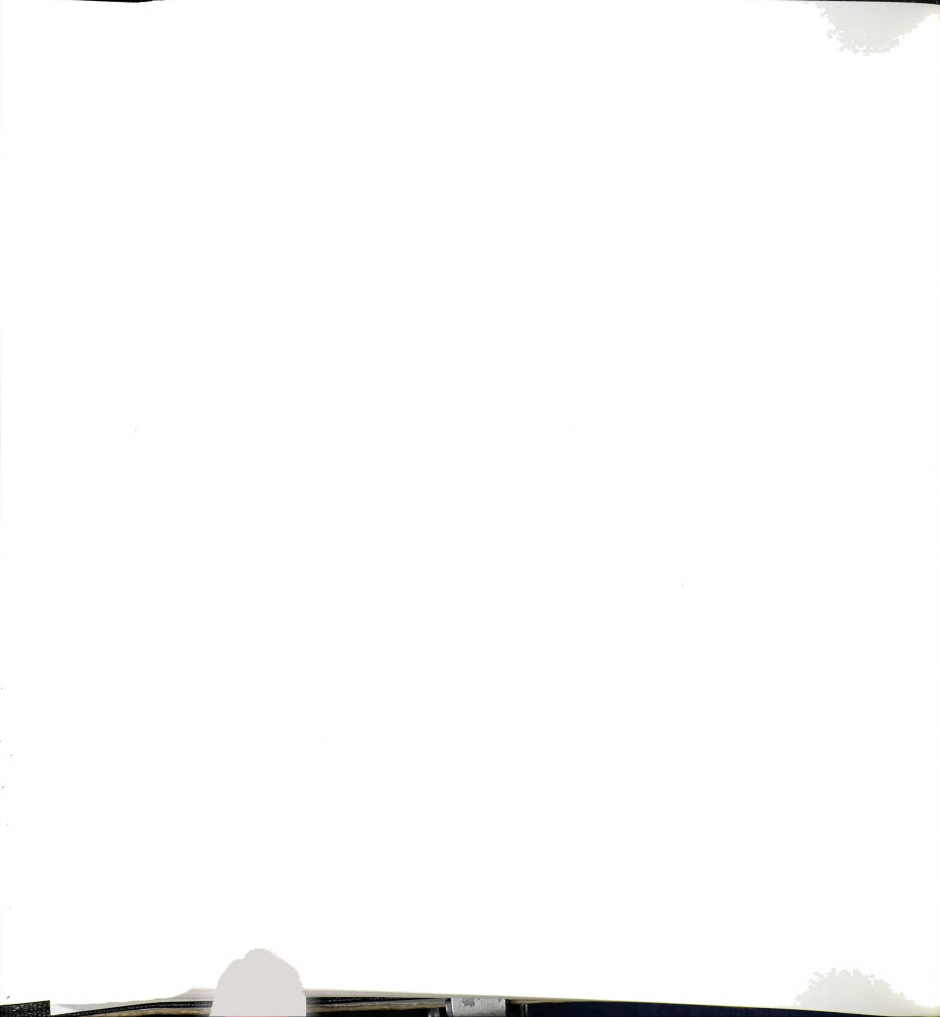


In this village, forest rules and regulations have been managed, for a long time, by the village committee and the village forest committee. The members of these committees know what they are doing, know how to get things done, and are respectful of the state and its concerns. There are some very good examples of such effective collaboration: the training program for forest fire protection and the distribution of trees seedlings by the government to local villages.

Forest management practices that are gender differentiated should be especially noted, for women and men have different knowledge bases about forest management. Thus, the role of women in the extension of forest planning and in the formation of forest utilization rules and regulations should be increased. Women should be included on the village forest committee, village committee, and the Tambon authority organization. Women should be treated not only as forest user/collectors, but also as forest management decision-makers and overseers of the local forest resources.

#### **FUTURE RESEARCH**

Future research should be aimed not only at better understanding and strengthening the way that local villagers can better protect their forest resources, but also what Thailand and other countries can and should do to assure



that its forests are sustained for the use and enjoyment of future generations.

1. Through research, a suitable model for joint forest management or collaborative forest management between government and local organizations should be formulated. Such research should also explore the strengths and weakness of both government and local organizations that deal with forest resources and forest management as well as the potential roles of government and village forest committee. Should local organizations and local people be the main actors in cooperative arrangements or should the aims and administration be found on national needs?

2. A suitable model of how gender roles affect forest management practices at the local level is needed. The main focus of such a study will be the assessment of women's role and men's role in managing and planning forest related activities. This model should show the details of forest work allocation between women and men and also the planning and administrative structure to fulfill the model's target.

3. Comparative research on forest management practices and values issues should also be emphasized and studied in various type of rural communities, different topographic areas and degree of forest resources utilization, in order to establish a model of community-based forest management. Surveys should be made of villages that use forest resources without any concern for future generations. To what extent are the attitudes and values of villagers relative to forest

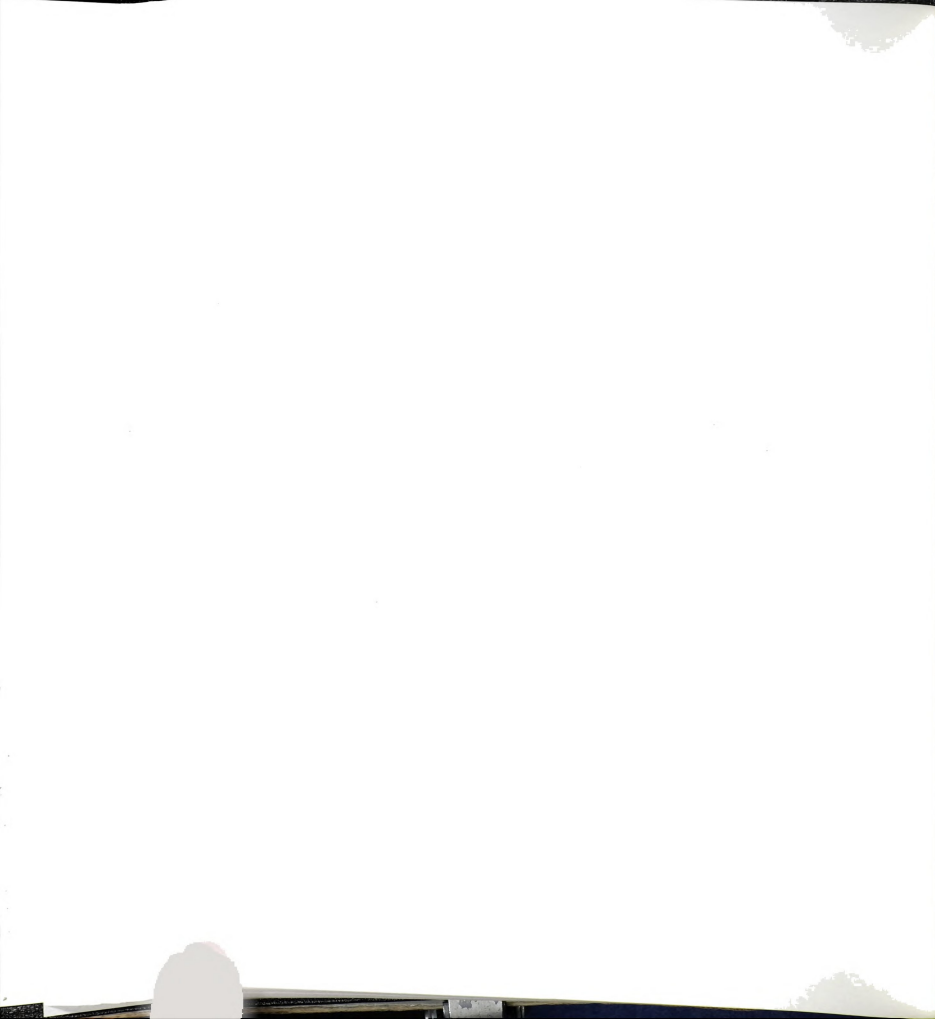
management issues influenced by local economic and socio-cultural conditions? It would be useful to find out how local contexts influence villagers' attitudes toward forest conservation and sustainability and their preferences for local control, state control, and local knowledge in order to construct a local forest management model that serves all varieties of rural population concerned.

4. There should also be further research on villagers' values and practices similar to this study in other Asian countries and elsewhere particularly in areas where the forests are being rapidly depleted. The similarities and differences found in such a study will provide more information and become a basic guideline to better local forest management in the future.

5. My study has not investigated how values (forest management values) and behavior (forest management practices) influence each other. It will be important and interesting to do a research to explore what causes people to do things, such as poor forest management practices, even though such behavior is not consistent with a person's values.



## **APPENDICES**



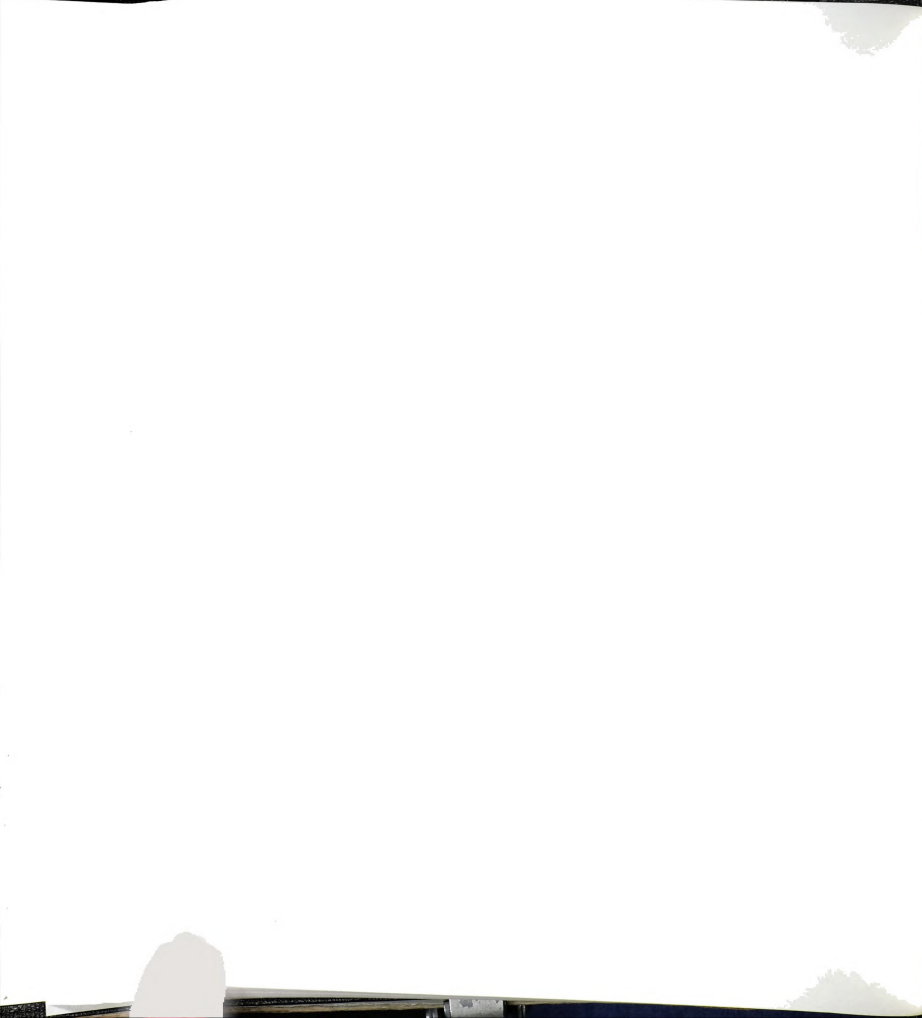
## **APPENDIX A**

### **Patterns of Traditional Community Based Forest Management in Thailand**

Community forest management in Thailand varies by geographical regions. This is due to the difference in social system, economy, culture, belief and the degree of forest dependence of rural people living in the four regions of the country, North, South, North-East, and Central. Based on many case studies on community forest management the various systems of Community Forest Management in Thailand can be categorized as follows:

1. **Pa-Poo-Ta (Ancestral Spirit Forest):** This is a forest area preserved and managed by Thai communities as a place for their ancestor's spirit. This kind of forest management can be mostly found in the Northeastern region of Thailand. Pa-Poo-Ta is a holy forest. Every member of the community has responsibility to protect this forest. Nobody is allowed to encroach into the forest for farming, timber cutting or even hunting. They can enter the forest only for getting minor non-wood forest products like mushrooms and edible plants. And to collect dead branches for fuelwood, but they must ask permission from the ancestor's spirit. This group issues regulations and/or enforces customary law to control forest use. Those who break the regulations are fined or punished.

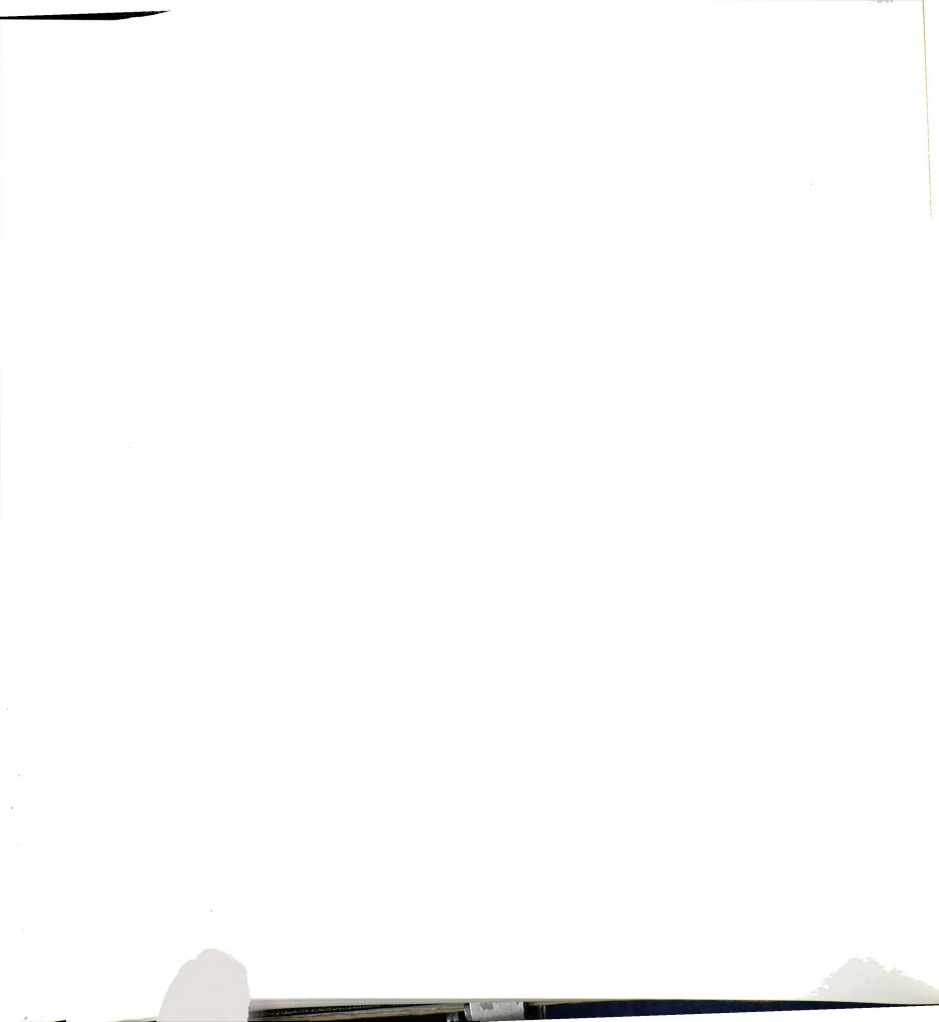




2. **Pa-Cha (Funeral Forest):** This kind of community forest management is mostly found in the North and Northeastern regions of Thailand. Rural Thai and hilltribe communities use as a place for cremations and burials. Timber cutting and hunting are prohibited in holy forest. people can only collect some forest food like mushrooms and bamboo shoots from holy forest, and firewood from funeral forest.

3. **Pa-Sab-nam (Headwater Forest):** This is a kind of community forest management mostly found in the Northern region of the country. The rural Thai and hilltribe people have traditionally kept a patch of dense natural forest around the headwater of the village watershed. The forest was designed by the community to protect the source of water for consumption and agriculture. The villagers also derived benefits from this kind of forest in the form of natural food, firewood, medicinal plants and a place for recreation. The forest management regulations are established by the village development committee, or a water users group made up of individuals respected by the village members. They are also responsible for enforcing the regulations with fines and punishment.

4. **Pa-Hua-Na (Soil Conservation forest):** This is kind of community forest management mostly found in villages of the Northern region of Thailand. Rural Thais and hilltribe farmers keep a portion of natural forest above their paddy



fields for preventing soil erosion. The Karen people in the north protect Pa-Hua-Na around their villages with very strong management. They have a good system of forest fire protection. Village regulation or customary law was formulated by the village committee to control and manage Pa-Hua-Na.

**5. Wat-Pa (Temple Forest):** This is a kind of community forest management found almost all over the country. Wat-Pas are forests on temple grounds. Whenever a new village is established, the villagers invite a monk from another village to build the village's temple. The location chosen for the temple is almost always in the forest for religious reasons. Wat-Pa is a quiet peaceful place where the monks can practice their meditation.

**6. Pa-Apai-Tan (Wildlife Sanctuary Forest):** This kind of forest is mostly found in or adjacent to the Buddhist temple boundaries. Most Thai people are Buddhist. They follow the first precept of Lord Buddha's teaching which is to obtain from destroying living creatures. So, a portion of natural forest is kept as wildlife sanctuary. According to Buddhist teaching, the monk shows kindness to all living creatures. They encourage the presence of all wild animals and may try to feed them. When wild animals are captured by villagers, they are sometime given to the monks to feed and release in the temple grounds.

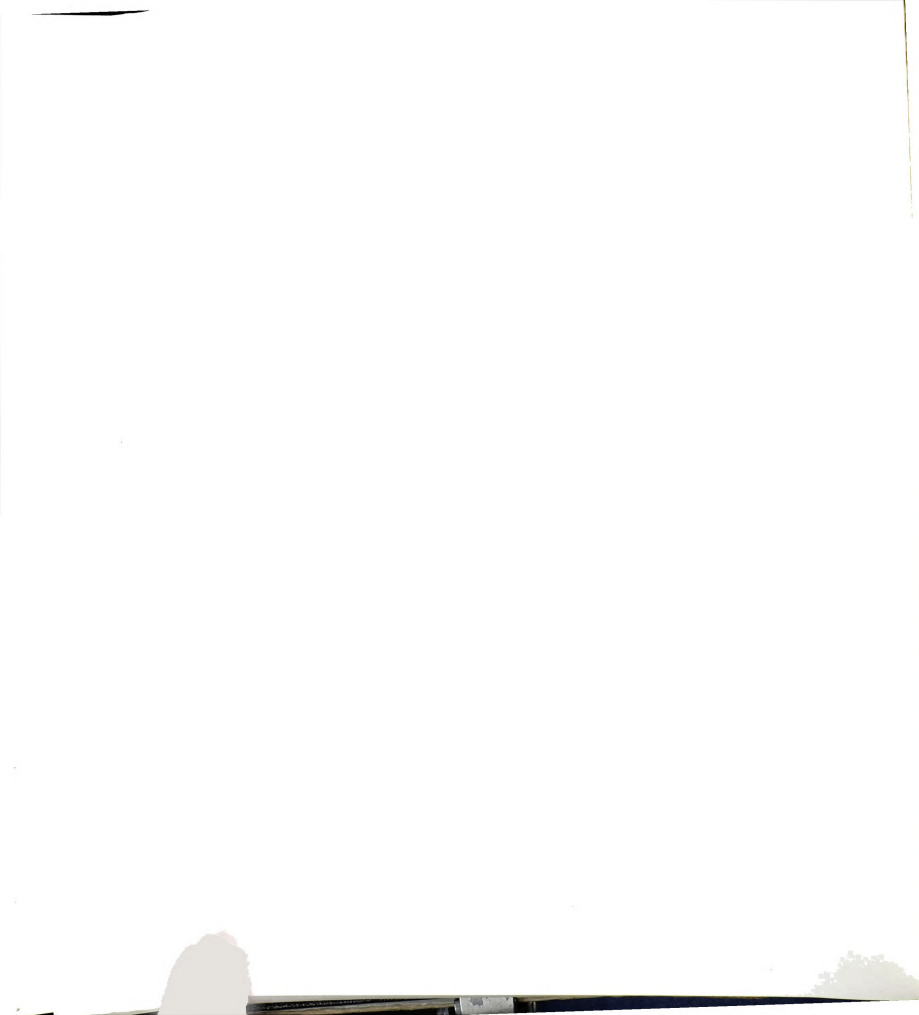


**7. Pa-Rong-Rean (School Forest):** This is a sort of forest management practice found almost throughout the country. The school teachers and students in association with villagers protect and maintain a portion of natural forest in or nearby the school for recreation, as a natural laboratory, and as a source of natural food for villagers and students.

**8. Pa-Chai-Soi-Choom-Chon (Multi-purpose Forest):** This is a kind of community forest management found almost throughout the country. This is a patch of natural forest protected and maintained by local Thai villagers adjacent to their villages for a source of multi-purpose use; for example the collection of non-wood forest products like mushroom, medicinal plants, etc.; firewood; and use for grazing.

**9. Pa-Hua-Rai-Plai-Na (Fuelwood Forest):** This is a kind of community forest management found almost throughout the country. Villagers protect and maintain small patches of natural forest on either side of their cultivated fields for a source of firewood.

**10. Unclassified community forest:** There are some kinds of traditional community forests found in Thailand.



## APPENDIX B

### Correspondence

#### OFFICIAL LETTERHEAD

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Faculty of Social Sciences,  
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Fax: (053) 892209

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Nong Lom Households:

I am an assistant professor at Chiang Mai University. I would like to visit all the households in Nong Lom in order to learn more about local forest management practices in your village. I especially want to obtain your opinions about how your local forest resources should be managed.

I would be very grateful if you would give me a portion of your valuable time for this interview. I want to talk with both household head and spouse. The interview will take about an hour. Your assistance is important for it will contribute to our knowledge about the capacities and possibilities of local villagers to oversee and control their forest resources, particularly in forest dependent communities like your village.

Your participation, of course, is voluntary. Also, all of the questions I ask are optional so you are free not to answer any of the questions. There are no penalties involved. In addition to some general questions about your household, your patterns of work, your participation in groups and village activities, I am also interested in your forest tasks and how you deal with forest resources.

The information you provide will be held in strictest confidence. You will not be quoted directly and your name will not appear in my final report without a signed consent from you.

I appreciate your cooperation. If you have any comments or suggestions regarding this project, please feel free to contact me ( at Chiang Mai University). Thank you very much in advance..

Sincerely Yours,

Montri Kunphommarl  
Assistant Professor  
Dept. of Sociology & Anthropology  
Faculty of Social Sciences  
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## APPENDIX C

Department of Sociology & Anthropology  
Faculty of Social Sciences  
Chiang Mai University  
Chiang Mai 50200

### Nong Lom Village Survey Forest Resources Management

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#### Purpose of Survey

We want to gain an understanding of forest resource management practices in Nong Lom and your opinions about forest management. I will obtain such information from all householders in this village. I will ask you and other household heads about household characteristics, your household members' participation in community activities, the current practices and attitudes of household members in forest management. These questions are in two sections: the household information survey and the individual information survey. The household questions consist of your family history; household census; material possession inventory; land, farm, and livestock information; sources of your household income; and household forest tasks. The individual questions, which I intend to ask you and your spouse, are about your work; forest tasks that you did in the past and now; your involvement in village groups/organizations; and opinions/values about forest resources management.

Before we begin, I want you to know that everything you tell me will be kept completely confidential. You may choose not to answer any question, and may ask for clarification of this study at any time. I will also provide you with my address and phone number in case you have any questions in the future about this study. Your participation is voluntary. Your help and cooperation will be very much appreciated.

---

Household Identification Number

Name

---

## SURVEY RECORD

Household Number: \_\_\_\_\_

Household Name: \_\_\_\_\_

Name of Principal Male Interviewed: \_\_\_\_\_

Name of Principal Female Interviewed: \_\_\_\_\_

Comments and Relationship to Head of Household:

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Interviewer's Name: \_\_\_\_\_

Date of Interview: \_\_\_\_\_

Time of Interview: \_\_\_\_\_

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**NOTE** We obtain household information from head of household and/or spouse. Also, we obtain individual information from principal male and principal female. If the head of household is widowed, we will interview eldest son/or eldest daughter.

**HOUSEHOLD INFORMATION**

---

**I. FAMILY HISTORY:****1. Origins:** Are you and spouse from Nong Lom village (born here)?**Husband**

- ☐ born in Nong Lom  
☐ born elsewhere [where? \_\_\_\_\_]  
[when came here? \_\_\_\_\_]

**Wife**

- ☐ born in Nong Lom  
☐ born elsewhere [where? \_\_\_\_\_]  
[when came here? \_\_\_\_\_]

**2. Lived elsewhere:** Have you or spouse lived elsewhere?**Husband**

- ☐ never lived elsewhere  
☐ lived elsewhere  
where \_\_\_\_\_  
when \_\_\_\_\_  
how long \_\_\_\_\_

**Wife**

- ☐ never lived elsewhere  
☐ lived elsewhere  
where \_\_\_\_\_  
when \_\_\_\_\_  
how long \_\_\_\_\_

**3. Parents:** Where do your parents live now?**Husband's parents**

- ☐ both deceased  
☐ Nong Lom  
☐ elsewhere [where? \_\_\_\_\_]

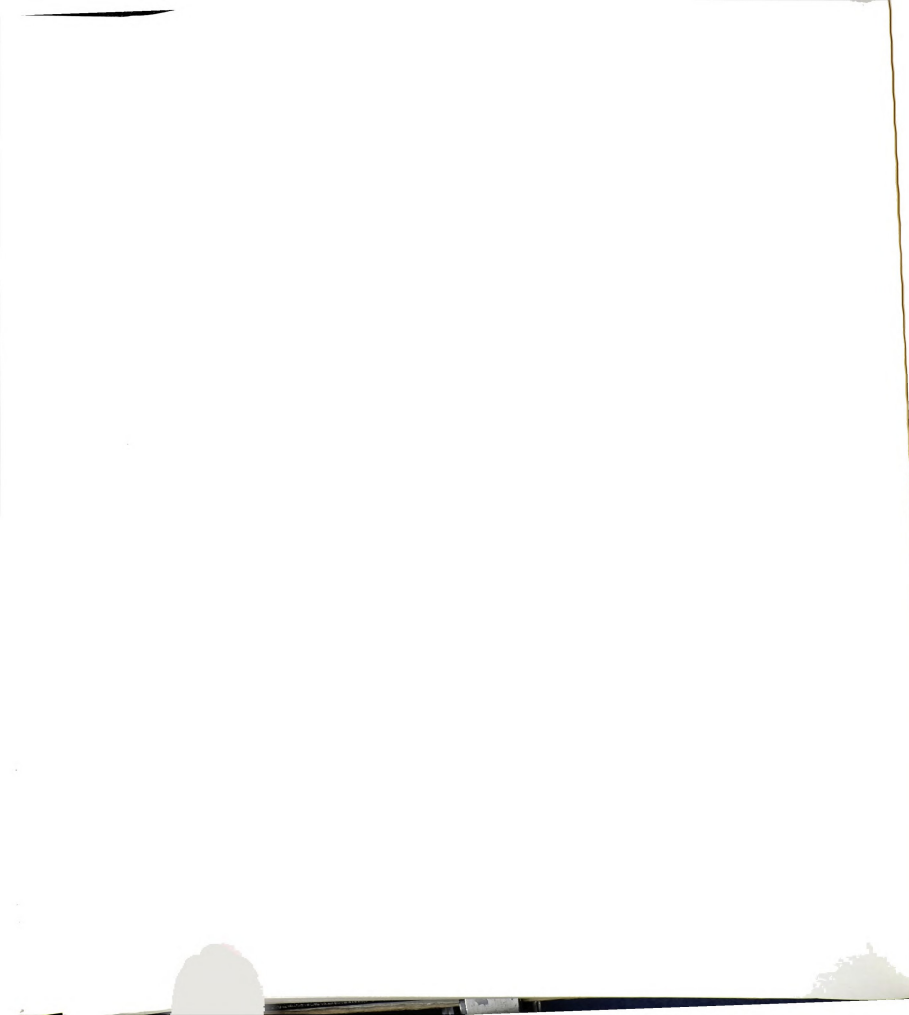
**Wife's parents**

- ☐ both deceased  
☐ Nong Lom  
☐ elsewhere [where? \_\_\_\_\_]

**4. Children:** Any of your children living elsewhere?

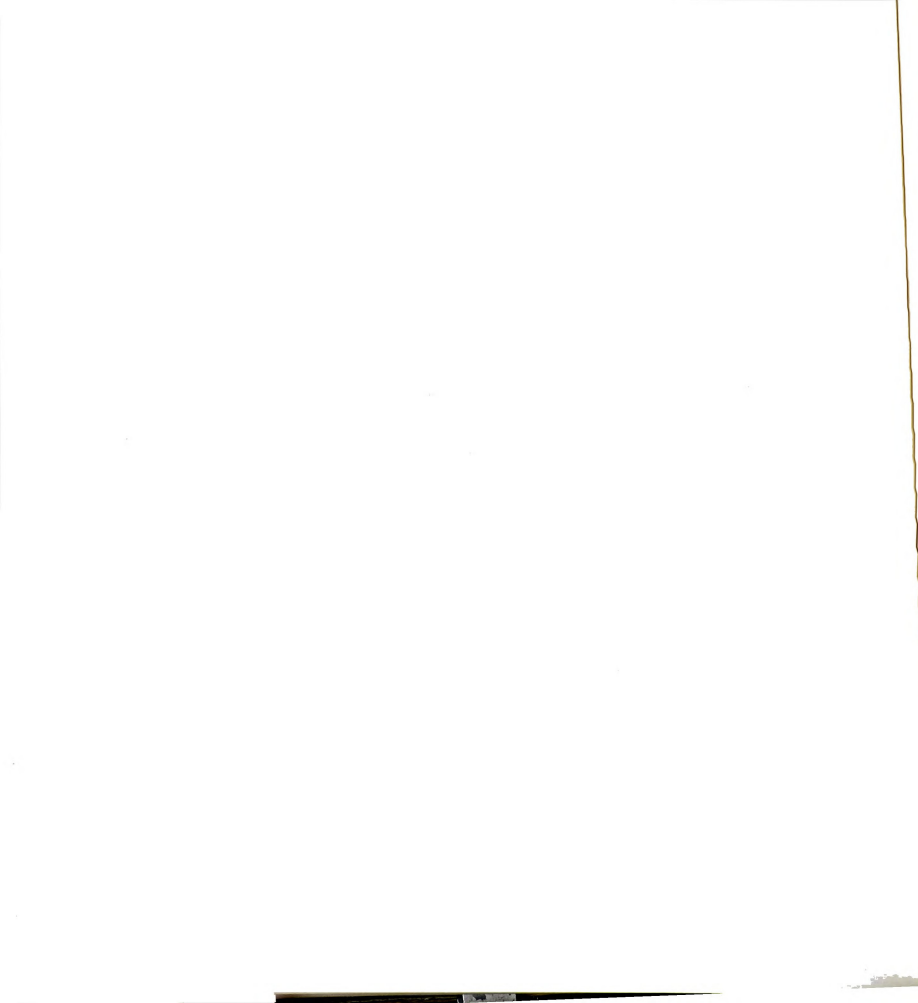
- ☐ no, all children now with us in this household  
☐ yes

Where living? \_\_\_\_\_  
\_\_\_\_\_



**II. HOUSEHOLD CENSUS:** We would like to know who lives with you in your home and where they work.

NAME	RELATION TO YOU	SEX M/F	AGE (yrs)	OFF-FARM WORK			RAINY SEASON					
				what	full	part	FARM WORK			FOREST WORK		
							much	some	little	much	some	little
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												



### III. POSSESSIONS and HOUSE: We want to know about your home and things.

#### House

1. What year was your house built or rebuilt?  
\_\_\_\_\_ year built \_\_\_\_\_ year rebuilt or remodeled.
2. House construction.  
☐ brick/stone      ☐ wood      ☐ thatched  
☐ other \_\_\_\_\_
3. Roof construction  
☐ clay      ☐ zinc/tin      ☐ thatched  
☐ other \_\_\_\_\_
4. Forest use: Does any of the wood in your house come from the village forest?  
☐ no, none      ☐ some      ☐ much
5. Rating house condition by interviewer  
☐ good      ☐ by average      ☐ bad

#### Possessions

Do and your family have these things?

1. Car      ☐ no      ☐ yes [what year car? \_\_\_\_\_]
2. Pick-up truck      ☐ no      ☐ yes [what year? \_\_\_\_\_]
3. Motorcycle      ☐ no      ☐ yes
4. Refrigerator      ☐ no      ☐ yes
5. Television      ☐ no      ☐ yes
6. Radio      ☐ no      ☐ yes
7. Gas stove      ☐ no      ☐ yes
8. Bed, off floor      ☐ no      ☐ yes
9. Table, dinner      ☐ no      ☐ yes
10. Sofa      ☐ no      ☐ yes
11. Electric fan      ☐ no      ☐ yes





12. Telephone            ☐ no    ☐ yes
13. Washing Machine    ☐ no    ☐ yes
14. Sewing Machine      ☐ no    ☐ yes
15. Plowing Machine    ☐ no    ☐ yes
16. Video                ☐ no    ☐ yes

#### IV. LAND, FARM, LIVESTOCK

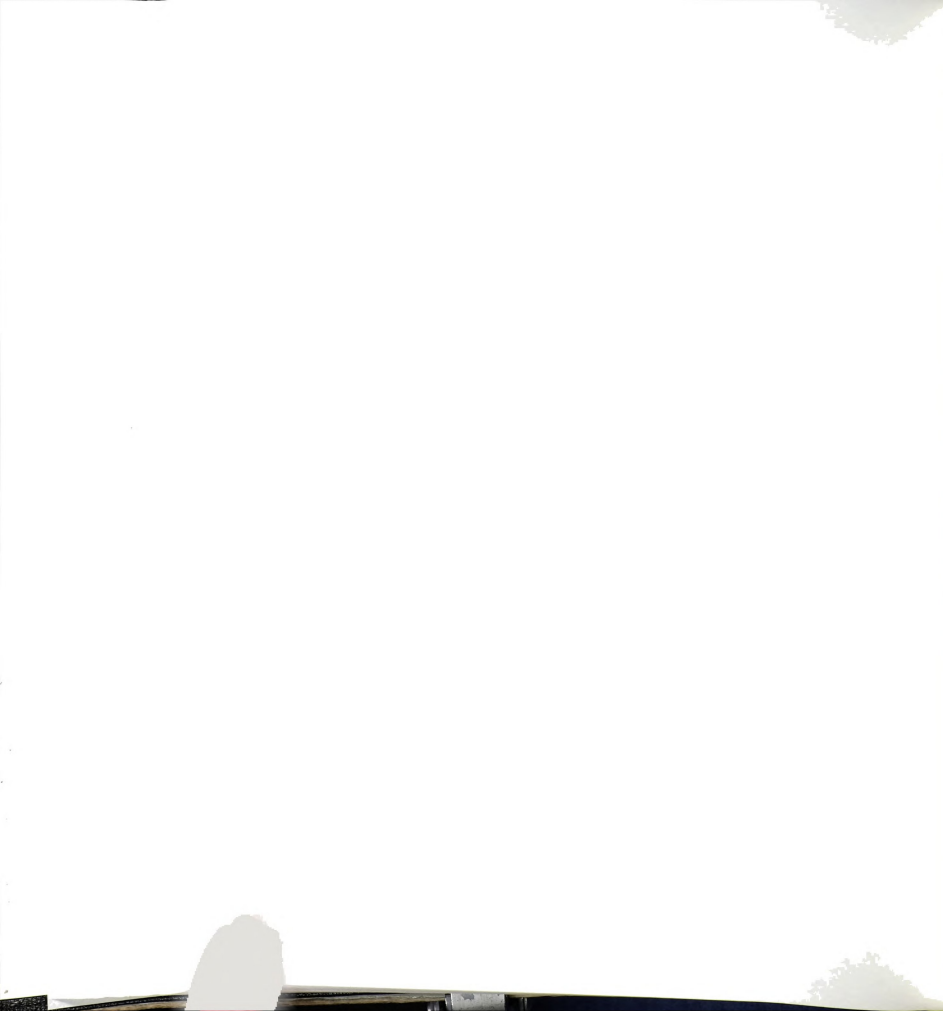
We'd like to know about the land you own, your farm, and your livestock.

##### Homestead land:

1. How much land is in your homestead? \_\_\_\_\_ rai
2. How did you acquire your homestead?
- ☐ mostly inherited                      ☐ mostly purchased
- ☐ mostly occupied                      ☐ mostly allocated from government

##### Farm:

3. How much farmland do you own? \_\_\_\_\_ rai
4. How did you acquire the farmland?
- ☐ mostly inherited                      ☐ mostly purchased
- ☐ mostly occupied                      ☐ mostly allocated from government
5. How much farmland do you rent from others? \_\_\_\_\_ rai
6. How much farmland do you rent to others? \_\_\_\_\_ rai
7. How do you use your farmland?
- ☐ mostly doing farming, our family
- ☐ mostly renting to others
- ☐ mostly idle farmland
8. What are main crops grown by you and your family?
- ☐ none, land is rented out or idle
- List main crops grown by you \_\_\_\_\_
9. Did you sell any farm crops this past year?
- ☐ no
- ☐ yes [what crops sold? \_\_\_\_\_]



10. Did you sell any forest produce this past year?

( ) no, none sold

( ) yes [what forest produce sold? \_\_\_\_\_]

**Livestock:**

11. Cows ( ) no ( ) yes [how many cows in milk? \_\_\_\_\_]

12. Buffalo ( ) no ( ) yes [how many? \_\_\_\_\_]

13. Pigs ( ) no ( ) yes [how many sows? \_\_\_\_\_, young pigs? \_\_\_\_\_]

14. Chickens ( ) no ( ) yes [how many hens? \_\_\_\_\_, other? \_\_\_\_\_]

15. Ducks ( ) no ( ) yes [how many? \_\_\_\_\_]

**V. HOUSEHOLD SUPPORT**

**Income Sources:** We'd like to know how dependent you and your household are upon forest resources, farming, and off-farm income. First, consider your yearly total money income.

HOW MUCH of household total income comes from selling these things or working for others?

	<u>most</u>	<u>much</u>	<u>some</u>	<u>little</u>	<u>none</u>
1. Farm products sold (rice, crops, livestock etc.)	( )	( )	( )	( )	( )

**Forest products sold**

2. fuel wood sold	( )	( )	( )	( )	( )
3. forest products sold for food	( )	( )	( )	( )	( )
4. other forest products	( )	( )	( )	( )	( )

**Off-farm work (factory work, for others)**

5. male head (husband)	( )	( )	( )	( )	( )
6. female spouse (wife)	( )	( )	( )	( )	( )
7. children in household	( )	( )	( )	( )	( )

**8. Remittances and gifts**

(from family members living elsewhere)	( )	( )	( )	( )	( )
--	-----	-----	-----	-----	-----



**Sustenance Sources:** How dependent is your household on your farm, garden, and the local forest for food, fuel, and construction supplies. (Not for income, but for things that you and your family use yourselves.)

HOW IMPORTANT are these things to you and your household's well-being and health?

	very ( )	somewhat ( )	a little ( )	not at all ( )
9. Vegetables and fruit from home garden	( )	( )	( )	( )
10. Vegetables and fruit from farm	( )	( )	( )	( )
11. Food and fruit from forest	( )	( )	( )	( )
12. Forest wood for local industry	( )	( )	( )	( )
13. Fuel wood from forest	( )	( )	( )	( )
14. Forest wood for house building	( )	( )	( )	( )
15. Medicines from forest	( )	( )	( )	( )



APPENDIX D

INDIVIDUAL QUESTIONNAIRE  
FOREST MANAGEMENT SURVEY  
PRINCIPLE MALE OR FEMALE

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[In each household, we want to interview the principle male and the principle female. Usually, they will be the male head of household and his spouse. Where one or the other is missing, we may interview an older parent. If the son is really the head of household, we want to interview him and his spouse. If the head of household is widowed, we want to interview him or her and maybe also the widowed man's adult daughter or the widowed woman's adult son. In so far as possible, for each household we want to interview two adult individuals, male and female.]

Household Identification # \_\_\_\_\_

Respondent's Name: \_\_\_\_\_

(     )     Principal Male

(     )     Principal Female

Age \_\_\_\_\_ Education \_\_\_\_\_

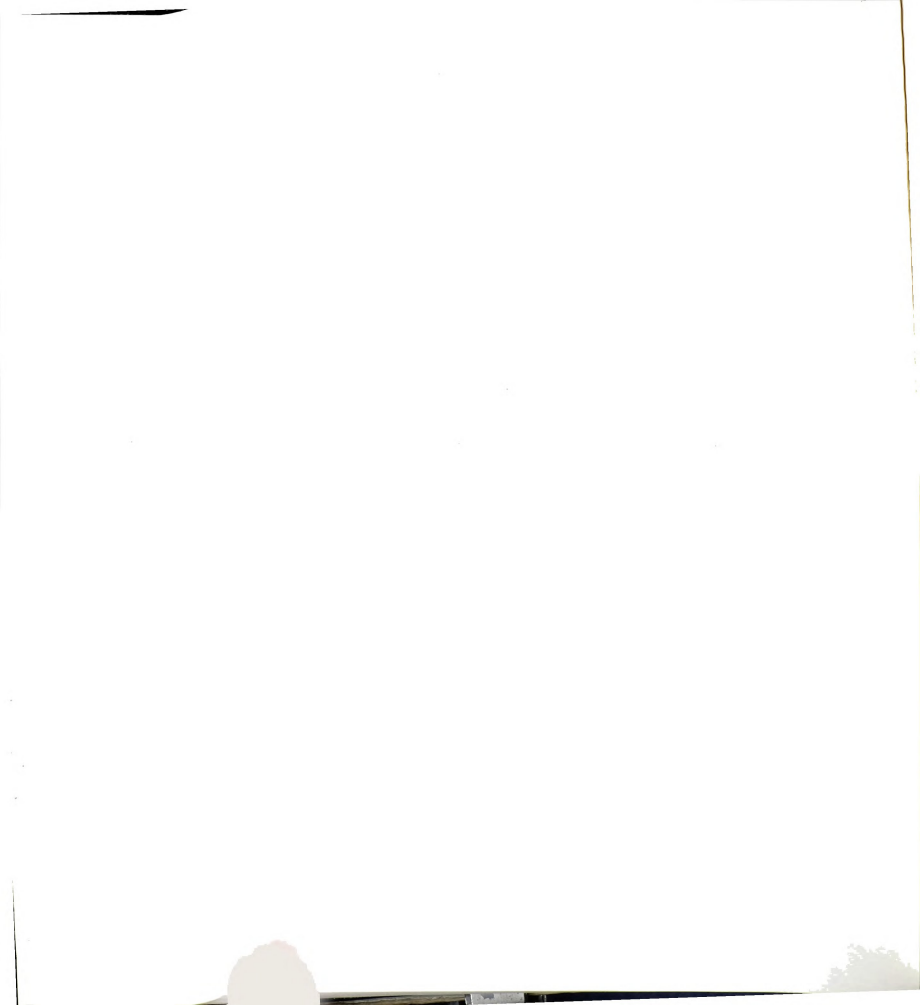
Date of Interview: \_\_\_\_\_

Time: \_\_\_\_\_

Interviewer: \_\_\_\_\_

---

Comments:





## I. YOUR WORK

1. Rainy season: What is your main work during the rainy season?

---

2. Dry season: What is your main work during the dry season?

---

3. Off-farm: Are you doing any kind of work off-farm for pay?

☐ no, no off-farm work

☐ yes

☐ full-time                      ☐ part-time                      ☐ seasonal only

What job? \_\_\_\_\_

For whom (name)? \_\_\_\_\_

Where located? \_\_\_\_\_

4. Other work: Any other kinds of work for pay?

☐ no, no off-farm work

☐ yes

☐ full-time                      ☐ part-time                      ☐ seasonal only

What job? \_\_\_\_\_

For whom (name)? \_\_\_\_\_

Where located? \_\_\_\_\_

5. Farm work: How much time do you spend on the farm or in the garden?

Rainy season: ☐ all day ☐ much ☐ half day ☐ some ☐ none/little

Dry season: ☐ all day ☐ much ☐ half day ☐ some ☐ none/little

6. Forest work: How much time do you spend working in the forest?

Rainy season: ☐ all day ☐ much ☐ half day ☐ some ☐ none/little

Dry season: ☐ all day ☐ much ☐ half day ☐ some ☐ none/little

7. Past forest work: In the past, did you work in the forest?

☐ no

☐ yes

☐ full-time                      ☐ part-time                      ☐ seasonal only

What kind of forest work? \_\_\_\_\_

Where? \_\_\_\_\_

For pay ☐ or                      For yourself ☐

8. Comparing with your neighboring households, how much do you use forest resources?

- ( ) most                      ( ) much                      ( ) some  
( ) little                      ( ) none

**II. GROUP PARTICIPATION:** We'd like to know whether you belong to any of the following village groups Do you participate actively?

Village Groups/Organizations	belong		participate		Position	
	yes	no	active	not active	leader	member
Village committee						
Village forest committee						
Women's group						
Occupational group						
Agricultural group						
Saving group						
Tambon Authority Organization						
School committee						
Temple committee						
Public health group						
Water pump group						

### III. FOREST TASK

We'd like to know the kind of forest work you have done.

Have you done any of these in recent years or in the past?

[**Note:** If respondent says "yes" in recent years then you do not ask about past]

- planted young fruit or nut trees on your farmland  
( ) no                      ( ) yes, in recent years                      ( ) yes, in the past
- planted young trees in the forest (village or district forest land)  
( ) no                      ( ) yes, in recent years                      ( ) yes, in the past
- selected tree varieties to plant in forest  
( ) no                      ( ) yes, in recent years                      ( ) yes, in the past
- decided where to plant trees  
( ) no                      ( ) yes, in recent years                      ( ) yes, in the past
- mulched & fertilized young trees  
( ) no                      ( ) yes, in recent years                      ( ) yes, in the past
- watered young trees  
( ) no                      ( ) yes, in recent years                      ( ) yes, in the past

7. guarded young trees against animals and bad weather  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
8. collected fuelwood  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
9. made charcoal  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
10. collected food from wild plants  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
11. caught wild animals for food  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
12. collected medicinal plants  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
13. collected raw materials for local industries activities  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
14. cut wood for fence and house construction  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
15. sold forest related products for income  
☐ no            ☐ yes, in recent years            ☐ yes, in the past

**IV VILLAGE FOREST ACTIVITIES:** We'd like to know your participation in village forest activities.

Have you done any of these in recent years or in the past?

[**Note:** If respondent says "yes" in recent years then you do not ask about past]

1. offered ceremonies to protect forest spirit  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
2. made suggestions or gave any comments on forest issues at a village meeting  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
3. participated in a meeting dealing with drafting forest rules and regulations  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
4. participated in keeping guard over forest  
☐ no            ☐ yes, in recent years            ☐ yes, in the past

5. participated forest fire prevention activities  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
6. donated money to support village forest management activities  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
7. gave or contributed other thing (food) in the forest management activities  
☐ no            ☐ yes, in recent years            ☐ yes, in the past  
[what? \_\_\_\_\_]
8. helped or contributed labor for forest management  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
9. attended training courses related to forest resources problems and management  
☐ no            ☐ yes, in recent years            ☐ yes, in the past  
[how long & by whom \_\_\_\_\_]
10. planted trees on your homestead  
☐ no            ☐ yes, in recent years            ☐ yes, in the past  
[what kind? \_\_\_\_\_]
11. planted trees on the village public land  
☐ no            ☐ yes, in recent years            ☐ yes, in the past  
[what kind? \_\_\_\_\_]
12. attended a meetings about solving forest conflict in this village  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
13. talked with neighbors about forest management practices  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
14. reared domestic animals in forest areas  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
15. contacted/discussed with forest officers about forest management practices  
☐ no            ☐ yes, in recent years            ☐ yes, in the past
16. contacted/discussed with non-government workers about forest management practices  
☐ no            ☐ yes, in recent years            ☐ yes, in the past

17. consulted/discussed with village leaders or forest village committees about forest management practices

☐ no      ☐ yes, in recent years      ☐ yes, in the past

18. pursued or monitored village forest management activities

☐ no      ☐ yes, in recent years      ☐ yes, in the past

**V. YOUR VILLAGE:** Now, we want to ask you about your village, Nong Lom.

1. Is Nong Lom village managing its forest resources well nowadays? (your opinion)

☐ not well      ☐ uncertain      ☐ yes, managing forest well

2. What are some of the things that the village should be doing to manage its forest resources better?

---

3. In the past, was the forest here managed better than it is now?

☐ no      ☐ uncertain      ☐ yes, managed better in the past

4. What was done better in the past?

---

5. What is being done better now?

---

6. In the future, should Nong Lom village or the state and district government have more to say or less to say about the proper management of Nong Lom's forest resources?

☐ village should have more authority about forest resource management

☐ state/district government should have more authority about forest

☐ authority should be shared by village and district/state

☐ other \_\_\_\_\_



**VI. ATTITUDES:** Now, I will read to you some statements that we have heard from other people. The statements have to do with forest management. There are many points of view about how villagers should deal with the forest and what our obligations are to the forest. We want to know your opinion. Please tell me if you agree, strongly agree or disagree, strongly disagree with each of the following statements.

1. Village forests should be managed by villagers who are using the forest.
2. Village forests should not be managed by outsiders, such as government officials.
3. Forest officers of the Royal Forestry Department who work for the government should manage village forests.
4. Forest officers should manage village forests because they can do justice to villagers.
5. The outsiders, such as government forest officers, usually do not understand village situation so they can create local forest management problems.
6. Village leaders and village forest committee can manage village forest resources very well without help from the state.
7. A villager who disagrees with a village forest management rule should not have to obey that rule.
8. A villager who disagrees with a state or district forest management rule should not have to obey that rule.
9. If a village shows that its forest resources can be managed by village properly, the state should not interfere.
10. If a village shows that its forest resources can not be managed by village properly, the state should take over.
11. Village forest rules and regulation are usually sensible and should be obeyed.
12. State and district forest management rules are usually not very sensible and therefore need not be obeyed by local villagers.
13. Government forest officers can solve most village forest management problems.
14. Government forest officers can always manage village forest well.
15. Government forest rules and regulations often do more harm than good in Nong Lom.
16. Forest resources belong to all the Thai people, therefore village forest resources should be managed by the state.
17. Local villagers can be trusted to do a good job in managing their village's forest resources.
18. State and district forest management rules are usually right, therefore villagers should obey.
19. Village forest resources should be protected for the benefit of future generations.
20. Village forest resources should be used as much as they can be.
21. Village forest resources should be used as fully as possible now, because we do not know what the future will be.

22. We should use our forest resources very carefully and wisely, then our children can have forest left and can inherit something good from our generations.
23. If we use or consume our forest resources a lot today, there will be bad impact on the happiness and well-being of future generations.
24. We should use forest resources to fulfill our needs first and later plan ahead how we manage our local forest.
25. Past generations did not worry much about our generations in how they treated local forest resources so we should not have to worry much about the next generations.
26. The future is very uncertain therefore we should use our forest resources today and let tomorrow take care of itself.
27. No matter how badly the village forest is treated today, there will always be some forest resources available for future generations.
28. We should use forest resources carefully because there will not be forest left in the future.
29. Forest resources should be exploited as fully as possible for the economic benefit of the Thai people.
30. The forest is a national treasury therefore it should be protected and reserved by not letting anyone use.
31. We should take into account how dependent some villagers upon forest resources for their income or food as a criteria for forest rules and regulation.
32. Villagers do not need to use forest resources for food or income because they can earn their income from farm and off-farm work.
33. Economic benefits obtained from the forest are much more important than preserving the forest as a place of beauty and peace.
34. Forest should be prohibited against collecting of forest products and wildlife hunting.
35. Forest rules and regulations should be taken the benefits of forest resources to conserve land quality into account.
36. An objective to conserve the forest is to let local villagers use forest produces as income or food.
37. The forest should be kept as a natural conservation area.
38. Forest resources should be used only by a village adjacent to the forest as food and income sources.
39. Modern methods of forest management are usually better than the traditional ways.
40. Local knowledge about forest management practices is always better than forest management knowledge comes from the Royal Forestry Department.
41. Forest management knowledge obtained from the Royal Forestry Department is always better than forest management knowledge comes from local people and their personal experiences.
42. Forest management knowledge obtained from government forest officers usually does not fit very well into the local situation.

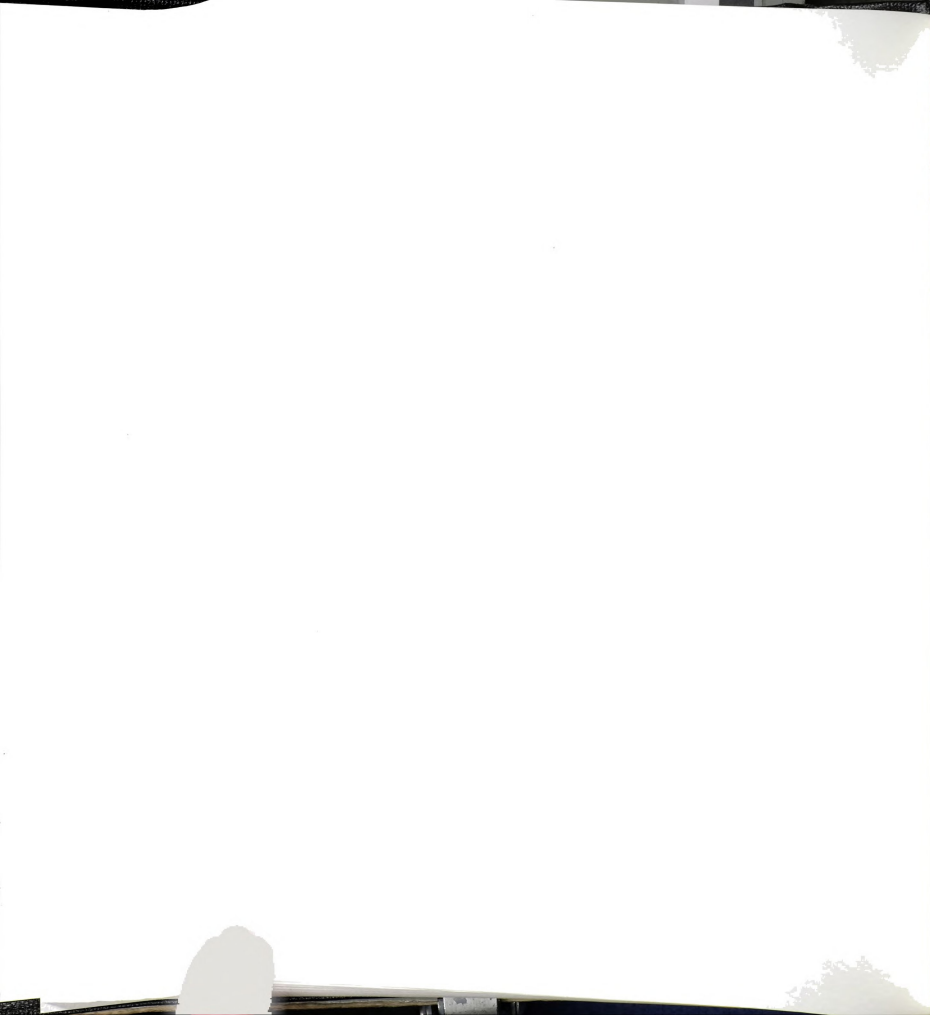




43. Villagers should follow the forest management practices recommended by the state/district forester rather than doing things the ways they have always done before.
44. Forest management practices of a village can be adopted and applied into practice well with other villages.
45. Local knowledge on forest management practices is sometimes wrong and we should think carefully before accepting what local people say.
46. The traditional forest management practices that villagers thought were good, may actually have been bad.
47. Local knowledge about forest management has many secrets that state forest management foresters do not understand.
48. Traditional forest management techniques are more easily transferred and applicable than modern forest management methods.



## **BIBLIOGRAPHY**



## Bibliography

- Agrawal, A. and Gautam N. Yadama. 1997. "How do Local Institutions Mediate Market and Population Pressures on Resources? Forest Panchayots in Kumaon, India." *Development and Change* 28:435-465.
- Amornsanguanisan, Jintana and Jayant K. Routray. 1998. "Planning and Development Strategy for Effective Management of Community Forestry: Lessons from the Thai Experience." *Natural Resources Forum* 22:279-292.
- Arnold, J.E.M. 1998. *Managing Forests as Common Property*. Forestry Paper 136, Rome: Food and Agricultural Organization of the United Nations.
- Baral, J. C. and P. Lamsal. 1991. *Indigenous Systems of Forest Management: A Potential Asset for Implementing a Community Forestry Programme in the Hills of Nepal*. HMG/UNDP/FAO/Community Forestry Development Project (Phase II), Field Document 17. Kathmandu: Community Forestry Development Project.
- Bello, Walden, Shea Cunningham, and Li Kheng Poh. 1998. *A Siamese Tragedy: Development & Disintegration in Modern Thailand*. London: Zed Book Ltd.
- Blair, Harry W. and Porus D. Olpadwala. 1988. *Forestry in Development Planning: Lessons from the Rural Experience*. Boulder: Westview Press.
- Blinkley, C.S. 1981. *Timber Supply from Non-Industrial Forests*. Bull:92. New Haven, Connecticut: School of Forestry and Environmental Studies, Yale University.
- Cernea, M. M. ed. 1991. *Putting People First: Sociological Variables in Rural Development*. 2d ed. New York: Oxford University Press.

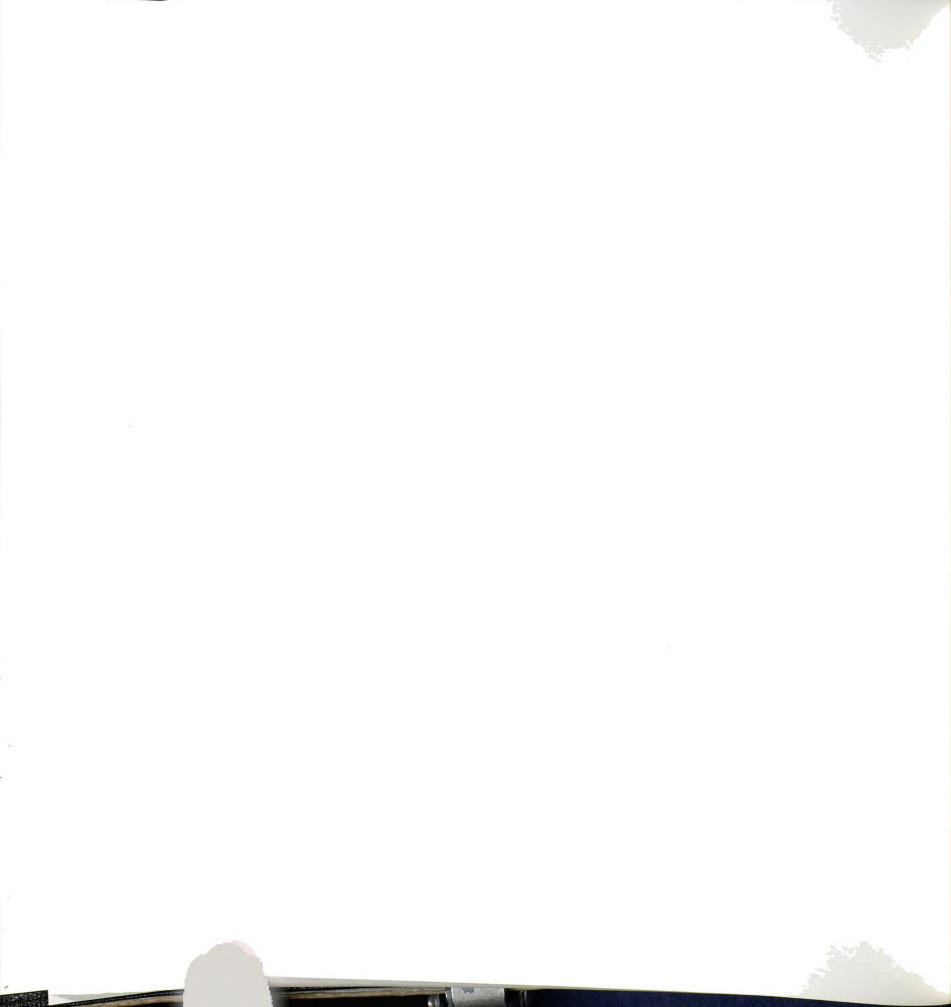


- Chambers, R. 1987. "Poverty, Environment and the World Bank: The Opportunity for a New Professionalism." Institute of Development Studies, University of Sussex, England. Unpublished manuscript.
- Chhetri, R.B. and T.R. Pandey. 1992. *User Group Forestry in the Far-western Region of Nepal*. Kathmandu: International Centre for Integrated Mountain Development.
- FAO. 1978. *Forestry for Local Community Development*. FAO Forestry Paper No. 7, Rome: Food and Agricultural Organization of the United Nations.
- Filipchuk, Vesta Rose. 1991. "Forest Management in Northern Thailand: A Rural Thai Perspective." Master Thesis, University of Victoria.
- Fisher, R. J. 1988. "Local Organizations in Forest Management." in *Directions for Community Forest Management in Nepal*. Seminar series at Institute of Forestry, Pokhara, Nepal.
- Fisher, R. J. 1991. "Studying Indigenous Forest Management Systems in Nepal Towards a More Systematic Approach." Working Paper, Environment and Policy Institute, East-West Center Honolulu, Hawaii.
- Flaherty, S. Mark and V.R. Filipchuk. 1993. "Forest Management in Northern Thailand: a Rural Thai Perspective." *Geoforum* 24:263-275.
- Fortman, Louise and Jonathan Kusel. 1990. "New Voices, Old Beliefs: Forest Environmentalism among New and Long-standing Rural Residents." *Rural Sociology* 55:214-232.
- Ganjanapan, Anan. 1992. "Community Forestry in Northern Thailand" Pp. 75-84 in *Regional Development and Change in Southeast Asia in the 1990s*, edited by Amara Pongsapich, Michael C. Howard, and Jacques Amyot. Bangkok: Social Research Institute, Chulalongkorn University.

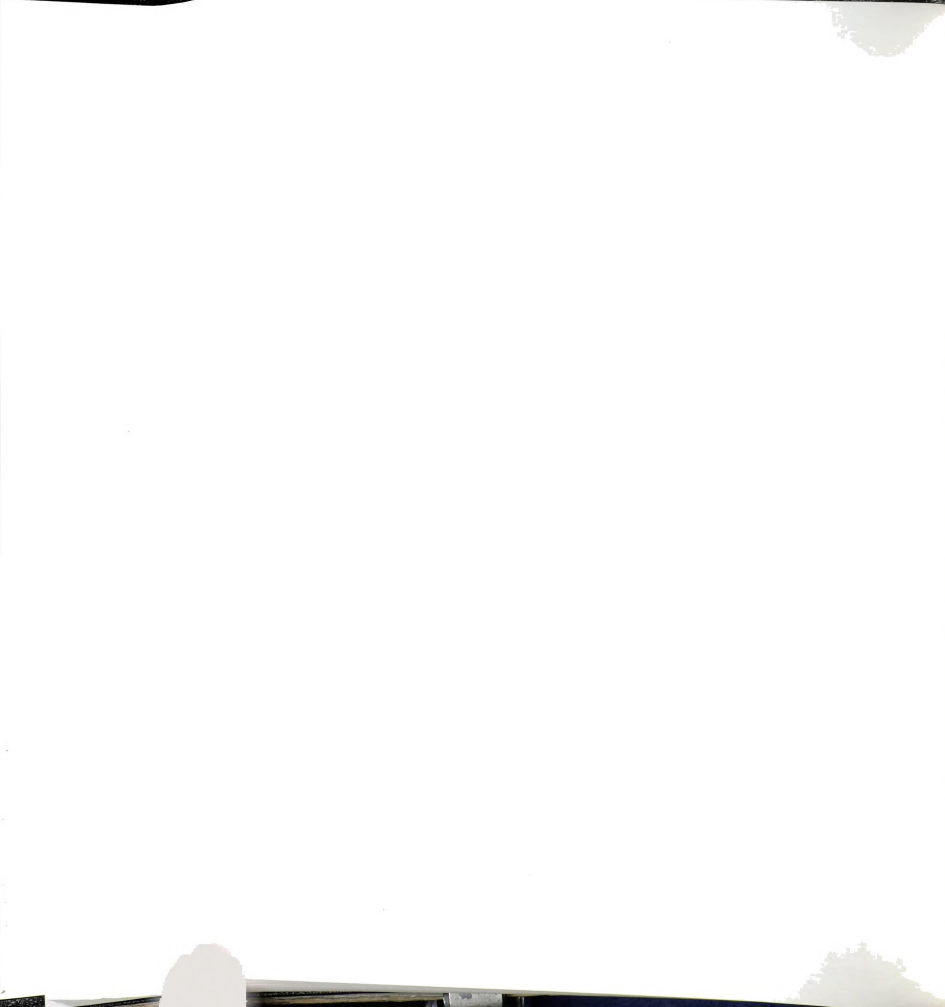




- Gibbs, C.J.N. and D.W. Bromley. 1989. "Institutional Arrangement for Sustainable Management of Rural Resources: Common Property Regimes and Conservation," Pp. 22-32 in *Common Property Resources: Ecology and Community Based Sustainable Development*, edited by F. Berkes. London: Belhaven Press.
- Gilmour, D. A. 1988. "Key Elements in Community Forest Management." in *Directions for Community Forest Management in Nepal*. Seminar series at Institute of Forestry, Pokhara, Nepal.
- Gilmour, D. A. 1989. "Forest Resources and Indigenous Management in Nepal," *Indigenous Systems of Common Property Forest Management in Nepal*. Working Paper No. 17, Environment and Policy Institute, East-West Center, Honolulu, Hawaii.
- Greene, J.C. and K.A. Blatner. 1986. "Identifying Woodland Owner Characteristics Annotated with Timber Management." *Forest Science*. 32: 135-146.
- Gregersen, Hans M. and Stephen E. McGaughey. 1988. *Investment Policies and Financing Mechanisms for Sustainable Forestry Development*. Washington, D.C.: Inter-American Development Bank.
- Hodge, Sandra S. 1993. "Beliefs, Attitudes, Demographics and Knowledge: The Social Dimension of Harvesting Decision Made by Private Forest-Land Owners in Virginia." Ph.D. dissertation, Department of Forestry, Michigan State University, East Lansing, MI.
- Jeffery, R. 1997. *Organizing Sustainability: NGOs and Joint Forest Management Agreements in India*. Edinburgh: Centre for South Asian Studies, University of Edinburgh.
- Jodha, N. S. 1990. *Rural Common Property Resources: Contributions and Crisis*. New Delhi: Society for Promotion and Wastelands Development.



- Jodha, N. S. 1992. *Common Property Resources: A Missing Dimension of Development Strategies*. Washington, DC: World Bank Discussion Paper 169.
- Kashio, M. 1995 "Sustainable Forest Management in Asia and the Pacific." in *Implementing Sustainable Forest Management in Asia and the Pacific*. Proceeding of a Regional Expert Consultation held in Bangkok from December 12-15, 1995, RAP Publication: 1997/7.
- Kellert, S. 1979. *Public Attitude toward Critical Wildlife and Natural Habitat Issues*. Washington D.C.:US. Department of Interior, Fish and Wildlife Service.
- King, J. 1989, "Yogurt-eaters for Wilderness." *Sierra* 74:22-23.
- Kongsangchai, Jitt. 1997. "Thailand" in *Asia Productivity Organization, Perspectives on Forestry Resources Management*. Tokyo: Asian Productivity Organization.
- Krishaswamy, A. 1995. "Sustainable Development and Community Forest Management in Bihar, India." *Society and Natural Resources* 8: 339-350.
- Mekavichai, Banasopit. 1988. "The Teak Industry in North Thailand: The Role of a Natural Resource Based Export Economy and Regional Development." Ph.D. dissertation, Cornell University, Ithaca, NY.
- Messerschmidt, D.A, ed. 1993. *Common Forest Resource Management: Annotated Bibliography of Asia, Africa and Latin America*. Community Forestry Note 11, Rome: Food and Agricultural Organization of the United Nations.
- Molnar, A. 1981. "Nepal-The Dynamics of Traditional Systems of Forest Management: Implications for the Community Forestry Development Project." Report to the World Bank.



- Negi, S.S. 1996. *Forests for Socio-economic and Rural Development in India*. New Delhi: MD Publication PVT Ltd.
- Nelson, Charles Martin. 1988. "Beliefs, Attitudes and Political Behavior of Selected Michigan Forest Recreationists Concerning Forest Management in Michigan." Ph.D. dissertation, Department of Forestry, Michigan State University, East Lansing, MI.
- Office of Environment Policy and Planning. 1997. *Thailand's Country Report to UN Commission on Sustainable Development: Thailand's Action for Sustainable Development*. Ministry of Science, Technology and Environment.
- Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Ostrom, E. 1992. "The Rudiments of a Theory of the Origins, Survival, and Performance of Common-property Institutions," in *Making the Commons Work: Theory, Practice and Policy*. edited by D.W. Bromley San Francisco, Ca: ICS Press.
- Padmanabhan, K.H. 1981. "A Hierarchical Model of the Causal Relations between Environmental Attitudes, Beliefs and Behavior: with Specific Data Relating to the Recycling of Beer Containers." Ph.D. dissertation, Department of Business Administration, Michigan State University, East Lansing, MI.
- Panday, K. K. 1992. "Grassroots Initiatives in Reviving Nepal's Forestry Resources." in *Conservation for Development: A Himalayan Perspective*. Proceedings of the Annual TRI/ISTF Student Conference, Yale University, CT.
- Pandey, S. 1988. "Jarajuri-A Nepal NGO with a Difference," *Tigerpaper* 15:11-13.

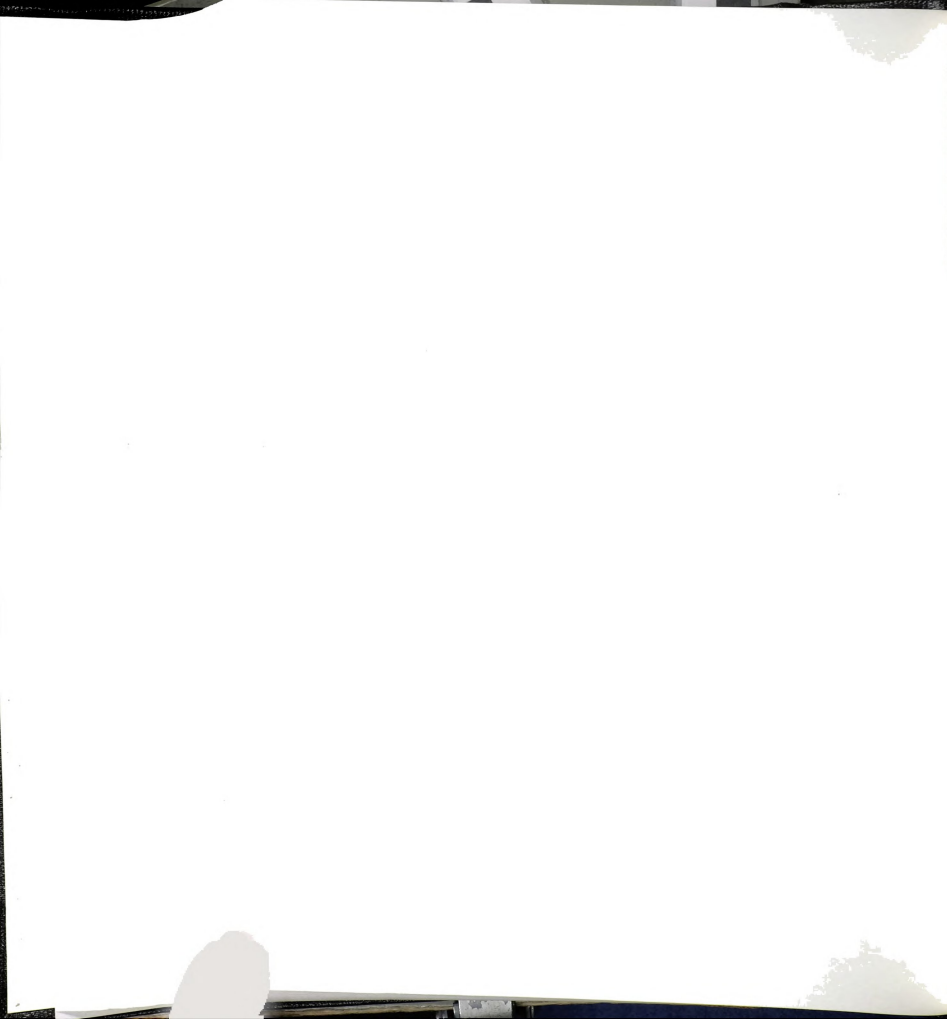


- Pandey, S. and G. N. Yadama. 1990. "Conditions for Local Level Community Forestry Action: A Theoretical Explanation." *Mountain Research and Development* 10:88-95.
- Poffenberger, Mark, ed. 1990. *Keepers of the Forest: Land Management Alternatives in Southeast Asia*. CT: Kumarian Press.
- Poffenberger, M. and B. McGean, eds. 1994. *Policy Dialogue on Natural Forest Regeneration and Community Management*. Research Network Report. Honolulu: Asia Sustainable Forest Management Network.
- Poeffenberger, Mark and B. McGean, eds. 1996. *Village Voices, Forest Choices: Joint forest management in India*. New Delhi: Oxford University Press.
- Pratong, Kamon. 1993. "Social Forestry in Thailand: Policy Evolution and Institution Arrangements." *Regional Development Dialogue* 14: 59-69.
- Puntasen, Apichi. 1996. "The Tambon Council and Community Forest Management," in *Seeing Forests for Trees: Environment and Environmentalism in Thailand*, edited by Philip Hirsch, Chiangmai, Thailand: Silk Worm Books.
- Ramitanondh, Shalardchai. 1989. "Forests and Deforestation in Thailand: A Pan-disciplinary Approach." in *Culture and Environment in Thailand*. A Symposium of the Siam Society, Bangkok: Siam Society under Royal Patronage.
- Sharma, Narendra P, ed. 1992. *Managing the World's Forests: Looking for Balance between Conservation and Development*. Dubuque, Iowa: Kendall/Hunt Publisher Co.
- Subhadhira, Sukaesinee, ed. 1987. "Fuelwood Situation and Farmers' Adjustment in Northeastern Thai villages." in *Proceedings of the 1985 International Conference on Rapid Rural Appriasal*. Khon Kaen University





- Uphoff, N.T. 1986. *Local Institutional Development: An Analytical Sourcebook Cases*. West Hartford, CT: Kumarian Press.
- Vitayakon, Patma. 1993. "The Traditional Trees-in-paddy-fields Agroecosystem of Northeast Thailand: Its Potential for Agroforestry Development." *Regional Development Dialogue* 14:125-148
- Viyouth, Chamruspanth. 1993. "Legal Issues in Forest Land Management in Northeast Thailand." Pp. 89-104 in *Legal Framework for Forest Management in Asia: Case Studies of Community/State Relation*, edited by J. Fox. Honolulu: East-West Center.
- Wade, Robert. 1987. *Village Republics*. Cambridge: Cambridge University Press.
- Wade, Robert. 1992. "Common Property Resource Management in South Indian Villages." in *Making the Commons Work, Theory, Practice and Policy*, edited by D. W. Bromley. San Francisco, CA: ICS Press.
- Wickramanighe, Anoja. 1997. *Gender-Specific Features in Forest and Tree Uses in South and Southeast Asia*. Research Report No. 19 Submitted to the Forestry Fuelwood Research and Development Project, Bangkok, Thailand.
- Wittayapak, Chusak. 1994. "Local Institutions in Common Property Resources: A Case Study of Community-Based Watershed Management in Northern Thailand." Ph.D. dissertation, University of Victoria.





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