

# FOREST UTILIZATION BY LOCAL PEOPLE IN VANG VIENG DISTRICT

Khampha Chanthirath\*

## Introduction

The Lao P.D R. is rich in forest, water, biodiversity, mineral and land resources. However, although the country has significant unused land and inappropriate use of forest resources, the overall resource base is fragile, with the majority of land and forest susceptible to degradation and generally poor soils.

Most land degradation in the Lao P.D.R., as is the case in the research site, is associated with shifting cultivation, particularly in the areas where population pressure has led to a significant decrease in the rotation period or where traditional farmers encroach on neighboring upland terrain. Villagers enjoy traditional usufruct rights to land, inheritable by the family and transferable to third parties, and access to the timber and a large amount of non-timber forest products for domestic consumption and sale.

This paper describes the natural forest resources, socio-economic conditions and forest products utilization in the research areas, with some especially important information on geography, population administration and organization in Chapter I. Chapter 2 includes land categories by residents, soil categories, land tenure system by land category, including the distribution of the rights to forest and land within communities of forest users and among communities of forest users and usufruct of the trees, and motivation to set up communal forests. In Chapter 3 the present state of the utilization of forest products is surveyed in the research site. Then in Chapter 4 is a comparison of forest utilization in terms of the time needs to be analyzed and an evaluation of forest utilization by dwellers in the research site.

## CHAPTER I GENERAL DESCRIPTION OF THE RESEARCH SITE

### 1. Socio-economic conditions

#### 1-1. Administration and organization

The research site is under the jurisdiction the of Vang Vieng district, Vientiane province. It is hilly terrain with a total area of about 41,800 ha. It is located in the southeastern part of Vang Vieng district and shares boundaries with Namon sub-district to the north, Say Somboon special zone and Keo Oudom district to the east, Hin Heup and Fuang district to the south and the west. The roads No 13 A and No 13 B are the major transportation facilities of the area.

One third of the research site consists of water and islands. So to communicate with other areas both car and boat are available the whole year. As mentioned above, this area is hilly land. There is no flat area suitable for permanent agriculture. Thus, about 85% of the farmers still practice shifting cultivation, and this is the main cause of forest degradation.

Institutional arrangements in the district administration are similar to those at the central level. All district offices are present covering the fields of agriculture and forestry, communication, transportation, post and construction, industry-handicrafts, commerce, information and culture, education, labor and social welfare, etc.

Under jurisdiction of the Vang Vieng district, there are five sub-districts and 72 villages. Although the sub-districts are administratively non-functional at present, relevant the district is divided into five sub-districts, i.e. Phatang (with 13 villages), Vang Vieng (22 villages), Namuang (13 villages), Namon (15 villages) and Somboon (9 villages). Each sub-district has one leader to take responsibility for rural development. These leaders were appointed by a district authority,

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\* Forest Conservation and Afforestation Project(FORCAP), Vientiane Province Agricultural and Forestry Office, Vientiane Province, Lao P.D.R.

mainly from the district party committee. In the case of Vang Vieng district, five party members from the permanent committee will be appointed to be responsible for the five sub-districts

Six villages within FORCAP's pilot area were moved to a new district (Hin Heup district). These include Sivilay, Somsanook, Nampath, Vang Khi, Phone Thong and Taothan.

### **1-2. Population**

The population in Vang Vieng District was about 41,860 as of July 1996 according to data from the Statistics Office in Vang Vieng district. It has a population density of about 23.9 persons/sq. km, with an average of 6.14 persons/household.

The population in the research area is about 9,318 people and there are three ethnic groups: Lao Lum, Lao Theung and Lao Soung. The Lao Lum make up the highest proportion at 65.4%, followed by the Lao Theung with 27.3% of the total population and the proportion of Lao Sung is comparatively small at about 7.3 % respectively. The population density is 22.2 persons / sq km, the second highest density in Vang Vieng district.

## **2. Economic and service conditions**

### **2-1. Agriculture**

Agriculture is the principal economic activity in the research area. Data from the statistics office in Vang Vieng District Agriculture and Forestry Office show that about 88% of the working population are engaged in agriculture which is broadly defined to include livestock, fisheries, and forestry. However, productivity is low and vulnerable to the vagaries of the weather. Most cultivation for self-consumption and only a small amount of surplus is used for commercial purposes. Livestock may come to be the second important sub-sector in terms of income generation for the villagers. The incomes from fishery and forestry are considered to be smaller than those from crops and livestock. However, these sub-sectors also play an important role both in the economy and livelihood of the villagers in this area.

### **2-2. Industry**

Based on the data from the district industry office, the total number of factories in the Vang Vieng district is 35 (WATMAP), of which one factory is classified as large scale with more than 100 employees, and the remainder are medium scale and small scale. The factory considered as large scale is the cement factory. This factory was established in late 1994 with a maximum production capacity of 250 ton/day.

Trading and other economic sectors are merchants and retailers. Most are concentrated in the central market in Vang Vieng sub-district and Tha Heua market in Somboon sub-district. The major goods traded to other districts or provinces are agricultural products, non-timber forest products, fish, handicrafts (products from weaving) and livestock.

### **2-3. Social services**

#### ***Education***

Based on the data from the District Education Office, there are 65 primary schools, 10 secondary schools and one high school in the area. In general, each village has at least one primary school.

The total number of teachers in the primary schools is 451 persons in the whole district, of which 170 persons are females. In terms of ethnic groups and the composition of teachers, the Lao Loum cover about 93%.

However, in the research area five-year primary schools and secondary schools are established in the big villages. In some small villages which have only less than five-years primary schools, the school children continue to go to the neighboring villages which are from 0.8 to 5 km away.

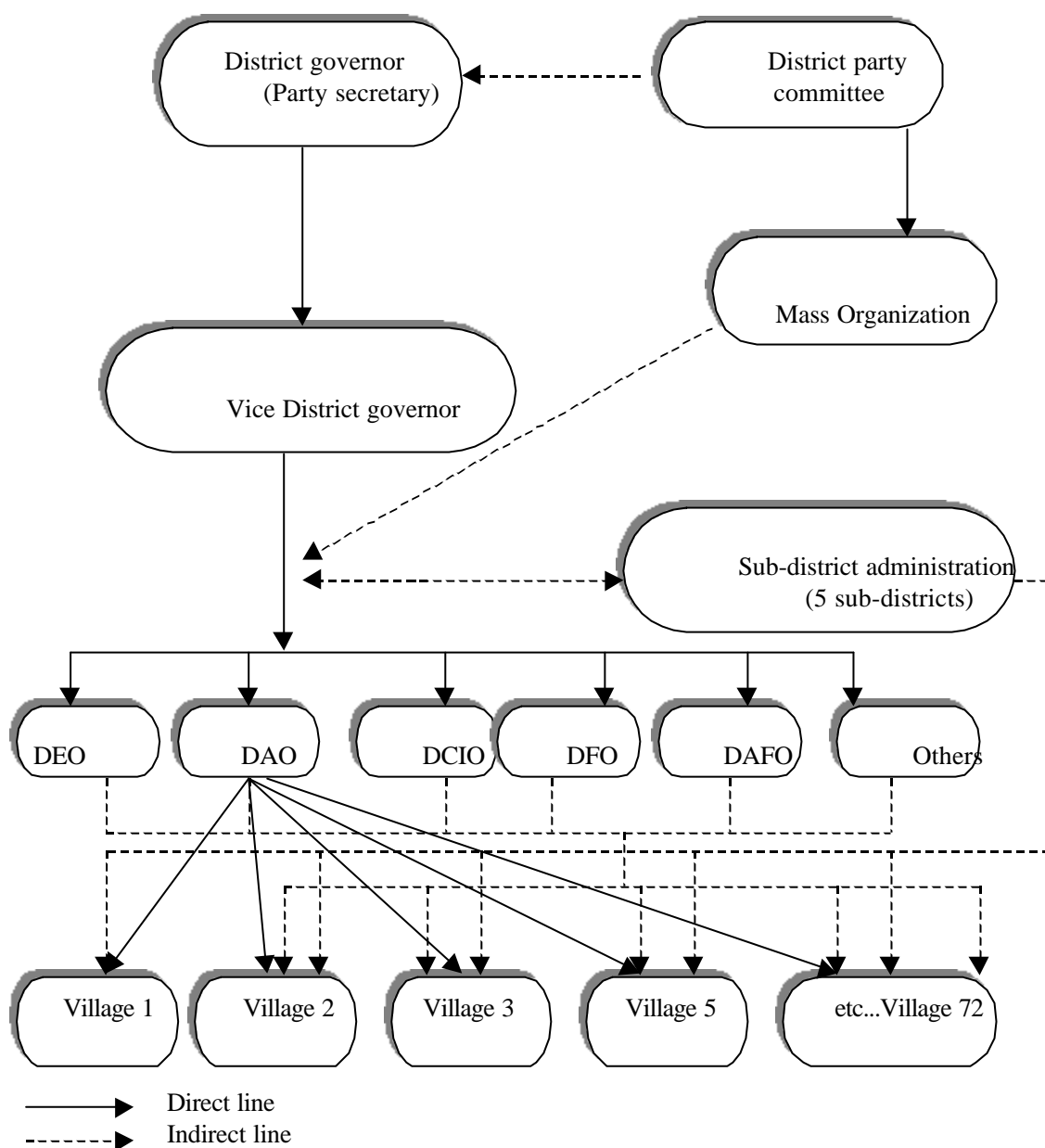


Figure 1: The District organization chart

**ACRONYMS:**

- DAFO - District Agriculture and Forestry Office
- DAO - District Administration Office
- DCIO - District Culture and Information Office
- DFO - District Finance Office
- DEO - District Education Office
- FORCAP - Forest Conservation and Afforestation Project
- WATMAP - Watershed Management Project
- Lao P.D.R - Lao People's Democratic Republic

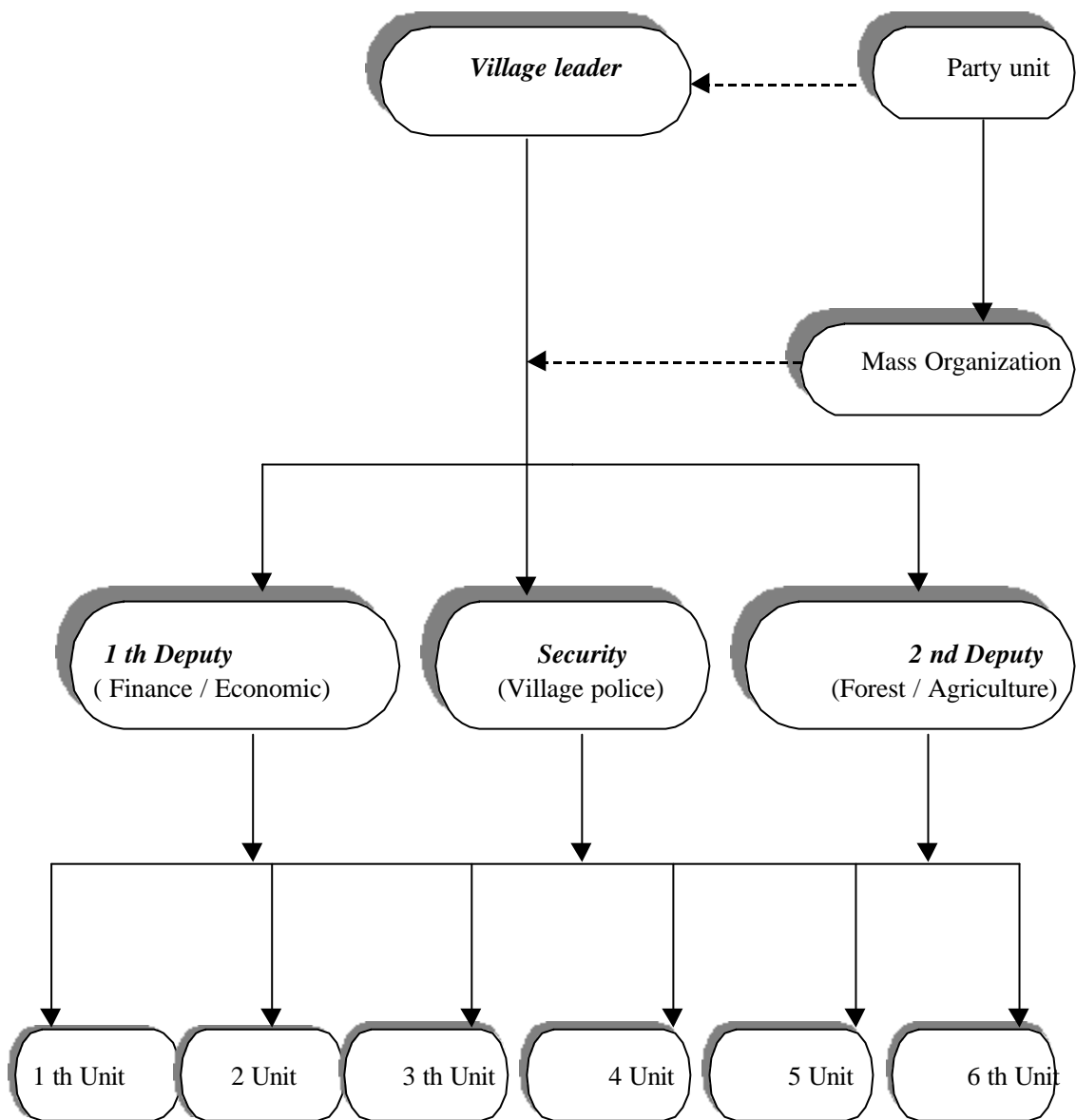


Figure 2. The village organization chart

**Health**

According to the district health office, there is one hospital with 30 beds for in-patients as well as health centers or dispensaries. The number of staff in Vang Vieng hospital is 74 persons including 10 medical doctors, one medicinal doctor and the remainder are medical assistants and dentists.

However, most of the villages in the district have obstetrician volunteers and the residence of the medical volunteer is always used as a medical post.

Most of the villagers use modern medicine and some rely on treatment by means of a "spirit" which is called "Yao". Most women give birth in the natural way in their homes and some women go to the hospital, especially when having difficulty in giving birth. Most of the villagers drink boiled water in Nam Phao village. But only 10% of the total people in Houay Xi and Nam pad drink boiled water. The food and traditional ways of eating are quite sanitary. But the village ground yard is dirty and untidy. Free grazing is commonly practiced. Diseases infect many people. Malaria,

lung-diseases, diarrhea, bladder-disease and stomachache were the major diseases found. About 85% of the villagers sleep inside mosquito nets.

### **3. Geographical information**

#### **3-1. Topography**

The research site is situated in the upper part of the Nam Ngum reservoir and the average elevation is quite high in the northern and western parts which are mountainous areas where the figure varies between 1,000-2,000 m. In the central part of the research site is a hilly area with an elevation of 300-500 m. It is about 140 km from Vientiane Municipality on the way to the special zone along with the road number 13 B. One third of the total land area is covered by water and it is the very important part for the people who are living in this area.

Because of the specific geographic conditions of this area, located in the upper part of the Nam Ngum reservoir, this is the main source of the people's income generation. However, fishing is insufficient for consumption because of the rapidly decreasing number of fish in the Nam Ngum reservoir. So these people have turned to practicing slash and burn cultivation in the islands of Nam Ngum reservoir, to engage their lives, and this leads to those islands becoming bare land which is the main cause of the soil sedimentation occurring in the Nam Ngum reservoir.

#### **3-2. Climate.**

Vieng district, where the research site is located, belongs to the high rainfall area of central Laos. According to the data provided by the Lao Meteorological and Hydrological Department, the recorded annual rainfall level for the period from 1989 to 1996 varied between 2,800 mm to 3,000 mm in Vang Vieng. As the annual rainfall in Vientiane during the same period varied between 1,300 mm to 2,000 mm, the annual rainfall level in Vang Vieng appears to be higher than that of Vientiane province.

The rainfall level is particularly high from July to August with a strong monsoon presence resulting in monthly rainfall of around 700 mm. Ninety percent of the annual rainfall is concentrated in the five month period from June to October. The dry season with an extremely low rainfall level is from November to April although mean monthly rainfall of 10-30 mm is still recorded in the dry season.

The mean annual temperature of Vang Vieng is approximately 25 C. April is the hottest month near the end of the dry season with a mean temperature of around 28 C. The mean monthly temperature drops to 21 C in December and January which is the most pleasant time of the year.

#### **3-3. Vegetation**

The remaining natural forest in the research site is almost all upper mixed deciduous forest (National Office of Forest Inventory and Planning, 1991). This forest is a degradation of the dry evergreen forest following either cutting or burning for agriculture. Some of this area of forest developed on sandstone formation and is characterized by the presence of bamboo. Most of the dominant species are *Dipterocarpus*, *Lagestroemia sp*, *Pterocarpus*, *Azelia xylocarpa* and others.

Bamboo forest is a pure forest or mixed with other species. Normally this bamboo forest occurs over slash and burn area the first time or the second time. However, the quality of this kind of bamboo forest is not high.

Another forest type is the unstocked forest or fallow forest. The average tree diameter of this forest is less than 20 cm and the crown density is less than 20%. The main species are fast growing species such as *Pelthorophorum sp*, *Clatoxylon sp*, *Mallotus sp* and *Trema sp* and these are sometimes mixed with bamboo and other species.

Grassland comes from from degradation of unstocked forest or bamboo forest due to several repetitions of slash and burn agriculture. The main species of cover are *Imperata cylindrica*, (Nha Kha), Nha Khem and elephant grass (Nha lao). These grasses are fast spreading in a large area, especially after several incidences of forest fire. But sometimes growth occurs under degraded forest conditions, and it is a very good raw material for forest fires in the dry season.

## **CHAPTER II METHODOLOGY**

### **1. Objectives of the study**

The main objectives of the study of forest utilization by the forest dwellers of the study area are:

- To make clear about forest utilization by the forest dwellers.
- To study customary forest management system
- To know the present state of the utilization of forest products
- To study the changes in forest utilization in terms of time

For such a study, forest areas were selected in degraded forests in some villages in Somboon sub-district where communities are playing a major role in utilization of forest products. Keeping all the objectives of study in mind the following procedures and methods of study were adopted.

### **2. Sample**

It is very necessary to define the sample of study of primary data. Three villages in the research site were taken as primary units of the field study. Heavy degraded forest surrounded all of these villages.

### **3. Questionnaire**

For personal interviews, a questionnaire cum checklist was prepared. In this questionnaire, villages as well as villagers were covered with full attention. Covered were customary forest management system, land tenure system, socio-economic conditions, dependency on forest and agriculture, soil type and forest category, reason for degradation of forest, conservation system, rules and functioning of village forest protection committees and also their organization.

### **4. Secondary data**

To ensure that the report of this study is complete, secondary data needed to be used, especially on geographical, socio-economic and natural conditions data from the Watershed Management Planning team (1997) and National Office of Forest Inventory and Planning, which is already available in the research site.

### **5. Procedures of the study field**

On the basis of primary and secondary data, the forest utilization by dwellers were described and analyzed. In this regard the system of forest management was identified

## **CHAPTER III CUSTOMARY FOREST MANAGEMENT SYSTEM IN DEGRADED LAND: CASE STUDY IN THREE VILLAGES IN SOMBOON SUB-DISTRICT**

### **1. History of the research site**

The research site comprises mainly three ethnic groups : Lao Lum, Lao Theung and Hmong or Lao Soung. Most of these villages have been established since 1970 and at that time they were small villages. Each village has only about twenty to thirty households and most of these people came from the northeast of the country within the period of the Indochina war. Most of them are engaged in shifting cultivation and fishing. Only a small portion is engaged in small shop keeping.

In the past, this area was a dense forest and very rich in natural resources, especially forest resources such as timber, non-timber forest products, wild animals and aquatic animals.

Nowadays, after only two decades, all of these forest resources have quickly declined. The main reasons are rapid deforestation, inappropriate systems used by both local people and local authorities. So, that means over extraction not only for self-consumption but also for commercial purposes, and a zoning system between agriculture land and forestland have not yet been introduced. Therefore, these resources follow a trend of growing seriously scarce year by year, and the trend will continue unless both local government and local people devise a measure to counter these negative phenomena.

## **2. Land categories recognized by the residents of each ethnic group**

### **2-1. Lao theung ethnic group (Khamu) in land classification.**

Normally the name of Lao Theung has a meaning that refers to the people who live at the medium height of the mountains. Slash and burn cultivation is very common in this society. Hunting and forest product collection are their second occupation for subsistence. But nowadays, commercial trade is their main means of income generation. A long time ago, slash and burn did not have so much negative impact on the forest resources because at that time the rotation of slash and burn was quite long (15 years to 20 years) and there was enough time for natural regeneration. In recent years, because of the accelerated increase of population and after the slash and burn rotation became shorter( 3 years to 4 years) land does not have the time for self fertility. Therefore, many people believe that slash and burn is the main factor bringing degraded land and poor soil. People always complain and blame the shifting cultivators as the major cause especially to upland people.

Based on the traditional use of the land and characteristics of the Lao theung society, land and forestland has been classified roughly into 6 categories:

- (1) Dense forest (Padong)
- (2) Old fallow (Patae reng kae in Lao theung)
- (3) Young fallow (Patae reng kha nhom in Lao theung)
- (4) Spiritual forest or sacred forest (Patae bree haksa in Lao theung)
- (5) Cemetery (Patae raman in Lao theung)
- (6) Utilization of forest (Patae som xay in Lao theung)

### **2-2. Lao Loum in land classification**

According to the information collected in the field survey in three villages in the research site, Lao Loum are the people who like to settle their villages in the low lands in the site along the river, and Buddhism is their religion. Most of them engage in permanent agriculture and hunting, and non-timber forest products gathering is only for self-consumption. Slash and burn is not their main occupation. So if we compare them with the Lao Theung ethnic groups they have some difference of style in customary use of forest products. In terms of the forest classification there are also some differences.

With the Lao Loum, mainly they follow the same classification of the forestry sector, but one thing different is that their classification includes cemetery and sacred forest. So, the classification of the forest is:

- (1) Conservation forest
- (2) Production forest
- (3) Plantation
- (4) Cemetery
- (5) Protection forest
- (6) Sacred forest
- (7) Fallow forest

### **2-3. Hmong or Lao Soung**

The Hmong ethnic group is the people who like freedom of agriculture practice at the tops of the mountains. They will use up the land until the land is less fertile, then they will move to other

places. Most of them believe in the spiritual, and they follow the caste system which means that in each village they will follow one person who is a powerful figure in the village. Hunting is very active in this society. If talking about forest classification, they will be classified the same as the Lao Theung ethnic group.

#### **2-4. Official land classification**

However, in an official classification the land and forestland are quite different from the traditional way. Thus, if based on an official classification it can be divided into categories as follows:

##### **Agriculture land**

The agriculture land is divided into three kinds as follows :

- Paddy field
- Slash and burn cultivation and
- Fruit tree gardens.

##### **Construction land**

The construction land is the land used for various infrastructure purposes, for example house building, road and other construction

##### **Forest land**

The forestland includes land without forest cover. Based on the characteristic utilization it can be divided into several categories as below :

- *Conservation forest*  
The conservation forest is the forest and forest land which is classified for the purpose of protecting and conserving wild animals, plant species, nature and various other things which have historical, cultural, tourist, environmental, educational and scientific research value.
- *Protection forest*  
Protection forest is forest and forest land classified for the protection of watershed areas and the prevention of soil erosion. It also includes areas of forestland significant for national security, areas for protection against natural disaster and the protection of the environment and other areas.
- *Production forest*  
Production forest is forest and forest land classified for the purpose of satisfying the requirements of national economic and social development and of the people's livelihoods, for timber and other forest products on a sustainable basis and without significant negative environmental impacts.
- *Regeneration forest*  
Regeneration forest is a young fallow forest classified for the purpose of regeneration and maintenance so that increases in maturity lead toward a state of natural equilibrium.
- *Degraded forest*  
Degraded forest is forest which has been heavily damaged such as land without forest on it or barren land classified for tree planting and / or allocated to individuals and organizations for tree planting, permanent agriculture and livestock production, or for other purposes, in accordance with national economic development plans.

#### **3. Soil category**

The geological formation of the research site consists of sedimentary rocks as conglomerate, sandstone, slate and limestone of the Triassic system of the Mesozoic Group. Outcrops and boulders of mainly sandstone are observed in eroded areas at summits and deep slopes and near the bottoms of the mountains.

The most widely distributed soil group in the mountains and hills in the research site is Acrisols, soils which are characterized by a yellow to yellowish brown color (see appendix 2). The



presence of a B-horizon with clay accumulation is a low cation exchange capacity due to the loss of bases caused by strong leaching, a low degree of base saturation and a low pH value.

Most of the topsoil in the research site is very thin and lacking in nutrients due to inappropriate use of the land, especially at the tops of the mountains.

#### **4. Land tenure and holding.**

Since the government decreed the regulation of land use (No 117) in 1989 it is authorized that the land remains as the national community's property and the people have the right of usufruct or the right to land use. By the government decree No 99 in 1992 and the land law of 1996, the land could be inherited, transferred, leased or sold (the using right) to Lao national, all of which are legitimately recognized by the state. Each village is to maintain a land registry book for individual holdings and submit this to the authority concerned.

The land taxation system was also changed in 1993 (Decree No 50). Before that the tax on paddy land was imposed in kind on the basis of assessed potential yield. For the other crops an agricultural income tax was paid in cash. Under the new system, taxes are paid annually on all crops in cash and the taxes apply to all categories of the land. A different tax schedule is applied to each of four agricultural land types, i.e. paddy land (irrigated and rain fed), non-rice agricultural crops, for slash and burn cultivation and other land uses.

According to the results of the interview data from 60 households in three villages in the research site, no one had land certification. All just have the traditional right to use land recognized in the traditional way. Therefore land allocation needs to be implemented in these villages, especially the slash and burn areas. After land allocation, these shifting cultivators / farmers will have an official right to use the land. At that time the land taxation system will be fully implemented and land certification will be issued to the farmers / shifting cultivators. Finally each plot of the land will be used for its proper purpose. Then land and forest land will be protected and improved by the owners

#### **5. Usufruct of trees**

Based on forest law (article 30, 11 / 10 / 96) the customary use of the forest, forestland and forest products has been practiced for a long period and is recognized by society and / or law.

Customary use includes the collection of non-prohibited wood for fences and fuel, the collection of forest products, hunting and fishing of non-prohibited species for household consumption and other uses following custom. Customary use should not cause damage to forest and forest resources as affecting the rights or benefits of individuals or organizations.

The customary use of forest, forest products and forestland must be in accordance with village regulations on forest and forest land, which the village authority has determined.

If based on the Duties and Rights in managing forestry resources at the village level in article No 12, the villagers have the right to receive the following benefits:

- (1) The right to enter the forest to gather minor value forest products and trees for firewood and support their living conditions. Any individual who wants to exploit forestry products classified in the list of the state for commercial purpose must be authorized by the district administrative authorities and regional forestry officials before taking action, and all rehabilitation fees must be paid.
- (2) The rights to cut trees for fire wood, wood charcoal, fencing and other uses within their orchards.
- (3) In case of necessity for poor families to cut 1 to 10 cubic meters of second class and third class timber of controlled species for fencing and housing from village forest areas, they must be authorized by village administrative authorities.
- (4) The right to hunt non-restricted animals and strictly ensure proper hunting, according to the decree of the Council of Ministers No 118 / CCM on the management and protection of water wildlife hunting and fishing.

- In case it is necessary to protect all water and wildlife in the areas of their villages, the village administrative authorities with the villagers have the right to establish the specific provisions.

However, uncontrolled and customary overuse of forest products in the research site is very common. So that means uncontrolled logging and hand sawing of the timber for selling and unlimited practice of slash and burn cultivation is still expanding. So this is the main cause of the declination of the natural resources as well as soil degradation in the research site. Many peoples till think that the trees grow up by nature itself and everyone has the right to cut them without any permission from the authorities or owners of that forest area. So freely cutting the small timber of all types of the forest is still very common in the research site.

## **6. Motivation to set up communal forest**

Since the first national forestry conference in 1989, the government has fully recognized that the participation of local people to manage forests is the priority need of the government policies. So several projects have been established to help the village institution to set up community forestry in each village, especially in remote areas.

The data of the survey shows that these three villages have simple communal forests. But these communal forests seem to be not so well organized. This is just the basic and simple communal forestry not how to use forest resources together (for example no official rules and regulations to control and protect their forest resources), and also these communal forests still have many gaps and some shortcomings. When the society changes in terms of the population number and the demands of the society increase, this communal forestry needs to be well organized and well developed to meet their important role for sustainable use of these natural forest resources as well as to resolve the problems among the villagers involving conflicts over rights to use the forest.

## **7. Conflicts over land**

Based on the results of the survey in three villages in the research site, it is shown that 58 of 60 households report that many conflicts often occur, especially land overlapping among villages and conflicts about the rights to use the forest products among villagers. But these are not big problems and most of the conflicts were resolved by themselves at family or village levels. Only a few cases needed to be brought to the district level to resolve them. If based on the laws and regulations, the conflicts between state and villagers are also important conflicts (i.e. villagers encroach state forests by illegal cutting of the timbers or unlimited collection of non timber forest products, or state allows some companies to harvest the dead logs in the village territory without the acceptance of the village organization.)

Although the conflicts can be solved among themselves, or between the state and the villagers, the negative impacts on natural forest resources always occurs. ( i.e. over exploitation, inappropriate harvesting methods, etc ). So it has led to unsustainable use of forest resources and especially depletion of the forest as well as degradation of the land.

# **CHAPTER IV PRESENT STATE OF THE UTILIZATION OF FOREST PRODUCTS**

## **1. Regulations for the use of forest products**

According to the second set of data, in article 25 of the forestry laws it is mentioned that the exploitation of wood and forest derived products can be undertaken specifically in production forests which have been surveyed and allocated for exploitation. Only in these areas has forestry exploitation been planned in order to ensure that the exploitation of the wood is continuous and that exploitation can be repeated in the areas which have already been exploited.

The exploitation of wood must be performed according to the following principles and regulations:

- (1) Use of selective cutting; clear cutting is prohibited except in necessary cases
- (2) Cutting of pre-determined trees to ensure continuity of species
- (3) Cut trees must be collected to utilize for maximum value
- (4) Trees must be according to the technical standards
- (5) Trees must be by restricting of surrounding trees, ensuring that there will be no environmental impacts
- (6) After cutting, the forest must be maintained and protected or reforested.

For the exploitation of non-timber forest products, i.e. mushrooms, roots, bulbs, vines, shoots, leaves, barks, oils, etc, this shall be performed according to specific regulations. However, in the customary use of forest products under article 30 in the forest laws, the government still allows the people who live around or inside the forest to have the right to use forest products for self-consumption.

But in practice, it is very difficult to control the cutting of timber as well as to control hunting of wild animals. So, sometimes customary use by the local people is over done, and it can lead to unsustainable use of the forest.

## 2. List of present forest products.

According to the characteristics of the utilization of each kind of forest products, they can be divided into two groups:

- (1) Timber
- (2) Non-timber forest products

If we observe this list of non-timber forest products we can see that some kinds are abundant but some kinds have become scarce and some kind have already disappeared from this area. These non-timber forest products are used for food and medicine as well as for energy. Most of them are also used for commercial purposes. Thus, they are important parts of the economy of this area, especially fire wood and some kinds of wild fruits.

Table:1 List of present timber in the research site

No	Local name	Scientific name	Purpose of use	Rich	Medium	Less	Location	Remark
1	May khen	<i>Hopea odorata</i>	Timber			X	Dry dipterocarp forest	
2	May Song		Timber			X	"="	
3	May Saphang	<i>Peltophorum dasyrachis</i>	Timber/ Fuel wood	X			Fallow	
4	May Tae kha	<i>Azelia xylocarpa</i>	Timber			X	Mixed deciduous forest	
5	May Dou	<i>Pterocarpus macrocarpus</i>	Timber			X	"="	
6	May kok	<i>Spondias mangifera</i>			X		"="	
7	May Mak phay	<i>Baccaurea sapida</i>	Fire wood		X		"="	
8	May Mak ngeo	<i>Xerospermum laoticum</i>	Fire wood	X			Fallow	
9	May som phot	<i>Rhus semialata</i>	Fire wood	X			Fallow	

10	May kok kanh	<i>Canarium venosum</i>	Fire wood		X		"="	
11	May Tiou	<i>Cratoxylon prunifolium</i>	Fire wood	X			"="	
12	May Bok	<i>Invingia hamandiana</i>			X		Mixed deciduous forest	
13	May Gnot le		Fire wood	X			Fallow	
14	May Nang khiou	<i>Litsea sp</i>	Fire wood	X			"="	
15	May Khom	<i>Grewia paniculata</i>	Fire wood	X			"="	
16	May Sako	<i>Anthocephalus indicus</i>	Fire wood /Timber		X		"="	
17	May Sida pa	<i>Gardenia obtusifolia</i>	Fire wood		X		"="	
18	May Meuat	<i>Aporosa microcalix</i>	Fire wood /Timber	X			"="	
19	May Mee	<i>Schima wallichii</i>	Fire wood / Timber	X			"="	
20	May ten	<i>Duabanga sonneratioides</i>	Timber		X		Along the stream	
21	May tong	<i>Sandoricum indicum</i>	Timber /Fire wood/ Fruit		X		Along the river	
22	May nhang	<i>Dipterocarpus costatus</i>	Timber			X	Dry Dipterocarp	
23	May Nom nhan		Timber				"="	
24	May xii	<i>Vatica dyeri</i>	Timber		X		"="	
25	May Phak nao xang				X		Fallow	
26	May khee mou	<i>Ormosia cambodiana</i>	Fire wood		X		Mixed deciduous forest	
27	May ko deng	<i>Castanopsis hystrix</i>	Fire wood/Ti mber		X		Dense forest	
28	May pang	<i>Eleocarpus robustus</i>	Fire wood	X			Fallow	
29	May Xa chouang	<i>Cinnamomum sp</i>	Fire wood		X		Dense forest	
30	May ko nam	<i>Quercus macrocalyx</i>	Fire wood		X		"="	
31	May Mouk	<i>Wrightia tomentosa</i>	Fire wood		X		Fallow	
32	May Po hou	<i>Trema angustifolia</i>	Fire wood	X			"="	
33	May hai	<i>Ficus altissima</i>	Fodder		X		Mixed deciduous forest	
34	Foung fat	<i>Bischofia javanica</i>	Timber / Fire wood		X		Along the stream	

35	Saphoung	<i>Tetrameles nudiflora</i>	Timber		X		Mixed deciduous forest	
36	May Yang bong	<i>Persea kurzii</i>	Fire wood/ Bark			X	"="	
37	May Lan	<i>Lagestreonia sp</i>	Timber/ Timber	X			"="	
38	May So	<i>Gmelia arboratum</i>	Pole / Timber		X		"="	

Table 2: List of present non-timber forest products in the research site

No	Local name	Scientific name	Purpose of use	Rich	Medium	Less	Location	Remark
1	Vai Thoun	<i>Calamus sp</i>	Furniture			X	Dense Forest	
2	Vai Boun	<i>Daemonotops schidiana Becc</i>	Food		X		Dense forest/ Fallow	
3	Vai Nam	<i>Calamus erectus Griff</i>	Furniture			X	"="	
4	Vai Noi	<i>Calamus sp</i>	Furniture			X	"="	
5	May Hia	<i>Schizostachyu-m</i>	House/Wearing/ Shoots for food	X			Mixed Deciduous forest	
6	May Sot	<i>Racemobambos ciliata</i>	House/wearing/ Shoots for food	X			Mixed deciduous forest	
7	May hok	<i>Dendrocalamus brandisii</i>	House/Wearing/shoots for food		X		Bamboo forest	
8	Toong ching	<i>Halopegia blumei</i>	Leaves for wrapping		X		Dense forest	
9	Mak Naeng	<i>Amomum ovoidum</i>	Seeds used as spices		X		Old fallow/ dense forest	
10	Kha khom	<i>Alpinia bracteata</i>	Spices		X		"="	
11	Kouay Pa	<i>Musa malaccensis</i>	Leaves for wrapping	X			Along the stream	
12	Dok ka chieu	<i>Curcuma angustifolia</i>	For food	X			Old fallow	
13	Mushroom (Het)		For food		X		Fallow	

14	Phak koot	<i>Helminstachis zelanica</i>	For food	X			Along the stream	
15	Nor san	<i>Rhapis laosensis</i>	Shoots for food	X			Dense forest	
16	May hae	<i>Bambusa sp</i>	Weaving		X		Mixed deciduous forest	
17	Mo noy	<i>Cyclea barbata</i>	Leaves for food/Roots for medicine			X	Fallow	
18	Kok taw	<i>Aranga pinnata</i>	Fruit for food			X	Dense forest	
19	Mak phouang Din		Fruit for Food			X	Dense forest	
20	Born	<i>Colocasia esculentum</i>	Young leaves for food	X			Along the stream	
21	Phack nok	<i>Centella asiatica</i>	Leaves for food/medicine	X			Along the river bank	
22	Phack khat	<i>Spilanthes acmella</i>	Leaves for food	X			"="	
23	Khee leck nhay		Medicine		X		Fallow	
24	Phak van		Young leaves for food		X		Dense forest	
25	Phak kha		Young leaves for food		X		Along the stream	
26	Dama resin		NTFPs			X	Dry Dipterocarp forest	
27	Yang bong		NTFPs			X	Dense forest	
28	Phak ven		Young leaves for food	X			In the paddy field	
29	Born nam		Young leaves for food	X			Along the stream	

Table 3: List of wild animals

No	Local name	English name	Rich	Medium	Less	Location	Remark
1	Fan	Deer			x	Fallow /	Prohibite

						Grass-land	d hunting
2	Mou pa	Wild boar		X		"="	Hunting is allowed
3	Menh	Porcupine			x	Dense forest	"="
4	Linh	Pangolin			x	Fallow/Dense forest	Prohibited for hunting
5	Kahock	Squirrel		X		Dense forest	Hunting is allowed
6	Ngoo	Snake		X		Anywhere	"="
7	Onh	Bamboo mouse		X		Bamboo forest	"="
8	Nok	Many kinds of birds		X		Anywhere	"="

The list of the timber above shows that so many valuable species are there. But some of them have already become scarce or rare, and some of them have already disappeared from this area. In the future if the people in these villages do not have any strict measure to prevent this, decreasing of forest resources will continue.

### 3. Difference of forest utilization among incomes or social classes

Based on the results of the interview data from 60 families in three villages, the families can be divided into three classes as: rich family, medium family and poor family. This classification is based only on their annual incomes. About 4.2 % of the total families are classified as rich families, 6.6 % are just self-sufficient in rice and the remaining 89 % are classified into the poor families. Most of the rich families are engaged in a variety of occupations such as taxi service, ricemill, livestock raising, permanent agriculture and running small shops. Their annual incomes are about 3 to 5 million kips.

Medium families who have sufficiency in foodstuffs are mainly engaged in livestock raising and slash and burn cultivation but they sometimes gather non-timber forest products, and fishing and hunting are also their second occupations. Their annual incomes are less than 3,000,000 kips. Poor families are people who engage in slash and burn cultivation, gathering of non-timber forest products and hunting. Their annual incomes are less than 300,000 kips. These groups of people are heavily dependent on the forest.

However, in terms of forest utilization, the Lao Theung, Lao Loum and Hmong ethnic groups all have equality to use the products from the forest. From the above data it is shown that, only about 10 % are self sufficient in foodstuffs and the remainder are affected by rice shortages. So to resolve the problems these people base their livelihoods on the only natural resources that are available, forest products. Every member in the village has the right to cut timber for house construction and to collect small timber and non-timber forest products as well as other forest products within their villages. But one difference is that the poor families are engaged in slash and burn cultivation as was mentioned above and will use the small timber or bamboo and grasses to make their houses and roofs. The rich families construct their houses using the bigger timber. Otherwise gathering of non-timber forest products and hunting of wild animals are the main occupations of the poor people. So, the gaps between social levels always occur and become serious in rural society. However, if based on economic conditions, we can see that there are some

differences of occupations and forest utilization within social classes. The major differences of occupations and forest utilization are shown in Table 4.

#### **4. Differences of forest utilization among land or forest categories**

According to the results of the interviews data it is shown that there are some differences of forest utilization among forest categories. In the upper mixed deciduous forest the timber is cut for house construction and non-timber forest products are collected for both consumption and commercial purposes. Hunting of wild animals is very common in these forests, especially of large animals. In this forest type are included many forest categories in the research site.

The use of forest products in different forest categories is not so clarified, but it can be summarized as follows : In the fallow forest slash and burn is practiced, and small timber for house construction and house repairing are used. Non-timber forest products are collected e.g fuel wood, rattan shoots and other wild vegetables for both consumption and (some surpluses are also used for) commercial purposes. In production forests the small timber is used for house construction by village members. The large timber is used only for common construction like schools, pagodas and other public works. In the protection forests at the village level, the actual situation is similar to that of production forests because only slash and burn and big tree felling is prohibited. The remainder of forest products are still allowed to be extracted. So for some it creates confusion between production forests and protection forests. In terms of the conservation forest, timber cutting is prohibited. But non-timber forest products are still allowed to be gathered in this forest category. It shows that the village rule is not strong enough to protect this forest category.

The strictly prohibited condition for any cutting or harvesting in the forest is only in the sacred forests and cemeteries because most of the people believe that, if someone encroaches in this forest, the spiritual power will bring some bad happening to the village or the members of the village. If someone does something bad or goes against this tradition, they will be punished and fined by the village traditional rule. The level of fine depends on the real situation of the mistake of the encroacher. Unfortunately, this forest does not cover a large area.

### **CHAPTER V CHANGES IN FOREST UTILIZATION**

#### **1. Changes of forest in terms of the time and number of forest products**

According to the data of the survey, there are significant changes in forest utilization in the research site as well as other areas in the whole country. But in the case of the research, the changing of the forest utilization is quite fast. As mentioned above, 30 years ago this area was covered by dense forest. A lot of valuable tree species like *Dipterocarp sp*, *Pterocarpus macrocarpus*, and *Azelia* are found here.

Based on the above data it can be seen that in only three decades, the amount of the timber as well as non-timber forest products has been reduced quite quickly. Furthermore, if this situation continues, some kinds of valuable species will probably disappear in this area. At present if the shifting cultivator needs to collect non-timber forest products or timber, he needs to go far away from his village and it takes at least 2-3 days. Nowadays people collect non-timber forest products in the fallow forests and degraded forests in small amounts and in very limited scope in terms of the species as well as the number.

#### **2. Some cases of the changes of forest utilization in terms of an area**

If based on the data of present land use of WATMAP 1997, most village land in the research site is covered by fallow forest, degraded forest and grassland (i.e. in the case of Houay Xi the covered forest area is about 204 ha and the total village land is 2,868 ha, so only 7% is covered by forest of the total village land area. In the case of Nam Phao the total village land area is about



2,255 ha and the total forest cover is 499 ha which is about 22% of the total village lands. Most of the remainder parts are fallow, present shifting cultivation and water reservoir).

If we compare this with 30 years ago these areas were covered by dry evergreen forest and were very rich in forest resources as well as wild animals. Therefore these shifting cultivators must go to the state forest to collect non-timber forest products and extract the timber for both self-consumption and sales to earn some income.

#### **CHAPTER VI EVALUATION OF FOREST UTILIZATION FROM THE VIEWPOINT OF SUSTAINABILITY**

As the objective of the study in the research site is to clarify the customary use of forest products of the local people in order to contribute to the improvement of natural forest resources and livelihood of the local people, it was thus expected to find out the alternatives to prevent forest degradation and other negative impacts through these improvements.

Time List Of forest Products	At present	10 years ago	20 years ago	30 years ago
Timber	I	II	III	IV
NTFPs	I	II	III	IV
Wild animals	I	II	III	IV
Aquatic animals	I	II	III	IV

Figure 3 : Changes in forest utilization

Remark: I the number of the forest products is least  
 II the number of the forest products is abundant  
 III the number of the forest products is high  
 IV the number of the forest products is very high

Based on this objective and on the results of the natural and socio-economic base line survey, the assessment of major problems of customary use of forest products by dwellers and their causes are firstly carried out in this subsection. Then, the potential and sustainable use of forest products will be determined.

#### **1. Problems in sustainable use of forest products and their causes**

The dominant problems of sustainable use of forest products are simply illustrated in Figure 5. These problems are considered to form a vicious cycle as seen in the above figure 5. The overuse of uncontrolled slash and burn land cultivation has caused incidental problems such as forest fires, soil erosion and other forms of forest degradation. Forest degradation in turn leads to incidental problems such as shortages of timber and non-timber forest products. Frequent flooding and draught always brings incidental problems such as lack of domestic water and damage to agricultural production as well as forest production.

These major problems invite incidental problems such as decreased incomes and food shortages and lead to expansion and overuse of uncontrolled slash and burn land cultivation and over extraction of forest products. The villagers have analyzed these causes and major problems.

## 2. Potential for sustainable forest utilization

To reduce and remove the problems mentioned above, the counter measures for sustainable forest utilization need to be introduced and the appropriate systems for forest management have to be developed.

However, the potential for improvement of forest management is the main key factor of sustainable forest utilization. There are two major subjects in relation to improper forest management according to the base line survey results, i.e. (1) Unclear village boundaries, (2) Unclear land tenure. In the results of the survey, many villagers pointed out that the unclear village boundaries disturbs their proper land and forest use.

Table 4. Differences of forest utilization among incomes or social classes

No	Social Classes List of Forest Products And Occupations	Poor	Medium	Rich
1	Timber	Unable to use the timber to make houses because of lack of funds	House construction	House construction
2	Non-timber forest products	Bamboo used as raw material for house construction.  Gathering of wild vegetables is the main food for both self consumption and sale	Small timber in the secondary forest are used for house construction.  Gathering of wild vegetation for self consumption	
3	Wild animals	Used for both self consumption and sale	Used for both self consumption and sale	
4	Main occupation	Practice slash and burn	Practice slash and burn and other permanent agriculture	Permanent agriculture and other small business
5	Secondary occupation	Hunting, gathering non-timber forest products	Fishing, livestock raising and other small businesses	Livestock raising and other small business



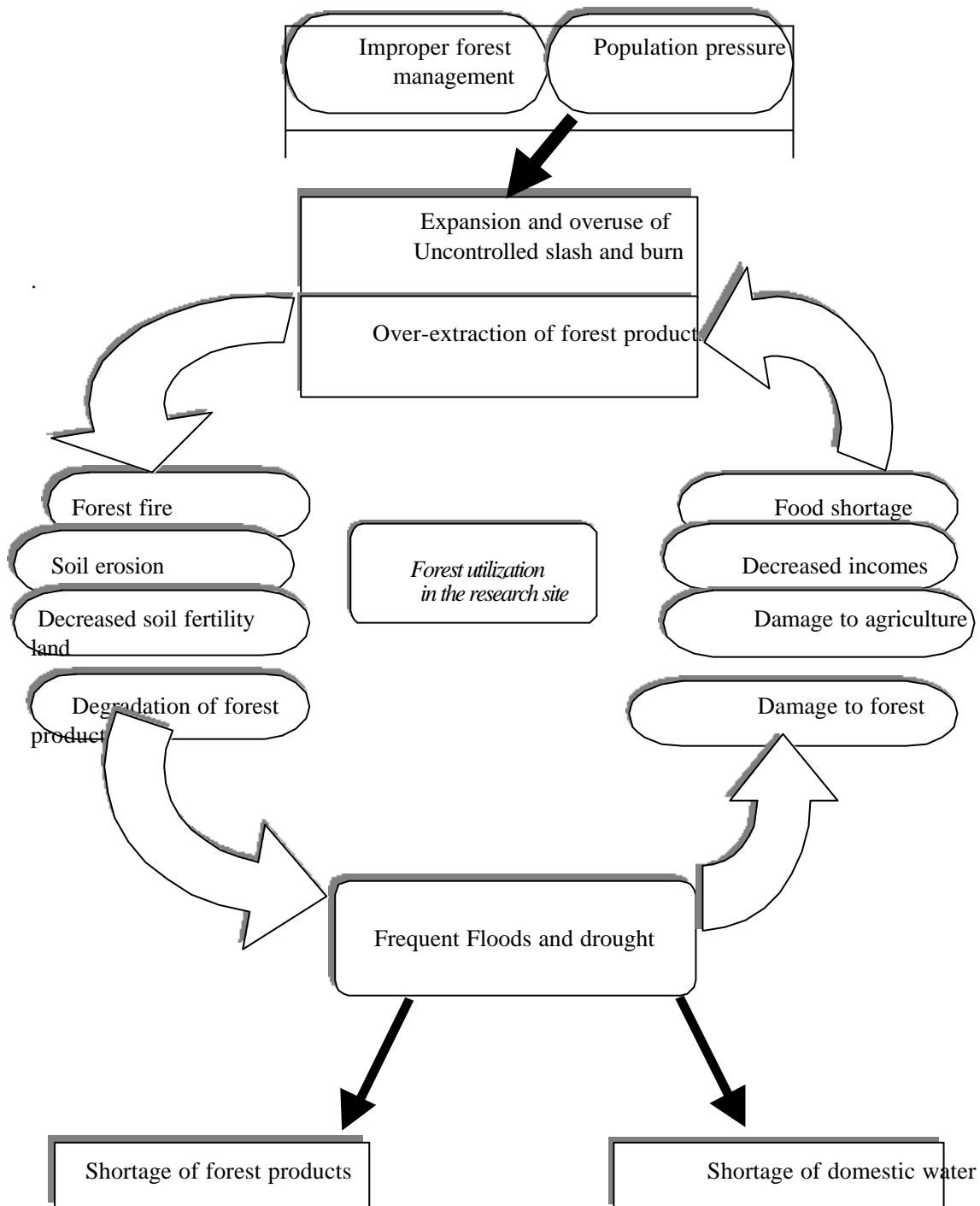


Figure 5 : Dominant problems of sustainable use of forest products

- The major problems of unsustainable use of forest are :
- (1)Expansion and overuse of uncontrolled slash and burn land
  - (2)Degradation of forest by fire
  - (3)Frequent occurrence of flooding and drought
  - (4)Decreased agriculture and forest production

In addition the village boundaries and land tenure situation is unclear in the research site, particularly in the natural forest, where slash and burn is widely practiced. However, due to the population increase, the arable land for slash and burn cultivation is very limited. Thus, in this situation the conflicts about land use start to occur among villagers themselves as well as between villages. Forests and forestland could not be well managed. Many caused frequent occurrences of forest fires and soil erosion.

Therefore, with full recognition of the above situation, the government of the Lao P.D.R. initiated the Land and Forestland Allocation Program. The aim of this program is to reduce and to stabilize slash and burn cultivation and to conserve the remainder of natural forest by allocation of the land and degraded forestland to households, communities and organizations. The land size to be allocated to each household or community depends on the availability of the land in each village and labor force.

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