

Impacts of Forest-related Policies on Local People in the Phou Xang He Protected Area, Savannakhet Province, Laos

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Abstract: This report is one of the results of research conducted jointly by the Faculty of Forestry, the National University of Laos and the Forest Conservation Project, the Institute for Global Environmental Strategies (Japan) between September 2001 and March 2004. It aims to contribute towards developing effective village action guidelines (VAG), local policy guidelines (LPG), and sustainable forest management practices in national biodiversity conservation areas (NBCA) in Laos.

Field research was conducted on the land and forest use practices of the local people, and the impacts of implementing new forest policies were observed in three of the villages connected with the protected area. The progress of the government's land and forest allocation (LFA) program is very advanced in these areas, because it was implemented with local participation. Unfortunately, insufficient budget resources as well as low levels of capacity for implementation, including follow-up, have hindered proper implementation, and these are problems that need to be solved. On the other hand, some beneficial impacts can be observed, such as a decrease in the land area used for swidden agriculture and a high awareness of the NBCA among the local people. It was found that effective forest management can be accomplished by implementing policies with consideration of existing land and forest use of the local people.

Key words: Local people, National biodiversity conservation area, Land and forest allocation program, Savannakhet, Laos

1. Introduction

1.1 Research objective

The objective of the joint research between the Faculty of Forestry, the National University of Laos (FoF) and the Forest Conservation Project, the Institute for Global Environmental Strategies (IGES) is to develop strategies for desirable forest conservation and sustainable forest management (Inoue 2001). To achieve this target, FoF and IGES will develop village action guidelines (VAG) at the village level as well as local policy guidelines (LPG) at the local level through the participatory method.¹

For the purpose of applicability of guidelines, two sites with different natural conditions were selected for research—one is richly forested and the other is a degraded forest area. In this report, the national biodiversity conservation area (NBCA) designated by the government of Laos, a richly forested site, will be introduced for the case study.

The objective of this research is to examine the actual land and forest use of the local people and the policy implementation of the local authority, and then analyze the impacts of the forest policy on the local people.

1.2 Research methodology

This work is composed of field research in the villages and interviews and data collection at local authorities and other concerned institutions and then data analysis.

The field research was carried out by using the participatory action research (PAR) method (Emadi et al. 1992). This research project is presently in the first stage of the PAR method, namely, the investigation phase. Actual research data come from a basic line survey in the village, which included using the wealth ranking method (Inoue 1998). In addition, interviews with key individuals and household surveys were conducted. At the local level, interviews with key informants and data collection in the villages were conducted.



Photo 1: Conducting interviews with village key informants at Kengyao Village, November 2002.
(Photo: K. Hyakumura)

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¹ The aim of developing the VAG and LPG is to enhance the participation of local people in forest management and support the central forestry government and local forestry administration, which is expected to satisfy the needs of local people, local governments, and local NGOs.

1.3 Reason for selecting target villages

The relationship of location between the village and the NBCA is considered an important criterion influencing the forest use of the local people. According to Christopher (1998), four types of villages can be identified in the area, as follows:

- Type 1 - Village located totally within the NBCA
This is often termed an “enclave” village, and the nature of their location suggests that they will have a major impact upon and a major role within the NBCA and its management.
- Type 2 - Village whose boundaries overlap those of the NBCA
A village type where the actual dwellings are usually located outside the NBCA, but whose village forest is located partly within the NBCA boundaries.
- Type 3 - Village adjacent to NBCA
In this case, the village and NBCA share a common boundary, often because both boundaries are defined by a significant geographical feature such as a mountain ridge or river. Village authorities thought that village boundaries did not go into or overlap the NBCA, and thus they “claimed” the village boundaries up to the edge of the NBCA.
- Type 4 - Village distant from but “using” the NBCA
The boundaries of this village type do not overlap or share a common border with the NBCA, and may be some distance from it; however, villagers might enter the NBCA either to pass through it or to collect natural resources.

In this study we seek to clarify the impacts of the NBCA-related policies on the activities of the local people. Therefore, village types 1 and 2, which have more impact on the NBCA, were selected as the focus for research. Another criterion is the differences in the steps and procedures of the land and forest allocation program (LFA) employed by the government in each village (see Chapter 3, *The present status of the land and forest allocation program in Savannakhet Province*).

To avoid any misunderstanding or bias of differences between ethnic groups, the same ethnic group was represented in each target village type selected—the *Bru* ethnic group (*Mang Kong*, or *Makong*), who speak the Mon-Khmer language and belong to the Upland Lao

(*Lao Theung*).²

The three target villages were selected based on the following criteria:

- Nalay Village - A village whose boundaries overlap those of the NBCA (Type 2). The LFA program has been conducted, and land for agriculture was allocated to the local people.
- Namuang Village - A village whose boundaries overlap those of the NBCA (Type 2). The LFA program has been conducted, but land for agriculture was not allocated to the local people.
- Kengyao Village - A village located totally within NBCA (Type1). The LFA program has not been conducted yet (as of December 2003).

2. Phou Xang He National Biodiversity Conservation Area

2.1 General description

2.1.1 Background

In 1993, eighteen NBCAs were established by Prime Minister Decree No. 164; two more were added in 1995 (Dong Phou Viang) and 1996 (Xe Sap). The establishment of a protected area system was the start of a long-term process of developing a management system capable of protecting areas for the good of the entire nation. The Phou Xang He NBCA is one of the first eighteen NBCAs that were established on 29 October 1993 in order to promote biodiversity conservation and ensure the sustainability of natural scenery, ecotourism, education, and scientific research sites (Bermuller et al. 1995).

A new decree of the Ministry of Agriculture and Forestry No. 0524 (MAF/No.524) issued regulations on controlling NBCAs and wildlife on 7 June 2001.

2.1.2 Location

The Phou Xang He NBCA is located in the center of Savannakhet Province, a mountainous region between 16°42' to 16°04' north latitude and 105°19' to 106°06' east longitude (Figure 1). The total area measures 109,900 hectares, and about 80 percent of it is probably claimed by villages or included inside their boundaries. It extends over five districts: Atsaphone, 30 percent; Phalanxai, 22 percent; Phin, 10 percent; Xepon, 4 percent; and Vilaboury, 34 percent. There are ten villages inside the NBCA, while the territories of 49 villages overlap it and 21 villages are adjacent to it (Savannakhet PAFO 2002a; Savannakhet PAFO 2002b).

² In Laos, ethnic groups can be classified into three groups: *Lao Lum* (Lowland Lao), 56 percent; *Lao Theung* (Upland Lao), 34 percent; and *Lao Soung* (Highland Lao), 9 percent.

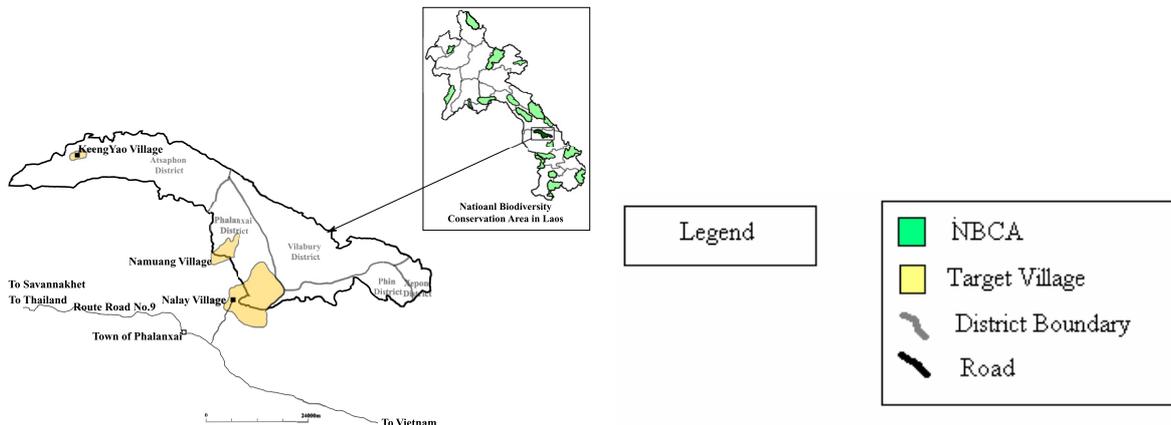


Figure 1. Location map of Phou Xang He NBCA.

2.1.3 Boundaries

For the most part, the boundary of Phou Xang He NCBA is easily discernible as where the land starts to rise at the base of the Phou Xang He and Phou Hino-Katong Mountains. The only exception to this is a lowland corridor zone between these two groups of mountains that is bounded to the north by the Dong Xe Bai forest in Vilaboury District and to the south by the Houay Alom and Houay Xeloun Streams in Phin District. The NBCA boundary follows the Phou Xang He Mountains escarpment for most of its northern length; it is bounded by the Xe Namkok River to the east, in Xepon District, and to the south by the Houay Thinyalong Stream, in Phalanxai District, and the Palanhin Phou-takouan Rock Pan in Atsaphone District.

2.1.4 Accessibility

The Phou Xang He NBCA is accessible from the south for its entire length via numerous tracks and paths leading from National Route No. 9. Its northern border can be reached from the road through Mahaxai District of Khammouane Province, Vilaboury District, and by Provincial Route No. 10 from Xepon to Vilaboury, but the NBCA itself is largely inaccessible from this direction due to steep escarpments. Access to the corridor zone is possible from Vilaboury to the north and Phin District to the south, but vehicle traffic is limited to the dry season. Access to the Phou Hino-Katong Mountains is possible in some areas, but only during the dry season and only for quite short distances into the NBCA. Access to the NBCA will likely increase markedly post-2000 with the completion of a number of planned or on-going road projects. Access from Vilaboury and the north will be eased with the new road from Mahaxai District, as will access from the east, when the on-going improvements to the Xepon-Vilaboury road are completed.

2.1.5 Topography

Topographically, the Phou Xang He NBCA comprises two mountain ranges oriented northwest-southwest: the

Phou Xang He Mountains and the Phou Hino-Katong Mountains. To the north and northeast, the Phou Xang He Range is dominated by steep sandstone escarpments, while slopes to the south and the west rise more gently to the plateau. Sandstone outcrops occur throughout the NBCA, and can be quite extensive, particularly on the southern aspects of the Phou Xang He Range.

The NBCA contains no standing water bodies, and many of its creeks and small rivers are highly seasonal. Indeed, the plateau and higher slopes are extremely arid in the dry season, and many large mammals are forced to migrate to lower elevations for water at that time. The NBCA is drained to the south by the Xe Xangxoy River, Xe Thamouak River, and Xe Champhon River, and to the north by the Xe Bay and the Xe Noy Rivers.

The Phou Xang He NBCA is somewhat unique in the presence of the lowland area between the Phou Xang He Range and the two hills. Although still largely forested, the corridor zone has been settled and contains eight enclave villages (Type I).³ The elevation of the NBCA ranges from 150 to 794 meters above sea level.

2.1.6 Main farming systems

The farming system used by the local people generally depends mostly on nature, a tradition long practiced by their ancestors. Rice cultivation begins by the end of May, mostly using a local variety of rice, and it is harvested between October and November. According to the availability of water, shorter-age rice is cultivated in the higher elevations, while middle-age rice is cultivated in the lower elevations. Swidden agriculture begins in February to March, and harvesting occurs between October and the beginning of November.

2.2 Past and on-going forestry-related projects conducted in the Phou Xang He NBCA

Given the objectives of creating NBCAs of the government of Laos, land-use planning and conservation

³ Please refer to Section 1.3 above.

activities have been implemented. These include a land and forest allocation program (LFA) that was conducted from 1996 to 2001 in some villages whose territories are connected to each other and inside the NBCA, under joint funding support from the Lao Swedish Forestry Program (LSFP).⁴ Since 2001, the government has been the sole funder of the LFA activities in the remaining villages.

The government of Laos has given priority to strategies to protect biodiversity and conserve natural resources by establishing development projects to support the Phou Xang He NBCA. These projects and activities are listed as follows:

- From 1996 to 2000, the LSFP carried out the protected area management program.
- The Action Nord Sud Organization carried out its food security project from 1998 to 2002 in four mountainous districts (Phin, Xepon, Vilaboury, and Nong).
- The IUCN conducted its wildlife conservation project from 1995 to 1997.⁵
- The Netherlands Development Organization has carried out its ecotourism support project from 2002 until the present.

The government of Laos continues to contribute some of its national budget to these activities.

For the purpose of rural development in remote areas, focal sites were established in the Phon Ngam zone in Atsaphone District in 1995/96, Lako zone in Xepon in 1996/97, Namlo-Angkham in Vilaboury District in 1997/98, Houay Hoy-Thoukham zone in Phin District in 1998/99, Kengchip-Nalay in Phalanxai District in 1999/2000, and Latho zone in Xepon District in 1999/2000. The focal project site in Kengchip-Nalay includes the villages of Nalay and Namuang (selected for this research).

3. The present status of the land and forest allocation program in Savannakhet Province.

In August 1996, Prime Minister Decree No. 3 (No. 3/PM) and the Instruction on Land and Forest Allocation (No.822/AF) were promulgated. According to these, the government allocates cultivated land and degraded forest to local individuals and recognizes their possession and inheritance rights, giving them the right of land use under agreement between village authorities and local authorities. On the other hand, the government assigns responsibility of forest management inside the territory of the village to the local people.

In the LFA process at the provincial level, the highest decision-making organization is the Land Management and Land and Forest Allocation Committee under the Provincial Office. The committee is responsible for all activities; however, this program is managed and implemented by the Extension Section of the Provincial Agricultural and Forestry Office (PAFO). Implementation of the program is carried out at the village level by the District Agricultural and Forestry Offices (DAFO). Each DAFO must make a plan for implementation every fiscal year, based on the budget, in the collaboration with related district organizations, i.e., the district office, tax office, and education office.

In the case of Savannakhet Province, the LFA program has already been conducted in 171 villages since 1996 (see Table 1). In the past, foreign donors (i.e., LSFP and FOMACOP)⁶ supported technical transfers and supplied funds for implementation activities for integrating the skills of DAFO staff as well as for acquiring land-use rights for local people. In many cases, these functioned as a kind of pilot project to extend the LFA program's activities. Since 2001 the government of Laos has conducted the program on its own initiative, and is carrying it out in 120 to 130 villages every year (Hyakumura 2002). The program must be conducted promptly in order to decrease the forest area affected by swidden agriculture, with the goal of eliminating the practice of "slash-and-burn cultivation" in Laos by 2005 (*Vientiane Times* 2001).

⁴ The Lao Swedish Forestry Program is a support organization on forestry supported by the Swedish government.

⁵ IUCN (The World Conservation Union).

⁶ FOMACOP is an organization (World Bank and Finland) that supports forestry issues through its forest management conservation program.

Table 1. Progresses and targets of the land and forest allocation program in Savannakhet Province.

Name of district	1996-2000	2001	2002	2003	2004	2005	Number of villages
1 Khanthabouly	12	20	24	13	13	12	94
2 Champhone	11	4	3	53	52	47	170
3 Songkhon	18	13	2	37	37	35	142
4 Sonbuly	5	5	5	31	31	30	107
5 Thapangthong	22	5	5	15	15	15	77
6 Outounphoun	5	7	8	29	29	28	106
7 Atsaphone	5	3	2	17	17	17	61
8 Atsaphangthong	8	5	5	27	27	25	97
9 Phalanxai	7	11	5	19	19	17	78
10 Sayphouthong	11	6	2	15	15	14	63
11 Saybouly	3	9	10	23	23	21	89
12 Phin	27	9	44	12	12	12	116
13 Xepon	8	12	35	35	35	35	160
14 Nong	11	13	35	7	7	5	78
15 Vilaboury	19	7	33	15	15	15	103
Total	171	129	218	348	347	328	1,541

Source: Data of the Land and Forest Allocation Unit, PAFO Savannakhet, As of 21 February 2002.

4. Nalay Village

4.1 General description

4.1.1 Demography

In the village of Nalay (*Ban Nalay*) there are 832 inhabitants (185 families living in 145 households), of which 447 are female and 212 are children (14 are old or disabled men). The main labor force numbers 263 individuals (135 female), plus 98 substitute laborers. The inhabitants, who believe in spirits, belong to the *Bru*, or *Mang Kong*, minority of the Mon-Khmer of the *Lao Theung* ethnic group. Generally, they have a low level of education—none have graduated from secondary school, while only 87 inhabitants can read the written Lao language. In the school, which was constructed with the participatory funding of the villagers and the district, there are only three teachers.

4.1.2 Village history

Nalay is an old village located partly inside the Phou Xang He NBCA; its boundary includes the NBCA and the Dong Kapho Production Forest in Phalanxai District of Savannakhet Province. According to the old men in the village, Nalay was established in 1763 under the leadership of Thao Phia Phommaxay, who named it *Ban Khonglai*. It was formed by only four families, who migrated from Nounoi Oinou Village in the eastern part of Khammouane Province, and were joined along the west

side of the Mekong River by Siam soldiers, mostly from Hinkeo Village, Sakon Nakone Province in Thailand, after their defeat by the Daiviet Kingdom of Vietnam. In the twentieth century (1910) the French conquered the village, and changed its name from Khonglai to Nalay.

4.1.3 Access

The village of Nalay is situated in the eastern lower part of the Phou Xang He Mountains, along the Xe Xangxoy River, 20 kilometers from the north part of Phalanxai District (see Figure 2). This is a remote area, where it is difficult to reach outside villages, because the only access is an unpaved road, and many streams obstruct the route, especially in the rainy season.

4.1.4 Infrastructure

Nalay is one of the many villages in Laos still suffering from a lack of facilities and infrastructure. Even as the main focal site (Kengchip-Nalay) of the province's rural development project,⁷ the living conditions of the population are difficult, and they still depend largely on nature to survive. Besides this, communication with the outside world is very limited—there are no telephone lines, post office, newspapers, or journals. The only fuel available for lighting is oleoresin (from the Dipterocarp tree) or oil (petrol), and water is taken, untreated, from wells, springs, or nearby rivers or streams.

⁷ For more, see Chapter 4.2.

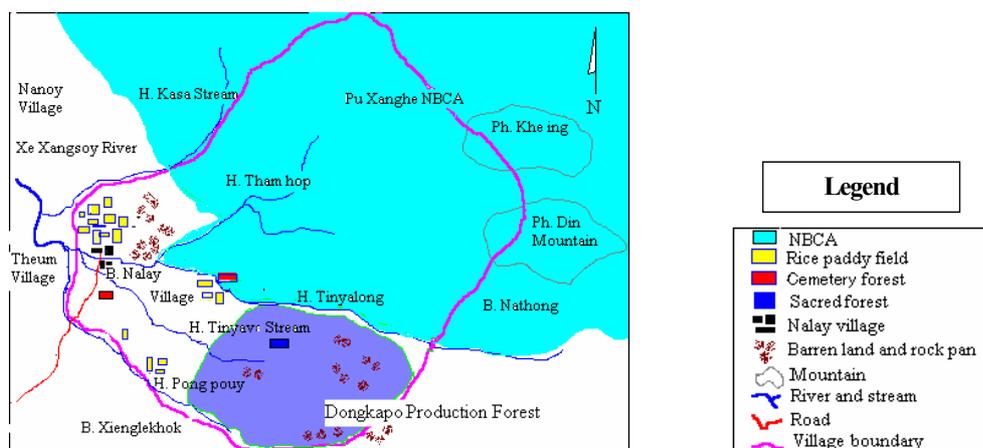


Figure 2. Map of Nalay Village.
(Prepared by T. Khotpathoum)

4.1.5 Landforms

According to the LFA conducted by the LSFP in 1998, the village of Nalay borders with the following villages: (SIDA 1998)

- the villages of NaBo Nuea and NaBo Tay and the Phou Xang He NBCA to the north
- Xienglekhok Village to the south
- the Phou Xang He NBCA, Nathong Village, and the Dong Kapho production forest to the east
- the villages of NaBo Tay and Theum to the west

The general sizes of the various areas are shown below in Table 2.

Table 2. Land areas comprising Nalay Village.

Land category	Area (hectares)
1 NBCA	5,672.0
2 Joint management forest	1,574.0
3 Protection forest for river bank	148.0
4 Forest area and conservation land	20.0
5 Rehabilitation forest	568.0
6 Sacred forest	12.8
7 Cemetery area	3.5
8 Utilization and reserve forest	1,623.4
9 Rice field	75.0
10 Reserve area for agriculture production	93.6
11 Houses and roads	23.6
12 Rock pan	29.0
13 River body	16.8
Total	9,859.7

Source: SIDA (1998).

4.2 Development projects

Of the three target study areas in Savannakhet Prov-

ince, the village of Nalay has benefited from more development projects (outlined below), both from the government of Laos and international organizations, than the villages of Namuang and Kengyao.

- In 1998, the LSFP supported the LFA program in Nalay and provided funding for cultivating land and building small weirs.
- In 1999/2000, the government of Laos established Kengchip-Nalay as a district zone and developed a rural development project to strengthen the village institutions in agriculture, communications, education, and to create permanent jobs through raising poultry (but just at the preliminary stages).
- In 2000, a project of World Vision Laos, with funding support from England, provided support for cultivating rice during the dry season by providing loans for purchasing water pumps and fertilizer, but it has not been continued because most people couldn't pay back their loans.
- In 2002, the government began construction of a nine-kilometer secondary road from National Route No. 9 to the village, and it is about 70 per cent finished.

4.3 Livelihood systems

4.3.1 Income sources

The main income-generating activities of the people are rice field production and raising livestock such as pigs and chickens. Besides these, the local people go into the forest to collect non-timber forest products (NTFP) like cardamom, seesiat bark (*Pentace burmanica*), dammar resin (from *Dipterocarpus tuberculatus*), and rattan. All the NTFPs that they collect can be sold in the villages; otherwise they go to the market in Phalanxai District. Some families derive income from producing small handicrafts or being hired to cultivate rice fields,

make weirs, or cut wood in Nalay or the neighboring village.

4.3.2 Farming systems

People cultivate rice in the uplands and in their gardens, but they still depend mostly on nature, especially the rainy season, for producing rice. (They tried cultivating rice during the 2000/2001 dry season, but it wasn't overly successful and they recently stopped.) Rain-fed rice cultivation begins at the end of May to June, and harvesting occurs from October to November (fast-growing rice takes three months and slow-growing rice takes four to five months). Most rice seeds used are an improved breed variety, but local rice seed is also still planted. Normally, people cultivate fast-growing rice in the higher elevations and slow-growing rice in the lower elevations because of the availability of water. Swidden agriculture begins with slashing from February to March, burning from March to April, area preparation and planting in May, and harvesting from October to November. In the upland areas, the people cultivate not only rice but also secondary crops like cassava, maize, cucumber, and chili, as is practiced by the cultivators throughout the country. People also cultivate gardens around their houses (vegetables such as eggplant, chili, cucumber, etc.), and during the dry season, from January to May, they mostly cultivate alongside the Xe Xangxoy River.

The villagers of Nalay, which belong to the *Bru*, or *Mang Kong*, minority ethnic group, cultivate rice using traditional methods, much like other villagers elsewhere in the country. Before beginning the seasonal production of upland rice in June they conduct rituals to pray to their ancestors for protection of their crops, and then in December they offer thanks for the year's harvest. Paddy field cultivation does not require much ritual, but its success depends on the villager's traditional beliefs and practices passed on through the generations.

4.4 Village organization

In terms of organizational structure, the head of the village (*naiban*) generally directs the affairs of the village, along with consultation of the senior union section (*neohoom*) and the assistance of two deputies overseeing seven units (see Figure 3).

The village head and two deputies are elected by the villagers, and then approved by the district government. The persons in the senior union section are selected according to their age, experience, circumstances, and the respect they are given by their own villagers. The committee members are assigned their responsibilities according to their tasks, as shown in Figure 3.

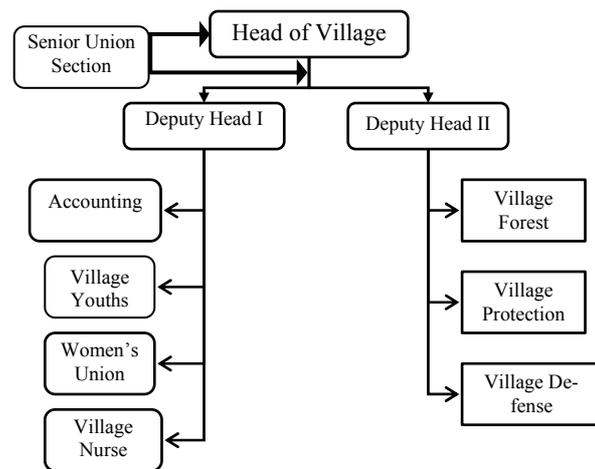


Figure 3. Organizational structure of Nalay Village.

4.5 Forest use

Nalay Village is inside the Kengchip-Nalay focal site, one of the government's rural development project. The living conditions of people here are improving step-by-step, but most are still connected to nature through their use of natural resources for their daily needs such as fuel, light, food, warmth, and materials to build their homes. The forest provides them with most of their livelihood needs, i.e., rattan shoots, rattan string, and small wildlife, and some materials are of value for sale or barter to the neighboring village, such as cardamom and the bark of the *seesiat* tree (*Pentace burmanica*).

4.6 Protected area activities

The Phou Xang He NBCA was established in 1993 by Prime Minister Decree No. 164 from the central government. It was around 1996 when the LSFP started up by introducing the funding for the protected area in Savannakhet Province. The local people in Nalay Village became aware of the existence of the NBCA when DAFO planned out the land use management of the village through the LFA process in early 1998 (DAFO was provided funding for the protected area in affected districts around 1998). Under the LFA program, one of the efforts made was local notification of the NBCA.

4.7 Land and forest allocation program (LFA)

The LFA program was carried out in the village from 29 January to 14 February 1998, with support from the LSFP. As a consequence, the territory of the village was set as comprising 10,035 hectares, and of that, 5,672 hectares (about 57 percent) overlaps the territory of the NBCA (DAFO Phalanxai 1998). The NBCA zoning in Nalay was carried out under the LFA by DAFO; however, the LSFP had also set up Nalay as a model village of the program. It created a draft land-use plan, including a land-use map initially based on interviews and data collection from the local people, paying attention to the

rights of traditional land use. During a three-week-long process, the draft and the program and its implementation were discussed.

At this point, the professional-guided participatory approach⁸ employed by LSFP was very useful for both drafts of the plan, which were based on data analysis, including natural and socio-economic aspects and the possibility of being adapted to people’s opinions.

The traditional village boundary between Nalay and the neighboring village was already fixed in the flat area, and this system prevented conflicts between them over intensively used resources such as agricultural land and NTFPs. In the LFA process in Nalay, this traditional boundary was regarded as the official one. On the other hand, the boundary of the mountainous area between Nalay and the neighboring village could not be close to or overlap with the NBCA area, because there was little incentive for local people to use natural resources in the area. Upon the suggestion of the LSFP, the boundary between those villages has been set close together in order to expand their territory. The intention of the above measure was to try to prevent the trespass of local people into the core zone, which has been managed by the government, for expanding the territory of the village, as well as to legally retain the local people’s rights to land and forest use.

All of the NBCA within the territory of the village, however, is regarded as a core zone, although the program can allow local people to use the forest in the area concerned. The LSFP came to the conclusion that the area where the NBCA overlapped with the territory of the village was essential to biodiversity conservation, including providing a source of water for elephants. This infers that the LSFP wavered between biodiversity conservation and forest use by local people.



Photo2: Land Use Map at Nalay Village, January 2000.
(Photo: K. Hyakumura)

4.8 Changes in livelihood: the influence of the NBCA and LFA

4.8.1 The decrease in swidden agriculture

According to our survey, using the wealth-ranking method, the LFA program caused the number of households that conducted swidden agriculture to decrease rapidly, dropping from 91 percent to 53 percent (Table 3).

As for the number of households conducting swidden agriculture at each economic level, in the rich level it decreased from 91 percent to 36 percent. On the other hand, in the poor level, the decline was smaller, from 83 percent to 72 percent. The decrease of swidden land area under the LFA program has been most effective at the rich level.⁹

Interviews with the local people revealed the main reason why the area of swidden land was decreasing was because of the diversion and renouncement of swidden land. After the LFA program, cultivating land for rice as the staple food is supposed to be acquired from swidden land converted to paddy field or from new farmland.

Table 3. Changes in agriculture area as a result of the land and forest allocation program.

Economic level	Number of households practicing swidden agriculture				Number of households that acquired agricultural land	
	Before LFA program	(%)	After LFA program	(%)	After LFA program	(%)
Rich (n=11)	10	90.9	4	36.4	2	18.2
Middle (n=42)	40	95.2	12	28.6	18	42.9
Poor (n=65)	57	82.5	47	72.3	31	47.7
Total (n=118)	107	90.7	63	53.4	51	43.2

Source: Interviews in Nalay Village by the authors in January 2000.

Note: The LFA was carried out from January to February 1998.

⁸ A blueprint approach where residents are considered to be wage laborers, volunteers, fund providers, etc. See Inoue, Makoto. 2000. Participatory forest management. In *Rainforest ecosystems of East Kalimantan: El Niño, drought, fire, and human impacts*, ed. Edi Guharidja, Mansur Fatawi, Maman Sutisna, Tokunori Mori and Seiichi Ohta, 299–307. Springer Verlag.

⁹ Most of the swidden agriculture we describe in this report means that cultivation of the land is rotated in the same place for three to four years, and therefore the government and local people regard it as *suau*, or “garden.”

4.8.2 The acquisition of agricultural land

As for the acquisition of additional agricultural land, in examining the differences at each economic level, 18 percent of households at the rich level acquired land as a result of the LFA program, as did 43 percent of the middle level, and 48 percent of the poor level (Table 3). The reason why so few households in the rich level acquired agricultural land is that they already had enough land for rice cultivation, so they did not need any more. At the same time, many households of the middle and poor levels acquired agricultural lands because of their lack of land for rice cultivation.

But more than half of the middle and poor households were still not able to obtain any additional land because of a lack of suitable land available. Most of it that was offered for cultivation is dry dipterocarp forest, with many trees still remaining. Reclaiming this type of land for paddy fields is very difficult and requires considerable labor; it takes four laborers and one buffalo to cultivate just 0.2 hectares per year. In addition, taxes on this kind of occupied land are higher than that for normal agricultural land not needing reclamation. As a result, the households with not enough labor capacity were not able to acquire any land for cultivation.

Among the poor households who could not acquire land, many collected NTFPs for supplementary food. In times of insufficient rice harvest from the swidden lands, the local people were forced to collect more NTFPs than usual, and this put the rich forest products in the NBCA at risk.

5. Namuang Village

5.1 General description

5.1.1 Demography

The people of Namuang Village (*Ban Namuang*) also belong to the *Bru*, or *Mang Kong*, minority of the *Lao*

Theung ethnic group. The village has a population of 273 (66 families in 57 households), which includes 113 females. In the main labor force of 133, there are 49 females. As in the village of Nalay, the people here have a generally low level of education; most have attended grades one to three, but none have graduated from primary school. The people here believe in spirits, too. For example, they conduct a ritual, called “*Lapeup*,” once a year after harvest season, usually between January and March.

5.1.2 Village history

Namuang is a rather old village—more than 100 years old, according to the old villagers that originally moved from Lek Village. At that time, there were only two households, made up of Mr. Khut’s and Mr. Kheu’s families. Twenty years later, nine more families moved from Dankoy Village because of the more suitable conditions for growing rice and upland rice cultivation. Namuang Village was included in Atsaphangthong District until it was rezoned to Phalanxai District in 1997.

5.1.3 Accessibility

Namuang is located far from the center of the district and is difficult to reach; the only access is via a dirt road, and there are no bridges to cross the barriers of the Xe Kasok and Xe Xangsoy Rivers (Figure 4). Therefore, cars and trucks can only travel the 40-kilometer distance in the dry season. Almost all the villagers travel to the district on foot, bicycle, or by rice-field cultivator.

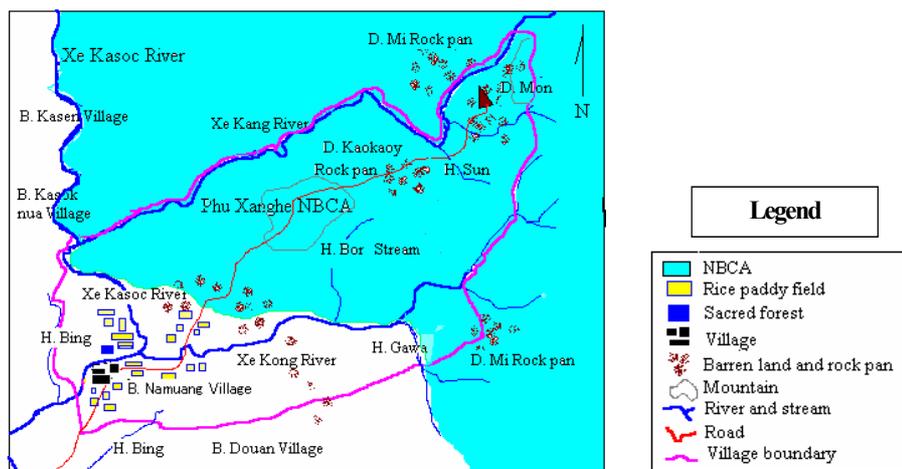


Figure 4. Map of Namuang Village.
(Prepared by T. Khotpathoum)

5.1.4 Infrastructure

Namuang is another village facing difficulties because of a lack of facilities and infrastructure. Even though it's the main focal site for rural development in the province (Kengchip-Nalay), the living conditions of the population are still difficult and mostly dependent on natural resources. Outside communication is difficult, because there is no telephone line or post office. Fuel material is oleoresin (resin of *Dipterocarpus alatus*) or petrol lamp (no electricity and gas), and water is gotten from wells, a spring, or the rivers.

5.1.5 Land forms

According to a topographical map and an actual survey, the area of this village is mountainous, consisting of forests and rock pan. The flat area, which is cultivated, is located along the Xe Kasok and Xe Kong Rivers. A description of the surrounding area is as follows:

- Phou Xang He NBCA and Dan Mi Rock Pan to the east
- Kasok Nua Village to the west
- Xe Kang River and Kasen Village and Phou Xang He NBCA to the north
- Douan Village to the south

The village's total area is 156.76 hectares and the land is classified as NBCA (SIDA 2000), protection forest, rehabilitation forest, production forest, cemetery area, sacred forest, and village reserve forest, but the exact sizes of these areas have not yet been measured because of a lack of staff and professionals.

5.2 Development project

The village of Namuang has not had the benefit of as many development projects as Nalay. In 1998, however, the United Nations Children's Fund (UNICEF) dug a well and installed a hand-powered water pump. In 1999, the agricultural and forestry extension district staff came with a support project from the government of Laos for raising poultry and upgrading agricultural production activities, but it was not successful because of problems with disease and a lack of interest on the part of farmers to cultivate rice in the dry season. In 2002, the health care district staff dug another well and installed another hand-powered water pump. This was included in a sanitation water project operated by the district health care section, as part of the provincial program's contribution for villages in remote and mountainous areas.

5.3 Livelihood systems

5.3.1 Income sources

The main economic activities of the people are rice paddy cultivation and raising livestock such as pigs and chickens, etc. They also go into the forest to collect NTFPs such as damar resin (*Dipterocarpus tuberculatus*) resin, rattan string, and oleoresin (resin of *Dipterocarpus alatus*), which are sold to dealers who periodically visit the village. Some villagers are hired for paddy field work or sawing wood by neighboring villagers.

5.3.2 Farming systems

Rice paddy and upland rice cultivation depend primarily on the cycles of nature, a tradition practiced for many generations. Rice paddy cultivation begins from the end of May, and harvesting occurs between October and December, depending on the type of rice seed planted. Most of the seed the farmers plant is obtained locally; improved varieties are not used much. Upland cultivation, or swidden agriculture, begins by slashing in February to March, burning from March to May, site preparation and planting in June, and harvesting from October to November. Besides planting rice for their staple food, people cultivate secondary crops such as maize, cucumber, chili, and tubers.

The main activity of the villagers is rice cultivation, employing the same practices used by their ancestors over many generations in the same vegetable garden. Some families inherited land from their parents and ancestors, while some continue to open up new areas for cultivation. As with other traditions, they conduct a celebration ritual before production season, known as "Phi-ta-hek" (the spirits of paddy fields). Selecting the day of celebration is decided by the head of the family. When cultivating their vegetable gardens, the villagers must inform the spirits (that they believe live there) of their actions. Before slashing and burning, or cultivating the rice paddies, they must conduct a secret ceremony, offering food and drink such as a chicken and local wine. From June to December, the forest is off-limits, and no one is allowed in to cut wood for building materials.

5.4 Village organizations

In the village's general organizational structure, the head of the village (*naiban*) makes and carries out decisions after consultation with the senior union section (*neohoom*) and the assistance of two deputies, as shown

in Figure 5.

The village head is elected by the villagers and then approved by the district government. Then the village head and senior persons select the two deputies and organization committee members, and they also assign the head of each unit. There is no time limit on how long they can hold office; it depends on the respect they get from the rest of the villagers.

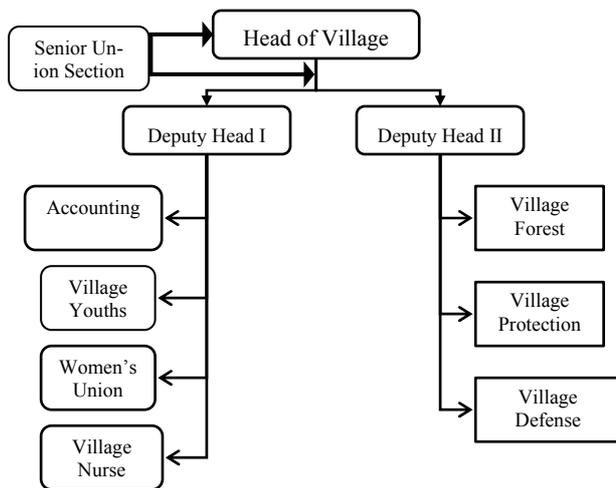


Figure 5. Organizational structure of Namuang Village.

5.5 Forest use

Namuang lies within the research area of Phalanxai District, which includes the area of the Phou Xang He NBCA. It is located in a remote area, which makes access difficult and hinders activities such as selling, buying, and exchanging goods. The villagers depend on nature for their livelihood; essential materials such as wood for house construction and fuel are all derived from the forest. The areas they cultivate are in and around the forest, and its impact on their lives cannot be underestimated.

5.6 Protected area activities

Since 1998, protected area management activities at Namuang Village have been conducted by DAFO. The budget for managing the protected area was appropriated by DAFO from the LSFP. Protected area activities could only be started after the LSFP provided financial support, the same as with Nalay Village, indicating that one of the main obstacles to conducting protected area activities is a lack of adequate funding. An indication of this is that it wasn't until five years after the establishment of the NBCA that the local people of Namuang Village actually were made aware of it.

Unfortunately, a signboard displaying the land-use map was not set up in the village. The traditional village boundary between Nalay and the neighboring villages was already fixed in the flat area, but not all of the local people were aware of the upper boundary of the Phou

Xang He Mountains area. Only the village leaders and members of the village's elder group could say where the boundary is located. There are two reasons for this lack of awareness: (1) demarcation of the boundary between villages was only shown on a map with verbal explanation; and (2) the local people think that knowing the boundary is not necessary because they don't depend on forest products in the upper reaches very much.

5.7 Land and forest allocation program (LFA)

The LFA program in Namuang was carried out by DAFO from 5 to 20 April 2000, and was linked to the activities of the LSFP. Although the program in the village of Nalay had financial support from the LSFP and the participation of foreign experts, the program in Namuang Village was funded solely by the LSFP. The intention was that the experience and lessons learned in the LFA activities in Namuang Village would be diffused by DAFO staff to other villages selected by the LSFP.

Although it took around two weeks to implement the LFA program in Namuang, the local people were not allocated agricultural land in the process. In consideration of the case study in Nalay Village, this amount of time could have been enough to allocate land to the local people. The process of allocating land to the local people might be skipped in Namuang altogether, but there is still a constant lack of rice in the village, and allocating land could alleviate this. The cause of the delay can be traced back to DAFO's lack of manpower, finances, and capacity building abilities.

According to the map of the NBCA, we know that part of the rice paddy field was located inside the NBCA. During the LFA process, DAFO's field staff re-delineated the border so this area was located beside the NBCA, a move that could be appraised as protecting the rights of local people to agricultural land. This alteration of the NBCA boundary indicates the flexibility of field-level policy application.

5.8 Changes in livelihood: the influences of the NBCA and the LFA program

After the LFA process, the local people reduced the size of land area used for swidden agriculture, but they could not procure any replacement land for agriculture; subsequently, they sought out alternative land or, if necessary, converted existing swidden areas into rice paddy fields.

The DAFO considers the agricultural land near the NBCA as being located outside its boundaries. Therefore, the local people haven't faced serious impacts to their agricultural land use, and they aren't regulated in their use of NTFPs or subject to any other specific constraints.

The local people did not use the land-use map produced by the LFA process, and therefore, most of them, even their key leaders, do not adequately understand the categories of land use and their regulation as set up during the LFA program. In reality, the local people still

abide by the rules of their traditional land use practices and rituals.

As far as reflecting the new forest policy in the village, it has had little impact on land use, except for reducing the practice and area of swidden agriculture.

6. Kengyao Village

6.1 General description

6.1.1 Demography

The villagers of Kengyao (*Ban Kengyao*) also belong to the *Bru*, or *Mang Kong*, minority of the *Lao Theung* ethnic group. There are 270 inhabitants in 49 families living in the village. They use traditional medicines from the wild, and they believe in the supernatural, as do the villagers in Nalay and Namuang. Generally, their education level is low; none of them completes secondary school. The majority of children attend school only until grade 3 (the top grade available in the village school) and then abandon their studies to help their parents with family work.

6.1.2 Village history

Kengyao Village has long history. It got its name after a change in government in 1975, and was originally derived from Thamkhuane Village, estimated to be more than 200 years old (according to the old villagers). At first, the village was situated three kilometers to the northwest of the present location, and then Houay Don Village was established seven kilometers to the east. Facing problems and difficult living conditions, the villagers moved again in 1933, along with the *Phu Tai* ethnic group, to Song Hong Village in Atsaphone District, about 18 kilometers away. Ten years later, they returned to their old village because of conflicts between the two ethnic groups over paying taxes (this was during the French-controlled era) and differing traditional beliefs, as well as being homesick for their original home. Seven families moved during the first migration, and five families moved during the second—each to an opposite site of the stream. Two years later (1944), they moved to the present location and named it Kengyao Village, after the name of the waterfall along the Houay Don Stream.

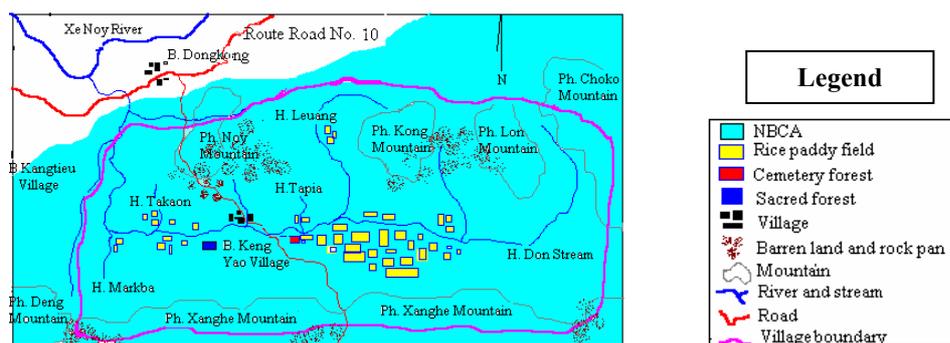


Figure 6. Map of Kengyao Village.

(Prepared by T. Khotpathoum)

6.1.3 Access

Kengyao is in a very remote area, and is the only village in Atsaphone District to be situated inside the Phou Xang He NBCA (Figure 1). Communication with the outside world is most difficult, especially to the district. There are two roads out of the village. The first goes north for five kilometers and then along provincial Route No.10 about 75 kilometers to Savannakhet. The second road is south of the village to Atsaphone District about 20 kilometers away. Both roads are unpaved and only accessible by car and truck during the dry season; otherwise, the only access is by bicycle.

6.1.4 Infrastructure

Kengyao is similar to the other remote villages in the country in its almost total dependence on nature, difficult living conditions, and lack of communication facilities, information, and newspapers, except for entertainment

from radios owned by some families. Wood is used for fuel and *Dipterocarpus* resin is used for light, and although some families use petrol lamps, electricity and gas are not yet used.

6.1.5 Land forms

Official demarcation of the village boundary has not yet been completed; the villagers still follow the traditional boundary. The LFA program has not been conducted in this village yet, but its territory is supposed to be included in the conservation program activities of the Phou Xang He NBCA. According to maps and an actual survey, the area is mostly mountainous—for the most part it is surrounded by bare land and rock—with Phou Choko Mountain to the east, Phou Xang He Mountain to the south, Kangtieu Village and Phou Deng Mountain to the west, and Phounoy Mountain to the north. The only flat area available for rice paddy cultivation is along the

Houay Don stream and its tributaries, such as Houay Leung and Houay Thamkhuane.

6.2 Development projects

There have been no significant development activities in this village, except for UNICEF's Clean Water Access Project, which drilled a well and installed a hand-powered pump in 1998—but the pump doesn't work anymore. Staff from another UNICEF project came to support the villager's livestock by supplying cattle feed in a kind of revolving fund for those who lacked funding up front.

6.3 Livelihood systems

6.3.1 Income sources

The majority of family incomes come from rice paddy cultivation, while a smaller amount comes from raising livestock such as pigs and chickens. Villagers generate extra income from selling or exchanging NTFPs and fish for rice with neighboring villages.

6.3.2 Farming systems

The farming system employed by the villagers generally depends on nature, a practice passed on from their ancestors. People in Kengyao mainly practice traditional rice paddy and swidden agriculture, with rights to cultivated areas having been transferred and shared by their children and grandchildren. According to their belief in supernatural spirits, they must conduct a family ritual before starting the production season to inform the spirits of their intentions and pray for their protection from wild animals that might harm the crops and for a good harvest.

Rice cultivation begins by the end of May, and harvesting occurs from October to November, depending on the growing time of the type of rice used, which is mostly of a local variety. According to the availability of water, faster-growing rice is planted in the higher areas and slower-growing rice in the lower areas. Villagers also grow cassava, maize, cucumber, chili, etc. Normally, slash cultivation begins from February to March, and burning occurs from March to April. Preparation and planting is done in May, and harvesting is done from October to the beginning of November. In reality, it depends on the type of rice such as faster-growing rice or slower-growing rice.

6.4 Village organizations

The head of the village (*naiban*) directs the general affairs of the village, with consultation of the senior union section and the assistance of the two deputies. The head and the deputies are elected by the villagers and then are approved of by the district government. Senior union leaders (*neohoom*) are selected according to their age, experience, their circumstances, and the respect given them by their own villagers.

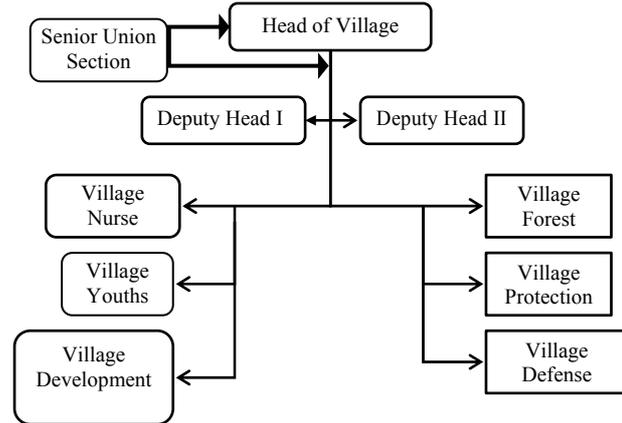


Figure 7. Organizational structure of Kengyao Village.

The village's organizational structure (Figure 7) has been formed under the direction and according to the policy of the provincial government. The duties and functions of these committees are to advise and follow direction from the district. Committee members are assigned by the head, the deputies, and the villagers. Generally, the duration of their assignments is not limited and depends on their effectiveness.

6.5 Forest resources utilization

In Kengyao it is difficult to communicate with the outside world, and the livelihoods of the villagers are largely dependent on nature. Forest resources provide them with materials for their daily needs, such as vegetables, NTFPs, *Dipterocarpus* resin, fuel wood, and house construction materials.



Photo3: Torch made by resin of Nyaang tree (*Dipterocarpus alatus*) at Kengyao Village. November 2002
(Photo: K. Hyakumura)

6.6 Protected area activities

In 1998, DAFO launched its protected area activities in earnest in the area that includes Kengyao Village. The initial budget for protected area management was

allocated by the LSFP to each DAFO, who then put their staff in charge of protected area activities. In other words, the local people became aware of their village's links to the NBCA in 1998 only once DAFO staff conducted awareness-raising activities, which included advertising the NBCA activities in the village, the extension activities carried out by the forestry volunteer, and installing a signboard in the village to display a map and information on the NBCA.

According to the Ministry of Agriculture and Forest's Decree No. 524, the activities listed on the board¹⁰ are strictly prohibited in the NBCA's core zone, but they are permitted in the buffer zone. DAFO staff tolerates local people conducting agricultural activities, including rice paddy cultivation and other crops, while the collection of NTFPs is not at all prohibited because the village's territory is regarded by DAFO as being inside the NBCA's buffer zone.¹¹

6.7 Land and forest allocation program (LFA)

The territorial boundaries and classification of land categories in Kengyao Village have not yet been clarified, because the land and allocation program has not been carried out here.¹² But the boundary with the neighboring villages to the north and west is already fixed through traditional use and agreement.

The recognition of local people's rights in Kengyao to use NTFPs depends on the type of forest product. Collecting NTFPs that are eaten on a daily basis, such as mushrooms and bamboo shoots, is permitted on the boundaries of the neighboring village, but collecting those which can be sold in the local market, such as Nyaang oil (resin of *Dipterocarpus alatus*), Keesy (resin of *Dipterocarpus tuberculatus*), and *Mak Neng* (cardamom) is not allowed. In terms of recognizing land-use rights, any agricultural land (i.e., paddy field, swidden field) on the other side of the boundary of the neighboring village cannot be used. These traditional regulations

are followed by the villagers of both Kengyao and the other village.

According to the government of Savannakhet Province, the territory of Kengyao Village is located totally within the NBCA.¹³ There are only eight villages in the Phou Xang He NBCA, and only one in Atsaphone District. As for DAFO, it is still determining how to deal with the management of the land and forest of Kengyao Village within the NBCA.

6.8 Changes in livelihood influenced by protected area policy

Now the villagers are aware of the NBCA, and the entire territory of Kengyao Village is considered to be located within the NBCA; but, in reality, DAFO allows the local people to use the agricultural land there for their livelihood, and most of the resources management system does not impose any restrictions on the local people.

The main change that occurred is the end of logging by timber companies since 1998. Since then, none of the big trees, such as *Dipterocarpus sp.* have been cut down. Therefore, any villager who has a big tree in their paddy field or swidden field has not cut any down—even though doing so would generate a high income.

7. Steps toward participatory forest management

7.1 Discussion

In the domain of protected area management policy, the LFA program holds great significance. It is very highly evaluated as a participatory forest management system for use in Southeast Asian countries (Inoue 2000), so it would be expected that implementation takes local people into consideration.

Unfortunately, there are insufficient budget resources available for implementing the LFA program. An example of the effect of this lack of funds is that, in every village affected, the local people should know about the establishment of the NBCA after five years of its establishment, but in some cases they didn't. Since the establishment of the NBCA, foreign organizations often provided the funds for implementation, and DAFO was able to assign staff to manage it. Subsequently, local people in each village were made aware of the existence of the NBCA by DAFO staff. Again, the greatest problem to overcome is that the government organizations in the field have not been able to get enough funding to implement the necessary programs.

Another obstacle to overcome in terms of budget is funding the follow-up activities after the LFA process has been completed. Presently, DAFO has little funding available for these ongoing activities, and therefore staff have little opportunity to conduct regular follow-up activities, and can only visit the village when they happen to have another obligation there. It is a real disap-

¹⁰ In the village land, the board of NBCA and its regulation was placed by the DAFO. According to that, it mentioned as follows:

- Tree cutting is prohibited.
- Swidden agriculture and burning is prohibited.
- To keep occupied land and paddy field is prohibited.
- To collect Non Timber Forest Products is prohibited.
- To hunting is prohibited.

¹¹ According to MAF Decree No. 524, villages established before the creation of the NBCA are allowed to conduct agricultural activities in the area.

¹² Forested land in the village can be divided into the five natural categories by the local people, as described below:

- *Arui* - fallow land with small trees (tallest is around one to two meters)
 - *Pa Ten Sao* - fallow land with tall trees (tallest is more than ten meters)
 - *Turong* - rich forest with a few big trees (swidden agriculture has never occurred)
 - *Turung* - rich forest with many big trees (swidden agriculture has never occurred)
 - *Ghok* - savanna forest occupied by dry dipterocarp forest
- In the religious category, local people have two types of forest:
- Pinkamui - grave forest
 - Gian - spiritual forest

(Source: Interviews with local people in Kengyao Village)

¹³ The territory of the western part of Kengyao Village is the proposed extension land of the NBCA. The government of Savannakhet Province regards this area as the real NBCA.

pointment that these activities could not be accomplished right away, because local people's awareness of the NBCA was still high immediately after the LFA program. Particularly in the NBCA, where the use rights of forest and forest products have been changed under the LFA program, follow-up is very important.

In the NBCA, it was necessary to consider both biodiversity conservation and the forest use practices of the local village people in the area where the rights of traditional forest use overlapped with the NBCA. In the LFA program, we can see the beneficial effects of support from foreign donors. For example, the draft plan made by the LSFP, created by experts after conducting a survey in the village, used a top-down process. Then the plan was discussed directly with the local people during a workshop, using the professional-guided participatory approach, and the plan to implement the program was finalized with respect for traditional land uses (Hyakumura 2001).

On the other hand, this approach requires considerable data to be gathered from the villages in advance, so that it takes much more time and expense than the normal program. Therefore, increased budget allocation and capacity building within DAFO and their staff should be considered. It is very difficult for the district to implement this program with insufficient funding and staff development; it might be necessary to revise it to make implementation easier to accomplish, with a less expensive system and simpler survey method. Creating a manual and providing training for local authority staff would be indispensable measures to build capacity.

7.2 Conclusion

Upon the establishment of NBCA and implementation of the LFA, the new regulations and restrictions have had an impact on the livelihoods of the local people. As a result of the policy implementation, there were three achievements, as follows: (1) At first, the introduction of the policy triggered a greater consciousness of land use among the local people. Then, the villages were able to determine the boundaries between villages after discussions among local people. (2) Local people now know that there are some restrictions on forest use in the NBCA. Then, further instruction and education on the policy helped spread awareness of the NBCA's existence to more local people. Now, most people in the three target villages know of the existence of the NBCA in their territory. (3) The most important change of significance for the government is the reduction in the area of land where swidden agriculture is practiced.

Regarding land and forest management, it appears that the LFA program in villages is still at the trial-and-error stage. If land and forest use by the local people continues to be conducted using their conventional methods, it is not considered that extreme forest deterioration will occur, since the present land and forest use practices that they employ includes significant elements of sustainable forest use.

On the other hand, the new land use practices employed by the local people after the policy implementation (e.g., opening up new land, instead of giving up the right of swidden agriculture land use) might be considered as sustainable use. There are enough flat lands to cultivate alternative agricultural crops in the target area close to the edge of the hillsides. The pressure on land in Laos is still not overly high because of low population density. In the south of Laos, where forest management is in good condition, there is still much flat land available compared with the north.

As a result of the above research and discussion, it appears that land and forest management at the local level can still be conducted by the local people themselves. When the enforcement of forest policy is provided enough implementation power, including funding, the government can improve forest management in Laos with the cooperation of local people.

References:

- Bermuller, K., S. Southammakoth and V. Vongphet. 1995. Protected area system planning and management in Lao P.D.R. Status report to mid 1995. Vientiane: Lao-Swedish Forestry Programme and IUCN.
- Emadi, Mohammad H., R. J. Fisher and Robert Woog. 1992. Action research as an approach to research and development among Iranian nomads. Paper prepared for the international conference "Nomadism and Development: Survival Strategies & Development Policies," 1-6 September 1992, at Isfahan, Iran.
- Flint, Christopher A. 1998. *Participatory "protected area" management in Nam Phui and Phu Xanghe Protected Areas*, Vol. 1:50. Lao P.D.R.: IUCN.
- Honkaan Muang Kasikam Paamai Muang Phalanxai (DAFO Phalanxai). 1998. The report on land and forest allocation at Nalay Village, Phalanxai District, Savannakhet Province (in Lao). DAFO Phalanxai.
- Hyakumura, Kimihiko. 2001. The issue on conservation forest management policy in Lao P.D.R. (in Japanese). *The Forest Economics* 638:22-33.
- . 2002. The present situation and issue on the Land and Forest Allocation Program—Case study in Savannakhet Province (in Japanese). The proceedings of the 113th Japan Forestry Society.
- Inoue Makoto. 1998. Tropical forest conservation at local level (in Japanese). In *Sustainable use for bio-resources*, ed. Takeuchi Kazuhiko and Tanaka Manabu, 50-56. Tokyo: Iwanami Book Co., Ltd.
- . 2000. The system and independence of participatory forest management in Southeast Asian countries—The approach from the viewpoint of forest sociology (in Japanese). *The Journal of Forest Economics* 46(1): 19-26.
- . 2001. Forest Conservation Project. The Second Phase Strategic Research Program, April 2001-March 2004, 65-76. Kanagawa: Institute for Global Environmental Strategies.

- Savannakhet PAFO. 2000. Report on land allocation activity in Namuang Village, Phalanxai District. Savannakhet Province, Lao P.D.R. SIDA
- . 2002a. Progressive report on Phou Xang He NBCA conservation activity, Savannakhet Province, Lao P.D.R. (in Lao). Savannakhet PAFO.
- . 2002b. Rural development progressive report from 1994 to 2002 (in Lao). Savannakhet PAFO.
- Swedish International Development Cooperation Agency (SIDA). 1998. Report on land allocation activity in Nalay Village, Phalanxai District, Savannakhet Province, Lao P.D.R. SIDA.
- Vientiane Times*. 2001. "Present and future land allocation plans discussed at Savannakhet," February 16–19, 2001. *Vientiane Times*. News paper