

Village-5: Pongdong

**STUDY REPORT
ON
SOCIO-ECONOMIC SURVEY OF EIGHT (8) CANDIDATE VILLAGES**

Village 5: Pongdong Village

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Feature of the Village (Pongdong)

(Total HH: 102, Population: 526)

(1) Composition of the ethnic group:

Pongdong is composed of 100% of Lao Loum. The average number of family members is the smallest (5.2 persons/HH) against the average number of 6.4 persons/ HH of the 8 villages.

(2) Farmland owned per HH:

The farmland owned per HH in Pongdong is 2.74 ha/HH in total including 0.98 ha of Hai-A, 0.83 ha of Hai-B, 0.42 ha of lowland paddy field, and 0.09 ha of orchard/tree crop area, that is 0.60 ha larger than the average of 2.14 ha/HH in the 8 villages.

(3) Rice availability:

It is estimated that 14.6% of households (15 households among a total of 102 households) face rice shortage for about 4.0 months.

(4) Balance of annual paddy production and consumption in the village:

Total rice production and consumption in the village is estimated at 281,900 kg/year and 184,700 kg/year, respectively. The balance of annual paddy production and consumption is positive, about 97,200 kg of rice surplus. On the other hand, as shown in Item (6), the marketed volume of rice outside the village is estimated at about 31,000 kg/year.

(5) Sources of major income:

Sources of major income are i) livestock (1,872,000 Kip/HH), ii) field crops (1,421,000 Kip/HH), iii) private business (1,076,000 Kip/HH), iv) fruit tree (755,000 Kip/HH), and v) rice (443,000 Kip/HH). "Fruit/tree crops" is a remarkable income source compared with the other 7 villages.

(6) Estimated marketed volumes of major products:

The marketed volumes of Job's tear and bamboo shoot are the largest among the 8 villages. Marketed volumes of major products in the whole village are estimated as shown below.

Estimated Marketed Volumes of Major Products by Village

Major Products	(unit)	Marketed Volume	Livestock/fish	(unit)	Marketed Volume
1) Rice	kg	30,863	12) Cattle	head	-
2) Job's tear	kg	93,522	13) Buffalo	head	35
3) Sesame	kg	-	14) Goat	head	-
4) Paper mulberry	kg	3,670	15) Pig	head	68
5) Tree bark	kg	873	16) Chicken	head	183
6) Tiger grass	kg	896	17) Duck	head	131
7) Bamboo shoot	kg	9,088	18) Fish, **/	kg	-
8) Palm fruit	kg	-			
9) Eagle wood	kg	-			
10) Mushroom	kg	1,488			
11) Wild vegetables,*/	kg	-			

Note: */ Including rattan shoots.

PART 1 VILLAGE PROFILE SURVEY

Survey Period: 06 to 08 May 2004

Main Information Source: Village head, 2 deputy heads and some village authority members.

1. General Information

1.1 Location

Pongdong village is located in Nan district 63 km from Luang Prabang (1 hrs 30 min. by car), 38 km from Xieng Ngun, and 14 km from Nan district.

1.2 History of the village

Pongdong village was built 90 years ago. Big fire in the Phanip village made several families migrate and build Pongdong village. After building the village, there is no significant migration into this village.

1.3 Demography

The village has 102 households and a population of 526 habitants. Available labor population (16~49) occupies 46.6 % of the total population. Female represents 53.5 % of the population as shown below.

Age Structure

Age	Female	Male	Total	(%)
0 ~ 5	18	18	36	(6.8)
6 ~ 15	79	43	122	(23.2)
16 ~ 30	84	52	136	(25.9)
31 ~ 49	37	78	115	(21.9)
50 and above	40	77	117	(22.2)
<u>Total</u>	<u>258</u>	<u>268</u>	<u>526</u>	<u>(100)</u>

Source: Village head (06 May 2004)

The village population comprises only one ethnic group of Lao Loum as below.

Ethnic Structure

	Female	Male	Total	(%)
Lao Loum	258	268	526	(100)
Lao Theung	0	0	0	
Lao Sung	0	0	0	
<u>Total</u>	<u>258</u>	<u>268</u>	<u>526</u>	

Source: Village head (06 May 2004)

1.4 Organizational structure for administrative control

The village is administrated by a village head and two deputies. Pongdong village has 7 administrative units (or “*Nouays*”). The chiefs of each “*Nouay*” assist the village head in administrating “*Nouays*”. The village head is responsible for

disseminating the government information/or notification to the villagers through this administrating mechanism.

The first deputy village head is responsible for all the economic development activities in the village. He is directly responsible for controlling/supervising two units of treasurer and tax collection, as well as improving villagers' living situation through promoting productive unit's activities. In other words, the "Nouays" have both roles like administrating and productive units.

The second deputy village head is responsible for all the social and cultural development activities in the village. Under the control of the second deputy village head, there are a unit of culture, and two volunteer units of teachers and health.

The village organization under the village head, there are 3 formal mass organizations, a village military unit, and a village police unit. The three mass organizations such as Lao Women's Union (LWU), Lao National Front and Youth Association are playing as non-profit organizations and assisting the village head in grouping people for specific works. A council of elders is an independent voluntary unit as an adviser group of the village. In addition to the above village administration structure, a Village Party Secretariat is established by the party. According to the village head, the village secretary of the party in this village is not very influential in the village administration.

The Village Arbitration Committee is composed of i) Village Head, ii) Village Police, iii) Lao Women's Union, vi) Lao National Front, and v) Youth Association, and responsible for solving all the cases of social conflicts in the village.

The village organization structure of Pondong is presented in **Figure 1** and the names of the village organizational key members are as follows.

Village Organizational Key Members

Member of Village Committee	Name
1) Village Head	Mr. Xiengvanh
2) Deputy Village Head (1)	Mr. Humphanh
3) Deputy Village Head (2)	Mr. Xieng Bounthan
4) Head of Lao National Front (Neo Hom)	Mr. Bounpheng
5) Head of Women's Union	Ms. Phaly
6) Head of Youth Association	Mr. Sivone
7) Head of Council of Elder's	Mr. Xieng Wandt
8) Head of Village Police	Mr. Xiengman
9) Head of Village Army	Mr. Kamphane
10) Village Arbitration Unit	Village Head (Mr. Xiengvanh)
11) Village Secretary of the party*	Mr. Kensy

1.5 Informal (ethnic) organization for administration, agriculture and/or religion

None

1.6 Food security

According to key informants, no households in the village face serious food shortage.

*Rice Bank:

Some households have no rice in September. Provincial government lends 700 kg of rice to the village through district government at 50 % interest in rice. About 20 households, which didn't have enough labor force or rice, borrowed the rice last year. But they never faced serious food shortage. Some borrowed rice and lent to other households, others hired people for weeding with the rice. One household borrow 30~70 kg of rice a year. This system has begun in the middle of 1980s.

1.7 Illiteracy rate

Illiteracy rate of the village is about 5 % estimated by key informants.

1.8 Major diseases

According to the village head, there have never been serious epidemic diseases (including malaria) for a couple of years. Major diseases and their recent situation are summarized below.

- Red eyes: Red eyes widely spread among children about once in three years. This disease is often seen in April.
- Bloody excrement: Many adults and children suffered from bloody excrement in 1991 and three adults died. This epidemic may be same as the one mentioned by Vangheung villagers.
- Asthma: Three old persons suffer from asthma because of their long smoking histories.

1.9 Traditional custom, culture, event, cooperative works in the village

- (1) Cooperative works for shifting cultivation & lowland rice cultivation:
Each "Nouay" has one farmer management unit. Basic unit of labor exchange is household.
- (2) Traditional customs
 - Death: helping family, whose member die.
 - Disease: helping poor family, whose member become sick and don't have enough money to buy medicine and/or go to hospital.
- (3) Festival
 - Yearly Festival "Bun Pacham Pi": March
 - New Year (Lao Loum): April

2. Livelihood and Natural Resource Management

2.1 Topography

Pongdong village is located in mountainous area. Mountain ranges divide northern, western and southern village borders and several streams flow from there. Habitat area is at the northeast in the village beside the road No. 4-A from Xiengeun to Sayaboury, the elevation of which is around 580 m. Many orange and other fruit trees are planted around habitat area. Houay Fa stream flows among hills from southwest to northeast and small pieces of rice fields scatter along the stream.

Houay Fa stream and Pongdong stream have water throughout the year with a minimum flow in April and a maximum flow in August and September. Seasonal rainfall is from May to September, during which July and August have the heaviest rain. As for seasonal natural disaster, key informants never remember any flood or even drought years.

2.2 Meteorological data

Annual rainfall records at Luang Prabang in last 10 years (1993-2002) vary from 1,136 mm in 1998 to 1,794 mm in 2001 with an average of 1,451 mm. Detailed meteorological data including the rainfall data at Xiengeun station, the maximum, minimum, and mean monthly average temperatures at Luang Prabang station for recent 5 years are presented in **Table 1**.

2.3 Land allocation

Forest land was allocated to the villagers in 1992-93 for the first time by the government. In 1996, forest land was re-allocated through a Lao-Swedish project. Each household received 2~4 plots of land in production forest “*Pa Phalit*” depending on its household size. One plot is 0.6~0.8ha. According to DAFO staff, the documents for allocated land consist of i) Temporary Certificate for the use of each plot, signed by Land Allocation Committee at village level, the village head, and villagers concerned, and ii) Temporary Agreement for the use of each plot, signed by DAFO, the village head, and the villagers. In the documents, there is a section for drawing a sketch of the plot with its measurements. Since the temporary agreement for the use of each plot is valid for three (3) years, there must be some further processes. According to DAFO staff, it is planned that after three years, the district land office will assess the actual use of the land as well as the tax payment situation for issuing the permanent certificate. However, no process is undertaken after issuing temporary certificates.

This village has a total of 27 ha of wetland rice field. Families with enough rice from wetland rice field grow cash crops at their allocated land. Others grow upland rice at their allocated land.

2.4 Land classification and distribution of each land use category

2.4.1 Data of PAFO

According to the data from DAFO of Nan district, each area of Pongdong village is as follows.

Area by Land Classification (as of 1997)

Land Classification	Area (ha)
A. Agricultural Land	
1) Lowland paddy field	27
2) Upland agricultural land	195.6
B. Forest Land	
1) Conservation Forest “ <i>Pa SaNgouan</i> ”	18

2) Protection Forest “ <i>Pa Pongkanh</i> ”	209
3) Production Forest “ <i>Pa Phalith</i> ”	103.5
4) Rehabilitation Forest “ <i>Pa Feumfu</i> ”	92
5) Reserved area “ <i>Din He</i> ”	642
6) Others	14
Total Village Area	<u>1,302</u> */

Source: DAFO of Nan district (06 May 2004)

Note: */ There seem to be some discrepancies among the figures above. However, they are just presented as officially recorded.

2.4.2 Information from the village

The village profile survey team obtained the following information through the interview with the village head.

Area by Land Classification by the Village

Land Classification	Area (ha), */
A. Agricultural Land	
1) Low land paddy	27
2) Upland field “ <i>Hai</i> ”+ “ <i>Suan</i> ”	195
B. Forest Land	
1) Conservation Forest “ <i>Pa SaNgouan</i> ”	18
2) Protection Forest “ <i>Pa Pongkanh</i> ”	209
3) Production Forest “ <i>Pa Phalith</i> ”	103
4) Community Production Forest “ <i>Pa Somsai</i> ”	92
5) Cemetery “ <i>Pa Sa</i> ” or “ <i>Pa Heu</i> ”	18 **,
6) Reserved Land “ <i>Din He</i> ”	642
7) Orange and Fruit Tree Plantation	5 **,
8) Teak Plantation	10 **,
C. Residential area	3 **,
D. Others	14.5
Total Village Area	<u>1,336.5</u>

Source: Village head (06 May 2004)

Note: */The areas obtained from the village are not accurate figures based on the actual topographical survey.

**/ Additional areas compared with the data from DAFO as of 1997.

The land use categories by the villagers are as follows.

- (A) Agricultural land: (27 ha of lowland paddy + 195 ha of upland agricultural land)
Wetland rice field is 27 ha for 41 households, among which 12.3 ha was cultivated in the dry season 2003~04 with irrigation. “*Hai*” area (upland agricultural land) is 195 ha.
- (B) Forest land:
- (1) “*Pa SaNgouan*” (Conservation Forest): (18 ha)
Conservation Forest spreads along the western mountain range in the village. Trapping wild animals or birds as well as cutting trees is prohibited. Villagers can collect mushrooms. Bamboo shoots cannot be found due to few bamboo trees in Conservation Forest.

- (2) “*Pa Pongkanh*” (Protection Forest): (209 ha)
Watershed areas. Only cutting trees are prohibited. Villagers trap wild chicken and small birds and collect bamboo shoots.
- (3) “*Pa Phalith*”(Production Forest)¹: (103 ha)
“*Pa Phalit*”(Production Forest) is forestland for slash and burn cultivation. Trees can be cut with only village head’s permission. Typical trees in Production Forest are “*Mai Ko*”, “*Mai Pao*” (Cephalostachyum sp. Gramineae, Bamboo), “*Mai Kinoon*” and other soft trees. Fire woods are also collected in production forest. This is considered as women’s job. It seems that among the allocated plots, the area where they grow crops this year is called “*Hai*” or “*Suan*” and the fallow areas are called as “*Pa Phalith*”.
- (4) “*Pa Somsai*”(Community Production Forest): (92 ha)
Trees in “*Pa Somsai*” (Community Production Forest) can be cut for building house with village heads permission. Village chairman go to DAFO to get permission. (When villagers need trees as materials for building their own house, they have to get permission from DAFO through the village head. Tax for cutting trees is 120,000 Kip/m³ for “*Mai Do*”(Rose wood) tree, 60,000 Kip/m³ for soft species. Building normal house needs 5 m³ of trees.) Mushrooms and bamboo shoots can be collected in this forest. They can catch wild chicken and small birds with trap as well.
- (5) “*Pa Sa*” or “*Pa Heu*” (Cemetery): (18 ha)
“*Pa Sa*” or “*Pa Heu*” is forestland for cemetery. Wild vegetables, mushrooms and bamboo shoots can be collected. But cutting trees and catching animals including birds are prohibited.
- (6) “*Din He*”(Reserved Land): 642 ha
“*Din He*” is kept for future land allocation to new households and new comers. Village chairman has a responsibility to allocate forest land categorized as “*Din He*”. After land allocation, the land category is changed to “*Pa Phalith*”.
Trees in “*Din He*” can be cut with permission of village head only. Mushrooms and bamboo shoots can be collected. They catch deer, rats, mole and small birds with trap and guns. (The government collected guns in the village but they use guns of village police and army.)
- (7) Orange/Fruit Plantation: (5 ha)
Since a high-ranking officer in the army first planted orange trees in Pongdong village in 1969, the villagers have been continuing maintaining orange trees. Presently, oranges are very important cash crops in the village.
- (8) Teak Plantation: (10 ha)
17 households plant 10 ha of teak trees in production forest. Teak trees were widely planted with the assistance of Lao-Sweden project in 1996. Teaks grow to 80 cm in diameter in 15 years and can be sold for 80,000 Kip per tree.

¹ Italics are Lao names of trees obtained from the village key informants. Only identified common/or genus/or family names are described in the following parentheses.

- (C) Residential area: (about 3 ha)
- (D) Others: (14.5 ha)

2.5 Farming activity and production of major crops and livestock in the area

2.5.1 Farming activity

There are 27 ha of lowland paddy fields in Pongdong, owned by 41 households. It is simply calculated that among total 102 households, 40 % of households own 0.66 ha of lowland paddy fields in average. Further, among 27 ha of lowland field, 12 ha are usually irrigated for the dry season rice. The farmers who own lowland paddy field, grow rice in lowland and cash crops in upland areas. However, the farmers who do not own lowland paddy field, grow mainly upland rice in “*Hai*” area.

Each household is allocated basically 3 plots (0.6~0.8 ha per plot) for 3-year rotation shifting cultivation system.

In “*Hai*” area they grow various kinds of crops like rice, sesame, Job’s tear, corn, cassava, taro, pumpkin, chili, egg plant and cucumber. Among these, sesame and Job’s tear are major cash crops and corn, taro and cassava are also important for household consumption as well as for feeding animals.

All those crops are planted just before the rainy season in end April and May. Firstly, rice is planted in the main area (sometimes together with cucumber and other vegetable crops) followed by sesame, corn, Job’s tear, and others. Sometimes, corn is firstly planted before rice. Sesame, Job’s tear and corn are normally planted around the rice plantation area as a boundary and also in small plots, or in fenced gardens, so called as “*Suan*”. For growing those crops, the farmers do not use any fertilizers and only practice 3 times of weeding for rice and 2 times weeding for sesame, Job’s tear and corn.

2.5.2 Major crops

(1) Wet season irrigation rice:

Irrigated rice field in the village was firstly made about 50 years ago. Forty-one (41) households planted 27 ha of rice during the wet season in 2003 and the average yield was 2.5~2.6 tons/ha. Rat has increased for last several years. “*Bua kiyao*” (disease) is one of the problems. After harvest, they plant tobacco, onion, and garlic in the same fields if dry season rice is not planted.

(2) Dry season irrigated rice:

Irrigated rice cultivation in the dry season in the village began in the middle of 1980s. Until then, villagers had not cultivated during the dry season because they had enough rice without dry season rice. 13 household planted 12.5 ha of rice during the 2003-04 dry season and the average yield was more than 3 ton/ha with enough water and fertilizer and 2.5 ton/ha without fertilizer. Rats and sparrows are problems during harvest season. There is no wild pig in the area.

(3) Upland rice:

Sixty-one (61) households engaged in upland rice cultivation in 2003. More than 2 ton/ha can be harvested in upland rice field. But fertile land in shifting cultivation area is shrinking and about half of them have poor nutrition. In Pongdong, herbicide is widely used in shifting cultivation area and the villagers say “Productivity of upland rice has increased than before”. Herbicide has been used for recent 3 years.

(4) Job’s tear:

Villagers began to plant Job’s tear in 1999. At first, they bought seeds of Job’s tear. After that, they use seeds collected from the products in the previous year. Now all households in the village grow Job’s tear as cash crop. This village produced 100 tons of Job’s tear from 50 ha (about 2 ton/ha) last year. Some households produce 3~4 tons of Job’s tear for a year. Typical households produce 1.0~1.2 tons of Job’s tear and get about 2,500,000 Kip. Job’s tear tends to suffer from a disease “*Kii*” for a couple of years.

(5) Orange:

During 2nd Indochina war (in 1969), a high-ranking officer in the army first planted orange trees in Pongdong village, where his respectable father lived. Now his 2nd wife in Nan district still manages the fruit plantation. Many villagers followed to plant orange trees and the village used to sell a large volume of oranges to Vientiane. Lao-Swedish project promoted to plant orange trees in the middle of 1990s. They provided barbed wires and seedlings to only one family. (The family has 142 orange trees in 0.3 ha near Houay Pongdong stream. In a few years, the orange will bear oranges.) The effort was too limited to promote orange production.

One household used to earn 1 million Kips from orange production before. But damage of worms’ eating trunks of orange trees began to spread rapidly since the beginning of 2000s. Many households had to suspend their orange production due to deaths of orange trees by the worms. At present, 16 households have only 13 ha of orange plantation. Villagers still hope to plant orange trees but cannot find the seedlings by themselves.

(6) Tobacco:

From the middle of 1980s to the beginning of 1990s, traders from Luang Prabang and Vientiane came to the village to buy tobacco. The village produce 2~3 tons of tobacco each year at that time. But they don’t come any more because of low demand for tobacco leaves due to the prevalent of factory-made tobacco. Now only 2 households plant tobacco mainly for consumption within the village.

(7) Paper mulberry:

Five (5) households planted about 2.5 ha of paper mulberry in 2003. Average production was about 650~750 kg/ha. They planted paper mulberry in their allocated land.

(8) Chili:

Each family produces small amount of red chili. This village produces about 1.5 tons of chili from total 1 ha of chili garden.

(9) Banana:

They produce small amount of banana for family consumption.

- (10) Corn:
Only 3 households plant corn for family consumption.

2.5.3 Livestock

The numbers of each livestock in the village are summarized below.

Livestock	Number (Heads)
1) Buffalo	116
2) Cattle	0 (76)
3) Pig	50~60
4) Poultry	2,500
5) Turkey	150

- (1) Buffalo: 116 heads (60 households)
Buffalo had not died for three years until three heads died this year. Owner of the three dead buffalo didn't have them get injections. Villagers sold 20 heads of buffalo and they bought a tractor, a rice mill or material for building house. They raise buffalo near Houay Pong, Houay Koot and Houay Moo streams.
- (2) Cattle: 0 heads (76 heads of other village)
Two (2) households of Kwa Tii Neung village (Luang Prabang city) entrust 14 households of Pongdong village to breed 76 head of cattle since March 2004 for free. Owners of Kwa Tii Neung and breeders of Pongdong will divide their newborn babies. At the time of being, there are no cattle owned by Pong Dong villagers.
- (3) Pig: 50~60 heads (30 households)
They raise pigs in habitat area, rice field and fallow land. Pigs kept in the habitat area tend to easily suffer from epidemic diseases and die.
- (4) Poultry: 2,500 heads (Almost all households)
Pongdong villagers have 2,500 heads of poultry. Number of poultry is easily changeable because of death from epidemics. Epidemics often spread in April and May. They keep their poultry around their houses, rice field and fallow land.
- (5) Turkey: 150 heads (30 households)
Each household raises 4 to 10 turkeys. Turkeys are relatively free from diseases but likely stolen.

2.6 Collecting NTFPs²

Major NTFPs collected in the village are as follows.

² Italics are Lao names of NTFPs obtained from the village key informants. Only identified common/or genus/or family names are described in the following parentheses.

NTFPs collected in the Village

Major NTFPs	Description
1) Paper mulberry	SIDA project introduced villagers to collect paper mulberry trees in 1992. Nowadays, all households collect paper mulberry and sell. Paper mulberry trees naturally grow near Houay Pon, Houay Fa streams and Pa Juak mountain. Average household collects 30 kg of paper mulberry for a year. But each household collect small amount of paper mulberry and their income from paper mulberry is at most 200,000 Kip per year.
2) Tree bark	Tree bark is also collected since the middle of 1990s, but its amount is very small. Average household collects only 2~12 kg of tree bark (5,000~30,000 Kip). Tree bark is collected in the deep forest near streams.
3) Worm in bamboo “ <i>Me Nomai</i> ”	60 households collect “ <i>Me Nomai</i> ” of bamboo trees near Houay Pong and Houay Fa streams. Average household collects 2~3 kg of “ <i>Me Nomai</i> ”.
4) Bamboo shoots	Bamboo shoot “ <i>Nomai Hok</i> ” (<i>Dendrocalamus</i> sp. Gramineae) is widely collected during the rainy season (July, August and September) and sold to traders from Vientiane Province. They began to sell bamboo shoots in 1998. They sold 20 ton in 2002 and 5 ton in 2003. Now sales of bamboo shoots are important for many households. The price is 600 Kip/kg in 2003. “ <i>Nomai Hok</i> ” bamboo shoot is canned in the factory in Ban Keun in Vientiane province and sold abroad. Bamboo shoots are mainly collected along Houay Pong and Houay Mai streams.
5) Mushrooms	They also collect several kinds of mushroom (e.g. “ <i>Het Kok</i> ”, “ <i>Het Khorn</i> ” (<i>Hiatula</i> sp., <i>Lepiota</i> sp.) and “ <i>Het Ken</i> ”) during the rainy season (July, August and September) as their house consumption. “ <i>Het Sanun</i> ” (<i>Auricularia polytricha</i> Saccardo) can be collected in fallow land for house consumption throughout the year. Some other species are collected in February and March.
6) Medical plants	Two households in the village collect several kinds of plants as herbal medicine throughout the year. They dry, pack and label the herbal medicine and then sell to other villages by themselves.
7) Frog	They catch frogs in rice field from May to July.
8) Bat	They catch bats living in caves of Pa Juak mountain.

2.7 Use of water products

(1) Fishing³

They catch fishes throughout the year, especially in March and April. Typical fishes in Houay Fa stream are “*Pa Dok*”(Catfish), “*Pa Kang*”(Channa gachua: snaked

³ Italics are Lao names of fish obtained from the village key informants. Only identified common/or genus/or family names are described in the following parentheses.

head), “*Pa Soiu*”(Luciosoma setigerum) and “Pa Pan”. Villagers remember they could catch fishes much easier before. One of the reasons to decrease fishes is that poison is used to catch fishes in other villages. (This village prohibits to catch fish with poison). Officials in Nan district come fishing in Houay Nam Nan stream on Saturdays and Sundays is another reason of decreasing fishes.

(2) Aquaculture

Non Houay Wan (Village Common Fish Pond):

Each household released 10 fishes in the pond in 1975. Nobody has released fishes since then but there are still enough fishes to catch. All households have rights to catch fishes in the pond. But some go fishing everyday and others never do so. Many people go fishing in March and April because it’s difficult to find other foods during hot season.

Private owned fishponds:

There are 19 private owned fishponds (including one fish pond at school) in the village. Most of fishes are for family consumption.

(3) Others

Shrimps are collected in Non Houay Wan (Village Common Fish Pond) throughout the year for family consumption. All household catch crabs along Houay Hon and Houay Fa streams throughout the year (a lot in August and September) for house consumption. Crabs collected in rice fields are sold. Villagers go to collect shells in Houay Nam Nan stream from January to May. Houay Nam Nan stream is not in Pongdong but it’s within 30 minutes’ walk from their habitat area. They collect riverweed in Houay Fa and Houay Pong streams, in February and March. They make dishes with fresh riverweed.

2.8 Other activities

- (1) Weaving: Weaving is widely conducted by female. They produce bags from the material and sell mainly to the Lao Theun people near the village. They sell one bag at 6,000 Kip. Women usually make 30~50 bags a year.
- (2) Blacksmith: Four (4) blacksmiths work for the villagers. Relationship between blacksmith and other villagers are based on labor exchange method. 4 blacksmiths never go to work in the field and other villagers work at their rice field and/or upland rice field.
- (3) Embroidery: Commercial embroidery is also conducted by female. People from Luang Prabang, Thailand and USA bring sample and all the material. They embroider when they have time and it usually takes one month to complete a sheet of embroidery. They receive 38,000 Kip for a sheet of embroidery. This commercial embroidery just began in 2003.
- (4) Bamboo basket: Bamboo baskets are made by male and sell to the near villages.
- (5) Rice Wine: Six (6) households make rice wine and sell in the village. They make a lot of rice wine in April to meet its big demand during Lao New Year.

2.9 Collective activities by the village for forest conservation

None

2.10 Seasonal calendar

Seasonal calendar, which shows various activities/issues/ events related to livelihood and natural resource management is presented in **Figure 2**.

3. Infrastructure

3.1 Location, current condition of social infrastructure

- (1) Water supply: There is one gravity-fed water supply system with 6 faucets, assist by UNICEF in 2000.
- (2) School: Pongdong village has an elementary school (P1-P5). For further study, they usually go to junior high school (M1-M3) in Huay Hoy or Namgan village and senior high school(M4-M6) to Nan district. The elementary school in this village was built in 1973.
- (3) Clinic/Hospital: There is no clinic or hospital in this village. Villagers usually go to hospitals in Nan district and/or Luang Prabang city. Red Cross comes to the village every three months. They explain about prevent diseases and get injections. They began to come to the village about three years ago.
- (4) Road: The national road No.4-A between Xieng Ngun and Sayaboury was constructed by UNDP 1989-1992, and now under rehabilitation. At the time of being, road condition during the rainy season is still bad. Road rehabilitation will be completed in 2005.
- (5) Market: Monthly market “*Talaat nat*” is held for twice a month at the primary school in Pongdong village. They usually go to buy foods, cloths and daily necessities at the market in Nan district.
- (6) Electricity: Electricity has just come to the village at the beginning of this year (2004).

3.2 Agricultural infrastructure

- (1) Irrigation: They take water from streams (Houay Fa, Houay Pongdong and Houay Loot) by traditional irrigation systems to the rice fields during the rainy season. Only rice field beside streams can be supplied water in the dry season.
- (2) Rice mill: There are 8 family-run rice mills in the village.
- (3) Vehicle/Agricultural machine/Tractor: There are 10 hand tractors in the village. Most

of them were purchased after 2000.

3.3 Infrastructure development plan

The road No.4-A between Xieng Ngun and Nan district will be rehabilitated in 2005.

4. Organization related to the Project Activities

4.1 Organizations available in the village

(1) Water management unit

Mr. Somphone and Mr. Xiengthan are responsible for water management of gravity-fed water supply system (not irrigation) in the village. Their salaries are 120,000 Kip/year/person.

(2) Forest management unit (= Forest allocation unit)

All households are members of the unit. The committee consists of one head (village head) and four committee members (head of village police, head of village army, head of women's union and head of youth association). The roles of the committee are solving problems when villagers illegally cut trees in "*Pa Somsai*", "*Pa Feunfu*" and "*Pa SaNgouan*" and to allocation of forestland when somebody needs.

(3) Farmer's management unit

See cooperative work in Section 1.9.

4.2 Any on-going/ implemented rural development project in the area

None.

4.3 International organizations and/or local NGOs working in the area

Lao-Sweden:

Lao-Sweden had a project to promote agricultural (e.g. orange, paper mulberry) and livestock production during 1995-96 in the village. They built small office in the village in 1994. They gave 154 orange and 2004 paper mulberry seedlings for free. Two (2) households bought 15 heads of goat at 200,000 Kip respectively and 37 households bought one head of pig at 35,000 Kip. They lent money to buy those livestock at low interest.

4.4 Any agricultural promotion activities

Only DAFO staffs visit the village for agricultural promotion activities.

4.5 Availability of agricultural technicians

None except one veterinarian Mr. Xieng Thong Pan.

5. Others

5.1 DAFO extension staff activities to the village

Village head has never seen DAFO staffs in this village more than 6 years.

5.2 Any migration project in the future

Not exist

5.3 Situation of tax collection (land tax etc.)

Almost 80% of collected tax in the village is kinds of land taxes. Collected tax is divided by the district government revenue (85%) and the village revenue (15%). Village revenue is used as village expenditure (40%) and village officials salary (60%).

Collected Tax in Pongdong Village, */

	(Kip)	(%)
Land taxes	4,505,215	78.7%
Property asset taxes	311,000	5.4%
Other taxes	910,000	15.9%
Total	5,726,215	100.0%

Note: */ as of 01 December 2003

Land and other taxes in the village are regulated as follows.

Land Taxes:

- 1) House land: 2,000 Kip/house;
- 2) "Hai": 20,000 Kip/ha;
- 3) "Swan": 13,000 Kip/ha
- 4) Wetland rice field: 20,000 Kip/ha;
- 5) Reserve Land "Din chap chon": 18,000 Kip/ha;
- 6) Fruit tree plantation: 10,000 Kip/ha;
- 7) Teak Tree plantation: 10,000 Kip/ha

Other Taxes:

- 8) Livestock: 2,000 Kip/head/year for raising, 2% for sales (normally 50,000 Kip for buffalo, 5,000 Kip for pig, small number of poultry sales is exempt from tax);
- 9) Rice mill: 30,000 Kip/mill (2003), 10,000 Kip/mill (2004);
- 10) Tractor: 43,000 Kip/machine (2004);
- 11) Retailer: 100,000 Kip/year;
- 12) Doctor: 360,000 Kip/year (only one person in the village);
- 13) Water: 8,500kip/HH (outside, HH members are less than 6),
12,000 Kip/HH (outside, HH members are 6 and above),
18,000 Kip/HH (water supply into the house)

PART 2 PARTICIPATORY VILLAGE SURVEY

- Survey period : 06 to 08 May 2004
- Resource map and social map : 06 May 2004
- Venn diagram for marketing products : 06 May 2004
- Dependence on resources by well-being level : 07 May 2004
- Present rules on the use of resources : 08 May 2004

1. Resource Map and Transect

In order to clarify the present use of lands and other resources, a resource map was drawn by the villagers through a participatory process. A total of eleven (11) villagers participated in this session on 06 May 2004. Based on the resource map, a transect walk was conducted together with some village key informants on 07 May 2004. During the transect walk, the present use of lands and other resources were clarified by observing actual conditions of the sites. The resource map shows the different land types, in addition to roads, rivers, streams and habitation and the transect shows cross-sectional view of the different zones and provides comparative information such as main activities and problems for each land category as presented in **Figure 3 and 4**.

2. Resources Utilization and Major Products

Major products in each resource are summarized in the following table, the information of which were obtained through Transect Walk, Venn Diagram preparation and some informal discussions.

Major Products by each Land Category

No.	Resources	Products
1.	Conservation Forest "Pa SaNgouan"	Mushroom Bamboo shoot
2.	Community Production Forests: " Pa Somsai"	Construction materials (poles and timber) Bamboo Bamboo shoot Herbal medical root Paper mulberry Mushroom Winding plant Tiger grass Wild vegetable Buffalo Cattle
3.	Agricultural Land for upland cultivation: "Hai" (3 places per household, 1.0 ha for place/piece) or Fallow land for	Rice Sesame Maize Seasonal vegetables Job's tear

	Slash and burn “ <i>Lao Orn</i> ” or “ <i>Pa Phalith</i> ”	Peanut
		Cassava
		Tobacco
		Buffalo (in fallow land)
		Cattle (in fallow land)
		Goat (in fallow land)
		Pig (in fallow land)
		Poultry
4.	Agricultural Land for Upland cultivation: “ <i>Suan</i> ”	Orange
		Mango
		Jackfruit
		Coconut
5.	Reservation Forest “ <i>Pa He</i> ”	Bamboo shoot
		Herbal medical root
		Paper mulberry
		Mushroom
		Tiger grass
6.	Protection Forest “ <i>Pa Pongkanh</i> ”	Herbal medical root
7.	Rehabilitated Forest	Pole for minor construction
8.	Streams (Houay Hia Noi, Xamthong, Khay Nhai, Kheung Nyaim Kheuang Noi, Mak Nheun, Xay, Phong, Fa Tai, Lort, Nam Sanam, Pong, Wan)	Fish
		Small shrimp
		Crab
		Shell
9.	River sides	Dry season vegetable
		Paper mulberry
		Tiger grass
		Tree bark

3. Venn Diagram

3.1 Importance of major products/resources

In order to clarify major products/resources in the village, the survey team organized group discussions through Venn Diagram preparation process in the afternoon on 06 May 2004. Twenty-two (22) participants were divided into two groups, namely a male group (11 persons) and a female group (11 persons) and were asked about major products/resources for each group, their importance and its reason, and their market situation as well.

Regarding importance of the major products/resources, both groups described “rice” as the 1st priority like other villages. Rice is the most important crop for the villagers for HH consumption as well as for cash crop. Totally, this village produces surplus rice owing to 27 ha of lowland paddy field, and sells the surplus rice to the local markets, mainly to Nan district market. Therefore, the farmers who can produce surplus rice in their lowland paddy fields, grow only cash crops particularly Job’s tear in their upland field instead of planting upland rice.

Importance ranking after rice is followed by “Job’s tear” as the 2nd, “Orange” as the 3rd, “Paper mulberry” as the 4th, and “Poultry” as the 5th, for male group. On the other hand, the female group listed up “Pig and Poultry” as the 2nd priority, “Job’s tear” as the 3rd, “Orange” is the 4th, and “Bamboo shoot” is the 5th.

The high priority of “Orange” suggests that the villagers have more than 30 years experience of growing orange and consider it as an important product of the village. “Pig and poultry” were ranked as high priorities by both groups because they thought such small animals were easily sold with rather short raising periods than large animals like cattle and buffalo.

The reason of the high priority like “Bamboo shoot” as the 5th and “Weaving” as the 6th by female group may also be the easiness of selling even though the amount of earning is rather small.

Differences of major products/resources between male and female, and their priority, reasons and problems are summarized in the following table.

Difference of Major Products/Resources between Male and Female,
and their Priority, Reasons and Problems

Major Products	Male		Female		Reasons, */	Problems
	Claimed	Priority	Claimed	Priority		
1. Cultivated Crops						
- Rice	O	1	O	1	For HH consumption, (and sale), about 70% of HH sell rice.	In upland rice fields, the damages by rats, insects and ants are serious.
- Sesame	--	--	O	11	For sale	
- Job’s tear	O	2	O	3	For sale, almost all the villagers produce Job’s tear for sale.	Damages by rats and insects are found.
- Maize	--	--	O	12	For HH consumption, feeding animals, and for sale.	
- Wet season vegetable	O	14	--	--	For HH consumption, feeding animals, and for sale.	
- Dry season vegetable	--	--	O	8	For HH consumption, feeding animals, and for sale.	Some vegetables are taken by thieves in the village.
- Tobacco	O	12	--	--	For HH consumption and for sale in the village, about 10% of HH grow and sell tobacco.	
- Orange	O	3	O	4	For sale, and for HH consumption, about 70% of HH produce and sell orange.	Damages by insects are serious.
- Jackfruit	--	--	O	9	For HH consumption, (and for sale)	
- Mango	--	--	O	9	For HH consumption, (and for sale)	
- Coconut	--	--	O	9	For HH consumption, (and for sale)	

2. NTFPs						
- Paper mulberry	O	4	O	7	For sale, 90% of HHs collect paper mulberry, and 70% of products are from natural forests and 30% of products from paper mulberry gardens.	
- Tiger grass	O	7	--	--	For sale, 70% of HHs collect tiger grass.	
- Tree bark	O	10	O	7	For sale, 30% of HHs collect tree bark.	
- Bamboo shoot "Nomai Hok"	O	8	O	5	For sale, and HH consumption, 100% of HHs eat bamboo shoots, and about 80% of HHs sell them.	
- Herbal medical root	O	11	--	--	For sale, 50~60 HHs collect and sell them.	
3. Livestock						
- Buffalo	O	9	O	--	About 40 HHs have buffalos, among these 11 HHs sold buffalos last year.	
- Cattle	O	13	--	--	For sale, 14 HHs of Pongdong started raising 76 heads of cattle on a contract basis with the two villagers of Kwa Tii Neung village in LPB in early this year.	
- Pig	O	6	O	2	For sale, almost villagers keep pigs, and about 60% of HHs sell 1~5 pigs a year.	Hog cholera and stomach problem during April to June.
- Poultry	O	5	O	2	Almost of HHs keep poultry.	Chicken cholera during the hot season.
4. Others						
- Weaving	--	--	O	6	For sale and HH use.	
- Crab	--	--	O	10	For HH consumption and sale.	
- Fish	--	--	O	10	For HH consumption and sale.	
- Shell	--	--	O	10	For HH consumption and sale.	

Note: --/ Not claimed as major crops.

*/Activities in parenthesis mean secondary/minor purposes.

3.2 Marketing situation of major products

(1) Licensed middlemen

There are two (2) groups of licensed middlemen in Nan district, to whom the producers/villagers are officially to sell their products. The group-1 consists of 10 middlemen, who handle cash crops and NTFPs such as sesame, Job's tear, paper mulberry, tiger grass, and tree bark. The group-2 consists of 12 middlemen, who handle livestock such as buffalo, cattle, pig, goat, and poultry.

(2) One village trader

There is one village trader who collect the village products and sell to the licensed middlemen above. Since Pongdong village is very near to Nan district town (14 km), the products are also directly collected by those licensed middlemen or the villagers carry their products by themselves directly to the middlemen.

(3) Venn Diagram of major products

Destinations of major products were clarified through a Venn Diagram preparation as summarized in the following table. Venn Diagram in Pongdong village is presented in **Figure 5 and 6**.

Destination of Major Products

Products	Sell/Consume in the village	Sell to near markets, 1/	Sell to Middlemen, 2/
1. Cultivated Crops			
- Rice	O	(O)	(O)
- Sesame			O
- Job's tear			O
- Maize	O	(O)	
- Wet season vegetable	O	O	
- Dry season vegetable	O	O	
- Tobacco	O	O	
- Orange	O	O	
- Jackfruit	O	O	
- Mango	O	O	
- Coconut	O	O	
2. NTFPs			
- Paper mulberry			O
- Tiger grass			O
- Tree bark			O
- Bamboo shoot	O	O	O
- Herbal medical root			O
3. Livestock			
- Buffalo		O	O
- Cattle		O	O
- Pig		O	O
- Poultry	O	O	
Others			
- Weaving products	O	O, 3/	
- Crab	O	(O)	
- Fish	O	(O)	
- Shell	O	(O)	

Note: O = major destination, (O) = minor destination

1/ Carry products by themselves to Nan district market and sell by themselves or sell to non-licensed middlemen.

2/ Carry products by themselves to licensed middlemen, or middlemen come directly to the village.

3/ Weaving traders.

4. Social Map

4.1 Well-being ranking

A social map was drawn by the villagers through a participatory process. This session was organized on 06 May 2004 with a total of 11 villagers' participants. The participants were asked to clarify themselves based on the well-being perceived by themselves, then they classified the well-being rank into three levels like i) over sufficient, ii) sufficient and iii) under sufficient. According to the participants, among the total of 102 households of the village, 26 households (25.5 %) were classified into "over sufficient level", 33 (32.3 %) were "sufficient level", and the other 43 (42.2 %) were "under sufficient level", respectively. Among these, even "under sufficient level" (32.3 %) normally face deficit in rice for about 1 to 2 months in August and September. The section 1.6 of Part 1 also describes about the situation of food security in the village, saying that "According to key informants, no households in the village face serious food shortage. Some households have no rice in September. But they never faced serious food shortage."

These three (3) categories clarified by the participants are distinguished in the social map, as presented in **Figure 7**. It can be simply said that major indicators affecting on the living situation are if they have some lowland paddy fields. Living situation of each level clarified by the participants is summarized in the following table.

Living Situation by Each Level

Level	Living Situation
"Over sufficient" 26 HHs (25.5 %)	<p>This group consists of 27 households (25.5%). Their living conditions are described as follows.</p> <ul style="list-style-type: none"> - They have surplus of rice to sell because; <ul style="list-style-type: none"> * They own a certain area of lowland paddy field; * Some villagers can produce rice in the dry season with irrigation; * They sometimes hire labors and machines to work in their farm; * In addition, every year, they receive the repayments and interests of rice from the rice borrowers of some "Under sufficient level". - Some have hand tractors; - Some have rice mills; - Some have CD/televisions; - Some have permanent houses made of bricks, sawn wood and either fiber cement or tin roofing; - Some raise buffalos and cattle, and sell when needed; - Some raise pigs and poultry, and sell when needed; - Some keep savings in cash, not less than 5,000,000 Kip; - Some own cash crop/tree crop gardens such as orange and paper mulberry; - One of them is a village trader.
"Sufficient" 33 HHs (32.3 %)	<p>This group consists of 33 households (32.3 %). Their living conditions are described as follows.</p> <ul style="list-style-type: none"> - They have just sufficient rice; - Their houses are semi-permanent buildings, made of sawn wood, but with bamboo walls; - Some own some lowland paddy field, but much smaller than those of "over sufficient group";

	<ul style="list-style-type: none"> - They practice “<i>Hai</i>” (slash and burn cultivation) more than “<i>Na</i>” lowland paddy cultivation; - They grow cash crops (Job’s tear, orange, paper mulberry, etc.) as well as collect NTFPs (tree bark, bamboo shoots, etc.); - They use their own labors without hiring others to work for them; - They raise a few of pigs and a number of poultry for sale and HH consumption; - They keep savings in cash, not more than 2,000,000 Kip/HH.
<p>“Under sufficient” 43 HHs (42.2 %)</p>	<p>This group consists of 43 households (42.2 %). Their living conditions are described as follows.</p> <ul style="list-style-type: none"> - The reason why they are poor because of: <ul style="list-style-type: none"> * Owing no lowland paddy field ; * Having many children (4 to 5); * Sometimes being ill; * Newly married couple; * Due to bad weather (drought), they could not produce sufficient rice in some years and stated borrowing rice from others; * Once they start having debts in rice, they tend to continuously have debts every year. - They have simple houses made of poles and bamboo with thatch roofing; - They raise no large animals; - They raise several pigs and chickens for sale and consumption; - Some of them have a rice deficit for 6 months because of debts; - They have to pay debts with rice immediately after post harvest with an interest of 100%.

4.2 Dependence on various resources by well-being level

The group discussions were organized by each well-being level on 7 May 2004 to clarify the present use of and dependence on resources by the group and to grasp seasonal trends/changes of resources in terms of production and marketability. Six (6) participants for each group were selected by the villagers during the social map preparation. Participatory discussions gave us the following interesting suggestions.

- 1) “Over sufficient” level group ranked their resources like i) Job’s tear, ii) buffalo, iii) paper mulberry , iv) rice, and v) pig, in order of importance.
- 2) “Sufficient” level” group ranked their resources like i) rice, ii) Job’s tear, iii) poultry, iv) buffalo and cattle, v) orange, and vi) paper mulberry, tree bark and bamboo shoots.
- 3) “Under sufficient” level group ranked their resources like i) rice, ii) bamboo shoot, iii) selling labor, iv) paper mulberry, v) orange, vi) pig, vii) Job’s tear, viii) weaving, and ix) poultry.

The above suggests that the poor people depend on various kinds of resources including selling labor, NTFPs and small animals for food security, while the high level people depend on large animals and cash crops. The dependence on resources by each level is summarized below.

Dependence on Resource by Each Level

Level	Resources	Dependence/Management on Resources	Problems/ Difficulties
“Over sufficient” 26 HHs (25.5 %)	Job’s tear	<ul style="list-style-type: none"> - Grown in allocated upland area, where slash and burn cultivation is practiced; - They grow mono-cropping of Job’s tear in this area; - Job’s tear planting area for each household varies from 0.5 ha to 1.2 ha with the production of 0.5 to 2.5 ton; - It is planted in May and harvested in December; - Weeding is made twice per season; - Income is used to buy tractors, house construction materials, rice mil, clothing and household utensils. 	“ <i>Khee</i> ”(a sort of plant diseases)
	Buffalo	<ul style="list-style-type: none"> - Raised in degrade forests of grass lands; - Each household may keep about 3 to 5 buffalos; - Within 2 years, one household may sell 1 to 3 buffalos; - A buffalo has a market value of 1,000,000 Kip to 2,600,000 Kip; - Each household income from selling buffalos varies from 1.5 to 4.5 million; - Buffalos are sold when a HH needs to buy tractors and house construction materials such as fiber cement, etc.; - There is a village veterinary volunteer who gives vaccination to buffalos in the village; 	The vaccinated animals are healthy and some un-vaccinated died. However, some owners of buffalos do not believe the importance of animal vaccination.
	Paper mulberry	<ul style="list-style-type: none"> - Grown in allocated lands and some are collected in community production forest and river sides; - The income made from paper mulberry is quite small, varying from 200,000 to 400,000 Kip/year; - One person (the village head) acting a village trader, makes about 400,000 Kip this year. He has collected around 2 tons; 	Paper mulberry cannot be harvested in the rainy season because it is difficult to dry.
	Rice	<ul style="list-style-type: none"> - Grown in lowland paddy fields only. None of this group practice upland rice cultivation in “<i>Hai</i>” area; - All of this group practice lowland paddy cultivation with a total of 27 ha varying from 0.5 to 1.0 ha per household; - The production varies from 1.5 to 4.0 ton per year; - This group produces a surplus of rice and sells some of them; - They also make profits from rice borrowers. They charge a 100% of interest for about six months. 	The rice varieties used are called “ <i>Mae Toe</i> ” and “ <i>Ninhom</i> ”. Both are traditional varieties and have been used for long time. Now these seeds tend to suffer from diseases.
	Pig	<ul style="list-style-type: none"> - Raised in the village area as well as at “<i>Sanam</i>” (field); - Pigs are fed with rice bran and taro; - A household keep about 1 to 8 pigs; - Each household sells about 1 to 8 pigs per year; - The income from pigs varies from 300,000 to 1,000,000 Kip per year. 	Pigs are normally safe/healthy in “ <i>Sanam</i> ” (field). Many pigs kept in the village area die due to hog cholera and stomach

			problem.
“Sufficient” 33 HHs (32.3 %)	Rice	<ul style="list-style-type: none"> - They practice both wet and dry season rice cultivation, and upland rice cultivation in “<i>Hai</i>” area (about 0.7 ha) as well; - Rice is sufficient for this group; - Weeding is done three times a year for upland rice; - For “<i>Hai</i>”, seeds are sown in May and rice is harvested in October to November; - For lowland rice, transplanting is done in June to July, and harvesting is in October to November. 	<ul style="list-style-type: none"> - Rat damage is serious during early period after planting; - Herbicide has been used for recent three years in “<i>Hai</i>” area.
	Job’s tear	<ul style="list-style-type: none"> - Grown in allocated upland area, where slash and burn cultivation is practiced; - Average area planted by this group is about 1 to 2 ha; - Making about 2,500,000 Kip; - They starting growing Job’s tear in 1999. 	<ul style="list-style-type: none"> - Job’s tear cultivation has suffered from diseases for 3 years.
	Poultry	<ul style="list-style-type: none"> - Raised both in village area and at “<i>Sanam</i>” (field); - Average number raised by this group is 40 to 50 heads per HH; - Average number sold is 20 heads a year with a vale of 300,000 Kip; - Income is used for food, medicine, clothing, school supplies and some fuel. 	<ul style="list-style-type: none"> - Chicken cholera is often broken out in March and April.
	Buffalo and cattle	<ul style="list-style-type: none"> - Raised in the grazing lands of “<i>Phou Moe</i>”; - A participant among this group kept 4 heads of buffalos in 2000; - He sold one of them in 2001, making 2,500,000 Kip for buying timber for house construction; - He sold one more in 2002, making 2,700,000 Kip and spent it for “<i>Bun Ha Phua</i>”(a sort of ceremony). 	<ul style="list-style-type: none"> - No diseases after having animal vaccinated; - Young buffalos for breeding are expensive, 1.2 million Kip per head.
	Orange	<ul style="list-style-type: none"> - Grown in allocated upland “<i>Suan</i>”(gardens); - Before, a household used to produce about 2 tons with 1,000,000 Kip per year. 	<ul style="list-style-type: none"> - Presently, the orange trees suffered from diseases and insects damaged the roots of orange trees; - The villagers want to replant new oranges but seeding is not available in the area.
	Paper mulberry, tee bark, bamboo shoot	<ul style="list-style-type: none"> - Grown in allocated lands and some are collected in production forest; - The villagers started collecting paper mulberry in 1992; - One participant earned 1,500,000 Kip per year from paper mulberry, while other two participants earned only 30,000 Kip (10 Kg of paper mulberry) to 60,000 Kip (20 Kg) per year; - The villagers started collecting tree bark in 	<ul style="list-style-type: none"> - Paper mulberry and tree bark are getting reduced and difficult to find recently; - No management has ever been practiced for such resources.

		<p>1996/97;</p> <ul style="list-style-type: none"> - One participant earned 5,000 Kip out of 2 Kg of tree bark, one earned 10,000 Kip out of 4 Kg, and the other earned 60,000 Kip out of 24 Kg; - The villagers started collecting bamboo shoots “<i>Nor Hok</i>” in 1998; - One participant earned 200,000 Kip from bamboo shoots, one 300,000 Kip, one 600,000 Kip, and the other earned 500,000 Kip, respectively; - The income from NTFPs are used for food, medicine, clothing, school supplies and some fuel. 	
<p>“Under sufficient” 43 HHs (42.2 %)</p>	Rice	<ul style="list-style-type: none"> - Among 6 participants, there are only one who faces rice deficit for about 2 months, and the others have sufficient rice all the year round. 	
	Bamboo shoots	<ul style="list-style-type: none"> - Six (6) participants earned 120,000 to 200,000 Kip from bamboo shoots last year; - Average income is 160,000 Kip per year. 	
	Selling labor	<ul style="list-style-type: none"> - Three (3) participants earned 70,000 Kip, 200,000 Kip, 400,000 Kip last year from making bamboo rice baskets respectively; - One participant earned 3,000,000 Kip from making furniture; - Average income from selling labor among this group is 600,000 Kip per year. 	
	Paper mulberry	<ul style="list-style-type: none"> - Three (3) participants earned 50,000 Kip, 150,000 Kip, 250,000 Kip last year from paper mulberry respectively; - Average income from paper mulberry among this group is 80,000 Kip per year. 	
	Orange	<ul style="list-style-type: none"> - Four (4) participants earned 160,000 Kip, 250,000 Kip, 300,000 Kip, and 500,000 Kip from orange last year respectively; - Average income from orange among this group is 200,000 Kip per year. 	<p>Damages by insects, having eaten branches and stems of orange trees, are serious.</p>
	Pig	<ul style="list-style-type: none"> - Pigs are fed with rice bran and wild taro; - Four (4) participants earned 1,300,000 Kip, 250,000 Kip, 870,000 Kip, and 200,000 Kip from pigs last year respectively; - Average income from orange among this group is 400,000 Kip per year. 	<p>Hog cholera is a serious disease for pig raising.</p>
	Job’s tear	<ul style="list-style-type: none"> - Six (6) participants earned 900,000 Kip, 1,700,000 Kip, 1,900,000 Kip, 2,700,000 Kip, 350,000 Kip, and 200,000 Kip last year respectively; - Average income from Job’s tear among this group is 1,300,000 Kip per year. 	<p>Damages by insects are serious.</p>
	Weaving	<ul style="list-style-type: none"> - One participant earned 150,000 Kip from weaving last year. 	

Poultry	- Four (4) participants earned 150,000 Kip, 120,000 Kip, 100,000 Kip, and 28,000 Kip last year respectively; - Average income from poultry among this group is 200,000 Kip per year.	
Total average income made from major products above by this group is 2,940,000 Kip per year.		

5. Present Rules on the Management/Use of Lands and Resources

A plenary discussion with a total of 22 participants was organized on 8 May 2004 to clarify i) present rules on the management/use of lands and resources, and any changes or cases of them, and ii) any problems and issues on land allocation program.

5.1 Land allocation program

As described in Section 2.3 of Part 1, “land zoning” was conducted in 1996 through a Lao-Swedish project. So far, there are six (6) forest types or land use types designated by DAFO as below.

- i) Productive Land “*Din Phalit*” by DAFO, and “*Hai*” and “*Suan*” by Villagers = 195.6 ha;
- ii) Conservation Forest “*Pa SaNgouan*” = 18 ha;
- iii) Production Forest “*Pa Somsai*” = 103.5 ha;
- iv) Protection Forest “*Pa Pongkan*” = 209 ha;
- v) Rehabilitated Forest “*Pa Feumfu*” = 92 ha;;
- vi) Reserved Forest/Area “*Din He*” = 642 ha

For the villagers, they don’t know how to differentiate between “Protection Forest” and “Conservation Forest”. According to the villagers’ understanding, the protection forest is for watershed, and the conservation forest is dense forest forbidden to encroach on. The villagers understand three (3) different forest categories, i) Community Production Forest “*Pa Somsai*”, ii) Conservation Forest “*Pa SaNgouan*”, and iii) Watershed Protection Forest “*Pa Pongkanh*”, the present rules on which are summarized in the following section.

5.2 Present rules on the management/use of lands and resources

(1) “*Pa Somsai*”(Community Production Forest)

- Collection of NTFPs in a sustainable way is allowed;
- Nor forms of cultivation is allowed;
- Bamboo and poles are allowed to collect;
- Large timber for house construction is allowed but official request from the

village authority is required.

(2) “*Pa SaNgouan*” (Conservation forest)

- It is forbidden to invade in this forest;
- Any major NTFPs are not found as it is dense forest;
- A villager from a neighboring village recently entered in this area for practicing slash and burn farming;
- The invader was immediately fined 2,000,000 Kip and was not allowed to practice slash and burn cultivation in the area, where he already fell some trees.

(3) “*Pa Pongkanh*” (Watershed Protected forest)

- No forms of cultivation are allowed to practice within the buffer zone of 50 m from both sides of river or streams;
- Lowland paddy cultivation is allowed in the valleys of rivers and streams.

5.3 Before and after “land zoning”

In the session, the participants were asked about the changes of the land before and after land zoning. The clarification about the changes is below.

Changes before and after “Land Zoning”

Before Land Zoning in 1996	After Land Zoning in 1996
1. The villagers practiced both lowland paddy fields and upland fields of “ <i>Hai</i> ” and “ <i>Suan</i> ” areas.	1. Lowland paddy field is considered more important because the allocated uplands are limited and have to be used with a shorter fallow rotation.
2. Lowland paddy fields have been developed for long time.	2. There is no difference about the ownership of lowland paddy fields before and after land allocation. The ownership for lowland paddy fields are authorized with land certificate (Land Declaration for land Tax Paper) called “ <i>Bai Chaeng Sia Phasi Thi Din</i> ” like homestead lands. Lowland paddy field is always secure in terms of ownership unless it is not affected with other land use.
3. Uplands were not allocated, and the farmers were free to select any pieces of dense forest.	3. Uplands of “ <i>Hai</i> ” areas have been officially allocated by detailed inventory and measurement. All plots are named by the users and each household has 3 plots scattered in different places. A few households may have four (4) plots.
4. No rules and regulations in land use and management existed.	4. Specific rules of the use and management of the lands/forests are enforced. The allocated forests have been defined with specific purposes and methods of use.
5. “ <i>Hai</i> ” fields were scattered in various types of forests with a fallow rotation of 7 to 12 years.	5. The villagers had to decide which parts (location) of the allocated forests they preferred to claim. Each household could have around 3 (maximum 4) plots so the fallow rotation is a 3-year period.
6. Rice was grown well with the yield of at least 2	6. Because of short period rotation, the yield is going

<p>ton/ha, and weeding was done not more than twice a year.</p> <p>7. Job's tear has been introduced since 1998 and the yield of it was good in those days.</p> <p>8. "Hai" fields can be shifted to any places in any year.</p> <p>9. No reserved forests have ever been introduced and defined. Any forests were free to use for any purpose and at any time.</p> <p>10. Gardens mainly for teak plantation or orange gardens "Din Suan" have been claimed and developed for many years, located in the forests surrounding the village residential area.</p> <p>11. Grazing lands are located at Houay Moe stream, in which there is plenty of grass for buffalos and cattle.</p>	<p>down to 0.8~1.2 ton/ha, and weeding is normally done three times a year.</p> <p>7. Job's tear is planted in separated spots in "Hai" areas. The yields of them are not as high as before and Jobs' tear starts having diseases in these 3 years.</p> <p>8. If the land allocated has been so bad, badly grown and very low yield, in the rule but not yet practiced, it can be replaced with an area in the reserved forests. For that process, the official request in forms of paper is required to submit to the village authority and the village authority would ask for DAFO approval.</p> <p>9. Reserved forest is defined for allocating to newly married couple or/and for new resettles from anywhere from Lao PDR. No forms of cultivation is allowed in the reserved forests. Collection of NTFPs as well as poles and bamboo for minor construction are allowed.</p> <p>10. These gardens remain unchanged in terms of ownership and land use rights. At the moment about 10 households have this type of lands.</p> <p>11. Nowadays, the village animals are grazing in a grazing area called "Sanam"(field). Besides grazing animals, they don't collect any NTFPs from this forests because it is too far.</p>
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The villagers further indicated the problems in their areas as follows.

- More pests such as rats, insects, ants and birds damage both lowland and upland rice;
- Job's tear came to suffer from "Khee" (a kind of plant disease) in recent 3 years;
- Due to more weeds growing, weeding has to be done 3 to 4 times per season;
- About 2/3 of households have used chemical herbicide in recent 3 years for killing weeds, applying 2.0 lit./ha before planting;
- Villagers only follow the instruction on the bottle of herbicide to use the herbicide and don't recognize well that it should be carefully and properly used for avoiding the future negative impacts on environment.

PART 3 HOUSEHOLD INTERVIEW SURVEY

Survey period: 06 to 08 April 2004
Total Household: 102 HHs
Total Number of Sampled HHs: 41 HHs

A. HOUSEHOLD INTERVIEW SURVEY

1. General Information

1.1 Interviewees

Total number of interviewees is 41 persons, all of which are Lao Loum, and 40 are male and one is female. Among those interviewees, the youngest one is 24 years old and the oldest is 66, as summarized below.

Summary of Interviewees

Total No.of interviewees	Ethnic group			Sex		Age	
	Lao Sung	Lao Theung	Lao Loum	Male	Female	Min	Max
41	0	0	41	40	1	24	66

1.2 Households members

Total number of households members surveyed is 215 persons, among which 113 (52.6%) are male and 102 (47.4%) are female, and 2 are temporarily absentees.

1.3 Household age structure

As per household, the average number of household is 5.23 persons, among which 1.2 (23.1%) are less than 12 years old, 3.4 (65.4%) are between 12 and 45 years old, and 0.6 (11.5%) are more than 45 years old, as summarized below.

Summary of Household Age Structure

Age Structure	Total			Average per HH	
	Number	Male	Female	Family Member	(%)
1. Less than 12 years old	49	27	22	1.2	23.1
2. 12 to 45 years old	140	71	69	3.4	65.4
3. More than 45 years old	26	15	11	0.6	11.5
Total	215	113	102	5.2	100

1.4 Living period

Among all the 41 interviewed households, 33 households (80.5%) have lived for more than 10 years in the present location, as summarized below.

Living Period		
Period	Number of HH interviewed	%
1. Within the last 10 years	8	19.5
2. From 10 to 20 years ago	5	12.2
3. From 20 to 30 years ago	8	19.5
4. More than 30 years ago	20	48.8
Total	41	100

1.5 Educational background

Among all the 215 household members, 105 persons (48.9%) are primary school graduated/or attending, or drop out of primary school level, 59 (27.4%) are more than secondary school graduated/or attending level, and the remaining 51 (23.7%) are below school age or have not received formal education, as summarized below.

Summary of Educational Background				
Educational Level	Male	Female	Total	(%)
1. No formal education	17	34	51	23.7
2. Drop out of primary school	11	10	21	9.8
3. Primary school graduated/ Attending	43	41	84	39.1
4. Drop out of secondary	6	6	12	5.6
5. Secondary school graduated/ Attending	22	11	33	15.3
6. Drop out of high school	3	0	3	1.4
7. High school graduated/ Attending	7	1	8	3.7
8. Graduate of professional high school/ Attending	0	0	0	-
9. More than high school/ Attending	3	0	3	1.4
Total	112	103	215	100

1.6 Farming

Among all the 215 household members, 131 persons (60.9%) are engaging in farming.

1.7 Occupation

Among all the 215 household members, 114 persons (53.0%) are farmers, one person (0.5%) is a private business worker, 65 (30.2%) are pupils/students, 21 (9.8%) are below school age children, and 8 (3.7%) have no job (including housework), and 6 (2.8%) are others, as summarized below.

Summary of Occupation		
Occupation	Number	(%)
1. Farmer	114	53.0
2. Wage labor	0	-
3. Salary worker	0	-
4. Private business	1	0.5
5. Pupil/Student	65	30.2
6. Child (below school age children)	21	9.8
7. No job (including house work)	8	3.7
8. Others	6	2.8
Total	215	100

1.8 Organization

Among all the 215 household members, more than 84% of people do not belong to any specific organizations, but 34 persons (15.8%) are members of Women's union, Youth organization, Elder's group, and Village committee. In addition, 14 persons are members belonging to "Others" like i) trade union, ii) party, and iii) voluntary village vigilante corps, etc. The villager's membership of organizations is summarized below.

Organization	Number	%
1. Member of Women's Union	8	3.7
2. Member of Youth Organization	5	2.3
3. Member of Elder's Group	3	1.4
4. Member of Water Users Group	0	-
5. Member of Village Committee	4	1.9
6. Member of Ethnic Organization	0	-
7. Member of religious Organization	0	-
8. Others (security unit, vigilante, etc.)	14	6.5
9. No member	181	84.2
Total	215	100

2. Living Condition

2.1 Drinking water

All of the 41 interviewed households use a gravity piped water system for getting drinking water. These water sources are located within one to 30 minutes walking distance. All of them enjoy this water system with sufficient/ enough water even in the dry season, as summarized below.

Season	Main Source	Household		Distance		No. of HH sufficiency			
		No.	(%)	Min. (min.)	Max. (min.)	Sufficient	Just enough	Short	Very short
Dry	a. Piped gravity water	41	100	1	30	30	11	0	0
Wet	a. Piped gravity water	41	100	1	30	30	11	0	0

2.2 Fuel for cooking/heating

All the 41 interviewed households answer that they use only fuel wood for cooking/heating and all of them reply that they can collect fuel wood easily, as summarized below.

Sources of fuel	No of HH		Availability	No of HH	
	No.	%		No.	%
Fuel wood	41	100	a. Easy to obtain	41	100
			b. Difficult to obtain	0	-
			c. Very difficult to obtain	0	-
Total	41	100		41	100

2.3 Food availability

2.3.1 Rice

Among all the 41 interviewed households, 32 households (68%) can produce rice more than the household demand or can produce rice just enough to meet the household demand. However, 9 households (22%) cannot produce rice to meet the household demand, among which 3 households reply that they purchase (or exchange) rice to meet the household demand, but the other 6 households face difficulty to obtain rice enough to meet the household demand. The average shortage months for those 6 households is calculated to be 4.0 months.

Rice availability in this village is summarized below.

Rice Availability						
Rice Production Situation	No. of HH	(%)	No. of HH of Rice Shortage	(%)	Total Shortage (months)	Average Shortage (months)
1. Product exceeds the HH demand	16	39.0	-	-	-	-
2. Product is just enough to meet the HH demand	16	39.0	-	-	-	-
3. Product is not enough to meet the HH demand	9	22.0	6	14.6	22	4
4. No product	0	-	-	-	-	-
Total	41	100	6	14.6	22	4

2.3.2 Other than rice

Other cereals, root and tube crops, and vegetables:

Products other than paddy such as other cereals, root and tube crops and vegetables are generally not serious like rice for the farmers because they can try to manage with their products, and a large part of interviewed households (75-82%) feel that such products are enough to meet the household demand or exceed the household demand. Further, there are some households who do not produce such other products than rice, 7 households (17%) for other cereals, 10 households (24%) for root and tube crops, 8 households (20%) for vegetables. They reply that they purchase or exchange such products depending on their need.

Meat:

Fourteen (14) households (34.1%) reply that the product of meat is enough to meet the household demand, and 15 households (36.6%) reply that the product of meat is not enough to meet the household demand. Further, there are 12 households who do not produce any meat. Among those 27 households who cannot produce sufficient meat (15) or do not produce any meat (12), only one household faces a shortage of meat for about 1.0 month.

Fish:

Twenty-three (23) households (56.1%) reply that the product of fish is enough to meet the household demand or exceed the household demand, and 4 households

(9.8%) reply that the product of fish is not enough to meet the household demand. Further, there are 14 households who do not produce/ catch any fish. Among those 18 households who cannot produce/ catch sufficient fish (4) or do not produce/ catch any fish (14), only one household faces a shortage of fish for about 1.0 month.

Food availability other than rice is summarized below.

Rice Production Situation	Food Availability other than Rice				
	No. of HH for production of				
	Other Cereals	Root, Tube Crops	Vegetables	Meat	Fish
1. Product exceeds the HH demand	6	1	2	0	0
2. Product is just enough to meet the HH demand	28	30	31	14	23
3. Product is not enough to meet the HH demand	0	0	0	15	4
4. No product	7	10	8	12	14
(Total)	41	41	41	41	41
5. No. of HHs having a shortage of each product	0	0	0	1	1
6. Average shortage period per HH above (month)	0	0	0	1.0	1.0

2.4 Availability of facilities

Availability of major facilities in each household is summarized below.

Major Available Facilities in Each Household		
Available Facilities	Nos. of Unit	(%)
1. Radio/radio cassette	24	58.5
2. VCD	6	14.6
3. TV	4	9.8
4. Bicycle	29	70.7
5. Motorcycle	4	9.8
6. Car	1	2.4
7. Refrigerator	3	7.3
8. Electric fan	3	7.3
9. Sewing machine	7	17.1
10. Gas stove	0	-
11. Toilet	3	7.3
12. Hand tractor	6	14.6
13. Rice mill	3	7.3
14. Satellite disk	2	4.9
15. Wardrobe	1	2.4

2.5 Health situation

2.5.1 Major diseases

The interviewees were asked to enumerate 2 major diseases for children and adults, respectively. Major diseases for children under 15 years old are i) cold, ii) dysentery, iii) cholera, and those for adults are i) cold, ii) aches (body), iii) respiratory as summarized below.

Major Diseases

Children under 15 years old			Adults		
Major diseases	No.of HH	%	Major diseases	No.of HH	%
1. Cold	15	36.6	1. Cold	10	24.3
2. Dysentery	5	12.2	2. Aches (body)	5	12.2
3. Cholera	3	7.3	3. Respiratory diseases	3	7.3
4. ....	...	...	4. ....	...	...

2.5.2 Treatment for diseases

Major treatments for slight diseases are i) buy medicine and ii) go to the village's health worker, and those for severe diseases are i) go to the district hospital and ii) go to the provincial hospital, as summarized below.

Treatment of Diseases

Slight diseases			Severe diseases		
Major treatment	No.of HH	%	Major treatment	No.of HH	%
1. Buy medicine	26	63.4	1. Go to the district hospital	27	65.9
2. Go to the village health worker	11	26.8	2. Go to the provincial hospital	10	24.4
3. ....	...	...	3. ....	...	...

3 Agriculture and Forestry Production

3.1 Land tenure

3.1.1 Farm land operated

In this survey, the farm lands are categorized into four (4), i) "Hai-A" (upland slash and burn field, mainly for paddy), ii) "Hai-B" (upland slash and burn field, mainly for other crops than paddy), iii) "Na" (lowland paddy field), and iv) "Fruits/Vegetable".

"Hai-A":

Among all the 41 households, 26 households have ownership for "Hai-A". Total area of "Hai-A" is 40.02 ha with a total of 57 plots and an average area of 0.70 ha/plot and 0.98 ha/HH. Further, there are 0.50 ha of lands rented from others, thus the average operated land is 1.00 ha/HH.

"Hai-B":

Among all the 41 households, 36 households have ownership for "Hai-B". Total area of "Hai-B" is 34.15 ha with a total of 58 plots and an average area of 0.59 ha/plot and 0.83 ha/HH. Further, there are 1.90 ha of land rented from others, thus the average operated land is 0.84 ha/HH.

"Na" (Lowland paddy field):

Among all the 41 households, 27 households have ownership for the lowland paddy field. Total area of the lowland paddy field is 17.26 ha with a total of 30 plots and an

average area of 0.58 ha/plot and 0.42 ha/HH. Further, there are 0.82 ha of land rented from others and 0.70 ha of land leased to others, thus the average operated land is 0.45 ha/HH.

“Fruits/ vegetables” field:

Among all the 41 households, 11 households have ownership for “Fruits/ vegetables” field. Total area of “Fruits/ vegetables” field is 3.93 ha with a total of 12 plots and an average area of 0.33 ha/plot and 0.09 ha/HH. Since there are no rented lands of “Fruits/ vegetables” field, the average operated land of “Fruits/ vegetables” fields is the same as that of owned land, 0.09 ha/HH.

The feature of farm land holding is summarized below.

Farm Land Operated

Land Category	Land Owned by the HH				Land Rent- ed (b) (ha)	Land Lea- sed (c) (ha)	Land Ope- rated (d) (ha)= (a)+(b) -(c)	Average Area per HH	
	No. of HH	No. of Plots	Total Area (a) (ha)	Average area per Plot (ha/plot)				Land Owne d (ha) (a)/41	Land Operat ed (ha) (d)/41
1. Hai-A, 1/	26	57	40.02	0.70	2.30	-	41.32	0.98	1.00
2. Hai-B, 2/	36	58	34.15	0.59	0.50	-	34.65	0.83	0.84
3. Na (Lowland paddy)	27	30	17.26	0.58	0.82	0.70	18.78	0.42	0.45
4. Fruit/Vegetable, 3/	11	12	3.93	0.33	-	-	3.93	0.09	0.09
Total/Average	-	157	95.36	0.61	3.62	0.70	98.68	2.32	2.40

Note: 1/ Upland slash and burn cultivation field, mainly for rice.

2/ Upland slash and bun cultivation field, mainly for other crops than rice.

3/ Except home garden

3.1.2 Land ownership

The answers about the land title of the “owned land” vary by interviewees. It was found that the owned lands were not always privately owned but some are i) government land but they have a right to cultivate traditionally, ii) government land but allocated by the village committee, and iii) they don’t know whose land that is, but they cultivate.

Among the “Hai-A” of 26 households, the lands of 17 households (65.4%) are “privately owned”, the land of one household (3.8%) is “government land but they have a right to cultivate traditionally”, the lands of 8 households (30.8%) are “government land but allocated by the village committee. In addition, there are 2 households who rent the lands with a total of 2.30 ha for farming practice in “Hai-A”

Among the “Hai-B” of 36 households, the lands of 23 households (63.9%) are “privately owned”, the land of one household (2.8%) is “government land but they have a right to cultivate traditionally”, the lands of 12 households (33.3%) are “government land but allocated by the village committee. In addition, there is one household who rents the land with a total of 0.5 ha for farming practice in “Hai-B”

As for the lowland paddy fields, all the lands of 27 households are “privately owned”.

Among the “Fruits/ vegetables” fields of 11 households, the lands of 10 households (91%) are “privately owned”, the land of one household (9%) is “government land but they have a right to cultivate traditionally”. There are no households who rent “Fruits/ vegetables” fields from others.

The feature of the land title of the “owned land” is summarized below.

Land Category	Future of the Land Ownership					Others, 8/
	No.of HHs	Land Owned by the HH				
		Private, 4/	Gov.(1), 5/	Gov.(2), 6/	Unclear, 7/	
1. Hai-A, 1/	26	17	1	8	0	2
2. Hai-B, 2/	36	23	1	12	0	1
3. Na (Lowland paddy)	27	27	0	0	0	1
4. Fruit/Vegetable, 3/	11	10	1	0	0	0

Note: 1/ Upland slash and burn cultivation field, mainly for rice.

2/ Upland slash and bun cultivation field, mainly for other crops than rice.

3/ Except home garden.

4/ Privately owned (they can sell it when ever you want).

5/ Government land but they have a right to cultivate traditionally.

6/ Government land but allocated by the village committee.

7/They don't know whose land that is, but they cultivate.

8/ Others (households who rent the farmlands from others like relatives, parent)

3.2 “Hai” area (upland slash and burn field)

3.2.1 Time required

Among all the 41 households, 40 households have replied to the times required to go to their “Hai” area, which vary from 5 min. to 90 min. with an average of 45 minutes.

3.2.2 Repeated use of “Hai” area

“Hai-A”: Among 35 households who cultivated Hai-A in 2003, 26 households answered that they would use the same lands within 1 to 3 years for cropping upland rice, field crops and tree plantation, and 9 households answered that they would not use those lands in near future but leave as fallow land. Among 35 households above, 21 households used the same lands in 2001 and 13 households used the same land in 2002.

“Hai-B”: Among 38 households who cultivated Hai-B in 2003, 29 households answered that they would use the same lands within 1 to 4 years for cropping upland field crops or tree plantation, and one household answered that he would not use the same lands in near future. Among 38 households above, 30 households used the same land in 2001 and 26 households used the same land in 2002.

The future of the repeated use of “Hai” area is summarized below.

Repeated Use of “Hai” Area

“Hai” Category	Repeated Use			Don’t Use		Used in	
	No. of HH	How many years later	For what crops	No. of HH	Purpose/reason	Year 2002 (HH)	Year 2001 (HH)
“Hai-A”	26	1 to 3	Rice, upland field crops, trees.	9	Fallow	13	21
“Hai-B”	37	1 to 4	Upland crops, trees.	1	-	26	30

3.2.3 Total “Hai” (A+B) areas used per HH in last 4 years

Total “Hai” (A+B) areas used per HH in last 4 years vary from 0.98 ha/HH in 2000 to 1.23 ha/HH in 2003, with an average of 1.08 ha/HH, as summarized below.

Total “Hai” (A+B) Used Area

Year	Total Used Area (ha)	Used Area per HH (ha)
2000	40.55	0.98
2001	44.83	1.09
2002	41.73	1.01
2003	50.80	1.23
Average	44.48	1.08

3.2.4 Staying “Hai” area

Among the 41 households, 2 households reply that they stay in the field continuously from “slash and burn” to “harvest”, whose living and working bases are basically in the field, including raising animals. On the other hand, 28 households do not stay in the field but go there based on requirements. In addition to those who stay in the field continuously, 7 households answered that they stayed in the field during the season for slash and burn, 2 household for seeding, and 3 households for harvesting. The future of staying “Hai” area is summarized below.

Staying “Hai” Area

Situation	Number of HH
1. Stay during the season for slash and burn	7
2. Stay during the season for seeding	2
3. Stay during the season for harvesting	3
4. Stay continuously from slash & burn to harvest	2
5. Not stay, go there based on requirement	28

3.2.5 Decision maker for the “Hai” area selection

Among all the 41 households, 38 households (93%) answered that the head of household was a decision maker for the “Hai” area selection, as summarized below.

Decision Maker for the “Hai” Area Selection

Decision Maker	Number of HH
----------------	--------------

1. Head of household	38
2. Other household member(s)	-
3. Village committee	-
4. Relatives	1
5. No comments	2

3.3 Crop production in “Hai”(slash and burn) area (excluding crops grown in home garden)

3.3.1 Major crops

Major crops grown in “Hai” area in the wet season are i) rice (29 households) and ii) Job’s tear (36 households).

3.3.1 Production of 3 major crops in “Hai” area

Rice:

Total production area of rice by all the 41 interviewees is 27.91 ha with a total production of 49,028 kg, among which, 5,204 kg (10.6% of the total production) were sold for cash. As for per household, it is estimated that the production of rice is 1,196 kg/HH with an average planted area of 0.68 ha, among which 127 kg were sold for cash, with a value of 201,676 Kip.

Job’s tear:

Total production area of Job’s tear is 21.33 ha with a total production of 37,787 kg, among which 37,592 kg (99.5% of the total production) were sold for cash. As for per household, it is estimated that the production of Job’s tear is 922 kg/HH with an average planted area of 0.52 ha, among which 917 kg were sold for cash with a value of 2,283,330 Kip.

No households used any chemical fertilizer or pesticide for rice, but a total of 100 kg of chemical fertilizer was used for Job’s tear. Major crop damages are diseases, pests, insects, rats, wild pigs and birds. Since there were no questions about agricultural chemicals, pesticide or insecticide in the questionnaires, such information was not obtained in this survey. The future of 2 major crop production is summarized below.

Production of 2 Major Crops in “Hai” area by the 41 Interviewee Households

Items	Major Crops		
	Rice	Job’s tear	
1. Name of crops			-
2. Planted area : (ha)	27.91	21.33	-
: (kg seed)	1,395	533	-
3. Total production (kg)	49,028	37,787	-
4. Form of Products	Paddy	Grain (unhusked)	-
5. Production sold (kg)	5,204	37,592	-
6. Price at sold (Kip / kg)	1,588	2,490	-
7. Total sales (Kip)	8,265,000	93,625,100	-
8. Production given to others (exchanged or lent to others) (kg)	1,890	0	-
9. Chemical fertilizer used (kg)	None	100	-
10. Major crop damage, if any	Diseases, pests, diseases, insects, rats, wild pigs and birds		

Production of 2 Major Crops in “Hai” area per HH

Production Volume per HH			
Items	Crop 1 (a)/41	Crop 2(b)/41	-
1. Name of crops	Rice	Job's tear	-
2. Planted area : (ha)	0.68	0.52	-
: (kg seed)	34	13	-
3. Total production (kg)	1,196	922	-
4. Form of Products	Paddy	Grain (unhusked)	-
5. Production sold (kg)	127	917	-
6. Price at sold (Kip / kg)	1,588	2,490	-
7. Total sales (Kip)	201,676	2,283,330	-

3.4 Crop production in “Na” (lowland paddy field)

3.4.1 Major crops

Rice is mainly grown in the lowland paddy field in the both wet season (25 households) and dry season (19 households).

3.4.2 Production of 2 major crops in “Na” area

Rice (wet season):

Among 41 households, 25 households grow rice in “Na” area in the wet season. Total production area of rice is 15.97 ha with a total production of 42,780 kg, among which, 6,342 kg (14.8% of the total production) were sold for cash.

As for per household, it is estimated that the production of rice is 1,043 kg/HH with an average planted area of 0.38 ha, among which 154 kg were sold for cash, with a value of 192,422 Kip. 91 kg of rice per HH was given to others for various purposes such as exchanging or lending to others. As for chemical fertilizer, very small amount (0.24 kg/HH) was used in the wet season.

Rice (dry season):

Among 41 households, 19 households grow rice in “Na” area in the dry season. Total production area of rice is 9.3 ha with a total production of 22,960 kg, among which, 9,150 kg (39.9% of the total production) were sold for cash.

As for per household, it is estimated that the production of rice is 560 kg/HH with an average planted area of 0.22 ha, among which 223 kg were sold for cash, with a value of 236,707 Kip. 77 kg of rice per HH was given to others for various purposes such as exchanging or lending to others. As for chemical fertilizer, 5.12 kg/HH was used in the dry season.

Major crop damages are pests, insects, rats, wild pigs and birds. The future of 2 major crops production is summarized below.

Production of 2 Major Crops in “Na” area by the 41 Interviewee Households

Items	Major Crops		
	Rice (wet season)	Rice (dry season)	-
1. Name of crops			-
2. Planted area : (ha)	15.97	9.30	-
: (kg seed)	639	372	-
3. Total production (kg)	42,780	22,960	-
4. Form of Products	Paddy	Paddy	-
5. Production sold (kg)	6,342	9,150	-
6. Price at sold (Kip / kg)	1,244	1,061	-
7. Total sales (Kip)	7,892,000	9,705,000	-
8. Production given to others (exchanged or lent to others) (kg)	3,750	3,160	-
9. Chemical fertilizer used (kg)	10	210	-
10. Major crop damage, if any	Pests, diseases, insects, rats, wild pigs and birds		

Production of 2 Major Crops in “Na” area per HH

Items	Production Volume per HH		
	Crop 1 (a)/41	Crop 2(b)/41	-
1. Name of crops	Rice (wet season)	Rice (dry season)	-
2. Planted area : (ha)	0.38	0.22	-
: (kg seed)	15.20	8.80	-
3. Total production (kg)	1,043	560	-
4. Form of Products	Paddy	Paddy	-
5. Production sold (kg)	154.68	223.17	-
6. Price at sold (Kip / kg)	1,244	1,061	-
7. Total sales (Kip)	192,422	236,707	-
8. Production given to others (exchanged or lent to others) (kg)	91.46	77.07	-
9. Chemical fertilizer used (kg)	0.24	5.12	-

3.5 Annual paddy production and consumption per HH

The interviewees were asked their annual paddy production and consumption in their households. Some slight difference between the results of questions of the paddy production in Section 3.3 and 3.4 (49,028 kg+ 42,780 kg + 22,960 kg = 114,768 kg) and Section 3.5 (46,670 kg + 66,640 kg = 113,310 kg) is found but it is judged to be within an allowance for this survey.

Annual paddy production and consumption, and their balance are as shown below.

Annual Paddy Production and Consumption		
Paddy Production and Consumption	Quantity (a)	Typical volume per HH (a)/41
1. Paddy production in paddy land “Kao Na”	66,640 kg/year	1,625 kg/year
2. Paddy production in slash and burn area “Kao Hai”	46,670 kg/year	1,138 kg/year
3. Total paddy production (3 = 1 + 2)	113,310 kg/year	2,763 kg/year
4. Total paddy consumption in a month (average)	6,186 kg/month	151 kg/month
5. Total paddy consumption in a year (average)	74,228 kg/year	1,810 kg/year
6. Balance of paddy in household (6 = 3 – 5)	39,082 kg/year	953 kg/year

The survey result suggests that in average each household produces about 953 kg of excess rice per year. On the other hand, as seen in Section 2.3.1, it is estimated that among 41 households, 6 households (14.6%) face rice shortage for about 4 months. It is understood that the food availability of each household much depends on the land availability and their family labor availability, etc.

3.6 Fruits/Tree crops

Most 5 major fruits/tree crops among the 41 households are i) pine apple, ii) orange, iii) banana, iv) mango, and v) coconut in order of number, and the average numbers of those bearing trees per HH are i) 292 roots, ii) 17 trees, iii) 8.3 trees, iv) 1.4 tree, and v) 0.9 tree, respectively, as summarized below.

Type	Fruits/ Tree Crops			
	Numbers of trees		Numbers of trees per HH	
	Bearing trees (a)	Non-bearing trees (b)	Bearing trees (a)/41	Non-bearing trees (b)/41
1. Orange	697	203	17.0	4.9
2. Lemon	3	-	-	-
3. Lime	-	-	-	-
4. Longan	12	10	0.2	0.2
5. Jackfruit	14	29	0.3	0.7
6. Tamarind	6	7	0.1	0.1
7. Guava	9	-	0.2	-
8. Papaya	15	-	0.3	-
9. Banana	344	120	8.3	2.9
10. Coconut	38	106	0.9	2.5
11. Coffee	-	-	-	-
12. Tea	-	-	-	-
13. Mangoes	58	33	1.4	0.8
14. Pine Apple	11,980	2,102	292.1	51.7

3.7 Non-timber forest products

3.7.1 Major NTFPs

Most 5 major NTFPs among the 41 households are i) paper mulberry, ii) bamboo shoot, iii) tee bark, iv) tiger grass, and v) mush room in order of cash income available, as summarized below.

Items	Major Non-Timber Forest Products					
	Priority order of cash income available up to 5					
	1	2	3	4	5	Total
1. Mak neng (Cardamon)	0	0	0	0	0	0
2. Mak wai (Rattan seed)	0	0	0	0	0	0
3. Wai (Rattan)	0	0	0	0	0	0
4. Ynan (Benzoin)	0	0	0	0	0	0
5. Puack muak (Tree bark)	1	5	5	2	0	13
6. Po sa (Paper mulberry)	9	10	1	0	0	20
7. Mak kha (Wild ginger)	1	0	0	0	0	1

8. Nohmai (Bamboo shoot)	12	1	1	0	0	14
9. Khem (Tiger grass)	2	3	6	0	0	11
10 Mai ketsana (Eagle wood)	0	0	0	0	0	0
11. Sa pan (a kind of tea)	0	0	0	0	0	0
12. Mushroom	5	1	0	0	0	6

3.7.2 Production and sale

The harvest season, volume of harvest in 2003, price at sold in 2003 and total sale of major NTFPs are presented as follows.

Production and Sale of Major NTFPs by the 39 Interviewee Households

Items	NTFP 1(a)	NTFP 2(b)	NTFP 3 (c)	NTFP 4 (d)	NTFP 5 (e)
1. Name of NTFPs	Paper mulberry	Bamboo shoot	Tree bark	Tiger grass	Mushroom
2. Harvest season	1-12	1-12	2-12	2-5	1-12
3. Volume of harvest in 2003 (kg)	1,475	4,059	351	360	2,911
4. Price at sold in 2003 (Kip/kg)	2,267	588	2,375	5,572	598
5. Total sales (Kip)	3,343,500	2,385,000	833,500	2,006,000	1,740,000

Production and Sale of Major NTFPs per HH

Items	NTFP 1(a)/41	NTFP 2(b)/41	NTFP 3 (c)/41	NTFP 4 (d)/41	NTFP 5 (e)/41
1. Name of NTFPs	Paper mulberry	Bamboo shoot	Tree bark	Tiger grass	Mushroom
2. Harvest season	1-12	1-12	2-12	2-5	1-12
3. Volume of harvest in 2003 (kg)	35.97	99.00	8.56	8.78	71.00
4. Price at sold in 2003 (Kip/kg)	2,267	588	2,375	5,572	598
5. Total sales (Kip)	81,549	58,171	20,329	48,927	42,439

3.8 Livestock and fish

3.8.1 Livestock

The average numbers of livestock raised per household are i) cattle (0.2 head), ii) buffalo (1.4 head), iii) goat (none), iv) pig (1.9 head), v) chicken (29.3 heads), vi) duck (9.3 heads), vii) turkey (0.5 head), and viii) horse (0.2 head), respectively, as summarized below.

Livestock Raising

Type	No. (a)	No. of HH	Feeding				Typical livestock per HH (a)/41
			Wet Season		Dry Season		
			Main feed	Sufficiency	Main feed	Sufficiency	
1. Cattle	12	5	Grass	Sufficient, Just enough	Grass	Sufficient, Just enough	0.2

2. Buffalo	60	23	Grass	Sufficient, Just enough	Grass	Sufficient, Just enough	1.4
3. Goat	-	-	-	-	-	-	-
4. Pig	79	24	Crop residue, Grain, root, tuber crops	Sufficient, Just enough	Crop residue, Grain, root, tuber crops	Sufficient, Just enough	1.9
5. Chicken	1,203	35	Crop residue, Grain, root, tuber crops	Sufficient, Just enough	Crop residue, Grain, root, tuber crops	Sufficient, Just enough	29.3
6. Duck	382	29	Crop residue, grain	Sufficient, Just enough	Crop residue, grain	Sufficient, Just enough	9.3
7. Turkey	23	2	Crop residue	Sufficient, Just enough	Crop residue, grain	Sufficient, Just enough	0.5
8. Horse	12	4	Grass	Sufficient, Just enough	Grass	Sufficient, Just enough	0.2

3.8.2 Catch of fishes

Main types of fishes caught are:

Carps, Cat fish, “Pa Sui” (*Hampala macrolepidota*), “Pa Chat” (*Acrossocheilus deauratus*), “Pa Kang” (*Channa gachua*: Snakedhed), “Pa Nang” (*Kryptopterus apogon*), “Pa Mom” (*Scaphiodontichtys sp.*: carp), “Pa Park” (*Puntius gonionothus*), and “Pa Kao” (*Wallagonia miostoma*).

Season of fishing is all the year. The total production of 41 households is 55 kg per week and an average catch of fishes per week per HH is estimated at 1.34 kg/week/HH.

3.8.3 Fish raising

Among the 41 households, 8 households own their fish ponds (8 ponds) raising cat fish, carp and Indian fish.

3.8.4 Livestock/fishes sold in the last 12 months

The average numbers of livestock sold per household in last 12 months are i) buffalo (0.3 head), ii) pig (0.8 head), iii) chicken (3.5 heads), iv) duck (2.5 heads) and v) horse (0.3 head), respectively, as summarized below.

Livestock/Fishes Sold in the Last 12 Months

Type	No.of heads sold		No.of HH sold	No.of heads sold per HH	
	Adult (a)	Young (b)		Adult (a)	Young (b)
1. Cattle	-	-	-	-	-
2. Buffalo	14	6	12	0.3	0.2
3. Goat	-	-	-	-	-
4. Pig	34	18	17	0.8	0.4
5. Chicken	147	3	12	3.5	0.0
6. Duck	105	-	10	2.5	-
7. Fish	- (weight of fishes)			- (weight of fishes)	
8. Horse	16	1	8	0.3	-

4. Estimated Marketed Volumes of Major Products by Village

Based on the results of the household interview survey, the total marketed volumes of major products from the village were estimated as shown in the following table.

Total major crops sold outside the village are 3,884 kg of upland rice, 26,979 kg of lowland rice, 93,522 kg of Job's tear. Total major NTFPs sold outside the village are 3,670 kg of paper mulberry, 873 kg of tree bark, 896 kg of tiger grass, 9,088 kg of bamboo shoot, and 1,488 kg of mushroom. Total major livestock and fish sold outside the village are 35 heads of buffalo, 68 heads of pig, 183 heads of chicken, and 131 heads of duck.

Estimated Marketed Volumes of Major Products (Pongdong)

Description	3 Major Crops			5 NTFPs				
	Upland rice	Lowland rice,***/	Job's tear	Paper mulberry	Tree bark	Tiger grass	Bamboo shoot	Mush-room
I. Total of Sampled 41 HHs								
- Volume harvested in 2003	49,028	65,740	37,787	1,475	351	360	-	-
- Volume sold in 2003	5,204	15,492	37,592	1,475	351	360	4,059	2,911
- Average price at sold in 2003 (Kip/kg)	1,588	1,153	2,490	2,267	2,375	5,572	588	598
- Form of products	paddy	paddy	grain	dry bark	dry bark	dry grass	raw	raw
- Unit	kg	kg	kg	kg	kg	kg	kg	kg
II. Total of the Village (102 HHs)								
- Total volume sold	12,947	38,541	93,522	3,670	873	896	10,098	7,242
- Sold within the village,*/ (estimated,**/)	9,063	11,562	0	0	0	0	1,010	5,069
- Sold outside the village (estimated,**/)	3,884	26,979	93,522	3,670	873	896	9,088	1,448

(continued)

Description	Livestock/Fish						
	Cattle	Buffalo	Goat	Pig	Chicken	Duck	Fish
I. Total of Sampled 41 HHs							
- Volume harvested in 2003	-	-	-	-	-	-	-
- Volume sold in 2003	-	14	-	34	147	105	-
- Average price at sold in 2003 (Kip/kg)	-	-	-	-	-	-	-
- Form of products/adult head	head	head	head	head	head	head	head
- Unit	head	head	head	head	head	head	kg
II. Total of the Village (102 HHs)							
- Total volume sold	-	35	-	85	366	261	-
- Sold within the village,*/ (estimated,**/)	-	0	-	17	183	131	-
- Sold outside the village (estimated,**/)	-	35	-	68	183	131	-

Note: */ including Nan district market, **/ estimated based on the results of the Venn Diagram Preparation, ***/ wet season rice + dry season rice

5. Income and Expenditure

5.1 Sources of major income

The interviewees were asked to enumerate major income sources no more than 5, and their annual amounts. Major income sources enumerated by the interviewees were i) selling livestock/poultry (29 households), ii) selling field crop/ vegetables (23 households), iii) private business (9 households), iv) selling fruits/ tree crops (18 households), and v) selling paddy (lowland rice) (12 households), in order of amount of income. Average amounts of major income sources per household are presented as shown below.

Income Sources	No.of HHs	Amount of Annual Major Income (Kip/year) (a)	Average per HH (a)/41 (Kip/year/HH)
1. Selling livestock/ poultry products	29	76,768,000	1,872,390
2. Selling field crops/ vegetables	23	58,281,600	1,421,502
3. Private business	9	44,135,000	1,076,463
4. Selling fruits/ tree crops	18	34,011,000	755,800
5. Selling paddy (low land rice)	12	18,150,000	442,683

5.2 Major income per HH

Annual amounts of major income per household vary from 500,000 Kip/year to 28,000,000 Kip/year with an average of 6,898,356 Kip/year/HH (a total of 282,832,600 Kip/year by the 41 households).

Range of Cash Income	Kip/year/HH
1. Maximum	28,000,000
2. Minimum	500,000
3. Average	6,898,356

5.3 Major income of sample households

In order to grasp the typical major income per HH, three typical samples (high, medium and low levels) of major income per household are presented below.

Income Sources	Kip/year/HH
1. Selling fruits	8,696,000
2. Selling livestock/ poultry products	4,695,000
3. Selling paddy (low land rice)	1,500,000
4. Wage from temporarily job out of farm	1,200,000
5. Private business (trading, shop, etc.)	400,000
Total	16,491,000

Major Income of Typical Sample Household (Medium Level)

Income Sources	Kip/year/HH
1. Selling paddy (lowland rice)	2,530,000
2. Selling fruits	2,500,000
3. Private business (trading, shop, etc.)	680,000
4. Selling handicraft	320,000
5. Selling NTFPs	236,000
Total	6,266,000

Major Income of Typical Sample Household (Low Level)

Income Sources	Kip/year/HH
1. Selling field crops/ vegetables	550,000
2. Selling NTFPs	350,000
3. Selling fruits	250,000
4. Selling livestock	150,000
5. Selling handicraft	100,000
Total	1,400,000

5.4 Items of major expenditure

The interviewees were asked to enumerate major expenditure no more than 5, and their annual amounts. Major expenditure enumerated by the interviewees were those for i) food (41 households) ii) clothes (34 households), iii) health (23 households), iv) education (19 households) and v) social activities (festivals, ceremonies, religious events, etc.) (29 households), in order of amount of expenditure. Average amount of major expenditure item per household are shown below.

Average Amounts per Expenditure Item per HH

Expenditure Item	No. of HHs	Amount of Annual Major Expenditure (Kip/year) (a)	Average per HH (a)/41 (Kip/year/HH)
1. Food	41	40,277,000	982,366
2. Clothes	34	17,490,000	426,585
3. Health	23	15,475,000	377,439
4. Education	19	9,626,000	234,780
5. Social activities/events	29	8,715,000	212,561

5.5 Major expenditure per HH

Annual amounts of major expenditure per household vary from 573,000 Kip/year to 23,980,000 Kip/year with an average of 2,802,390 Kip/year/HH (a total of 114,898,000 by the 41 households).

Major Expenditure per HH

Range of Expenditure Amount	Kip/year/HH
1. Maximum	23,980,000
2. Minimum	573,000
3. Average	2,802,390

5.6 Major expenditure of sample households

In order to grasp the general future of expenditures per household, three levels (high, medium, and low) of major expenditure of typical sample households are selected as shown below.

Expenditure Items	Kip/year/HH
1. Food	4,200,000
2. Education	2,500,000
3. Clothes	1,000,000
4. Health	200,000
5. Social activities/events	200,000
Total	8,100,000

Expenditure Items	Kip/year/HH
1. Clothes	650,000
2. Food	600,000
3. Tax payment	45,000
4. Fuel wood	36,000
5. Social activities/events	25,000
Total	1,356,000

Expenditure Items	Kip/year/HH
1. Food	500,000
2. Clothes	150,000
3. Tax payment	70,000
4. Fuel wood	50,000
5. -	-
Total	770,000

5.7 Major investment of productive and fixed assets

The interviewees were asked to enumerate major investments of productive and fixed assets in the last year no more than 3, and their annual amounts. Major investments enumerated by the interviewees were those for i) private business (8 households), ii) Housing (improvement) (8 households) and iii) livestock (18 households) in order of amount of investment. On the other hand, among 41 households, 4 households did not invest any money for the last year. Average amounts per investment item per household are shown below.

Investment Item	No. of HHs	Amount of Last Year Major Investments (Kip/year) (a)	Average per HH (a)/41 (Kip/year/HH)
1. Private business	8	38,990,000	950,976
2. Housing (improvement)	8	34,744,000	847,415
3. Livestock	18	14,569,000	355,341

5.8 Major investment per HH

Annual amounts of major investment per household vary from 25,000 Kip/year (excluding 4 households, who did not invest any money last year) to 20,660,000 Kip/year with an average of 3,275,365 Kip/year/HH (a total of 121,188,500 Kip/year by the 41 households).

Major Investment per HH	
Range of Investment Amount	Kip/year/HH
1. Maximum	20,660,000
2. Minimum	25,000
3. Average	3,275,365

5.9 Major investment of sample households

In order to grasp the general future of investment per household, three levels (high, medium, and low) of major investments of typical sample households are selected as shown below, excluding 4 households, who did not invest any money last year.

Major Investment of Typical Sample Household (High Level)	
Investment Items	Kip/year/HH
1. Private business	15,000,000
2. Household appliance	280,000
3. Farm machinery/ tools	200,000
Total	15,480,000

Major Investment of Typical Sample Household (Medium Level)	
Investment Items	Kip/year/HH
1. Farm machinery/ tools	3,000,000
2. Household appliance	300,000
3. Livestock	300,000
Total	3,600,000

Major Investment of Typical Sample Household (Low Level)	
Investment Items	Kip/year/HH
1. Transportation means	120,000
2. Livestock	100,000
3. Farm machinery/tools	16,000
Total	236,000

6. Utilization of Credit/Loan

Among all the 41 interviewees, one household has ever borrowed money from Bank and he has already paid off the loan. The purpose of borrowing money was for

private business. The borrowed amount was 16,000,000 with a monthly interest of 1.08%.

In addition to the loan from the bank, there are 9 borrowers who borrowed money from relatives. The borrowing amounts vary from 300,000 to 4,000,000 Kip per person with a monthly interest of 0 to 5.0%. The purposes of borrowing money were for i) private business, ii) purchase of livestock, iii) medical treatment, iv) repairing of house, etc. Among the total borrowed money of 11,020,000 Kip, 9,800,000 Kip has been already paid off by 7 borrowers.

Further there is a person who borrowed 200,000 Kip from his friend for repairing his house with no interest. The borrowed money was already paid off. The future of the utilization of credit/loan is summarized below.

Possible Source	Number of Borrower	Purpose of Loan	Amount of Loan (Kip)	Monthly Interest (%)	Status of Loan	
					Paid off (Kip)	Remaining (Kip)
1. Bank	1	Private business	16,000,000	2.08	16,000,000	0
2. Cooperative	-	-	-	-	-	-
3. Relative	9	Private business, purchase of livestock, medical treatment, repair of house	11,020,000	0.0-5.0	9,800,000	1,220,000
4. Neighbor / Friend	1	Repair of house	200,000	-	200,000	0
5. Trader / Dealer	-	-	-	-	-	-
6. Mutual aid group	-	-	-	-	-	-
7. Others	-	-	-	-	-	-

7. Extension

Among the 41 interviewees, 22 (53%) have never received any training or technical advice from DAFO extension staff. The other 19 have received training or technical advice one to three times before, like 1 time (4 persons), 2 times (5 persons) and 3 times (5 persons), 4 times (5 persons), respectively, as summarized below.

Total HH interviewed	Have not received any training (HH)	Received training and technical advice				
		Total HH	Times of visit by the extension staff			
			1 time	2 times	3 times	4 times
41	22	19	4 HHs	5 HHs	5 HHs	5 HHs

B. HOUSEHOLD MEMBER SURVEY

Among the sampled 41 households for Household Interview Survey, a half of households (21 households) were further selected for Household Member Survey (HMS) (21 males and 21 females) for clarifying i) participation/ engagement of household members and ii) activities to make easy, the results of the HMS are summarized below.

8. Participation/ Engagement of Household Members

The participation of the household members in each activity can be defined as follows.

- (1) Home activities:
Females especially wives are responsible for almost home activities such as fetching of drinking water, cooking, washing, sweeping the house, child / elderly care, except house repair and kitchen gardening, for which males or the heads of the household seem to be responsible.
- (2) Farming activities (concerned low land rice cultivation):
Males are mainly responsible for lowland rice cultivation and females also play important roles particularly for transplanting and harvesting.
- (3) Slash and burn activities:
Males especially the heads of the household are responsible for all the slash and burn activities with important assistance from females or their wives, particularly for seeding, weeding and harvesting.
- (4) Livestock and poultry raising activities:
Females, especially wives are responsible for all of the activities of livestock and poultry raising activities such as feeding, watering and other activities on this field.
- (5) Fishing activities:
Males are responsible for all of fishing activities.
- (6) Forestry activities:
Females are mainly responsible for collection of forest vegetables/ crops and collection of fuel wood, while timber harvest and charcoal production are not being practiced among the interviewees.
- (7) Post-harvest & marketing activities:
Females are responsible for post-harvest and marketing activities such as processing products for selling with the assistance from males, while males are responsible for threshing of cereals.

(8) Domestic business activities:

Males are basically responsible for the domestic business activities, while females are responsible for handicraft business.

(9) Communication activities:

Males are, if anything, responsible for attending community meeting, getting information from media and discussions among villagers, and the resolving in-village conflicts.

(10) Religious / cultural activities:

Both of males and females are responsible for religious / cultural activities.

Summary of Participation/Engagement of Household Member Survey (HMS) is presented below.

Summary of Participation/ Engagement of Household Member Survey

Activities	Usually, responsible		Usually, assistant		Sometimes		None		Total	
	M	F	M	F	M	F	M	F	M	F
Home activities										
1. Fetching of drinking water	0	18	14	1	3	1	4	1	21	21
2. Cooking	0	20	13	1	4	0	4	0	21	21
3. Washing	1	19	11	1	6	0	3	1	21	21
4. Sweeping the house	0	20	11	1	6	0	4	0	21	21
5. House repair	15	1	4	7	1	6	1	7	21	21
6. Child / elderly care	3	19	15	1	2	0	2	1	21	21
7. Kitchen gardening	12	6	2	7	1	1	6	7	21	21
8. Sewing and knitting	0	15	1	0	1	6	19	0	21	21
9. Shopping in market	3	3	2	0	6	10	10	8	21	21
Total	44	121	73	19	30	24	53	25	189	189
Farming activities										
10. Plowing	10	1	1	2	0	2	10	16	21	21
11. Seeding/ transplanting	12	5	0	6	0	1	9	9	21	21
12. Weeding	7	3	0	2	0	2	14	14	21	21
13. Application of chemical fertilizers	4	1	0	0	0	1	17	19	21	21
14. Harvesting	12	5	0	6	0	1	9	9	21	21
15. Repairing of farm	10	2	2	2	0	2	9	15	21	21
Total	55	17	3	18	0	9	68	82	126	126
Slash & burn activities										
16. Slashing	16	1	1	12	0	2	4	6	21	21
17. Burning	17	0	0	9	0	1	4	11	21	21
18. Clearing	17	2	0	11	0	2	4	6	21	21
19. Fencing	15	0	1	9	0	1	5	11	21	21
20. Seeding	16	6	0	8	0	2	5	5	21	21
21. Weeding	18	6	0	9	0	2	3	3	21	20
22. Harvesting	18	6	0	9	0	2	3	4	21	21
Total	117	21	2	67	0	12	28	46	147	146
Livestock & poultry raising activities										
23. Grazing control	3	2	3	1	0	0	15	18	21	21
24. Feeding	7	14	11	4	1	2	2	1	21	21

25. Watering	5	14	11	4	2	1	3	2	21	21
26. Collection/ production of fodder	3	2	1	2	0	0	17	16	21	20
27. Sweeping of livestock & poultry stall	2	10	10	1	1	1	8	9	21	21
Total	20	42	36	12	4	4	45	46	105	104
<u>Fishing activities</u>										
28. Fish catching in dam reservoir	2	2	1	2	2	1	16	16	21	21
29. Fish catching in river	8	2	1	4	5	4	7	11	21	21
30. Fish production in pond	9	2	0	3	1	1	11	15	21	21
31. Maintenance of boat / engine	0	0	0	0	0	0	21	21	21	21
32. Maintenance of pond	3	2	0	1	1	1	17	17	21	21
Total	22	8	2	10	9	7	72	80	105	105
<u>Forestry activities</u>										
33. Collection of fuel wood	4	13	10	5	4	1	3	2	21	21
34. Collection of forest vegetable/crops	2	19	4	1	8	1	7	0	21	21
35. Timber harvest	0	0	0	0	0	0	21	21	21	21
36. Charcoal production	0	0	0	0	3	0	18	21	21	21
Total	6	32	24	6	15	2	49	44	84	84
<u>Post-harvest & marketing activities</u>										
37. Threshing of cereals	19	6	1	12	0	0	1	3	21	21
38. Processing livestock & poultry products	1	11	10	0	0	8	10	2	21	21
39. Processing fishes	1	14	10	0	0	6	9	1	20	21
40. Processing of forest vegetables/crops	1	14	9	0	1	6	10	1	21	21
41. Selling crops	3	6	3	1	1	3	14	10	21	20
42. Selling livestock & poultry products	2	2	2	1	1	4	16	14	21	21
43. Selling fishes & fishery products	0	1	1	0	0	0	19	20	20	21
44. Selling forest vegetables/crops	3	5	3	2	0	2	15	12	21	21
45. Selling of fuel wood/charcoal	0	0	0	0	0	0	0	0	21	21
Total	30	59	39	16	3	29	94	63	104	104
<u>Domestic business activities</u>										
46. Rice mill	4	1	0	0	0	2	17	18	21	21
47. Trading	4	3	4	3	2	5	11	10	21	21
48. Shop keeping	1	1	2	1	0	2	18	17	21	21
49. Handicraft	0	9	2	0	0	3	19	9	21	21
Total	9	14	8	4	2	12	65	54	84	84
<u>Communication activities</u>										
50. Attending community meetings	20	9	0	2	1	9	0	1	21	21
51. Resolving in-village conflicts	5	2	0	0	2	0	14	19	21	21
52. Getting information from TV	4	1	2	0	9	10	6	10	21	21
53. Getting information from Radio	4	2	2	0	7	8	8	11	21	21
54. Political discussion with others	8	6	1	1	6	4	6	9	21	20
55. Official letter writing	0	1	0	0	1	0	20	20	21	21
Total	41	21	5	3	26	31	54	70	126	125
<u>Religious / cultural activities</u>										
56. Dance party	6	7	1	0	10	11	4	3	21	21

57. Picnic	7	7	1	0	10	11	2	3	20	21
58. Worship ceremony	6	6	1	1	13	14	1	0	21	21
59. Sport events	0	0	0	0	0	0	21	21	21	21
60. Playing music	3	2	0	0	1	1	17	18	21	21
61. Drawing	0	0	0	0	3	1	18	20	21	21
Total	22	22	3	1	37	38	63	65	125	126

9. Activities Wanted to Make Easy

The interviewees were asked to choose up to 5 activities with priority which they want to make easy. The results of this question are summarized below.

Five Prioritized Activities to Make Easy

Male	Female
1. Weeding	1. Child/ elderly care
2. Harvesting	2. Threshing of cereals
3. Fencing	3. Weeding
4. Threshing of cereals	4. Harvesting
5. Kitchen gardening	5. Cooking
5. Plowing	5. Collection of fuel wood
5. Slashing	
5. Collection of forest vegetable/crops	

Summary of Priorities to Make Easy

Activities	Activities wanted to make easy											
	1st		2nd		3rd		4 th		5th		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Home activities												
1. Fetching of drinking water				1				1			0	2
2. Cooking		1		3		2			1		0	7
3. Washing				1							0	1
4. Sweeping the house		1							1		0	2
5. House repair	2				1						3	0
6. Child / elderly care		1		5		1		1		4	0	12
7. Kitchen gardening		1	2	1	2		2				6	2
8. Sewing and knitting		3				1		1			0	5
9. Shopping in market												
Farming activities												
10. Plowing	4	1					1		1		6	6
11. Seeding/ transplanting			1	1		1	1	1		1	2	4
12. Weeding			1								1	0
13. Application of chemical fertilizers					1						1	0
14. Harvesting	1	1	2		2	1			1		6	2
15. Repairing of farm	1	1	1			1	1		1		4	2
Slash & burn activities												
16. Slashing	2	1	3						1		6	1
17. Burning			2	2							2	2
18. Clearing		1	1				1		2		4	2

19. Fencing	4				4						8	0
20. Seeding		1			2	1	1	2	2		5	4
21. Weeding	6	3	4		4	4	1	4			15	11
22. Harvesting			3			2	6	3	1	4	10	9
<u>Livestock & poultry raising</u>												
23. Grazing control												
24. Feeding					1	3	1	1		1	2	5
25. Watering		1									0	1
26. Collection/ production of fodder												
27. Sweeping of livestock & poultry stall				1							0	1
<u>Fishing activities</u>												
28. Fish catching in dam reservoir												
29. Fish catching in river			1				2				3	0
30. Fish production in pond												
31. Maintenance of boat / engine												
32. Maintenance of pond							1	1	1		2	1
<u>Forestry activities</u>												
33. Collection of fuel wood				3		2		1		1	0	7
34. Collection of forest vegetable/crops		2		2	1			2	1		6	2
35. Timber harvest												
36. Charcoal production												
<u>Post-harvest & marketing activities</u>												
37. Threshing of cereals				1	2	1	1	1	4	1	7	11
38. Processing livestock & poultry products												
39. Processing fishes												
40. Processing of forest vegetables/crops												
41. Selling crops												
42. Selling livestock & poultry products												
43. Selling fishes & fishery products												
44. Selling forest vegetables/crops												
45. Selling of fuel wood/charcoal												
<u>Domestic business</u>												
46. Rice mill		1									1	0
47. Trading												
48. Shop keeping												
49. Handicraft										1	0	1
Total	21	19	21	21	20	20	19	19	15	15		

Table & Figures

Table V5-1 Meteorological Data (Pongdong)

Rainfall at Luang Prabang Station, */													(unit: mm)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1993	0.0	0.0	76.8	80.7	146.1	212.5	263.5	189.5	100.6	118.6	0.0	1.0	1,189.3
1994	0.0	5.4	110.7	29.1	170.2	243.6	202.5	361.6	143.6	31.6	18.5	81.6	1,398.4
1995	7.5	4.8	8.7	49.0	201.5	230.4	332.4	541.5	134.4	190.4	70.6	0.7	1,771.9
1996	0.0	12.6	38.9	147.2	151.6	219.9	291.8	302.4	185.5	168.0	67.2	0.0	1,585.1
1997	1.5	0.4	56.9	105.7	144.3	147.7	311.6	258.5	128.4	40.1	2.4	0.0	1,197.5
1998	27.0	2.2	13.0	178.1	160.9	138.2	179.4	265.4	99.4	47.1	25.5	0.0	1,136.2
1999	9.0	0.0	44.1	60.3	203.5	281.1	73.9	285.0	197.5	97.9	54.9	44.5	1,351.7
2000	0.0	35.3	11.5	68.0	243.5	269.1	274.4	233.9	228.4	115.6	0.0	7.0	1,486.7
2001	8.1	0.0	155.9	53.0	191.9	155.8	393.1	395.7	246.2	192.3	2.0	0.0	1,794.0
2002	48.5	1.1	24.0	55.5	268.8	155.6	384.4	258.9	161.4	71.0	75.7	96.9	1,601.8

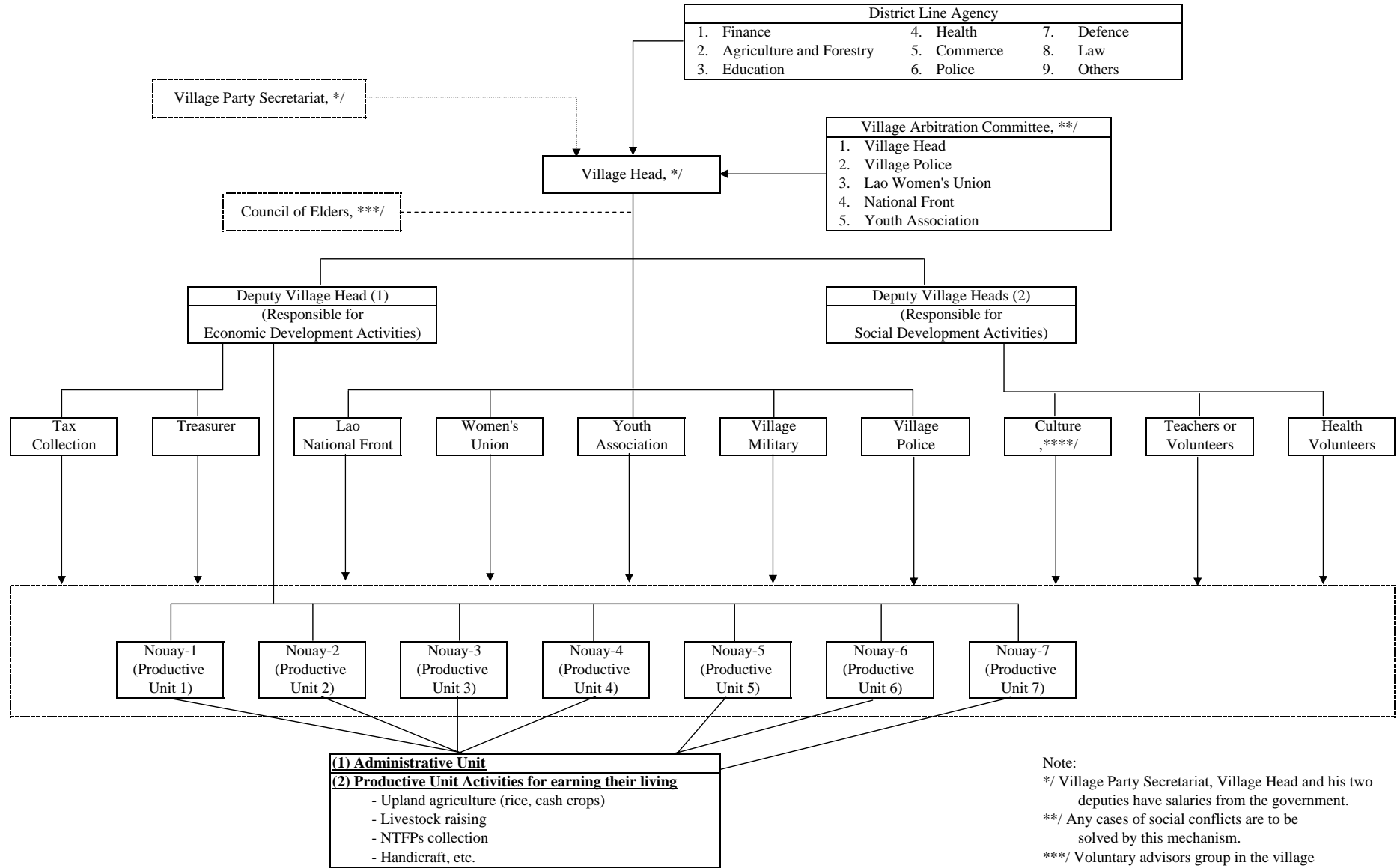
Rainfall at Nan District Station, **/													(unit: mm)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1999	0.0	0.0	0.0	77.0	171.7	206.8	62.4	263.8	292.4	43.0	20.0	21.0	1,158.1
2000	20.8	0.0	15.0	66.3	235.0	144.7	145.4	23.3	169.7	0.0	0.0	0.0	820.2
2001	0.8	0.0	163.4	60.0	151.0	170.2	299.4	191.3	182.3	154.1	1.8	10.3	1,384.6
2002	13.8	0.0	0.1	0.5	88.0	40.2	149.4	107.8	77.6	26.8	12.0	32.0	548.2
2003	10.0	10.0	2.7	12.2	48.6	112.9	69.2	88.1	91.6	0.0	15.0	0.0	460.3

Maximum Temperature at Luang Prabang (Monthly Average), */													(unit: °C)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
1999	28.2	33.1	36.2	35.4	32.7	32.7	33.1	30.9	32.1	31.7	29.4	23.9	
2000	29.5	29.9	33.5	35.0	32.0	31.7	31.7	32.1	31.2	31.3	29.7	29.3	
2001	31.1	33.0	31.5	36.2	32.2	33.7	30.3	32.6	32.2	31.2	27.4	27.1	
2002	26.3	31.1	33.2	35.8	33.5	32.1	29.9	30.8	31.8	31.4	27.8	27.0	
2003	25.8	30.3	32.3	34.5	36.0	33.0	33.8	32.8	33.1	33.0	31.0	28.5	

Minimum Temperature at Luang Prabang (Monthly Average), */													(unit: °C)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
1999	14.7	16.9	17.4	23.1	22.8	23.6	24.2	23.6	22.9	22.8	19.3	12.2	
2000	14.8	15.0	17.5	22.5	23.1	24.5	24.2	24.1	22.7	21.5	16.4	16.0	
2001	16.3	16.3	20.3	22.9	23.5	23.6	23.6	23.7	23.1	22.5	15.9	15.5	
2002	14.8	16.9	18.4	20.8	23.8	24.2	23.5	23.2	23.0	20.7	18.7	17.9	
2003	15.1	16.3	18.4	21.7	22.7	24.0	23.4	23.7	23.1	21.2	17.0	12.7	

Mean Temperature at Luang Prabang (Monthly Average), */													(unit: °C)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
1999	20.4	23.7	26.0	28.6	26.8	27.4	27.7	26.5	26.6	26.9	23.2	17.2	
2000	20.8	21.6	25.0	28.6	27.0	27.8	27.6	27.6	26.3	25.6	21.9	21.1	
2001	22.2	23.6	25.4	28.7	26.9	27.7	25.7	27.4	26.8	26.0	20.3	20.1	
2002	19.1	22.6	24.5	27.5	27.9	27.5	26.1	26.3	26.4	24.7	22.0	21.0	
2003	18.7	21.4	23.9	27.2	27.9	27.6	27.8	27.2	26.7	25.7	22.2	18.8	

Source: */ Department of Meteorology, Ministry of Agriculture and Forestry, **/ Division of Meteorology, PAFO of Luang Prabang



Note:
 */ Village Party Secretariat, Village Head and his two deputies have salaries from the government.
 **/ Any cases of social conflicts are to be solved by this mechanism.
 ***/ Voluntary advisors group in the village
 ****/ Responsible for village temple (Wat)

Figure V5-1 Village Organization (Pongdong)

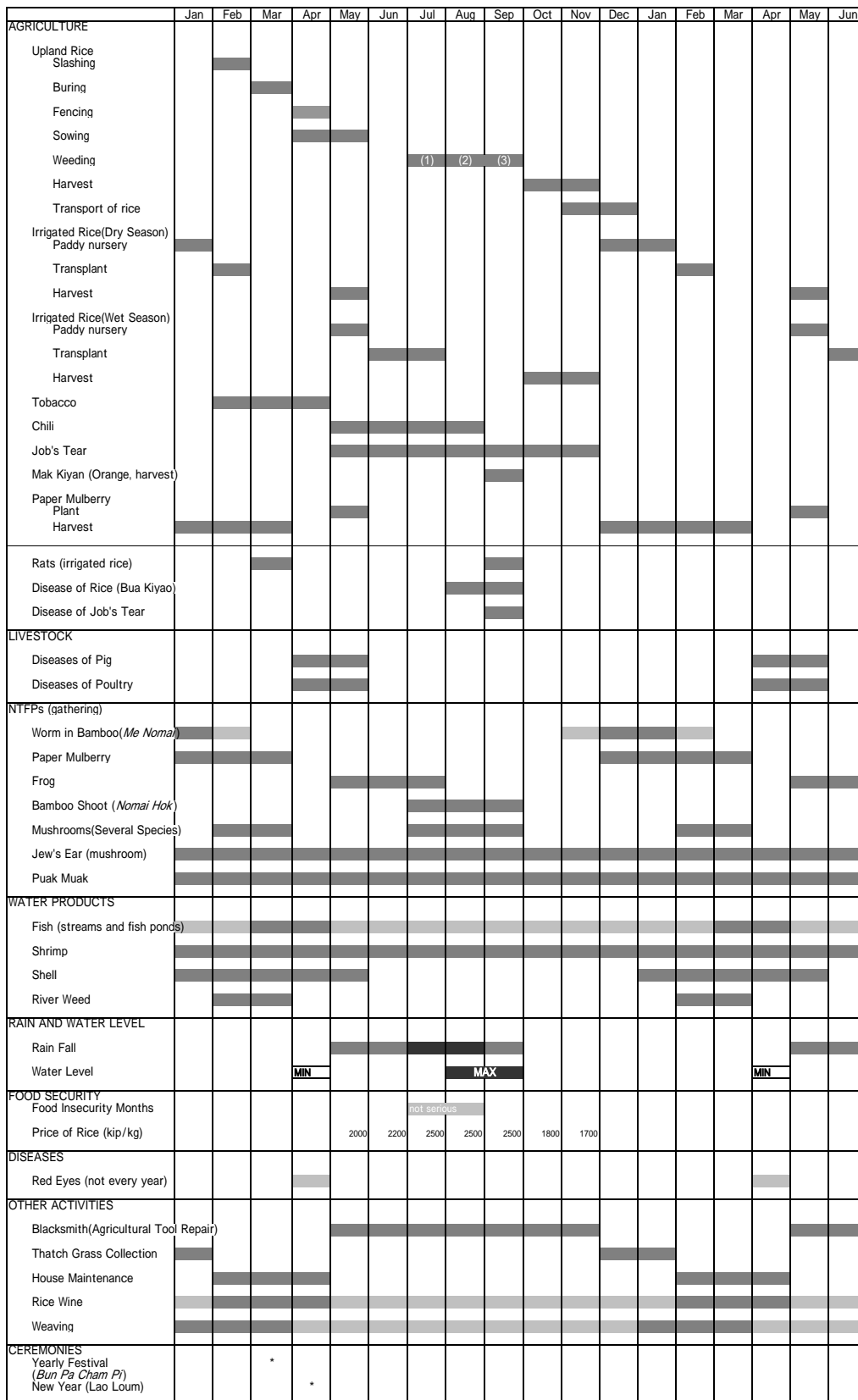


Figure V5-2 Seasonal Calender (Pongdong)

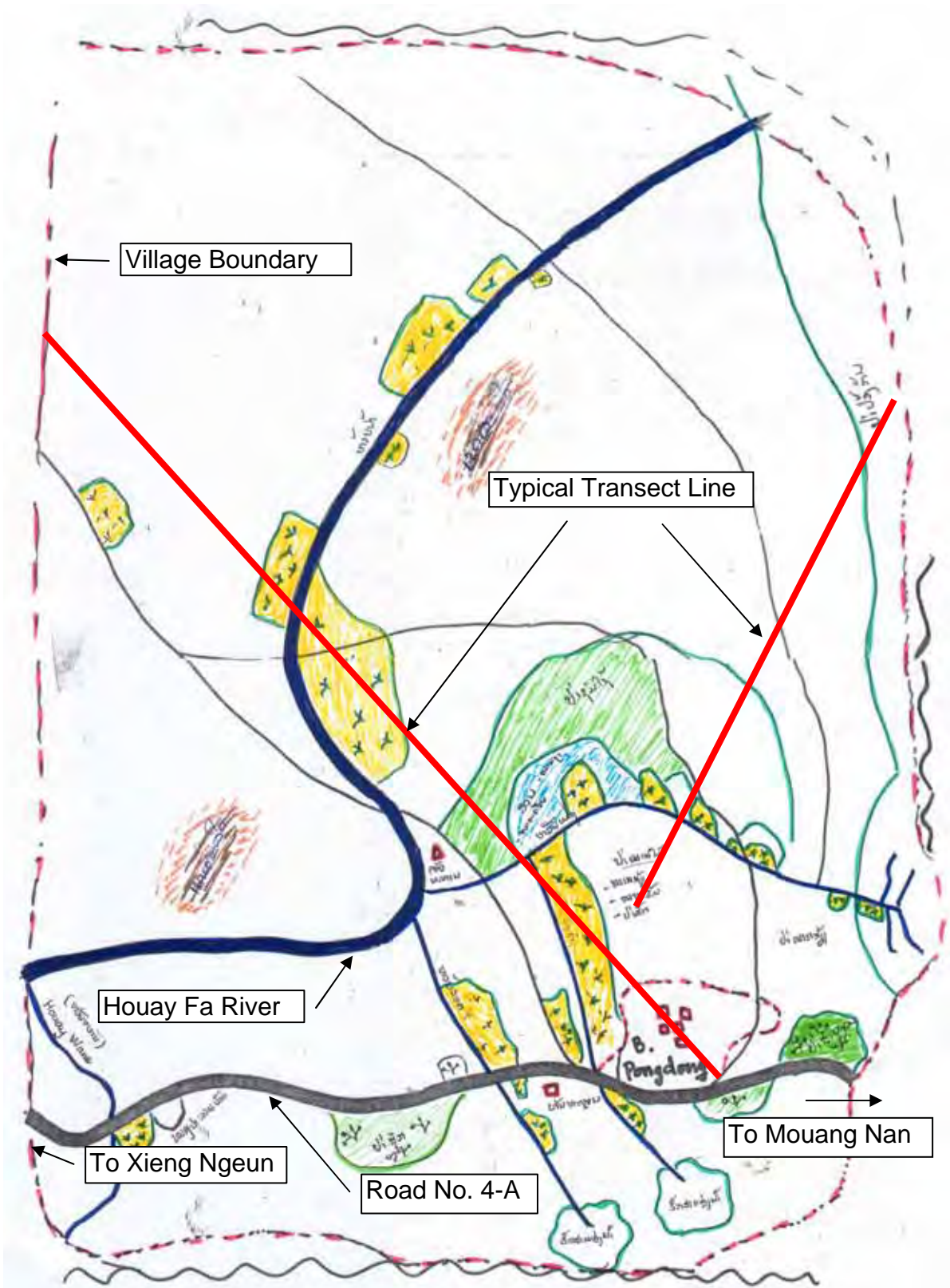


Figure V5-3 Resource Map (Pongdong)

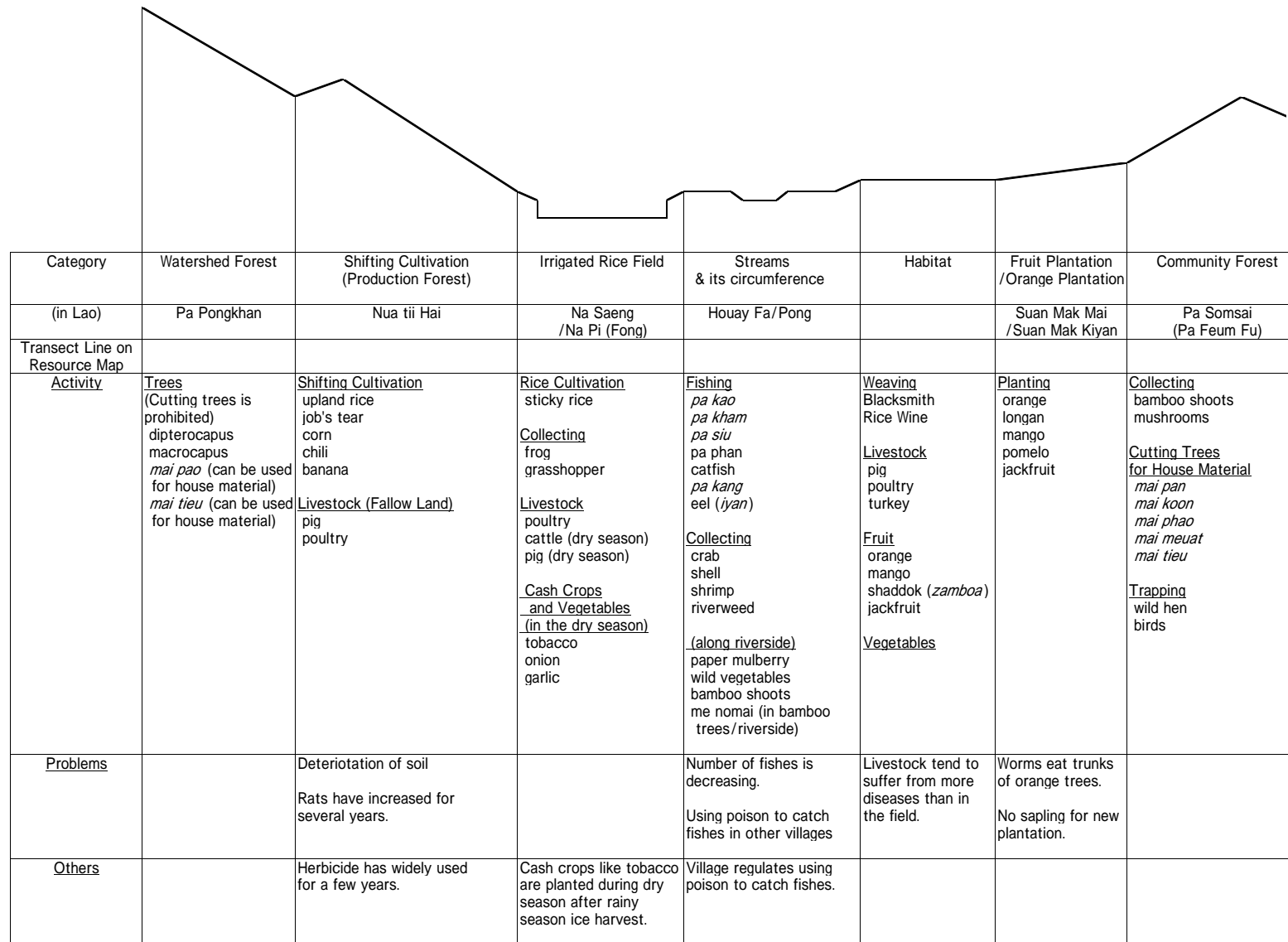


Figure V5-4 Transect (Pongdong)

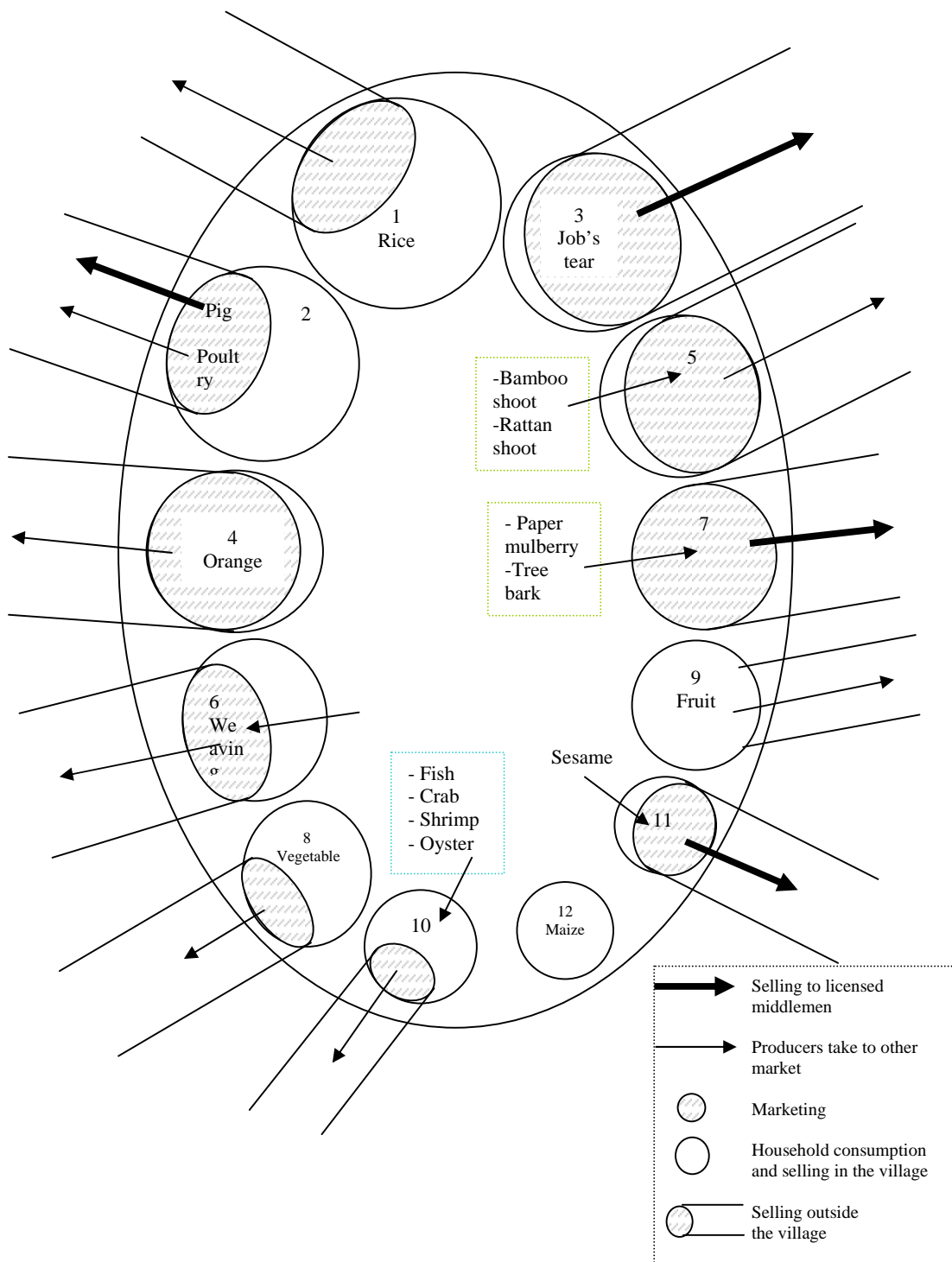


Figure V5-6 Venn Diagram of Major Products by Female Group (Pongdong)

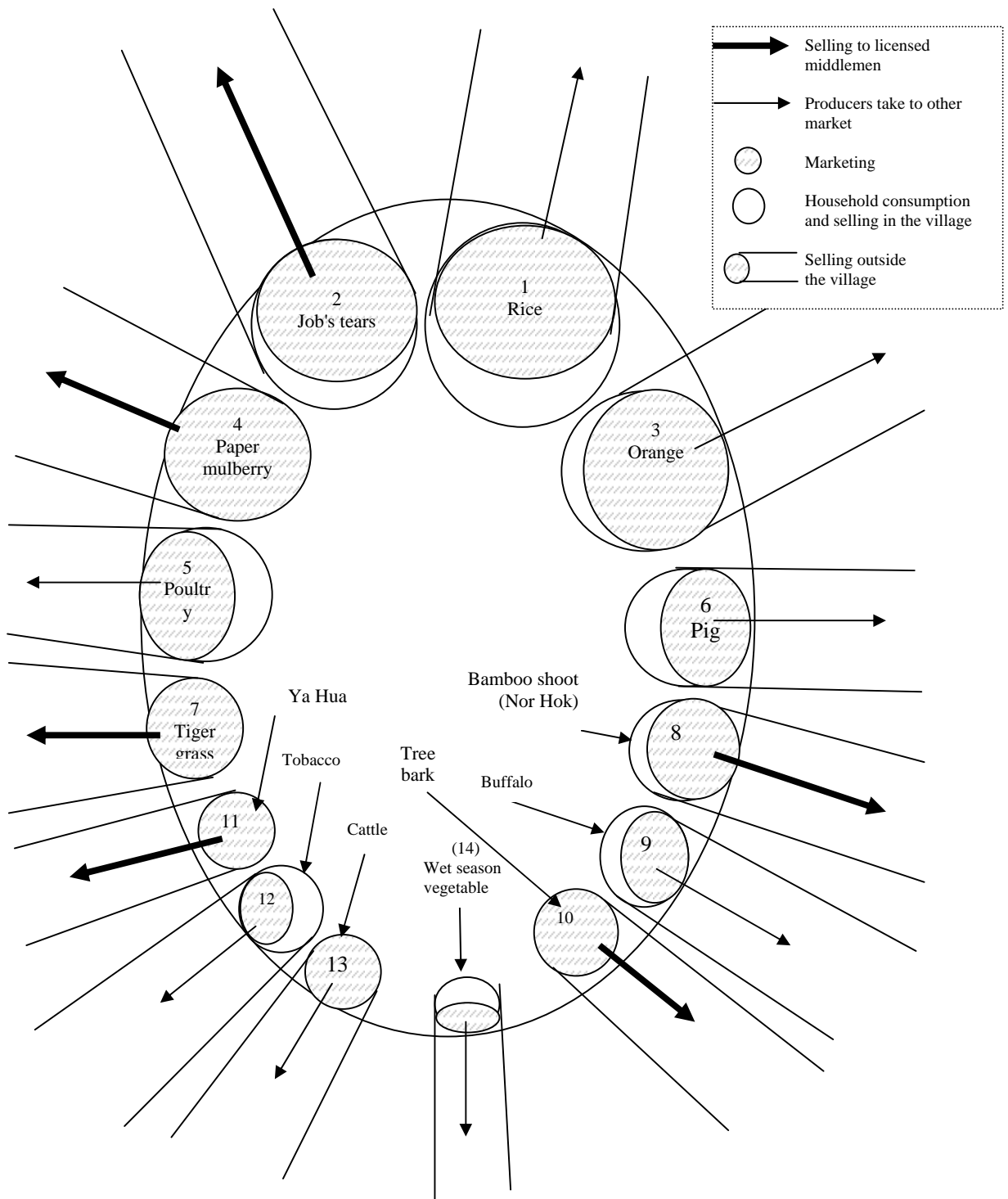


Figure V5-5 Venn Diagram of Major Products by Male Group (Pongdong)

Legend	
△	Over Sufficient
□	Sufficient
○	Under Sufficient
⌂	Gravityfed Water Supply
△ □ ○	Household Interviewee



Figure V5-7 Social Map (Pongdong)

Village-6: Namtiao

**STUDY REPORT
ON
SOCIO-ECONOMIC SURVEY OF EIGHT (8) CANDIDATE VILLAGES**

Village 6: Namtiao Village

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Feature of the Village (Namtiao)

(Total HH: 59, Population: 417)

(1) Composition of the ethnic group:

Namtiao is composed of 100% of Lao Sung. The average number of family members is the largest (8.2 persons/HH) against the average number of 6.4 persons/ HH of the 8 villages.

(2) Farmland owned per HH:

The farmland owned per HH in Namtiao is 2.32 ha/HH in total including 1.56 ha of Hai-A, 0.57 ha of Hai-B, 0.15 ha of lowland paddy field, and 0.07 ha of orchard/tree crop area, that is 0.18 ha larger than the average of 2.14 ha/HH in the 8 villages.

(3) Rice availability:

It is estimated that 9.3% of households (5 households among a total of 59 households) face rice shortage for about 2.3 months.

(4) Balance of annual paddy production and consumption in the village:

Total rice production and consumption in the village is estimated at 147,500 kg/year and 123,600 kg/year, respectively. The balance of annual paddy production and consumption is positive, about 23,900 kg of rice surplus. Accordingly, as shown in Item (6), the marketed volume of rice outside the village is estimated at about 11,400 kg/year.

(5) Sources of major income:

Sources of major income are i) livestock (2,276,000 Kip/HH), ii) NTFPs (1,021,000 Kip/HH), iii) field crops (957,000 Kip/HH), iv) remittance (704,000 Kip/HH), and v) private business (340,000 Kip/HH).

(6) Estimated marketed volumes of major products:

The marketed volumes of Job's tear and palm fruits are the second largest among the 8 villages. Marketed volumes of major products in the whole village are estimated as shown below.

Estimated Marketed Volumes of Major Products by Village

Major Products	(unit)	Marketed Volume	Livestock/fish	(unit)	Marketed Volume
1) Rice	kg	11,394	12) Cattle	head	42
2) Job's tear	kg	20,722	13) Buffalo	head	13
3) Sesame	kg	2,194	14) Goat	head	-
4) Paper mulberry	kg	1,859	15) Pig	head	22
5) Tree bark	kg	-	16) Chicken	head	4
6) Tiger grass	kg	867	17) Duck	head	-
7) Bamboo shoot	kg	-	18) Fish, **/	kg	24
8) Palm fruit	kg	21,507			
9) Eagle wood	kg	203			
10) Mushroom	kg	-			
11) Wild vegetables,*/	kg	675			

Note: */ Including rattan shoots.

PART 1 VILLAGE PROFILE SURVEY

Survey Period: 10 to 12 May 2004

Main Information Source: Village head, deputy head and some village authority members.

1. General Information

1.1 Location

Namtiao village is located in Sayaboury district 49 km from Sayaboury town (1 hrs 40 min. by car), 148 km from Luang Prabang (4 hrs 40 min. by car, excluding waiting time for crossing Mekong river. It usually takes 5~30 minutes)

1.2 History of the village

In 1988, some villagers of B. Houay Ken (Sayaboury district) visited the land, where later they built Namtiao village, in search of eagle trees “mai kesana”. They knew that a road from Sayaboury to Hong Sa will be constructed in the near future and the land is suitable for shifting cultivation and irrigated rice field. So 5 households of Houay Ken village moved to the slope land along Houay To stream in 1990. In 1994, they exactly knew the route of new road and moved to the present habitat place. The road has completed in 1995.

In 1995, forest land in the village was categorized with assistance of DAFO. The village's northwestern border was Houay Nin until it has changed to Nam Nyon in 2004. The land belonged to Hong Sa district but the district couldn't manage the land. So the land was handed over to Sayaboury district. The border moved 6.2 km to northwest on the road. The land is still cultivated by Lao Meuy tribe people as before. This village still accepts new families every year (2~3 households a year). New comers are relatives of the Namtiao villagers living in Hong Sa, Luang Prabang etc.

1.3 Demography

The village has 59 households and a population of 417 habitants. The average population is young with 55.6 % of the population under the age of 14. Available labor population (15~49) occupies 41.7 % of the total population. Female represents 46.3 % of the population as shown below.

Age Structure

Age	Female	Male	Total	(%)
Under 1	10	14	24	(5.8)
1 ~ 5	33	40	73	(17.5)
6 ~ 14	60	79	139	(33.3)
15 ~ 45	72	77	149	(35.7)
46 ~ 49	15	10	25	(6.0)
50~65	3	4	7	(1.7)
66~100	0	0	0	(0)
<u>Total</u>	<u>193</u>	<u>224</u>	<u>417</u>	<u>(100)</u>

Source: Village head (10 May 2004)

The village population comprises only one ethnic group of Lao Sung as below.

Ethnic Structure

	Female	Male	Total	HH	(%)
Lao Loum	0	0	0	0	(0)
Lao Theung	0	0	0	0	(0)
Lao Sung	193	224	417	59	(100)
<u>Total</u>	<u>193</u>	<u>224</u>	<u>525</u>	<u>59</u>	<u>(100)</u>

Source: Village head (10 May 2004)

1.4 Organizational structure for administrative control

The village is administrated by a village head and one deputy. Namtiao village has 5 administrative units (or “*Nouays*”). The chiefs of each “*Nouay*” assist the village head in administrating “*Nouays*”. The village head is responsible for disseminating the government information/or notification to the villagers through this administrating mechanism as well as for all the economic development activities in the village.

The village organization under the Village Head, there are 3 formal mass organizations, such as Lao Women’s Union (LWU), Lao National Front and Youth Association, are playing as non-profit organizations and assisting the village head in grouping people for specific works.

The village head is also directly responsible for controlling/supervising units of treasurer, tax collection, statistics, education, and health.

There is only one deputy village head, who is responsible for a village military unit and a village police unit. This village does not have a Village Party Secretariat because there is no member of party in the village.

The Village Arbitration Committee is composed of i) Village Head, ii) Lao Women’s Union, iii) Lao National Front, iv) Youth Association, and v) some village elders, and responsible for solving all the cases of social conflicts in the village.

The village organization structure of Namtiao is presented in **Figure 1** and the names of the village organizational key members are as follows.

Village Organizational Key Members

Position, */	Name, **/
1) Village Head	Mr. Npliaj Vaj (Si Chang)
2) Deputy Village Head	Mr. Rwg Vaj (Ru Va)
3) Head of Lao National Front (Neo Hom)	Mr. Nyiaj Tsab (Nyia Cha)
4) Head of Women’s Union	Mr. Sua Naj (Sua)
5) Head of Youth Association	Mr. Ntxiang Lauj (Chia Lau)
6) Head of Village Police	Mr. Xob Vaj (So Va)
7) Head of Village Army	Mr. Vaj Tsua (Va Chua)
8) Head of Council of Elder’s	Mr. Npuag Hwm (Lao La)
9) Village Arbitration Unit	Village Head: Mr. Npliaj Vaj (Si Chang)

Note: */ There is no Village Secretary of the Party in the village.

The village has only one deputy village head.

**/ Hmong spelling. Its pronunciation is in parenthesis.

1.5 Informal (ethnic) organization for administration, agriculture and/or religion

None

1.6 Food security

According to key informants, only a couple of lazy families (head of household is opium addicted) face food deficiency.

Normal households are in short of rice for one or two months. Several households in the village buy rice at the Sayaboury market, while most households just get or borrow rice from their relatives. (They give their relatives small amount of rice, usually up to 70~80 kg of rice, for free.)

1.7 Illiteracy rate

Illiteracy rate of the village is about 30 % estimated by key informants.

1.8 Major diseases

According to the village head, major diseases and their recent situation are summarized below.

- Common cold: Children tend to suffer from common cold from October to December.
- Bloody excrement: At least 10 patients a year from May to September. Almost all households have patients in prevalent year.
- Malaria: No cases have been reported for a few years.

They usually buy and take medicines in the village for light diseases. Then they go to the clinic in Namon (It costs about 20,000 Kip). But they go to the hospital in Sayaboury town and/or hospitals in Nan province of Thailand for serious diseases. It will cost 2 million Kip (including examination, medicines, transport and anything else) to go to hospitals in Sayaboury or Nan.

1.9 Traditional custom, culture, event, cooperative works in the village

(1) Cooperative works

Shifting cultivation

Family labor exchange is basic method for cooperative works in shifting cultivation. They don't make any unit nor choose leader to coordinate works. Family leader just tell villagers (normally relatives in the village) and they cooperate for the works. 10~30 households (depending its field size) cooperate works in shifting cultivation.

Others

New Year festival, marriage, diseases, funeral.

(2) Traditional customs

(a) Relatives living abroad

Ten (10) households in Namtiao have relatives living abroad. The ratio is smaller than that of Hmong villages in Luang Prabang province. The relatives are also poor and send USD50~100 for every 2~3 years. They seldom visit their families in Namtiao.

(b) Gender

Compared with Lao Loum, men hold strong position in public.

(c) Opium

They don't plant poppies any more. There are 7 villagers (7 households), who are opium addicts. 2 of them are still young.

(d) Measures

They sometimes use 'man' as a unit of money. 1 man is 1 silver coin used under French Indochina and is now about 40,000 Kip. Villagers in Namtiao often use Thai bath instead of Lao Kip.

(e) Wood for coffin

One big tree is cut to make a coffin for one dead person.

(3) Festival:

Hmong New Year (Kinjian): December (changeable)

Hmong New Year cannot be ignored when you think about Hmong's socio-economy because they spend quite a lot of money. In Namtiao village, 25~30 pigs per village (10~20% of total pigs in the village) and 5~9 chickens per household (20~30% of total chickens in the village) are killed for New Year Festival every year. Young boys in Namtiao go to the New Year festivals in other provinces like Luang Prabang, Xiengkhouang and/or Oudomsay. It costs about 1 million Kip for the trip. They sell sesame, Job's tear and/or sugar palm to make money for it.

2. Livelihood and Natural Resource Management

2.1 Topography

Namtiao is located among steep mountain ranges covered with beautiful deep forest. The road connecting Sayaboury and Hong Sa district runs along Nam Met river. The elevation of the village habitat is about 390 m. This village is too huge for villagers to reach some part of the village. It takes more than half an hour by car from habitat area to a village border with Houay Chong village of Hong Sa district (12 km).

Nam Met and Nam Song rivers have water throughout the year with a minimum flow in April and a maximum flow in August and September. Difference of water level is 6 m for Nam Met river and 1~2 m for Nam Song river. Even small streams have water all the year. But water level of Nam Met has decreased about 50% during dry season compared with 10 years ago. Water level of rainy season is as much as before.

Seasonal rainfall is from June to September, during which July and August have the heaviest rain. As for seasonal natural disaster, key informants never experienced floods in Namtiao river. Small landslides in mountainous area occur in July and August.

2.2 Meteorological data

Annual rainfall records at Sayaboury station in last 10 years (1993-2002) vary from 973 mm in 1998 to 1,610 mm in 2001 with an average of 1,297 mm. Detailed meteorological data including the maximum, minimum, and mean monthly average temperatures at Sayaboury station for recent 5 years are presented in **Table 1**.

2.3 Land allocation

Forest land was categorized with advice of DAFO in 1995. In 2001, DAFO regulated each household to cultivate 4 plots only. Maximum area for 4 plots (a household) is 5 ha. (If you have more than 5 ha, you have to give the extra land to others. Some of them gave the land to their sons or relatives to meet the regulation.)

According to DAFO staff, the documents for allocated land consist of i) Temporary Certificate for the use of each plot, signed by Land Allocation Committee at village level, the village head, and villagers concerned, and ii) Temporary Agreement for the use of each plot, signed by DAFO, the village head, and the villagers. In the documents, there is a section for drawing a sketch of the plot with its measurements. Since the temporary agreement for the use of each plot is valid for three (3) years, there must be some further processes. According to DAFO staff, it is planned that after three years, the district land office will assess the actual use of the land as well as the tax payment situation for issuing the permanent certificate. However, no process is undertaken after issuing temporary certificates.

2.4 Land classification and distribution of each land use category

2.4.1 Data of DAFO

According to the data from DAFO of Sayaboury district, the original plan for each category of agricultural land in Namtiao village is as follows.

Area by Land Classification (as of 1995)

Land Classification	No. of Plots	Area (ha)
A. Agricultural Land		
1) Upland for other than rice "Suan"	27	24.5
2) Paper mulberry "Suan Posa"	13	8.5
3) Upland for rice by slash and burn "Hai"	31	23.3
4) New open paddy field	18	13.5

Source: DAFO of Sayaboury (10 May 2004), Areas of forest land are not available.

2.4.2 Information from the village

The village profile survey team obtained the following information through the interview with the village head.

Area by Land Classification by the Village

Land Classification	Area (ha), */
A. Agricultural Land	
1) New open paddy field (in plan, not yet opened)	10
2) Upland field “ <i>Hai</i> ”+ “ <i>Suan</i> ”	30
B. Forest Land	
1) Conservation Forest “ <i>Pa SaNgouan</i> ”	1,050
2) Watershed Protection Forest “ <i>Pa Pongkanh Len Nam</i> ”	9,020
3) Production Forest “ <i>Pa Phaliht</i> ”	500
4) Community Production Forest “ <i>Pa Somsai</i> ”	10
5) Cogon “ <i>Pa Nya Ka</i> ”	3,000
6) Management Forest “ <i>Pa Kumkon</i> ”	n.a.
C. Residential area	2

Source: Village head (10 May 2004)

Note: */The areas obtained from the village are not accurate figures based on the actual topographical survey.

The land use categories by the villagers are as follows.

(A) Agricultural land:

(1) New open lowland rice field: (10 ha in plan)

They have no rice field. Land for irrigated rice field has been handed over to the village with assistance of DAFO in 1995. About 10 ha flat land was allocated to 12 households. Allocated land consists of 4 places, which are called, “*Na Lai*”, “*Na Khit*”(along Houay Khit stream), “*Na Ka*” (along Houay Vit stream) and “*Na Pheng*” (along Houay Vit stream). All of the lands are located near the road.

Villagers are afraid that the government will completely prohibit shifting cultivation in 2005 as announced before. If the government prohibits shifting cultivation, they will change the land to irrigated rice field. Some of the villagers have an experience of irrigated rice cultivation in former villages. But there is no technician who knows how to build irrigated rice field.

(2) Slash and burn cultivation area (in 2003): (30 ha)

- “*Hai*” Upland rice: (20 ha)
- “*Suan*” Other crops (Job’s tear, cassava, corn, sesame, etc.): (10 ha)

(B) Forest land:

- (1) “*Pa SaNgouan*” (Conservation Forest): (about 1,000 ha of Phu Jon Kai mountain + 50 ha of Houay Meun river)
“*Pa SaNgouan*”(Conservation Forest) in Namtiao is almost virgin forest.

Conservation Forest of Phu Jon Kai mountain (The name of Phu Jon Kai that you can not climb the mountain without having lunch) range is shared with other villages. The other Conservation Forest spreads along upper stream of Houay Meun river. Conservation Forest belongs to Namtiao is about 1,000 ha.

Hunting and trapping as well as cutting trees are prohibited. Many NTFPs can be found in the Conservation Forest but nobody go to collect there because the mountain range is very steep to climb and they are afraid of tigers and bears.

- (2) “*Pa Pongkanh Len Nam*” (Watershed Protection Forest):

(about 9,000 ha of Houay Tiao river + 20 ha of Houay Khu river)

“*Pa Pong Khan Len Nam*” of Houay Tiao river watershed area is so huge that no villagers have ever been to source of the stream. They believe it takes a couple of days (walking 10 hours a day) to get there. This forest spread to the border with Jompet district of Luang Prabang province. Another Watershed Protection Forest is located along Houay Khu river. Both forests are as deep as Conservation Forest of Phu Jon Kai or Houay Meun river. Tigers and bears still live in Watershed Protection Forest of Houay Khu river.

Many bamboo shoots and mushrooms can be found in “*Pa Pongkanh*” but nobody go to collect because they can find a lot in habitat area and “*Pa Somsai*” (community protection forest).

- (3) “*Pa Phalith*”(Production Forest): (about 500 ha)

“*Pa Phalith*” (Production Forest) is slash and burn cultivation area. But about 30% of “*Pa Phalith*” in Namtiao has never used for slash and burn cultivation. After first burning the forest, they usually plant upland rice for one or two years and sesame, cassava and/or Job’s tear in the second or third year. Most of Production Forest in Namtiao is still rich in nutrition. But herbicide was used in 2003 and 2004 (3 households).

- (4) “*Pa Somsai*”(Community Production Forest): (10 ha)

“*Pa Somsai*” (Community Production Forest) is just behind the habitat area (but climb steep slope). Another Community Production Forest spreads between Houay Khu and Houay Hit rivers.

Trees can be cut for building houses or boats but not for sale. It is prohibited to hunt or trap wild animals. Bamboo shoots and mushrooms are collected.

- (5) “*Pa Nya Ka*” (Cogon Forest): (3,000 ha)

High altitude of “*Pa Da*” mountain range in the northeast of the village is called “*Pa Nha ka*” (Cogon Forest) by villagers. This forest was used for shifting cultivation by other villagers during 2nd Indochina War. Now, this area is covered with cogon and trees.

Villagers have once raised buffalo and cattle in “*Pa Nha Ka*” but tigers killed more than 30 heads. A couple of tigers are wandering in this huge “*Pa Nha Ka*”.

- (6) “*Pa Kumkon*” (Management Forest): (n.a. ha)

“*Phu No Kok*” mountain range in the west of the village is another huge forest area, which are called “*Pa Kumkon*” (Management Forest) by the villagers. Slash and burn cultivation is prohibited and nobody go there to collect NTFPs because it’s far from habitat area. Wild chicken, wild pig, monkey and birds are hunted in the forest.

One tiger lives in the forest.

(C) Residential area: (2 ha)

They plant fruit trees like jack fruit, mango and “*Mak sida*”. Each household has only several fruit trees near house for family consumption. Teak trees have not planted yet in the village.

2.5 Farming activity and production of major crops and livestock in the area

2.5.1 Farming activity

In 2001, DAFO regulated each household to cultivate 4 plots only. Maximum area for 4 plots (a household) is 5 ha. Comparing with the situation in Luang Prabang province, it does not seem to be severe due to may be rather rich natural resources in this area.

In “*Hai*” area they grow various kinds of crops like rice, sesame, Job’s tear, corn, cassava, taro, pumpkin, chili, egg plant and cucumber. Among these, sesame and Job’s tear are major cash crops and corn, taro and cassava are also important for household consumption as well as for feeding animals.

All those crops are planted just before the rainy season in end April and May. Firstly, rice is planted in the main area (sometimes together with cucumber and other vegetable crops) followed by sesame, corn, Job’s tear, and others. Sometimes, corn is firstly planted before rice. Sesame, Job’s tear and corn are normally planted around the rice plantation area as a boundary and also in small plots, so called “*Suan*” (gardens). For growing those crops, the farmers do not use any fertilizers and only practice 3 times of weeding for rice and 2 times weeding for sesame, Job’s tear and corn.

2.5.2 Major crops

(1) Upland rice:

All households engage in upland rice cultivation. They usually enjoy good harvest as much as 3 ton/ha every year. Even big household with 10 members can eat rice all the year. But a couple of unlucky households experience bad harvest due to poor soil, rats or pests. About 80% of upland rice they plant is non-glutinous rice. After harvest, they let cattle to eat straws on the field for a couple of months. They know that cattle’s excretions help keeping fertility of the soil.

(2) Corn

All households also grow corn every year. Average household harvest 30~40 kg of corn from 0.2 ha. They harvest green/fresh corn one by one in order of ripeness and eat boiled corn on the comb as a kind of substitutes for rice as well as side dishes. After full ripened, the remaining corn is harvested, dried and stocked for feeding poultry for some two months. Corn is normally grown in small gardens or plots by each family work unit, not by cooperative work units. They produce corn for family consumption only.

(3) Job's tear

They began to plant Job's tear in 2000, when traders came to buy it. About 50 % of households in the village (about 30HHs) plant Job's tear last year. One household produce 0.6~2 tons of Job's tear from 0.2~0.7 ha (about 3 ton/ha) and earn 1~4 million Kip (about 2,000 Kip/kg at the time of survey). Prices of Job's tear change heavily. They choose to plant whether sesame or Job's tear depending on their estimated prices of the year. The village head (Mr. Si Chang) usually advises about their prices to villagers.

(4) Sesame

Only a couple of households planted sesame last year. Each household produced 150 kg of sesame from 0.5 ha and earned only 1million Kip (about 6,000 Kip/kg). This earning difference between Job's tear and sesame is the reason why only a few households planted sesame. But price of sesame is less changeable than that of Job's tear.

2.5.3 Livestock

The numbers of each livestock in the village are summarized below.

Livestock	Number (Heads)
1) Buffalo	20
2) Cattle	170
3) Pig	100~150
4) Poultry	About 1,000
5) Turkey	2
6) Elephant	1

(1) Buffalo: 20 heads (4~5 households)

Diseases of buffalo have spread since 2000 and more than 20 heads died in 2002. They still have not vaccinated but get injections after buffalo suffers from diseases. Two (2) heads of buffalo died in 2003 and 1head in 2004 due to diseases. The village as a whole sells 10 heads (1head/HH) of buffalo and cattle each year. About 6 households among 10 keep the money for building houses or in case of diseases. Two (2) households spent the money for betrothal money or wedding fee. Two (2) other households spent the money for many purposes.

(2) Cattle: 170 heads (56~57 households)

Number of each household' cattle are different widely (from 1 to more than 10). Villagers prefer raising cattle to buffalo because of cattle's resistance against diseases.

They began raising buffalo and cattle in eastern mountain area in 2000. But tigers killed more than 30 heads of buffalo and cattle a year (12heads were killed in a day). So they stopped grazing there in 2001. They asked ministry of interior to get permission to hunting tigers. But a lot of livestock were killed before they got permission. According to a villager, three tigers live in the high altitude area. Now 5

households raise buffalo and cattle in grazing land beside Nam Song river.

(3) Pig: 100~150 heads

The village usually have 200~300 pigs but epidemic disease in March and April have already killed about 30~40 pigs this year. Average household raise 5~10 pigs.

Pigs are important for their festivals, especially New Year. They kill 25~30 pigs for New Year festival fiesta in the whole village. Except New Year ceremony, pigs are often killed as a sacrifice in pray for diseases or fiesta when their relatives visit.

They usually don't sell pigs. The village head's family sold 10 pigs in 1994 to buy Soviet truck. But after that, nobody in the village sells a pig. According to the village head, raising pig is hard work for pigs eat a lot and the people have to plant corn and cassava to feed pigs. Pigs also easily suffer from diseases. So, the villagers think it doesn't pay. They usually don't buy baby pigs.

(4) Poultry: About 1,000 heads (Almost all households)

Diseases spread in the village a couple times a year after the road completed. Chicken is also important for their New Year festival. Usually 5~9 chickens are killed in each family for the festival fiesta. They raise poultry for family consumption.

(5) Turkey: 2 heads (1household)

They prefer raising chicken and duck to turkey because it's difficult to take care in their infant times.

(6) Elephant: 1 head (1household)

One household sold 2 heads of buffalo and bought one elephant at 140,000 Thai Baht last year. The household use the elephant to carry logs in Hong Sa district. They allocated special forest area for the elephant in afraid that the elephant will damage trees in the forest.

2.6 Collecting NTFPs¹

Major NTFPs collected in the village are as follows.

NTFPs collected in the Village

Major NTFPs	Description
1) Hunting and trapping	Guns in Namtiao have collected by the government in 2000. Villagers don't trap wild animals because they just don't know how to use it. In fact, guns owned by police or army are exceptions and used for hunting.
2) Paper mulberry	About 20households collect 20 kg of paper mulberry per household in 2003. Traders began to come to buy in Namtiao when the road completed in 1995.
3) Sugar palm <i>"Mak Tao"</i>	In 1995, after completion of the road, traders came to buy sugar palm in Namtiao. Now all households collect sugar palm and sell to traders. Normally each household collects 250 kg of sugar palm and earns 500,000 Kip a year.

¹ Italics are Lao names of NTFPs obtained from the village key informants. Only identified common/or genus/or family names are described in the following parentheses.

	Fruits of sugar palm are gathered in the morning and soon boiled and crushed. Still wet crushed fruits are packed and carried for Sayaboury in the evening (leave the village at 4~5 pm). Traders in Sayaboury buy around 10 pm and put post-harvest chemicals on the fruits. If you wait for the following morning, its color turn red or black and price drop from 2,500 Kip/kg to 500 Kip/kg. It's too expensive to buy post-harvest chemicals by themselves. The village head bought a Toyota pickup truck in 2000 for carrying sugar palm as early as possible.
4) Eagle wood	Cutting and sale of eagle woods was a big business from 1988 to 1994. Many people in Namon and Namtiao earned a lot of money from the tree. But all eagle woods in the village had cut away by 2001. 5 households planted 200 eagle wood saplings in 2003. Number of survival saplings is unknown.
5) Tree bark	According to the village head, there is no "tree bark" in the village.
6) Worm in bamboo "Me Nomai"	"Me Nomai" has never been collected because villagers don't eat and traders don't buy.
7) Cardamon	There are a lot of Cardamon in Conservation Forest, Community Production Forest and other forest. About 10 households in the village collect Cardamon. Each household collects less than 2 kg because it's difficult to gather.
8) Benzoin	According to key informants, there is no Benzoin in the village.
9) Bamboo shoots	Bamboo shoots are mainly collected along the road and Community Production Forest near habitat area. There are a lot of bamboo shoots in the village but they don't collect more than house consumption due to lack of market. All households collect bamboo shoots from June to September.
10) Mushrooms	Mushrooms like " <i>Het Puak</i> " (<i>Termitomyces</i> sp., <i>Agaricus integer</i> Loureiro) (from May to September) and " <i>Het Keen</i> " (from July to September) are collected in shifting cultivation area. There is a plenty of mushrooms in the village but no market for them.
11) Rattan	There is plenty of rattan but traders don't buy.
12) Medical plants	Medical plants are still widely used. There are 3~4 medical plants practitioner in the village.
13) Natural fruits	A wide variety of wild fruits can be found and eaten in Namtiao in all kinds of forest such as Community Production Forest and Watershed Protection Forest. They are: i) Wild mango (May and June), ii) Wild " <i>Lamyai</i> " (Longan) (June) (Quite a lot), iii) " <i>Mak Ko</i> " (November), and v) " <i>Mak Fai</i> " (June and July).
14) Frog	Frog is caught for family consumption in lowland area near the road in May and June. They catch a lot of frogs after heavy rain.
15) Bat	They see a lot of bats flying in the sky. But they have no

	means to catch them.
16) Honey	Villagers collect honey when they happen to find bee nest.

2.7 Use of water products

(1) Fishing

Fishes are caught in Nam Met and Houay Tiao rivers all the year. Fishes go up rivers in June and down in September. So July and August are fishing season. Compared with 10 years ago, fishes have decreased about 70%. More and more people come to catch fishes illegally. About 10 people were arrested in 2003 and 9 people in 2004 (at the time of survey). They were fined 800,000 Kip per person. But this is a tip of the iceberg. The village is too large to watch illegal fishing.

(2) Aquaculture

There is no fish pond.

(3) Others

Shrimps are captured for family consumption in Nam Met and Houay Tiao rivers. Crabs live in all small streams in the village. Crabs are captured from January to April for family consumption. Riverweed is collected a little for family consumption. They usually cook raw riverweed for dishes.

2.8 Other activities

(1) Embroidery

Women in all households embroider traditional ethnic costume when they have time. Only 3 households sell embroidery to their relatives living abroad.

(2) Bamboo Basket

Traditional bamboo baskets of Hmong are made by men for family use all the year. During rainy season, they make more baskets because they cannot go to field.

(3) Rice Wine

Rice wine “*Lao Lao*” or “*Lao Hai*” is not made in the village. They make “*Lao/Kao Waan*” (sweet alcohol/rice) from March to May. These are hottest and busiest months for shifting cultivation and they eat “*Lao Waan*” as tonic.

(4) Rice cake

Every household makes rice cake on New Year’s day.

(5) Paper

Every household makes paper from “*Mai Boon*” and “*Mai San*” trees in November. They cut trees for two hours and boil them for 3~5 hours. And they dry up under sunshine for a week. About 50 papers are made and used for ritual purpose.

2.9 Collective activities by the village for forest conservation

None

2.10 Seasonal calendar

Seasonal calendar, which shows various activities/issues/ events related to livelihood and natural resource management is presented in **Figure 2**.

3. Infrastructure

3.1 Location, current condition of social infrastructure

(1) Water supply

One gravity-fed water supply system with 5 faucets was made with assistance of CESVI, an Italian NGO in May 2003.

(2) School

Children in Namtiao used to go to primary school in Namon until a small hut was made as schoolhouse (Grade 1~3) in 1997. New schoolhouse was built in 2000 (still Grade 1~3). Grades were expanded from three to five (Grade 1~5 or P1~5) in 2003. All children except a few attend the primary school.

They go to high school (M1~M6) in Sayaboury town. Students stay with their relative families or in a dormitory of the school. About 15 students of Namtiao attend the high school.

(3) Clinic/Hospital

There is no clinic/hospital in the village. Villagers used to go to the hospital in Sayaboury town until clinic was built in Namon in 1996. They sometimes go to hospitals in Nan province of Thailand. There is a village doctor since 2001. But he was educated on medicine for 1~2 weeks only.

(4) Road

The road connecting Sayaboury and Hong Sa has completed in 1995. But the road condition between Namon and Namtiao is very poor, especially during the rainy season. The road from habitat area to the border with Hong Sa district (12 km) is worse than the section between Namon and Namtiao habitat area. Now a bridge over Houay Nam Nyon river, a village border with Hong Sa district, is under construction. At least two trucks carry passengers between Hong Sa and Sayaboury every day. The road will be upgraded with ADB 10th road improvement project. According to a specialist of the project, the project will begin in the late 2004.

(5) Market

Villagers usually buy daily necessities at the small shop in the village. They go to buy more expensive commodities in Sayaboury town. Chinese and Vietnamese come to sell commodities made of plastic or metals several times a year (Chinese come by car and Vietnamese by bicycle).

- (6) Electricity
11~12 households generate electricity with small generators in Nam Met river. The generators were set up since 2000, especially this year. There is no generator using gasoline in the village.

3.2 Agricultural infrastructure

- (1) Irrigation
None.
- (2) Rice mill
Six (6) households have rice mills. First rice mill was set up in 1997.
- (3) Vehicle/Agricultural machine/Tractor
Village head's family sold many buffalo and pigs and bought a Soviet truck in 1995 for carrying trees. The family also purchased a Toyota pickup truck in 2000 for sending sugar palm to the market in Sayaboury. They carry paper mulberry, sesame and passengers as well as sugar palm by the pickup truck. One tractor was purchased in 2002 to use as a vehicle.

3.3 Infrastructure development plan

ADB 10th road improvement project (The project will be start in 2004.)

4. Organization related to the Project Activities

4.1 Organizations available in the village

- (1) Water management unit
Each faucet has its own leader to take care (5 persons for 5 faucets). Except them, there are 3 persons for repairing. Each household pays 700 Kip per month. This pooling money and some amount of money given by CESVI are used for repairing.
- (2) Forest management unit
There is no forest management organization in the village. One villager (Mr. Li Foo Vaj) is in charge of forest issues.
- (3) Farmer's management unit
There is no farmer's management unit in the village.

4.2 Any on-going/ implemented rural development project in the area

Sayaboury district is one of the 72 poorest districts in Lao PDR and target of NPEP (National Poverty Eradication Programme).

4.3 International organizations and/or local NGOs working in the area

- (1) CESVI

One gravity-fed water supply system with 5 faucets was made with assistance of CESVI in May 2003. They also assisted to make 40 units of toilet in the village.

(2) EPUS

EPUS came to research the village. But it's not sure whether EPUS will assist this village or not.

4.4 Any agricultural promotion activities

None (DAFO is an exception).

4.5 Availability of agricultural technicians

Veterinarian: None.

Anybody in Namtiao gets his livestock an injection by himself.

5. Others

5.1 DAFO extension staff activities to the village

DAFO staffs visit the village twice a year. They taught how to raise livestock and introduced new cash crops like sesame, Job's tear and paper mulberry.

5.2 Any migration project in the future

Not exist

5.3 Situation of tax collection (land tax etc.)

Total Tax Revenue: 1,544,700 Kip as of 5 February 2003, of which 1,390,230 Kip (90 %) are transferred to Sayaboury district, and 154,470 Kip (10 %) were kept in Namtiao village. Among 154,470 Kip in Namtiao village, 92,682 Kip (60%) are used for the village officers (salaries), and 61,788 Kip (40%) are reserved for the village.

PART 2 PARTICIPATORY VILLAGE SURVEY

- Survey period : 10 to 12 May 2004
- Resource map and social map : 10 May 2004
- Venn diagram for marketing products : 10 May 2004
- Dependence on resources by well-being level : 11 May 2004
- Present rules on the use of resources : 12 May 2004

1. Resource Map and Transect

In order to clarify the present use of lands and other resources, a resource map was drawn by the villagers through a participatory process. A total of 9 villagers participated in this session on 10 May 2004. Based on the resource map, a transect walk was conducted together with some village key informants on 11 May 2004. During the transect walk, the present use of lands and other resources were clarified by observing actual conditions of the sites. The resource map shows the different land types, in addition to roads, rivers, streams and habitation and the transect shows cross-sectional view of the different zones and provides comparative information such as main activities and problems for each land category as presented in **Figure 3 and 4**.

2. Resources Utilization and Major Products

Major products in each resource are summarized in the following table, the information of which were obtained through Transect Walk, Venn Diagram preparation and some informal discussions.

Major Products by each Land Category

No.	Resources	Products
1.	Conservation Forest "Pa SaNgouan"	Bamboo shoot Wild fruits
2.	Community Production Forests: " Pa Somsai"	Palm fruit Bamboo shoot Tiger grass Mushroom Rattan shoot Buffalo Cattle Pig Construction materials (bamboo, pole, timber, and roofing thatch, etc.)
3.	Agricultural Land for upland cultivation: "Hai" and "Suan" (3 places per household, 1.0 ha for place/piece) or Fallow land for Slash and burn "Lao Orn" or "Pa Phalit"	Rice Sesame Maize Job's tear Peanut Cassava Pineapple Dry season vegetable

		Buffalo (in fallow land)
		Cattle (in fallow land)
		Goat (in fallow land)
		Pig (in fallow land)
		Poultry (in fallow land)
4.	Watershed	Rattan shoot
		Sugar palm “ <i>Mak Tao</i> ”
5.	Rivers (Nam Tiao, Nam Met)	Fish
		Small shrimp
		Shell
6.	River sides (non-watershed)	Tiger grass
		Dry season vegetable

3. Venn Diagram

3.1 Importance of major products/resources

In order to clarify major products/resources in the village, the survey team organized group discussions through Venn Diagram preparation process in the afternoon on 10 May 2004. Eighteen (18) participants were divided into two groups, namely a male group (9 persons) and a female group (9 persons) and were asked about major products/resources for each group, their importance and its reason, and their market situation as well.

Regarding importance of the major products/resources, both groups described “rice” as the 1st priority like other villages. Rice is the most important crop for the villagers mainly for HH consumption. Some small amount of upland rice is also sold to local markets. Importance ranking after rice is followed by “Pig” as the 2nd, “Poultry” as the 3rd, “Palm fruit” as the 4th, and “Job’s tear” as the 5th, for male group. On the other hand, the female group listed up “Job’s tear” as the 2nd priority, “Cattle” as the 3rd, “Sesame” is the 4th, and “Palm fruit” is the 5th.

The high priority of “Palm fruit” suggests that Namon area has still rich forests. “Pig and poultry” were ranked as high priorities by men groups because they thought such small animals were easily sold with rather short raising periods than large animals like cattle and buffalo. While female group listed up “Job’s tear” and “Sesame” as high priority products, which are also easily cashable.

The reason of the high priority like “Bamboo shoot” as the 5th and “Weaving” as the 6th by female group may also be the easiness of selling even though the amount of earning is rather small.

Differences of major products/resources between male and female, and their priority, reasons and problems are summarized in the following table.

Difference of Major Products/Resources between Male and Female,
and their Priority, Reasons and Problems

Major Products	Male		Female		Reasons, */	Problems
	Claimed	Priority	Claimed	Priority		
1. Cultivated Crops						
- Rice	O	1	O	1	Household consumption (and	Comparing with 10 years ago, weeds

					some 30% of HH sell surplus rice to local markets)	grow too much more, weeding work is very hard but low yield.
- Job's tear	O	5	O	2	Sale (and reserving a little for seeds)	
- Sesame	O	10	O	4	Sale (and households medicine, ingredient: very little)	
- Pineapple	O	11	--	--	Sale and HH consumption (about 20% of HHs produce pineapple and sell it.)	
- Peanut	O	12	--	--	HH consumption, about 50% of HHs produce peanuts in small quantity.	
- Dry season vegetable	--	--	O	10	Sale and some for HH consumption, 20% of HHs sell it.	
- Maize	--	--	O	-	HH consumption, animal feeds, 100% of HHs produce maize.	
- Cassava	--	--	O	-	HH consumption, animal feeds, 100% of HHs produce maize.	
- Wet season vegetable	--	--	O	-	HH consumption and sale.	
- Fruit	O	13	--	--	Sale and HH consumption	
- Ginger	--	--	O	9	Sale and some for HH consumption.	
2. NTFPs						
- Paper mulberry	O	8	O	6	Sale, 90% of HHs collect paper mulberry	70% are from natural resources and 30% are from gardens.
- Tiger grass	O	9	--	--	Sale, 100% of HHs collect tiger grass	
- Palm fruit	O	4	O	5	Sale, 100% of HHs collect palm fruit.	Difficult to find, and very far from the village
3. Livestock						
- Buffalo	O	7	--	--	Sale, 4 HHs keep buffalos.	No problems occur since animals have vaccinated.
- Cattle	O	6	O	3	Sale, about 30 HHs keep cattle.	No problems occur since animals have vaccinated.
- Pig	O	2	O	7	Sale, 100% of HHs keep pigs.	Hog cholera and stomach problem during April to June.
- Poultry	O	3	O	8	Sale and HH consumption, 100% of HHs keep poultry.	Chicken cholera is a serious disease.

Note: - / Claimed as major crops but lower ranked.

--/ Not claimed as major crops.

*/Activities in parenthesis mean secondary/minor purposes.

3.2 Marketing situation of major products

(1) Licensed middlemen

There are three (3) groups of licensed middlemen in Sayaboury district, to whom the producers/villagers are officially to sell their products. The group-1 consists of 15 middlemen, who handle cash crops and NTFPs such as sesame, Job's tear, paper mulberry, tiger grass, and tree bark. The group-2 consists of 17 middlemen, who handle buffalo and cattle. The group-3 consists of 11 middlemen, who handle pig and goat.

(2) One village trader

Since Nantiao village is far from Sayaboury district town (49 km), almost all the products are collected by the village head (a village trader), who transports them directly to the middlemen in Sayaboury district town.

(3) Venn Diagram of major products

Destinations of major products were clarified through a Venn Diagram preparation as summarized in the following table. Venn Diagram in Nantiao village is presented in **Figure 5 and 6**.

Destination of Major Products

Products	Sell/Consume in the village	Sell to Sayabory markets, 1/	Sell to Middlemen, 2/
1. Cultivated Crops			
- Rice	O	(O)	(O)
- Job's tear			O
- Sesame			O
- Pineapple	(O)	O	
- Peanut		O	
- Fruit	O	(O)	
- Wet season vegetable	O	(O)	
- Ginger		O	
2. NTFPs			
- Paper mulberry			O
- Tiger grass			O
- Palm fruit			O
3. Livestock			
- Buffalo			O
- Cattle	O		O
- Pig	O	O	O
- Poultry	O	O	

Note: O = major destination, (O) = minor destination

1/ Non-licensed middlemen come to the village to buy the products.

2/ A village trader (the village head) carry products to Sayaboury and sell to licensed middlemen, or licensed middlemen directly come to the village to buy the products.

4. Social Map

4.1 Well-being ranking

A social map was drawn by the villagers through a participatory process. This session was organized on 10 May 2004 with a total of 9 villagers' participants. The participants were asked to clarify themselves based on the well-being perceived by themselves, then they classified the well-being rank into three levels like i) high, ii) medium and iii) low. According to the participants, among the total of 59 households of the village, 4 households (6.8 %) were classified into "high level", 52 (88.1 %) were "medium level", and the other 3 (5.1 %) were "low level", respectively. Among these, only 3 households at "low" level face deficit in rice and look for other sources for buying rice. The section 1.6 of Part 1 also describes about the situation of food security in the village, saying that "Only a couple of lazy families face food deficiency. Normal households are in short of rice for one or two months."

These three (3) categories clarified by the participants are distinguished in the social map, as presented in **Figure 7**. It can be simply said that almost all the households are at "Normal" level, and only a couple of households are at "High" level, engaging some trading activities at village level, and a few households are at "Low" level due to health situation or because they newly migrated to the village. Living situation of each level clarified by the participants is summarized in the following table.

Living Situation by Each Level

Level	Living Situation
"High" 4 HHs (6.8 %)	<ul style="list-style-type: none"> - This group consists of 4 households; - They have some savings; - They live in permanent houses with brick/plank walls, cement floors, and either tin or fiber cement roofing; - Some own a car; - Some own rice mills; - Some own and run shops; - Some own hand-tractors; - All own buffalos and cattle; - All raise pigs and poultry for sale and HHs consumption; - All practice slash and burn cultivation and produce some surplus of rice; - All collect NTFPs for sell; - Some grow sesame and Job's tear in a certain area; - They produce surplus rice to sell; - One of them is a village trader.
"Medium" 52 HHs (88.1 %)	<ul style="list-style-type: none"> - This group consists of 52 households; - They live in simple houses made of sawn wood materials and bamboo walls; - Some own motorcycles; - All practice slash and burn cultivation and produce sufficient rice for 8 to 12 months; - All collect NTFPs and sell to a village trader; - They have savings enough for medical purposes and school utensils for their children; - Some raise cattle for sale or as savings;

	- All raise pigs and poultry for sale and household consumption.
“Low” 3 HHs (5.1 %)	<ul style="list-style-type: none"> - This group consists of only 3 households; - They live in temporary houses made of poles, bamboo and thatch roofing; - They sell labors for buying rice; - They collect NTFPs for buying rice; - They grow upland rice in slash and burn cultivation area but cannot produce sufficient rice; - Some of them are habitual smokers of opium; - They have many children; - They have no spare cash.

4.2 Dependence on various resources by well-being level

The group discussions were organized by each well-being level on 11 May 2004 to clarify the present use of and dependence on resources by the group and to grasp seasonal trends/changes of resources in terms of production and marketability. Six (6) persons for “Medium” level, four (4) for “High” level, and three (3) for “Low” level were selected by the villagers during the social map preparation. (The 4 for “High” level and the 3 for “Low” level are the all for each level, respectively). Participatory discussions gave us the following interesting suggestions.

- 1) “High” level group ranked their resources like i) rice, ii) cattle, iii) Job’s tear, iv) palm fruit, and v) transportation business and small shop business, in order of importance.
- 2) “Medium” level” group ranked their resources like i) buffalo and cattle, ii) paddy filed and rice, iii) Job’s tear, and iv) palm fruit.
- 3) “Low” level group ranked their resources like i) rice, ii) palm fruit, iii) paper mulberry, iv) selling labor, and v) poultry.

The above suggests that the poor people depend on selling labor and more NTFPs for food security, while the high level people depend on large animals and economic activities. The dependence on resources by each level is summarized below.

Dependence on Resource by Each Level

Level	Resources	Dependence/Management on Resources	Problems/ Difficulties
“High” 4 HHs (6.8 %)	Rice	<ul style="list-style-type: none"> - Grown in allocated and non-allocated lands; - A few households have just stated developing lowland paddy fields by making dikes; - All of this group grow upland rice by slash and burn cultivation, the areas of which vary from 0.6 to 1.0 ha; - Land preparation is done in March, planting in April or May, and harvesting in November; - Ordinary rice but very little of sticky rice is planted; - All of this group produce a surplus of rice, some of which are sold for buying household necessity. 	<ul style="list-style-type: none"> - No serious problems are found for upland rice cultivation because there are still plenty of lands available; - The relatives of those who left the village requested to take over the lands for their own, but the village head do

			not agree with such arrangement following the government regulations.
	Cattle	<ul style="list-style-type: none"> - Long time ago, they used to raise their cattle in grass lands called “<i>Phadang</i>”, very far away from the village; - They used to go and check and feed their cattle with salt once or twice a week so as the cattle remember their owner; - Now, they have moved their cattle to “<i>Hoay Paen</i>” stream; - They have never given the animals vaccinated; - Cattle are sold to Luang Prabang middlemen during February to April when road condition is good; - A head of cattle has a value of 5,000 to 10,000 Baht . 	In the year 2000, 32 heads of cattle were killed by a tiger sucking blood from the cattle legs.
	Job’s tear	<ul style="list-style-type: none"> - Grown in allocated uplands for slash and burn cultivation; - Planted in April or May, and harvested in October or November; - Weeding is done twice a year; - They use indigenous varieties of Job’s tear; - They satisfy with Job’s tear cultivation because it needs less work with less labor but brings a good production. 	<ul style="list-style-type: none"> - Price is not stable; - Price in years 2002 and 2004 was 2,500 Kip/kg, but that in other years was 500 Kip/kg.
	Palm fruit	<ul style="list-style-type: none"> - Grown in the valleys of two hills, or on the sides of rivers and streams in the forest; - At the beginning, palm fruit was found on the road sides and now it is found in the area of 3 hours walk; - Every year, palm is collected from new palm trees; - Process of collecting palm fruit is very unsustainable way by slashing the whole trunk and then collecting just the fruit and leaving the trunk as it was; 	<ul style="list-style-type: none"> - No sustainable methods of collection has been introduced or practiced; - The villagers know how to sustain the resources, but no one has ever tried to start doing so.
	Transportation business and small shop business	<ul style="list-style-type: none"> - A shop is located in the village and started providing daily necessity to the villagers from 1995; - Transportation service has started since 1994; - Main purpose for transportation service is for transporting products such as NTFPs and cash crops from Namtiao to Sayaboury; - All villagers on the roads are welcome to the service during the trip; - Marketing activities of NTFPs and cash crops became active owing to this village transportation services. 	
“Medium” 52 HHs	Buffalo and cattle	<ul style="list-style-type: none"> - Raised in village managed grass lands along “<i>Houay Paen</i>” stream; 	- A cattle is too expensive to buy,

(88.1 %)		<ul style="list-style-type: none"> - Numbers of each household cattle are different widely from 1 to more than 10; - A head of cattle has a value of 5,000 to 10,000 Baht; - Buying a calf costing 3,000 Baht. 	<p>2,700,000 Kip/head;</p> <ul style="list-style-type: none"> - No veterinary agents in the village, and no vaccination has been given to animals.
	Rice and development of lowland paddy fields	<ul style="list-style-type: none"> - There are several areas/plots in the village managed lands having potential for developing lowland paddy fields, where some households have started to build dikes, but rice is not yet planted; - All of this group are practicing slash and burn rice cultivation in upland area; - Almost all the participants produce more than 2.0 tons of rice, sufficient for household consumption for all the year. 	They are interested in developing lowland paddy fields, but don't have money to invest it.
	Job's tear	<ul style="list-style-type: none"> - Grown in allocated uplands for slash and burn cultivation; - Among 6 participants, 3 households planted Job's tear last year, producing 120 to 400 kg with values of 200,000 to 640,000 Kip per HH. 	
	Palm fruit	Among 6 participants, 4 households collected palm fruit last year, producing 210 to 500 kg with values of 420,000 to 1,000,000 Kip per HH.(*)	The price of red palm fruit is cheaper.
“Low” 3 HHs (5.1 %)	The three (3) participants have special situations each other. One household (HH-1) has just settled in this village last year, which has a large number, 15 of family members, with 4 adults labor force. The second (HH-2) and the third one (HH-3) have only two family members, with only one labor force, respectively. (HH-3 is a special case, who is a habitual opium smoker.)		
	Resources	Dependence/Management on Resources	Problems/ Difficulties
	Rice	<ul style="list-style-type: none"> - HH-1 cultivated 1.0 ha and produced 2 tons of rice; - HH-2 cultivated 0.4 ha and produced 1 ton of rice; - HH-3 has no upland cultivation area, but selling labor to earn money to meet the daily necessity including rice. 	They want to raise animals but have no money to buy them.
	Palm fruit	<ul style="list-style-type: none"> - HH-1 collected 2.5 ton, with a value of 3,750,000 Kip; - HH-2 collected 1.3 ton, with a value of 1,950,000 Kip (*) 	
	Paper mulberry	<ul style="list-style-type: none"> - HH-1 collected 200 kg, with a value of 400,000 Kip; - HH-2 collected 100 kg, with a value of 200,000 Kip 	
	Poultry	<ul style="list-style-type: none"> - Raising about 10 chickens each for both household consumption and sale. 	

Note: (*) The difference of price may be due to inclusion/or exclusion of transportation costs, or other expenditures by middlemen.

5. Present Rules on the Management/Use of Lands and Resources

A plenary discussion with a total of 18 participants was organized on 12 May 2004 to clarify i) present rules on the management/use of lands and resources, and any changes or cases of them, and ii) any problems and issues on land allocation program.

5.1 Land allocation program and present rules on the management/use of lands

As described in Section 2.3 of Part 1, “land zoning” was conducted in 1995 by DAFO, and in 2001 DAFO regulated each household to cultivate 4 plots only. So far, there are six (6) forest types or land use types designated by the village as below.

- i) Agricultural land “*Hai*” and “*Suan*” = 30 ha;
- ii) Conservation Forest “*Pa SaNgouan*” = 1,050 ha;
- iii) Watershed Protection Forest “*Pa Pongkanh Len Nam*” = 9,020 ha;
- iv) Production Forest “*Pa Phalit*” = 500 ha;
- v) Community Production Forest “*Pa Somsai*” = 10 ha;;
- vi) Cogon “*Pa Nya Ka*” = 3,000 ha

The villagers simply understand that i) Conservation Forest “*Pa SaNgouan*” is the forest, where nothing should be done, and ii) Community Production Forest “*Pa Somsai*” is used to collect timbers for house construction materials. As for Watershed Protection Forest “*Pa Pongkanh Len Nam*”, the followings are present situation/understandings among the villagers.

- In order to maintain water source, no slash and burn practice should be done in this area;
- Valleys are allowed to develop paddy fields;
- Palm fruit “*Tao*” are collected in watershed areas;
- The villagers have never managed their resources in a sustainable way. However, they recognize that if they don’t manage it properly, sugar palm trees would be completely destroyed with in 5 to 10 years;
- They know how to manage it but they don’t know how to put it in practical rules.

5.2 Before and after “land zoning”

In the session, the participants were asked about the changes of the land before and after land zoning. The clarification about the changes is below.

Changes before and after “Land Zoning”

Before Land Zoning	After Land Zoning
<u>Agricultural Land “<i>Hai</i>” and “<i>Suan</i>”</u> 1. They were free to select any site of land for slash and burn cultivation; 2. There were no fallow areas because they were free	1. They have been provided with three plots, each area in not more than 1 ha; 2. All households have received 3 plots of land for

<p>to encroach where it was considered good for slash and burn cultivation, and fallow rotation is at least 7 years;</p> <ol style="list-style-type: none"> 3. Rice was grown well and the yield was high; 4. Weeding works at that time was less needed than those nowadays. 	<p>slash and burn cultivation except 9 households, who are newly married couples or new comers;</p> <ol style="list-style-type: none"> 3. They have temporary lands for farming, which is not officially allocated with land forms because they had no money to pay for DAFO staff expense of fuel, food and related survey/measurement works; 4. There have been 2 households left the village and left behind their upland fields, which they had used. The lands were not allowed to transfer to their relatives or fiends but they had to let them under the village managed lands. 5. The village head has a right to give these lands to any newly married couples or new comers if needed. 6. The villagers say that the yields before and after land allocation are not so different, around 3 to 3.5 ton/ha (it seems to be too high for the study team); 7. A fallow rotation period is normally 3 years, but it sometimes is 4 to 5 years because the farmers may use the same plot for 2 years, or some households may have more than 3 plots; 8. Paper mulberry is collected in those fallow areas.
<p>River valleys in watersheds</p> <ol style="list-style-type: none"> 1. They have never though about lowland paddy fields. Slash and burn cultivation in upland fields was considered to be easy for them providing good yields. 	<ol style="list-style-type: none"> 1. The farmers became interested in lowland paddy fields; 2. They have been looking for valleys suitable for developing lowland paddy fields; 3. They have found 11 sites in Nam Met river valleys and 6 sites in Namtiao valleys, totaling up to 20 ha; 4. Each site is estimated to be about 0.5 to 1.0 ha; 5. The groups (mainly friends or relatives each other) who found such sites went to DAFO for approval for the utilization of the land; 6. The groups pre-estimated that rain-fed water alone would not be enough to use those paddy fields, if there is no support from irrigation system; 7. They requested the IFAD project to provide them with assistance for irrigation facilities. But nothing has been responded by IFAD.

PART 3 HOUSEHOLD INTERVIEW SURVEY

Survey period: 10 to 12 May 2004
Total Household: 59 HHs
Total Number of Sampled HHs: 32 HHs

A. HOUSEHOLD INTERVIEW SURVEY

1. General Information

1.1 Interviewees

Total number of interviewees is 32 persons, all of which are Lao Sung, and all of them are male. Among those interviewees, the youngest one is 23 years old and the oldest is 65, as summarized below.

Summary of Interviewees

Total No.of interviewees	Ethnic group			Sex		Age	
	Lao Sung	Lao Theung	Lao Loum	Male	Female	Min	Max
32	32	0	0	32	0	23	65

1.2 Households members

Total number of households members surveyed is 263 persons, among which 147 (55.9%) are male and 116 (44.1%) are female, and 8 are temporarily absentees.

1.3 Household age structure

As per household, the average number of household is 8.2 persons, among which 4.2 (51.2%) are less than 12 years old, 3.4 (41.5%) are between 12 and 45 years old, and 0.6 (7.3%) are more than 45 years old, as summarized below.

Summary of Household Age Structure

Age Structure	Total			Average per HH	
	Number	Male	Female	Family Member	(%)
1. Less than 12 years old	135	85	50	4.2	51.2
2. 12 to 45 years old	109	54	55	3.4	41.5
3. More than 45 years old	19	8	11	0.6	7.3
Total	263	147	116	8.2	100

1.4 Living period

This village is quite new. Among all the 32 interviewed households, 22 households (68.8%) have lived in the present location for less than 10 years and the other 9 households (28.1%) have lived for 10 to 20 years, as summarized below.

Living Period		
Period	Number of HH interviewed	%
1. Within the last 10 years	22	68.8
2. From 10 to 20 years ago	9	28.1
3. From 20 to 30 years ago	1	3.1
4. More than 30 years ago	0	0
Total	32	100

1.5 Educational background

Among all the 263 household members, 105 persons (39.9%) are primary school graduated/or attending, or drop out of primary school level, 16 (6.1%) are more than secondary school graduated/or attending level, and the remaining 142 (54.0%) are below school age or have not received formal education, as summarized below.

Summary of Educational Background				
Educational Level	Male	Female	Total	(%)
1. No formal education	66	76	142	54.0
2. Drop out of primary school	20	11	31	11.8
3. Primary school graduated/ Attending	47	27	74	28.1
4. Drop out of secondary	3	1	4	1.5
5. Secondary school graduated/ Attending	6	1	7	2.7
6. Drop out of high school	0	0	0	0.0
7. High school graduated/ Attending	3	0	3	1.1
8. Graduate of professional high school/ Attending	1	0	1	0.4
9. More than high school/ Attending	1	0	1	0.4
Total	147	116	263	100

1.6 Farming

Among all the 263 household members, 133 persons (50.6%) are engaging in farming.

1.7 Occupation

Among all the 263 household members, 107 persons (40.7%) are farmers, 3 persons (1.1%) is salary worker, 72 (27.4%) are pupils/students, 71 (27.7%) are below school age children, and 10 (3.8%) have no job (including housework) as summarized below.

Summary of Occupation		
Occupation	Number	(%)
1. Farmer	107	40.7
2. Wage labor	0	-
3. Salary worker	3	1.1
4. Private business	0	-
5. Pupil/Student	72	27.4
6. Child (below school age children)	71	27.0
7. No job (including house work)	10	3.8
8. Others	0	-
Total	263	100

1.8 Organization

Among all the 263 household members, more than 93.5% of people do not belong to any specific organizations, but 13 persons (5.0%) are members of Women's union, Youth organization, Elder's group or Village committee. In addition, 4 persons are members belonging to "Others" like i) village unit head and ii) voluntary village vigilante corps, etc. The villager's membership of organizations is summarized below.

Organization	Number	%
1. Member of Women's Union	3	1.1
2. Member of Youth Organization	2	0.8
3. Member of Elder's Group	2	0.8
4. Member of Water Users Group	0	-
5. Member of Village Committee	6	2.3
6. Member of Ethnic Organization	0	-
7. Member of religious Organization	0	-
8. Others (security unit, vigilante, etc.)	4	1.5
9. No member	246	93.5
Total	263	100

2. Living Condition

2.1 Drinking water

Among the 32 interviewed households, 18 households use a gravity piped water system, 3 households use an open dug well, and one household use river for getting drinking water. These water sources are located within 0.5 to 5 minutes walking distance. They feel sufficient or just enough for water in both wet and dry season, as summarized below.

Season	Main Source	Household		Distance		No. of HH sufficiency			
		No.	(%)	Min. (min.)	Max. (min.)	Sufficient	Just enough	Short	Very short
Dry	a. Piped gravity water	28	87.5	0.5	5	21	7	-	-
	b. Open dug well	3	9.4	0.5	3	3	-	-	-
	c. River	1	3.1	1	1	1	-	-	-
Wet	a. Piped gravity water	28	87.5	0.5	5	21	7	-	-
	b. Open dug well	3	9.4	0.5	3	3	-	-	-
	c. River	1	3.1	1	1	1	-	-	-

2.2 Fuel for cooking/heating

All the 32 interviewed households answer that they use only fuel wood for cooking/heating and 29 households (90.6%) of them reply that they can collect fuel

wood easily and 3 households (9.4%) reply that they face difficulty to obtain fuel wood, as summarized below.

Sources of fuel	No of HH		Availability	No of HH	
		%			%
Fuel wood	32	100	a. Easy to obtain	29	90.6
			b. Difficult to obtain	3	9.4
			c. Very difficult to obtain	-	-
Total	32	100		32	100

2.3 Food availability

2.3.1 Rice

Among all the 32 interviewed households, 24 households (75%) can produce rice more than the household demand or can produce rice just enough to meet the household demand. However, 7 households (21.9%) cannot produce rice to meet the household demand, among which 4 households reply that they purchase (or exchange) rice to meet the household demand, but the other 3 households face difficulty to obtain rice enough to meet the household demand. The average shortage months for those 3 households is calculated to be 2.3 months.

Further, there is one household (3.1%) who do not produce rice, but he replies that he purchases rice to meet the household demand.

Totally, it is estimated that among 32 households, 3 households (9.3%) are short of rice for about 2.3 months, as summarized below.

Rice Production Situation	No. of HH		No. of HH of Rice Shortage		Total Shortage (months)	Average Shortage (months)
		(%)		(%)		
1. Product exceeds the HH demand	4	12.5	-	-	-	-
2. Product is just enough to meet the HH demand	20	62.5	-	-	-	-
3. Product is not enough to meet the HH demand	7	21.9	3	9.3	7	2.3
4. No product	1	3.1	-	-	-	-
Total	32	100	3	9.3	7	2.3

2.3.2 Other than rice

Other cereals, root and tube crops, and vegetables:

Products other than paddy such as other cereals, root and tube crops and vegetables are generally not serious like rice for the farmers because they can try to manage with their products, and a large part of interviewed households (78-84%) feel that such products are enough to meet the household demand or exceed the household demand. Further, there are some households who do not produce such other products than rice, 4 households (12.5%) for other cereals, 3 households (9.3%) for root and tube crops, 6 households (18.7%) for vegetables. They reply that they purchase or exchange such products depending on their needs and never face a shortage of such

products.

Meat:

Seventeen (17) households (53.1%) reply that the product of meat is enough to meet the household demand. On the other hand, 7 households (21.8%) reply that the product of meat is not enough to meet the household demand, and another 7 households (21.8%) do not produce meat. However, these 14 households purchase or exchange meat depending on their demands and never face a shortage of meat.

Fish:

Twenty-three (23) households (71.8%) reply that the product of fish is enough to meet the household demand. On the other hand, 2 households (6.2%) reply that the product of fish is not enough to meet the household demand and 6 households (18.7%) reply that they do not produce fish. However, these 8 households purchase or exchange fish depending on their needs and their financial situation, and never face a shortage of fish.

Food availability other than rice is summarized below.

Food Availability other than Rice					
Rice Production Situation	No. of HH for production of				
	Other Cereals	Root, Tube Crops	Vegetables	Meat	Fish
1. Product exceeds the HH demand	0	2	0	0	0
2. Product is just enough to meet the HH demand	27	26	25	17	23
3. Product is not enough to meet the HH demand	0	0	0	7	2
4. No product	4	3	6	7	6
Total	31,*/	31,*/	31,*/	31,*/	31,*/
5. No. of HHs having shortage of each product	0	0	0	0	0
6. Average shortage period per HH above (month)	0	0	0	0	0

Note: */ One household didn't reply to the questions regarding food availability other than rice.

2.4 Availability of facilities

Availability of major facilities in each household is summarized below.

Major Available Facilities in Each Household		
Available Facilities	Nos. of Unit	(%)
1. Radio/radio cassette	16	50.0
2. VCD	1	3.1
3. TV	1	3.1
4. Bicycle	12	37.5
5. Motorcycle	10	31.3
6. Car	3	9.4
7. Refrigerator	0	-
8. Electric fan	0	-
9. Sewing machine	2	6.3
10. Gas stove	0	-
11. Toilet	21	65.6
12. Hand tractor	0	-
13. Rice mill	1	3.1

2.5 Health situation

2.5.1 Major diseases

The interviewees were asked to enumerate 2 major diseases for children and adults, respectively. Major diseases for children under 15 years old are i) cold, ii) dysentery, and iii) diarrhea, and those for adults are i) cold, ii) dysentery, iii) malaria as summarized below.

Children under 15 years old			Adults		
Major diseases	No.of HH	%	Major diseases	No.of HH	%
1. Cold	20	62.5	1. Cold	13	40.6
2. Dysentery	14	43.7	2. Dysentery	7	21.8
3. Diarrhea	4	12.5	3. Malaria	4	12.5
4. ....	...	...	4. ....	...	...

2.5.2 Treatment for diseases

Major treatments for slight diseases are i) buy medicine and ii) go to the village's health worker, and those for severe diseases are i) go to the provincial hospital and ii) go to the village's health worker, as summarized below.

Slight diseases			Severe diseases		
Major treatment	No.of HH	%	Major treatment	No.of HH	%
1. Buy medicine	25	78.1	1. Go to the provincial hospital	13	40.6
2. Go to the village health worker	3	9.3	2. Go to the village health worker	8	25.0
3. ....	...	...	3. ....	...	...

3 Agriculture and Forestry Production

3.1 Land tenure

3.1.1 Farm land operated

In this survey, the farm lands are categorized into four (4), i) "Hai-A" (upland slash and burn field, mainly for paddy), ii) "Hai-B" (upland slash and burn field, mainly for other crops than paddy), iii) "Na" (lowland paddy field), and iv) "Fruits/Vegetable".

"Hai-A":

Among all the 32 households, 27 households have ownership for "Hai-A". Total area of "Hai-A" is 50.05 ha with a total of 74 plots and an average area of 0.67 ha/plot and 1.56 ha/HH. Further, there are 3.90 ha of lands rented from others, thus the average operated land is 1.68 ha/HH.

“Hai-B”:

Among all the 32 households, 22 households have ownership for “Hai-B”. Total area of “Hai-B” is 18.25 ha with a total of 36 plots and an average area of 0.50 ha/plot and 0.57 ha/HH. Since there are no lands rented from or leased to others, thus the average operated land is the same as that of owned land, 0.57 ha/HH.

“Na” (Lowland paddy field):

Among all the 32 households, 7 households have ownership for the lowland paddy field. Total area of the lowland paddy field is 4.85 ha with a total of 7 plots and an average area of 0.69 ha/plot and 0.15 ha/HH. Since there are no low land paddy fields rented from or leased to others, thus the average operated land is the same as that of owned land, 0.57 ha/HH.

“Fruits/ vegetables” field:

Among all the 32 households, 8 households have ownership for “Fruits/ vegetables” field. Total area of “Fruits/ vegetables” field is 2.50 ha with a total of 9 plots and an average area of 0.27 ha/plot and 0.07 ha/HH. Since there are no rented lands of “Fruits/ vegetables” field, the average operated land of “Fruits/ vegetables” fields is the same as that of owned land, 0.07 ha/HH.

The feature of farm land holding is summarized below.

Farm Land Operated

Land Category	Land Owned by the HH				Land Rented (b) (ha)	Land Leased (c) (ha)	Land Operated (d) (ha)= (a)+(b)-(c)	Average Area per HH	
	No. of HH	No. of Plots	Total Area (a) (ha)	Average area per Plot (ha/plot)				Land Owned (ha) (a)/32	Land Operated (ha) (d)/32
1. Hai-A, 1/	27	74	50.05	0.67	3.90	-	53.95	1.56	1.68
2. Hai-B, 2/	22	36	18.25	0.50	-	-	18.25	0.57	0.57
3. Na (Lowland paddy)	7	7	4.85	0.69	-	-	4.85	0.15	0.15
4. Fruit/Vegetable, 3/	8	9	2.50	0.27	-	-	2.50	0.07	0.07
Total/Average	-	126	75.65	0.60	3.90	0	79.55	2.36	2.48

Note: 1/ Upland slash and burn cultivation field, mainly for rice.

2/ Upland slash and bun cultivation field, mainly for other crops than rice.

3/ Except home garden

3.1.2 Land ownership

The answers about the land title of the “owned land” vary by interviewees. It was found that the owned lands were not always privately owned but some are i) government land but they have a right to cultivate traditionally, ii) government land but allocated by the village committee, and iii) they don’t know whose land that is, but they cultivate.

Among the “Hai-A” of 27 households, that of 14 households (51.8%) is “privately owned” and that of 13 households (48.2%) is “government land but allocated by the village committee. In addition, there are 4 households who rent the lands with a total

of 3.90 ha for farming practice in “Hai-A”

Among the “Hai-B” of 22 households, that of 10 households (45.5%) is “privately owned” and that of 12 households (54.5%) is “government land but allocated by the village committee.

Among the lowland paddy field of 7 households, that of 2 households (28.6%) is “privately owned” and that of 5 households (71.4%) is “government land but allocated by the village committee.

Among the fruit/ vegetable field of 8 households, that of 2 households (25%) is “privately owned” and that of 7 households (75%) is “government land but allocated by the village committee.”

The feature of the land title of the “owned land” is summarized below.

Land Category	Future of the Land Ownership					
	Land Owned by the HH					Others, 8/
	No.of HHs	Private, 4/	Gov.(1), 5/	Gov.(2), 6/	Unclear, 7/	
1. Hai-A, 1/	27	14	0	13	0	4
2. Hai-B, 2/	22	10	0	12	0	0
3. Na (Lowland paddy)	7	2	0	5	0	0
4. Fruit/Vegetable, 3/	8	2	0	7	0	0

Note: 1/ Upland slash and burn cultivation field, mainly for rice.

2/ Upland slash and bun cultivation field, mainly for other crops than rice.

3/ Except home garden.

4/ Privately owned (they can sell it when ever you want).

5/ Government land but they have a right to cultivate traditionally.

6/ Government land but allocated by the village committee.

7/They don't know whose land that is, but they cultivate.

8/ Others (households who rent from relatives, or other farmers)

3.2 “Hai” area (upland slash and burn field)

3.2.1 Time required

All of the 32 households have replied to the times required to go to their “Hai” area, which vary from 3 min. to 90 min. with an average of 45 minutes.

3.2.2 Repeated use of “Hai” area

“Hai-A”: Among 24 households who cultivated Hai-A in 2003, all of them answered that they would use the same lands within 1 to 4 years for cropping upland rice, and no households answered that they would not use the same lands in near future. Among 24 households above, 14 households used the same lands in 2001 and 14 households used the same land in 2002.

“Hai-B”: Among 19 households who cultivated Hai-B in 2003, all of them answered

that they would use the same lands within 1 to 4 years for cropping upland field crops, and no households answered that they would not use the same lands in near future. Among 19 households above, 12 households used the same land in 2001 and 10 households used the same land in 2002.

The future of the repeated use of “Hai” area is summarized below.

Repeated Use of “Hai” Area

“Hai” Category	Repeated Use			Don’t Use		Used in	
	No. of HH	How many years later	For what crops	No. of HH	Purpose/reason	Year 2002 (HH)	Year 2001 (HH)
“Hai-A”	24	1 to 4	Paddy	0	-	14	14
“Hai-B”	19	1 to 4	Upland crops	0	-	10	12

3.2.3 Total “Hai” (A+B) areas used per HH in last 4 years

Total “Hai” (A+B) areas used per HH in last 4 years vary from 0.74 ha/HH in 2001 to 1.19 ha/HH in 2003, with an average of 0.93 ha/HH, as summarized below.

Total “Hai” (A+B) Used Area

Year	Total Used Area (ha)	Used Area per HH (ha)
2000	30.40	0.94
2001	23.80	0.74
2002	26.60	0.83
2003	38.10	1.19
Average	29.72	0.93

3.2.4 Staying “Hai” area

Among the 32 households, 2 households reply that they stay in the field continuously from “slash and burn” to “harvest”, whose living and working bases are basically in the field, including raising animals. On the other hand, 24 households do not stay in the field but go there based on requirements. In addition to those who stay in the field continuously, 6 households answered that they stayed in the field during the season for slash and burn, and 3 households for harvesting. The future of staying “Hai” area is summarized below.

Staying “Hai” Area

Situation	Number of HH
1. Stay during the season for slash and burn	6
2. Stay during the season for seeding	0
3. Stay during the season for harvesting	3
4. Stay continuously from slash & burn to harvest	2
5. Not stay, go there based on requirement	24

3.2.5 Decision maker for the “Hai” area selection

Among all the 32 households, 31 households (97%) answered that the head of

household was a decision maker for the “Hai” area selection, as summarized below.

Decision Maker for the “Hai” Area Selection	
Decision Maker	Number of HH
1. Head of household	31
2. Other household member(s)	1
3. Village committee	0
4. Relatives	0
5. No comments	0

3.3 Crop production in “Hai”(slash and burn) area

(excluding crops grown in home garden)

3.3.1 Major crops

Major crops grown in “Hai” area in the wet season are i) rice (31 households), ii) Job’s tear (14 households), iii) sesame (5 households), iv) maize (3 households), and v) cassava (1 household) and chili (1 household).

3.3.1 Production of 3 major crops in “Hai” area

Rice:

Total production area of rice by all the 32 interviewees is 27.15 ha with a total production of 78,694 kg, among which, 5,780 kg (7.3% of the total production) were sold for cash. As for per household, it is estimated that the production of rice is 2,459 kg/HH with an average planted area of 0.85 ha, among which 181 kg were sold for cash, with a value of 371,955 Kip.

Job’s tear:

Total production area of Job’s tear is 6.60 ha with a total production of 11,259 kg, among which 11,239 kg (99.8% of the total production) were sold for cash. As for per household, it is estimated that the production of Job’s tear is 352 kg/HH with an average planted area of 0.21 ha, almost all of which were sold for cash with a value of 1,008,774 Kip.

Sesame:

Total production area of sesame is 2.65 ha with a total production of 1,195 kg, among which 1,190 kg (99.6% of the total production) were sold for cash. As for per household, it is estimated that the production of sesame is 37 kg/HH with an average planted area of 0.08 ha, almost all of which were sold for cash, with a value of 153,291 Kip.

No households used any chemical fertilizer or pesticide for the above crops. Major crop damages are pests, insects, rats, wild pigs and birds. Since there were no questions about agricultural chemicals, pesticide or insecticide in the questionnaires, such information was not obtained in this survey. The future of 3 major crop production is summarized below.

Production of 3 Major Crops in “Hai” area by the 32 Interviewee Households

Items	Major Crops		
	Rice	Job's tear	Sesame
1. Name of crops			
2. Planted area : (ha)	27.15	6.60	2.65
: (kg seed)	1,086	165	66
3. Total production (kg)	78,694	11,259	1,195
4. Form of Products	Paddy	Grain (unhusked)	Seed
5. Production sold (kg)	5,780	11,239	1,190
6. Price at sold (Kip / kg)	2,055	2,874	4,143
7. Total sales (Kip)	11,880,000	32,300,000	4,930,000
8. Production given to others (exchanged or lent to others) (kg)	703	-	-
9. Chemical fertilizer used (kg)	No chemical fertilizer / Pesticide used		
10. Major crop damage, if any	Pests, diseases, insects, rats, wild pigs and birds		

Production of 3 Major Crops in “Hai” area per HH

Items	Production Volume per HH		
	Crop 1 (a)/32	Crop 2(b)/32	Crop 3(c)/32
1. Name of crops	Rice	Job's tear	Sesame
2. Planted area : (ha)	0.85	0.21	0.08
: (kg seed)	34	5.25	2.07
3. Total production (kg)	2,459	352	37
4. Form of Products	Paddy	Grain (unhusked)	Green
5. Production sold (kg)	181	351	37
6. Price at sold (Kip / kg)	2,055	2,874	4,143
7. Total sales (Kip)	371,955	1,008,774	154,291

3.4 Crop production in “Na” (lowland paddy field)

3.4.1 Major crops

Major crop grown in the lowland paddy field in the wet season is only rice.

3.4.2 Production of major crop in “Na” area

Rice:

Among 32 households, only one household grow rice in “Na” area. Total production area of rice is 0.75 ha with a total production of 980 kg, among which, 400 kg (40.8% of the total production) were sold for cash. As for per household, it is estimated that the production of rice is 31 kg/HH with an average planted area of 0.02 ha, among which 13 kg were sold for cash, with a value of 10,400 Kip.

No households used any chemical fertilizer or pesticide for the above crops. Major crop damages are rats, wild pigs and birds. The future of rice production is summarized below.

Production of Major Crop in “Na” area by the 32 Interviewee Households

Items	Major Crops
1. Name of crops	Rice
2. Planted area : (ha)	0.75

: (kg seed)	30
3. Total production (kg)	980
4. Form of Products	Paddy
5. Production sold (kg)	400
6. Price at sold (Kip / kg)	800
7. Total sales (Kip)	320,000
8. Production given to others (exchanged or lent to others) (kg)	-
9. Chemical fertilizer used (kg)	No chemical fertilizer / Pesticide used
10. Major crop damage, if any	Rats, wild pigs and birds

Production of Major Crop in “Na” area per HH

Production Volume per HH	
Items	Crop 1 (a)/32
1. Name of crops	Rice
2. Planted area : (ha)	0.02
: (kg seed)	1
3. Total production (kg)	31
4. Form of Products	Paddy
5. Production sold (kg)	13
6. Price at sold (Kip / kg)	800
7. Total sales (Kip)	10,400

3.5 Annual paddy production and consumption per HH

The interviewees were asked their annual paddy production and consumption in their households. Almost similar figures are found between the results of questions of the paddy production in Section 3.3 and 3.4 (78,694 kg + 980 kg = 79,674 kg) and Section 3.5 (980 kg + 78,994 kg = 79,997 kg). Annual paddy production and consumption, and their balance are as shown below.

Annual Paddy Production and Consumption

Paddy Production and Consumption	Quantity (a)	Typical volume per HH (a)/32
1. Paddy production in paddy land “Kao Na”	980 kg/year	31 kg/year
2. Paddy production in slash and burn area “Kao Hai”	78,994 kg/year	2,469 kg/year
3. Total paddy production (3 = 1 + 2)	79,997 kg/year	2,500 kg/year
4. Total paddy consumption in a month (average)	5,587 kg/month	175 kg/month
5. Total paddy consumption in a year (average)	67,040 kg/year	2,095 kg/year
6. Balance of paddy in household (6 = 3 – 5)	12,957 kg/year	405 kg/year

The survey result suggests that in average each household produces about 405 kg of excess rice per year. On the other hand, as seen in Section 2.3.1, it is estimated that among 32 households, 3 households (9.3%) face rice shortage for about 2.3 months. It is understood that the food availability of each household much depends on the land availability and their family labor availability, etc.

3.6 Fruits/Tree crops

Most 5 major fruits/tree crops among the 32 households are i) pine apple, ii) banana, iii) papaya, iv) mango, and v) Jack fruits in order of number, and the average numbers of those bearing trees per HH are i) 54 roots, ii) 14.5 trees, iii) 3.1 trees, iv) 2.2 trees, and v) 1.4 trees, respectively, as summarized below.

Type	Fruits/ Tree Crops			
	Numbers of trees		Numbers of trees per HH	
	Bearing trees (a)	Non-bearing trees (b)	Bearing trees (a)/32	Non-bearing trees (b)/32
1. Orange	1	650	-	20.3
2. Lemon	3	-	-	-
3. Lime	7	5	0.2	0.1
4. Longan	-	-	-	-
5. Jackfruit	45	21	1.4	0.6
6. Tamarind	-	21	-	0.6
7. Guava	9	12	0.2	0.3
8. Papaya	102	25	3.1	0.7
9. Banana	464	234	14.5	7.3
10. Coconut	-	5	-	0.1
11. Coffee	-	-	-	-
12. Tea	-	-	-	-
13. Mangoes	72	23	2.2	0.7
14. Teak wood	-	-	-	-
15. Paper mulberry	-	70	-	2.1
16. Bark tree	-	-	-	-
17. Pine Apple	1,730	216	54.0	6.7
18. Grenade	-	1	-	-
19. Eagle wood	-	2	-	-
20. Tobacco	-	-	-	-

3.7 Non-timber forest products

3.7.1 Major NTFPs

Most 5 major NTFPs among the 32 households are i) palm seed (fruits), ii) paper mulberry, iii) tiger grass, iv) eagle wood, and v) wild vegetables in order of cash income available, as summarized below.

Items	Major Non-Timber Forest Products					
	Priority order of cash income available up to 5					
	1	2	3	4	5	Total
1. Mak neng (Cardamon)	0	0	0	0	0	0
2. Mak wai (Rattan seed)	0	0	0	0	0	0
3. Wai (Rattan)	0	0	0	0	0	0
4. Ynan (Benzoin)	0	0	0	0	0	0
5. Puack muak (Tree bark)	0	0	1	0	0	1
6. Po sa (Paper mulberry)	0	9	1	0	0	10
7. Mak kha (Wild ginger)	0	0	0	0	0	0
8. Nohmai (Bamboo shoot)	0	1	2	0	0	3

9. Khem (Tiger grass)	0	3	3	0	0	6
10 Mai ketsana (Eagle wood)	0	2	0	0	0	2
11. Sa pan (a kind of tea)	0	0	0	0	0	0
12. Mushroom	0	0	0	0	0	0
13. Wild vegetables, rattan shoot	0	2	1	1	0	4
14. Roofing grass, steak lack	0	0	0	0	0	0
15. Tuber medicine	0	0	0	0	0	0
16. Palm seed (fruits)	27	1	0	0	0	28

3.7.2 Production and sale

The harvest season, volume of harvest in 2003, price at sold in 2003 and total sale of major NTFPs are presented as follows.

Production and Sale of Major NTFPs by the 32 Interviewee Households

Items	NTFP 1(a)	NTFP 2(b)	NTFP 3 (c)	NTFP 4 (d)	NTFP 5 (e)
1. Name of NTFPs	Palm seed (fruits)	Paper mulberry	Tiger grass	Eagle wood	Wild vegetables
2. Harvest season	10-4	1-5	11-4	6-8	1-12
3. Volume of harvest in 2003 (kg)	11,665	1,008	470	110	366
4. Price at sold in 2003 (Kip/kg)	2,198	4,402	1,537	8,182	410
5. Total sales (Kip)	25,650,000	4,478,000	722,500	900,000	150,000

Production and Sale of Major NTFPs per HH

Items	NTFP 1(a)/32	NTFP 2(b)/32	NTFP 3 (c)/32	NTFP 4 (d)/32	NTFP 5 (e)/32
1. Name of NTFPs	Palm seed (fruits)	Paper mulberry	Tiger grass	Eagle wood	Wild vegetables
2. Harvest season	10-4	1-5	11-4	6-8	1-12
3. Volume of harvest in 2003 (kg)	365	31.5	15	3.4	11.4
5. Price at sold in 2003 (Kip/kg)	2,198	4,402	1,537	8,182	410
6. Total sales (Kip)	801,563	138,938	22,578	28,125	4,688

3.8 Livestock and fish

3.8.1 Livestock

The average numbers of livestock raised per household are i) cattle (3.4 head), ii) buffalo (0.3 head), iii) pig (4.8 head), iv) chicken (11.1 heads), v) duck (0.2 heads), respectively, as summarized below.

Livestock Raising

Type	No. (a)	No. of HH	Feeding				Typical livestock per HH (a)/32
			Wet Season		Dry Season		
			Main feed	Sufficiency	Main feed	Sufficiency	

1. Cattle	110	22	Grass, Crop residue	Sufficient, Just enough	Grass, crop Residue, tree fodder	Sufficient, Just enough, Short	3.4
2. Buffalo	12	7	Grass	Sufficient, Just enough	Grass, Tree fodder	Sufficient, Just enough, Short	0.3
3. Goat	-	-	-	-	-	-	-
4. Pig	156	23	Crop residue, root, tuber crops	Sufficient, Just enough, Short	Crop residue, root, tuber crops	Sufficient, Just enough, Short	4.8
5. Chicken	356	26	Crop residue, Grain, root, tuber crops	Sufficient, Just enough	Crop residue, Grain, root, tuber crops	Sufficient, Just enough	11.1
6. Duck	8	3	Crop residue	Sufficient, Just enough	Crop residue	Sufficient, Just enough	0.2

3.8.2 Catch of fishes

Main types of fishes caught are: “Pa Chat”(Acrossocheilus deauratus), “Pa Mom”(Scaphiodontichtys sp.: carp), “Pa Phao”(Tetraodon sp), “Pa Keng”(Osteochilus prosemion fowler, Cirrhinus molitorella), “Pa King”(Onychostoma sp.: carp), “Pa Mong”, “Pa Nam”(Mystacoleucus greenwayi: small carp) and Catfish.

Season of fishing is all the year. The total production of 32 households is 89 kg per week and an average catch of fishes per week per HH is estimated at 3.17 kg/week/HH.

3.8.3 Fish raising

Among the 32 households, one household owns a fish pond raising Indian fish and carp.

3.8.4 Livestock/fishes sold in the last 12 months

The average numbers of livestock sold per household in last 12 months are i) cattle (0.7 head), ii) buffalo (0.2 head) and iii) pig (0.3 head), respectively. As for fishes, 0.4 kg/HH of fishes were sold in the last 12 months, as summarized below.

Livestock/Fishes Sold in the Last 12 Months

Type	No.of heads sold		No.of HH sold	No.of heads sold per HH	
	Adult (a)	Young (b)		Adult (a)	Young (b)
1. Cattle	23	10	13	0.7	0.3
2. Buffalo	7	2	2	0.2	-
3. Goat	-	-	-	-	-
4. Pig	12	25	5	0.3	0.7
5. Chicken	2	-	1	-	-
6. Duck	-	-	-	-	-
7. Fish	13 kg (weight of fishes)		2	0.4 kg (weight of fishes)	

4. Estimated Marketed Volumes of Major Products by Village

Based on the results of the household interview survey, the total marketed volumes of major products from the village were estimated as shown in the following table.

Total major crops sold outside the village are 11,394 kg of rice, 20,722 kg of Job's tear, 2,194 kg of sesame. Total major NTFPs sold outside the village are 21,507 kg of palm fruits, 1,859 kg of paper mulberry, 867 kg of tiger grass, 203 kg of eagle wood, and 675 kg of wild vegetables. Total major livestock and fish sold outside the village are 42 heads of cattle, 13 heads of buffalo, 22 heads of pig, 4 heads of chicken, and 24 kg of fish.

Estimated Marketed Volumes of Major Products (Namtiao)

Description	3 Major Crops			5 NTFPs				
	Rice, **/	Job's tear	Sesame	Palm fruits	Paper mulberry	Tiger grass	Eagle wood	Wild vegetable
I. Total of Sampled 32 HHs								
- Volume harvested in 2003	79,674	11,259	1,195	11,665	1,008	470	110	-
- Volume sold in 2003	6,180	11,239	1,190	11,665	1,008	470	110	366
- Average price at sold in 2003 (Kip/kg)	1,428	2,874	4,143	2,198	4,402	1,537	8,182	410
- Form of products	paddy	grain	seed	seed (fruit)	dry bark	dry grass	dry wood	raw
- Unit	kg	kg	kg	kg	kg	kg	kg	kg
II. Total of the Village (59 HHs)								
- Total volume sold	11,394	20,722	2,194	21,507	1,859	867	203	675
- Sold within the village,*/ (estimated,**/)	0	0	0	0	0	0	0	0
- Sold outside the village (estimated,**/)	11,394	20,722	2,194	21,507	1,859	867	203	675

(continued)

Description	Livestock/Fish						
	Cattle	Buffalo	Goat	Pig	Chicken	Duck	Fish
I. Total of Sampled 32 HHs							
- Volume harvested in 2003	-	-	-	-	-	-	-
- Volume sold in 2003	23	7	-	12	2	-	13
- Average price at sold in 2003 (Kip/kg)	-	-	-	-	-	-	-
- Form of products/adult head	head	head	head	head	head	head	head
- Unit	head	head	head	head	head	head	kg
II. Total of the Village (59 HHs)							
- Total volume sold	42	13	-	22	4	-	24
- Sold within the village (estimated,*/)	0	0	-	0	0	-	0
- Sold outside the village (estimated,*/)	42	13	-	22	4	-	24

Note: */ estimated based on the results of the Venn Diagram Preparation,
 **/ upland rice + lowland rice (very little)

5. Income and Expenditure

5.1 Sources of major income

The interviewees were asked to enumerate major income sources no more than 5, and their annual amounts. Major income sources enumerated by the interviewees were i) selling livestock/poultry (17 households), ii) selling NTFPs (28 households), iii) selling field crops/vegetables (9 households), iv) remittance from family members (10 households), and v) private business (5 households), in order of amount of income. Average amounts of major income sources per household are presented as shown below.

Income Sources	No.of HHs	Amount of Annual Major Income (Kip/year) (a)	Average per HH (a)/32 (Kip/year/HH)
1. Selling livestock/ poultry products	17	72,820,000	2,275,625
2. Selling NTFPs	28	32,675,500	1,021,109
3. Selling field crops/ vegetables	9	30,630,000	957,187
4. Remittance from family members	10	22,530,000	704,063
5. Private business (trading, shop, etc...)	5	10,900,000	340,625

5.2 Major income per HH

Annual amounts of major income per household vary from 46,000 Kip/year to 36,900,000 Kip/year with an average of 5,924,859 Kip/year/HH (a total of 189,595,500 Kip/year by the 32 households).

Range of Cash Income	Kip/year/HH
1. Maximum	36,900,000
2. Minimum	46,000
3. Average	5,924,859

5.3 Major income of sample households

In order to grasp the typical major income per HH, three typical samples (high, medium and low levels) of major income per household are presented below.

Income Sources	Kip/year/HH
1. Selling livestock and poultry products	27,000,000
2. Remittance form family members	7,000,000
3. Selling fruits/ tree crops	1,600,000
4. Private business (trading, shop, etc.)	1,300,000
5. -	-
Total	36,900,000

Major Income of Typical Sample Household (Medium Level)

Income Sources	Kip/year/HH
1. Selling fruits	2,000,000
2. Salary from permanent job	1,650,000
3. Selling field crops/ vegetables	1,000,000
4. Selling fishes	1,000,000
5. Selling NTFPs	150,000
Total	5,800,000

Major Income of Typical Sample Household (Low Level)

Income Sources	Kip/year/HH
1. Remittance form family members	400,000
2. Selling NTFPs	60,000
3. -	-
4. -	-
5. -	-
Total	460,000

5.4 Items of major expenditure

The interviewees were asked to enumerate major expenditure no more than 5, and their annual amounts. Major expenditures enumerated by the interviewees were those for i) health (22 households) ii) education (16 households), iii) clothes (27 households), iv) food (30 households) and v) transportation/ travel (8 households), in order of amount of expenditure. Average amount of major expenditure item per household are shown below.

Average Amounts per Expenditure Item per HH

Expenditure Item	No. of HHs	Amount of Annual Major Expenditure (Kip/year) (a)	Average per HH (a)/32 (Kip/year/HH)
1. Health	22	22,576,000	705,500
2. Education	16	15,750,000	492,187
3. Clothes	27	15,125,000	472,656
4. Food	30	13,526,500	422,703
5. Transportation/ Travel	8	3,472,000	108,500

5.5 Major expenditure per HH

Annual amounts of major expenditure per household vary from 255,000 Kip/year to 9,700,000 Kip/year with an average of 2,361,531 Kip/year/HH (a total of 75,569,000 Kip/year by the 32 households).

Major Expenditure per HH

Range of Expenditure Amount	Kip/year/HH
1. Maximum	9,700,000
2. Minimum	255,000
3. Average	2,361,531

5.6 Major expenditure of sample households

In order to grasp the general future of expenditures per household, three levels (high, medium, and low) of major expenditure of typical sample households are selected as shown below.

Expenditure Items	Kip/year/HH
1. Education	8,500,000
2. Clothes	500,000
3. Health	300,000
4. Food	200,000
5. Social activities/ events	200,000
Total	9,700,000

Expenditure Items	Kip/year/HH
1. Health	1,600,000
2. Clothes	400,000
3. Food	250,000
4. Education	60,000
5. Tax payment	54,000
Total	2,364,000

Expenditure Items	Kip/year/HH
1. Loan payment	150,000
2. Food	50,000
3. Clothes	50,000
4. Social activities/ events	5,000
5. -	-
Total	255,000

5.7 Major investment of productive and fixed assets

The interviewees were asked to enumerate major investments of productive and fixed assets in the last year no more than 3, and their annual amounts. Major investments enumerated by the interviewees were those for i) transportation means (5 households) ii) livestock (3 households), and iii) private business (3 households), in order of amount of investment. On the other hand, among 32 households, 10 households did not invest any money for the last year. Average amounts per investment item per household are shown below.

Investment Item	No. of HHs	Amount of Last Year Major Investments (Kip/year) (a)	Average per HH (a)/32 (Kip/year/HH)
1. Transportation means	5	15,020,000	469,375

2. Livestock	3	5,250,000	164,063
3. Private business	3	4,620,000	144,375

5.8 Major investment per HH

Annual amounts of major investment per household vary from 10,500 Kip/year (excluding 10 households, who did not invest any money last year) to 13,320,000 Kip/year with an average of 1,583,864 Kip/year/HH (a total of 34,845,000 Kip/year by the 39 households).

Range of Investment Amount	Kip/year/HH
1. Maximum	10,500,000
2. Minimum	40,000
3. Average	2,440,519

5.9 Major investment of sample households

In order to grasp the general future of investment per household, three levels (high, medium, and low) of major investments of typical sample households are selected as shown below, excluding 10 households, who did not invest any money last year.

Investment Items	Kip/year/HH
1. Transportation means	8,320,000
2. Livestock	5,000,000
3. -	
Total	13,320,000

Investment Items	Kip/year/HH
1. Household appliance	1,590,000
2. Housing (improvement)	500,000
3. Land	150,000
Total	2,240,000

Investment Items	Kip/year/HH
1. Land	10,500
2. -	
3. -	
Total	10,500

6. Utilization of Credit/Loan

Among all the 32 interviewees, 7 households have borrowed money from relatives, 5

households of which have already paid off the loan and 2 households of which still have the remaining to be returned. The purposes for borrowing money are for medical treatment, private business, repairing house and purchase of assets. The borrowing amounts vary from 100,000 Kip to 1,650,000 Kip with an average of 671,429 Kip, with no interest.

In addition to the loan above, there is one borrower who borrowed money from others (other than bank, relative, neighbor/friend, trader, mutual aid group, etc.). The borrowing amounts is 1,000,000 Kip without interest. The future of the utilization of credit/loan is summarized below.

Utilization of Credit/Loan						
Possible Source	Number of Borrower	Purpose of Loan	Amount of Loan (Kip)	Monthly Interest (%)	Status of Loan	
					Paid off (Kip)	Remaining (Kip)
1. Bank	-	-	-	-	-	-
2. Cooperative	-	-	-	-	-	-
3. Relative	7	Medical treatment, Private business, repairing house and purchase assets.	4,700,000	-	2,050,000	2,650,000
4. Neighbor / Friend	-	-	-	-	-	-
5. Trader / Dealer	-	-	-	-	-	-
6. Mutual aid group	-	-	-	-	-	-
7. Others	1	Repairing house	1,000,000	-	-	1,000,000

7. Extension

Among the 32 interviewees, 12 (37%) have never received any training or technical advice from DAFO extension staff. The other 20 have received training or technical advice one to three times before, like 1 time (8 persons), 2 times (10 persons) and 3 times (2 persons), respectively, as summarized below.

Total HH interviewed	Have not received any training (HH)	Received training and technical advice				
		Total HH	Times of visit by the extension staff			
			1 time	2 times	3 times	4 times
32	12	20	8 HHs	10 HHs	2 HHs	-

B. HOUSEHOLD MEMBER SURVEY

Among the sampled 32 households for Household Interview Survey, a half of households (16 households) were further selected for Household Member Survey (HMS) (16 males and 16 females) for clarifying i) participation/ engagement of household members and ii) activities to make easy, the results of the HMS are summarized below.

8. Participation/ Engagement of Household Members

The participation of the household members in each activity can be defined as follows.

- (1) Home activities:
Females especially wives are responsible for fetching of drinking water, cooking, washing and sweeping the house. On the other hand, males are responsible for child / elderly care and house repair. Further, kitchen gardening activities are responsible by both male and female.
- (2) Farming activities (concerned low land rice cultivation):
Since, lowland rice cultivation is being practiced in very limited area, clear results regarding lowland rice cultivation activities are not obtained.
- (3) Slash and burn activities:
Both of males and females are responsible for all the slash and burn activities. However, if anything, females seem to play more important roles than males.
- (4) Livestock and poultry raising activities:
Both of males and females are responsible for all of the activities of livestock. However, if anything, males are more responsible for feeding and watering.
- (5) Fishing activities:
Females are responsible for all of fishing activities.
- (6) Forestry activities:
Both of males and females are responsible for collection of forest vegetables/ crops, and collection of fuel wood, while timber harvest and charcoal production are almost not being practiced among the interviewees.
- (7) Post-harvest & marketing activities:
Males are responsible for processing livestock and poultry products, fishes and forest vegetables. On the other hand, females are responsible for selling crops, livestock, fishes and forest vegetables.
- (8) Domestic business activities:

Females are basically responsible for the domestic business activities.

(9) Communication activities:

Males and females are responsible for attending community meeting, getting information from media and discussions among villagers, but the resolving in-village conflicts seems to be in charge of females.

(10) Religious / cultural activities:

Mostly females are responsible for religious / cultural activities.

Summary of Participation/Engagement of Household Member Survey (HMS) is presented below.

Summary of Participation/ Engagement of Household Member Survey

Activities	Usually, responsible		Usually, assistant		Sometimes		None		Total	
	M	F	M	F	M	F	M	F	M	F
Home activities										
1. Fetching of drinking water	1	15	11	1	3	0	1	0	16	16
2. Cooking	1	15	9	0	4	1	2	0	16	16
3. Washing	0	16	9	0	5	0	2	0	16	16
4. Sweeping the house	2	15	10	0	3	1	1	0	16	16
5. House repair	13	2	2	3	1	8	0	3	16	16
6. Child / elderly care	14	5	2	9	0	1	0	1	16	16
7. Kitchen gardening	9	7	5	6	1	2	1	1	16	16
8. Sewing and knitting	3	0	0	0	0	0	13	16	16	16
9. Shopping in market	3	2	0	2	10	10	3	2	16	16
Total	46	77	48	21	27	23	23	23	144	144
Farming activities										
10. Plowing	0	0	0	1	0	0	16	15	16	16
11. Seeding/ transplanting	1	1	0	0	0	0	15	15	16	16
12. Weeding	0	1	1	0	0	0	15	15	16	16
13. Application of chemical fertilizers	0	1	0	0	0	0	16	15	16	16
14. Harvesting	1	0	0	1	0	0	15	15	16	16
15. Repairing of farm	0	1	0	0	0	0	16	15	16	16
Total	2	4	1	2	0	0	93	90	96	96
Slash & burn activities										
16. Slashing	9	12	7	4	0	0	0	0	16	16
17. Burning	4	13	6	3	0	0	6	0	16	16
18. Clearing	8	13	8	3	0	0	0	0	16	16
19. Fencing	7	13	9	3	0	0	0	0	16	16
20. Seeding	8	13	8	3	0	0	0	0	16	16
21. Weeding	10	13	6	3	0	0	0	0	16	16
22. Harvesting	7	10	6	3	0	0	3	3	16	16
Total	53	87	50	22	0	0	9	3	112	112
Livestock & poultry raising activities										
23. Grazing control	5	5	2	1	0	3	9	7	16	16
24. Feeding	14	4	0	4	2	7	0	1	16	16
25. Watering	11	3	0	4	2	5	3	4	16	16
26. Collection/ production of fodder	5	4	0	1	2	4	9	7	16	16
27. Sweeping of livestock & poultry	9	5	0	3	0	6	7	2	16	16

stall											
Total	44	21	2	13	6	25	28	21	80	80	
Fishing activities											
28. Fish catching in dam reservoir	1	4	2	0	1	0	12	12	16	16	
29. Fish catching in river	2	13	2	0	3	3	9	0	16	16	
30. Fish production in pond	1	1	0	0	0	0	15	15	16	16	
31. Maintenance of boat / engine	0	0	0	0	0	0	16	16	16	16	
32. Maintenance of pond	1	1	0	0	0	0	15	15	16	16	
Total	5	19	4	0	4	3	67	58	80	80	
Forestry activities											
33. Collection of fuel wood	8	11	5	3	3	2	0	0	16	16	
34. Collection of forest vegetable/crops	13	8	0	2	3	5	0	1	16	16	
35. Timber harvest	1	1	0	0	0	1	15	14	16	16	
36. Charcoal production	0	1	0	0	0	1	16	14	16	16	
Total	22	21	5	5	6	9	31	29	64	64	
Post-harvest & marketing activities											
37. Threshing of cereals	7	5	4	3	0	1	5	6	16	15	
38. Processing livestock & poultry products	11	3	0	5	3	2	2	5	16	15	
39. Processing fishes	13	4	0	5	3	3	0	3	16	15	
40. Processing of forest vegetables/crops	12	5	0	5	3	2	0	3	15	15	
41. Selling crops	3	7	2	1	5	3	6	5	16	16	
42. Selling livestock & poultry products	2	4	1	0	2	1	11	11	16	16	
43. Selling fishes & fishery products	0	1	0	0	1	0	15	15	16	16	
44. Selling forest vegetables/crops	3	8	3	0	4	2	6	6	16	16	
45. Selling of fuel wood/charcoal	0	0	0	0	1	0	15	16	16	16	
Total	33	29	6	11	19	11	53	59	111	110	
Domestic business activities											
46. Rice mill	1	2	0	0	1	1	14	13	16	16	
47. Trading	1	6	3	0	4	4	8	6	16	16	
48. Shop keeping	0	1	0	0	0	0	16	15	16	16	
49. Handicraft	0	0	0	0	0	0	16	16	16	16	
Total	2	9	3	0	5	5	54	50	64	64	
Communication activities											
50. Attending community meetings	7	14	2	0	7	2	0	0	16	16	
51. Resolving in-village conflicts	1	5	1	0	3	2	11	9	16	16	
52. Getting information from TV	0	0	0	1	6	6	10	9	16	16	
53. Getting information from Radio	3	4	1	0	9	7	4	4	16	16	
54. Political discussion with others	6	8	3	1	4	4	3	3	16	16	
55. Official letter writing	0	5	0	1	0	0	16	10	16	16	
Total	17	36	7	3	29	21	44	35	90	90	
Religious / cultural activities											
56. Dance party	1	5	2	2	7	5	6	4	16	16	
57. Picnic	1	5	0	2	8	4	7	5	16	16	
58. Worship ceremony	1	9	1	1	11	6	3	0	16	16	
59. Sport events	0	1	0	0	0	1	16	14	16	16	
60. Playing music	0	0	0	0	0	1	16	15	16	16	
61. Drawing	0	1	1	2	0	3	15	10	16	16	
Total	3	21	4	7	26	20	63	48	90	90	

9. Activities Wanted to Make Easy

The interviewees were asked to choose up to 5 activities with priority which they want to make easy. The results of this question are summarized below.

Five Prioritized Activities to Make Easy

Male	Female
1. Weeding	1. Weeding
2. Child/ elderly care	2. Slashing
3. Harvesting	3. Harvesting
4. Cooking	4. Fencing
5. Slashing	5. Fish cashing in the river

Summary of Priorities to Make Easy

Activities	Activities wanted to make easy											
	1st		2 nd		3rd		4 th		5th		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Home activities												
1. Fetching of drinking water												
2. Cooking	2		1		3				1		7	0
3. Washing								1	1		1	1
4. Sweeping the house											0	0
5. House repair		1				1		1		1	0	4
6. Child / elderly care	3	1	2		2				3		10	1
7. Kitchen gardening		1		1					1		3	0
8. Sewing and knitting											0	0
9. Shopping in market											0	0
Farming activities												
10. Plowing											0	0
11. Seeding/ transplanting	1										1	0
12. Weeding											0	0
13. Application of chemical fertilizers											0	0
14. Harvesting							1	1			1	1
15. Repairing of farm		1									0	1
Slash & burn activities												
16. Slashing	2	4	2	3		1	1	1	1	1	6	10
17. Burning	1	1	1	1		1			1		3	3
18. Clearing				1						2	0	3
19. Fencing	1		1	1		1	2	2		4	4	8
20. Seeding		1				1					0	2
21. Weeding	2	3	4	3	4	5	3	2	1	1	14	14
22. Harvesting	1	2	2	2	2	5	2		1		8	9
Livestock & poultry raising												
23. Grazing control											0	0
24. Feeding					2		1				0	3
25. Watering											0	0
26. Collection/ production of fodder											0	0

27. Sweeping of livestock & poultry stall												0	0
Fishing activities													
28. Fish catching in dam reservoir												0	0
29. Fish catching in river			1	1		1		4		1		1	7
30. Fish production in pond												0	0
31. Maintenance of boat / engine												0	0
32. Maintenance of pond		1								1		1	1
Forestry activities													
33. Collection of fuel wood	1		1				1	1		1		3	2
34. Collection of forest vegetable/crops				1	1		2	2	1			4	3
35. Timber harvest												0	0
36. Charcoal production												0	0
Post-harvest & marketing activities													
37. Threshing of cereals				1	1		1					2	1
38. Processing livestock & poultry products												0	0
39. Processing fishes												0	0
40. Processing of forest vegetables/crops												0	0
41. Selling crops										1		0	1
42. Selling livestock & poultry products												0	0
43. Selling fishes & fishery products												0	0
44. Selling forest vegetables/crops												0	0
45. Selling of fuel wood/charcoal												0	0
Domestic business													
46. Rice mill	1											1	0
47. Trading							1	1				1	1
48. Shop keeping												0	0
49. Handicraft												0	0
Total	15	16	15	16	15	16	15	16	12	12			

Table & Figures

Table V6-1 Meteorological Data (Namtiao)

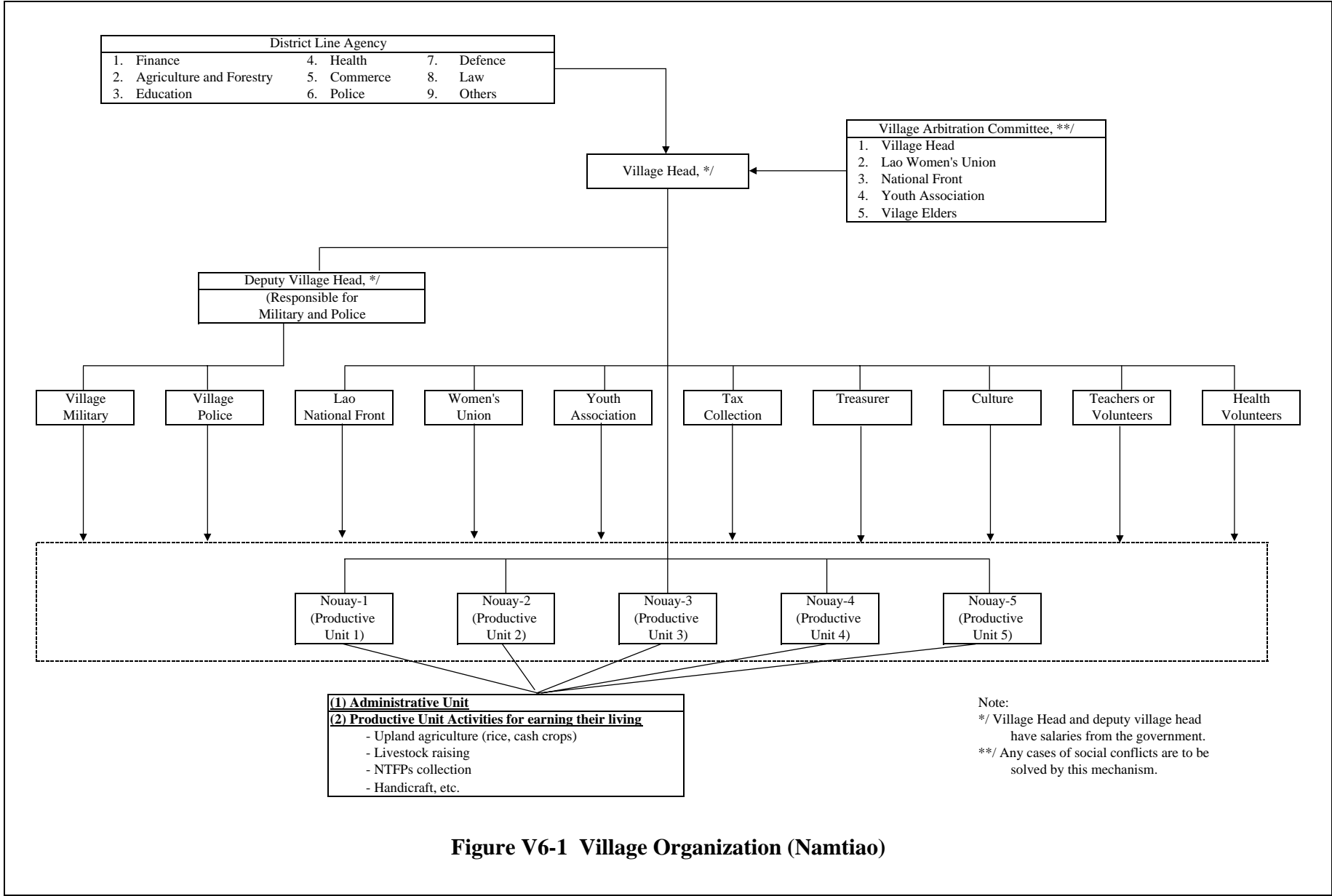
Rainfall at Sayaboury Station													(unit: mm)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1993	0.0	0.2	96.3	54.3	160.6	121.9	287.4	106.0	262.9	103.9	0.0	0.3	1,193.8
1994	0.0	20.8	169.5	50.3	226.2	160.7	174.3	256.2	320.5	11.8	19.3	45.4	1,455.0
1995	0.4	0.0	32.2	81.3	109.0	65.0	371.6	361.6	165.2	122.8	73.3	0.3	1,382.7
1996	0.0	13.2	53.5	124.1	48.4	208.4	211.6	263.6	252.0	67.7	58.4	0.0	1,300.9
1997	0.0	0.0	92.5	97.5	100.1	44.1	231.1	153.6	222.3	77.8	22.7	0.0	1,041.7
1998	3.3	3.9	10.9	158.6	151.9	164.7	165.1	136.6	117.2	56.7	4.7	0.0	973.6
1999	2.4	0.0	26.0	123.9	313.4	241.3	127.1	232.4	231.9	121.0	29.2	11.4	1,460.0
2000	0.0	26.1	7.2	129.5	223.1	177.1	172.6	60.1	310.0	89.7	5.5	0.0	1,200.9
2001	1.5	0.0	156.4	74.1	181.2	132.2	236.1	351.0	330.5	134.3	13.5	0.0	1,610.8
2002	10.9	2.4	6.7	32.3	237.3	54.7	172.9	224.0	293.9	171.8	117.4	35.6	1,359.9

Maximum Temperature at Sayaboury (Monthly Average)													(unit: °C)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
1999	28.5	31.5	35.3	32.7	30.8	30.7	31.6	29.7	30.1	29.3	28.7	23.7	
2000	29.2	29.0	33.0	33.3	30.7	31.2	30.7	30.8	29.6	30.1	28.4	28.3	
2001	29.7	31.6	30.3	35.3	30.4	31.5	29.8	30.9	31.0	30.3	27.1	27.3	
2002	27.2	31.5	33.3	35.3	32.0	31.8	29.9	29.9	30.0	30.1	27.1	27.3	
2003	26.4	30.2	30.9	34.5	34.3	31.3	31.6	31.1	31.0	31.1	30.4	27.4	

Minimum Temperature at Sayaboury (Monthly Average)													(unit: °C)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
1999	14.6	15.2	16.9	22.9	23.4	24.0	24.4	23.6	23.4	21.7	18.8	11.8	
2000	13.5	14.8	16.4	21.6	23.1	24.1	23.7	23.7	22.6	21.7	16.9	15.7	
2001	15.2	15.1	20.0	22.5	23.4	23.9	24.0	24.0	23.2	22.6	15.8	16.3	
2002	14.1	16.6	18.7	20.8	23.5	24.5	24.2	24.0	23.3	21.0	19.0	18.1	
2003	15.7	16.4	18.2	21.9	23.5	24.0	23.8	24.1	23.4	22.2	17.4	13.8	

Mean Temperature at Sayaboury (Monthly Average)													(unit: °C)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
1999	20.7	22.9	25.3	26.7	26.2	26.6	27.3	26.0	25.9	24.8	22.7	16.8	
2000	19.9	20.7	23.7	26.4	25.9	27.1	26.6	26.6	25.3	25.2	21.5	20.6	
2001	21.3	22.5	24.3	28.0	26.1	26.9	26.3	26.6	26.2	25.7	20.8	20.6	
2002	19.4	22.6	24.8	27.0	26.9	27.8	26.7	26.8	26.8	24.7	22.5	21.6	
2003	19.9	21.6	23.5	27.0	27.9	27.2	27.0	27.0	26.2	25.9	22.7	19.0	

Source: Department of Meteorology, Ministry of Agriculture and Forestry



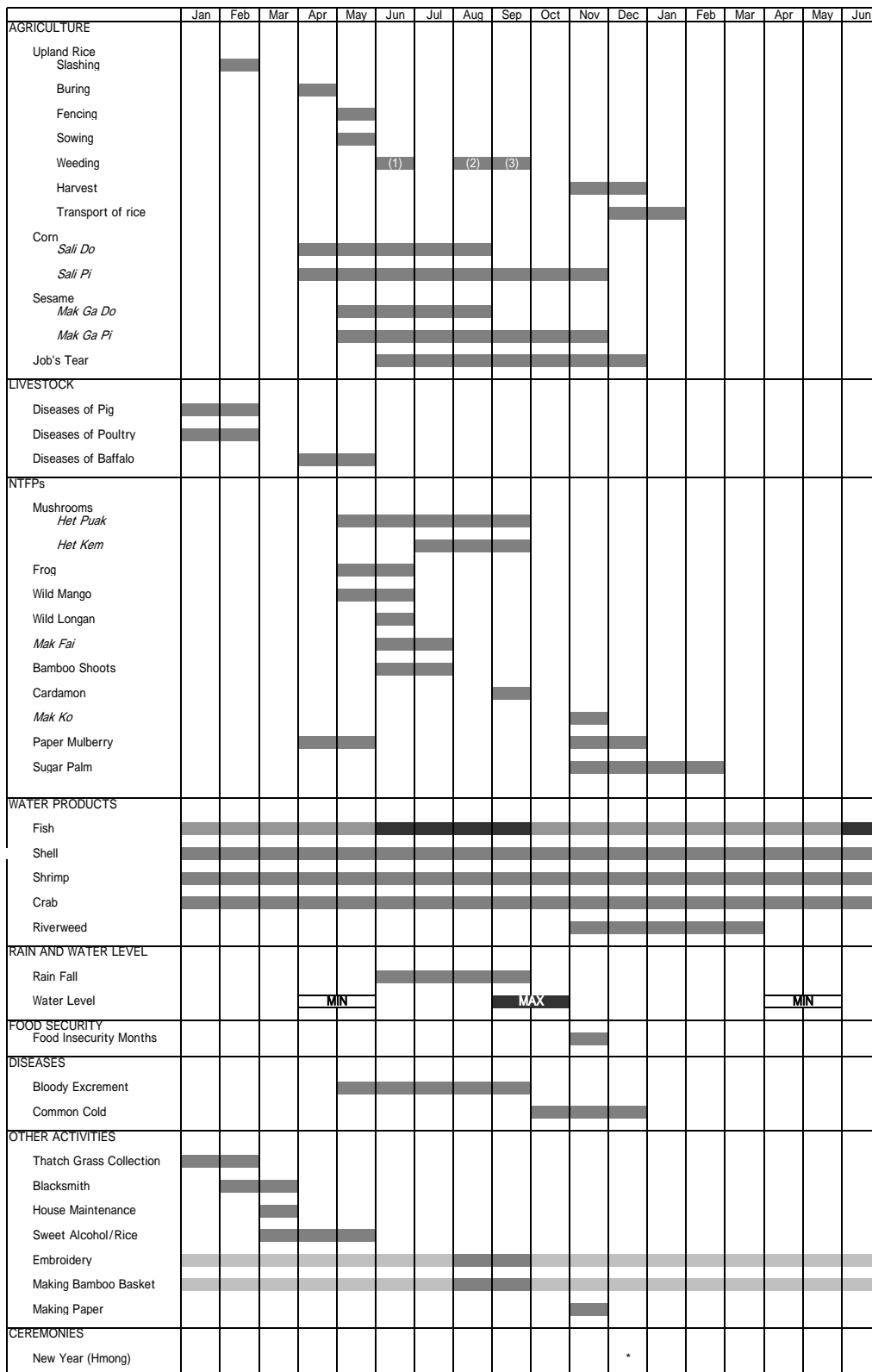


Figure V6-2 Seasonal Calendar (Namtiao)

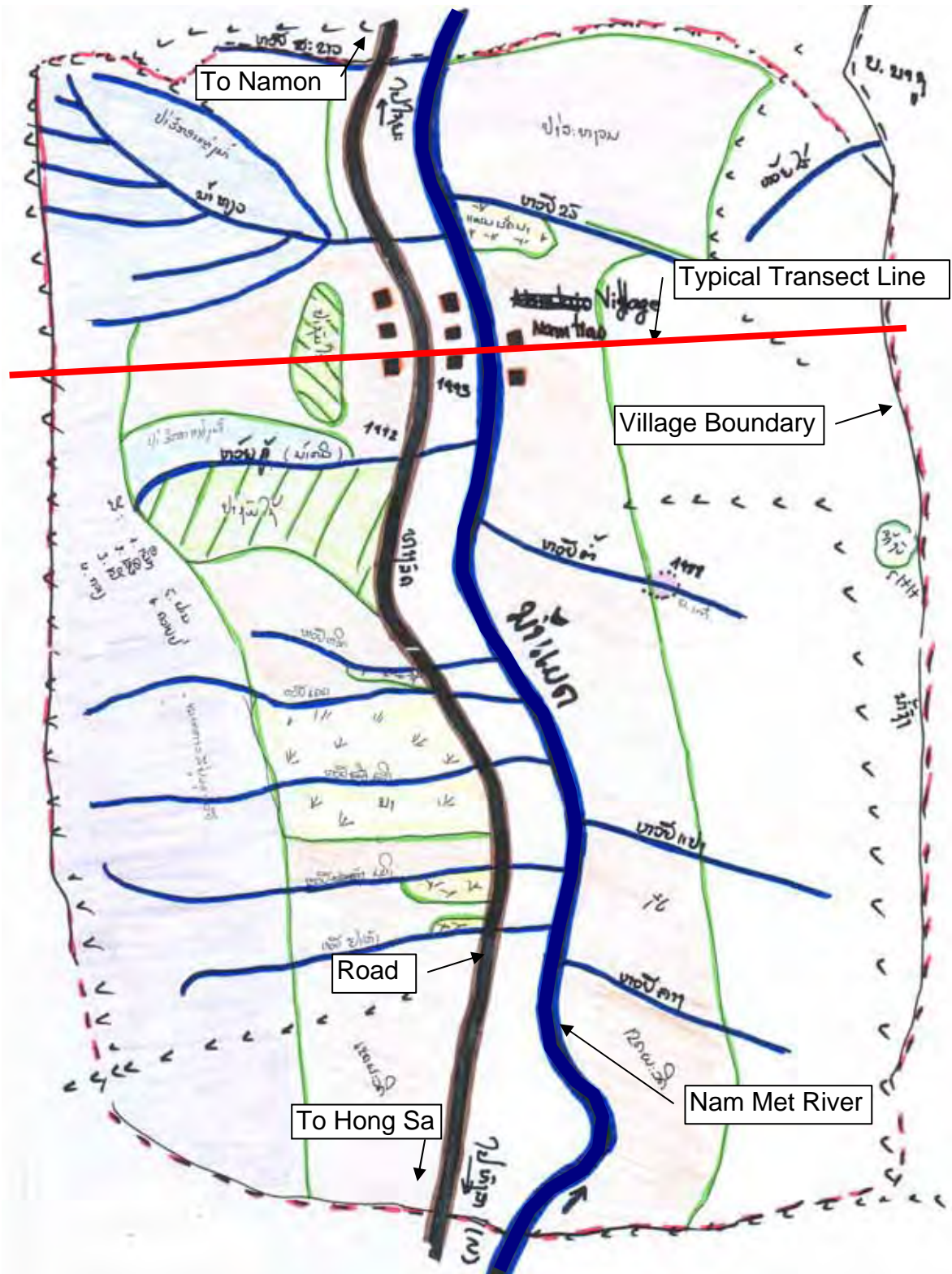


Figure V6-3 Resource Map (Namtiao)

Category	Conservation Forest / Watershed Forest	Shifting Cultivation (Production Forest)	Met River & its circumference	Road and Habitat	Community Forest	Cogon Forest (Pa Dang mountain range)
(in Lao)	Pa SaNgoan / Pa Pong Khan Len Nam	Pa Phalit	Nam Met		Pa Somsai	Pa Nha Kha
Transect Line on Resource Map						
Activity	<p><u>Trees</u> (Cutting is prohibited)</p> <p>Animals (Hunting is prohibited) tiger bear monkey deer (<i>kwang</i>) lizard (<i>laen</i>) turtle birds mole <i>on</i> (a kind of rat) wild pig</p> <p><u>NTFPs</u> (not collected) rattan bamboo shoots cardamon mushrooms wild mango wild longan <i>mak ko</i> "Mak fai" (sour berry/ /rambi)</p>	<p><u>Shifting Cultivation</u> upland rice corn sesame cassava job's tear</p> <p><u>Livestock</u> cattle(after harvest)</p> <p><u>Collecting (fallow land)</u> rattan bamboo shoots cardamon</p> <p><u>Animals (fallow land)</u> wild pig deer (<i>kwang</i>) <i>men</i> rats</p>	<p><u>Fishing</u> <i>pa pao</i> <i>pa chat</i> <i>pa moon</i> <i>pa beuk</i> catfish <i>pa kot</i> <i>pa hian</i> <i>pa laat</i></p> <p><u>Collecting</u> shrimp crab riverweed</p> <p><u>(along riverside)</u> paper mulberry bamboo shoots</p>	<p><u>Embroidery</u> <u>Bamboo Basket</u></p> <p><u>Livestock</u> cattle pig poultry</p> <p><u>Fruit</u> jackfruit longan mango banana pineapple guava</p> <p><u>Vegetable</u> <i>pak gaat</i> onion garlic</p> <p><u>Collecting</u> frog bamboo shoots mushroom</p>	<p><u>Trees</u> (Cut for house or boat)</p> <p><u>Animals</u> (Hunting is prohibited) monkey deer (<i>kwang</i>) lizard (<i>laen</i>) turtle birds mole <i>on</i> (a kind of rat) wild pig</p> <p><u>NTFPs</u> rattan bamboo shoots cardamon mushrooms sugar palm wild mango "mak fai" (sour berry/rambi)</p>	<p><u>Vegetation</u> <i>nyaa khaa</i> (a kind of cogon, <i>imperata cylindrica</i>) <i>nyaa nyuu</i> (a kind of cogon) <i>mai ko</i></p> <p><u>Animals</u> tiger bear monkey <i>kang</i> (a kind of monkey) birds</p>
Problems	<p>Too steep and far to use</p> <p>Too far to watch for illegal hunting or collecting</p>		<p>Fishes have decreased in number.</p> <p>Water level during the dry season has decreased.</p>			<p>Villagers have tried raising cattle and buffalo here but tigers ate more than 30 heads.</p> <p>Forest fires during the dry season.</p>
Others	<p>Beautiful virgin forest</p> <p>Tigers and bears still live in the forest.</p>	<p>About 30% of Pa Phalit has never been used for shifting cultivation.</p>				<p>Tigers and bears live in the forest.</p> <p>Used for shifting cultivation during 2nd Indochina war.</p>

Figure V6-4 Transect (Namtiaio)

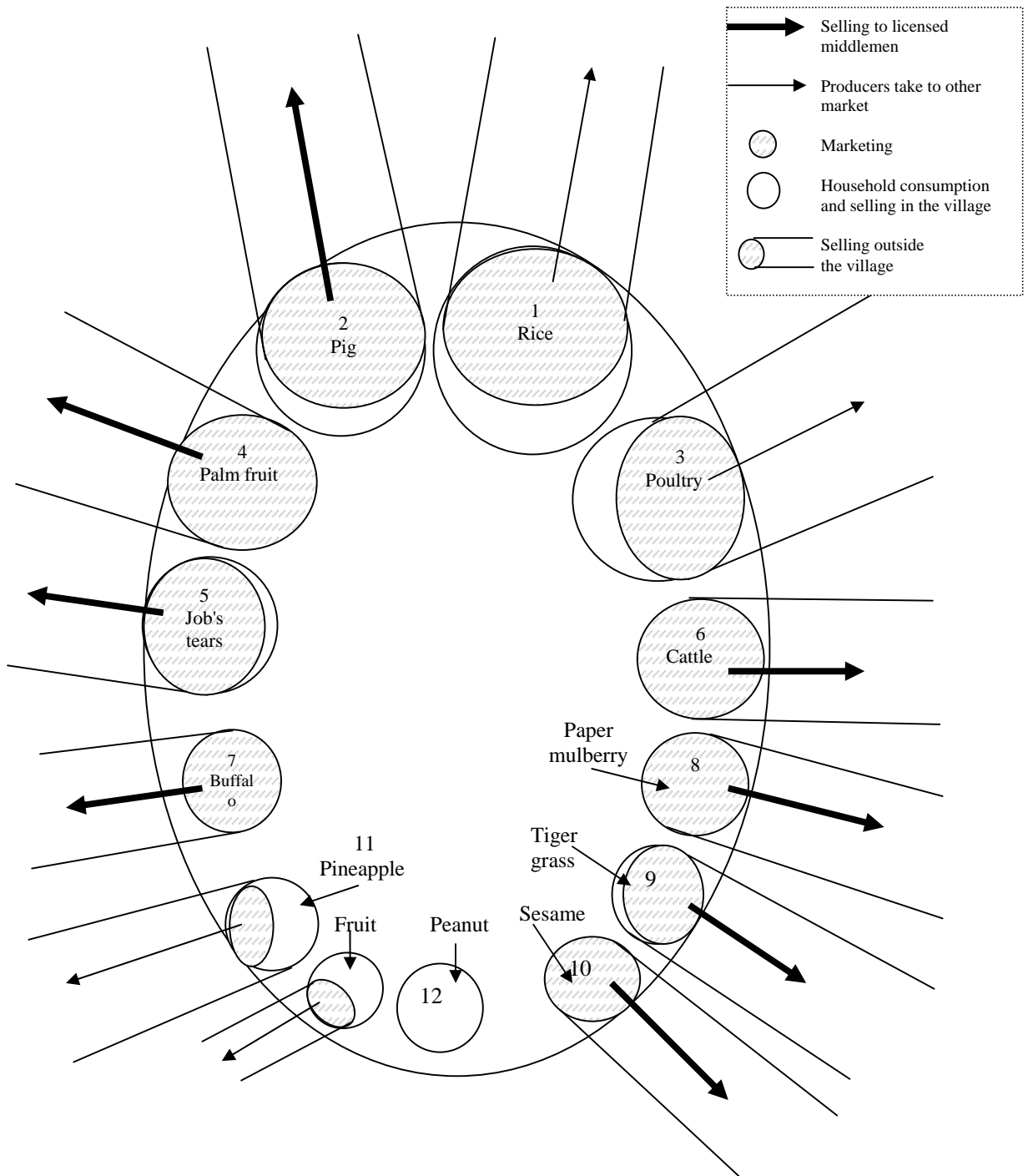


Figure V6-5 Venn Diagram of Major Products by Male Group (Namtiao)

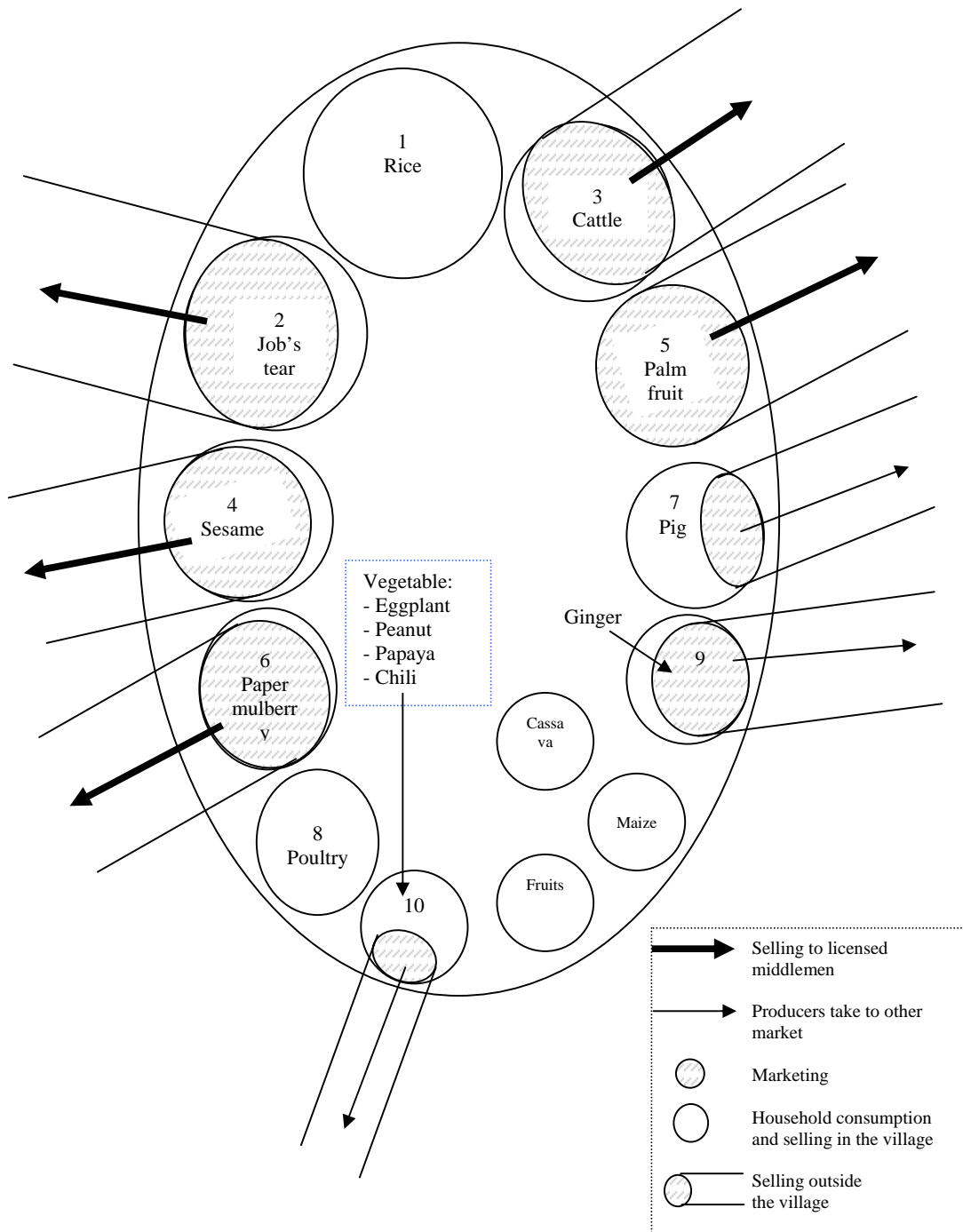


Figure V6-6 Venn Diagram of Major Products by Female Group (Namtiao)

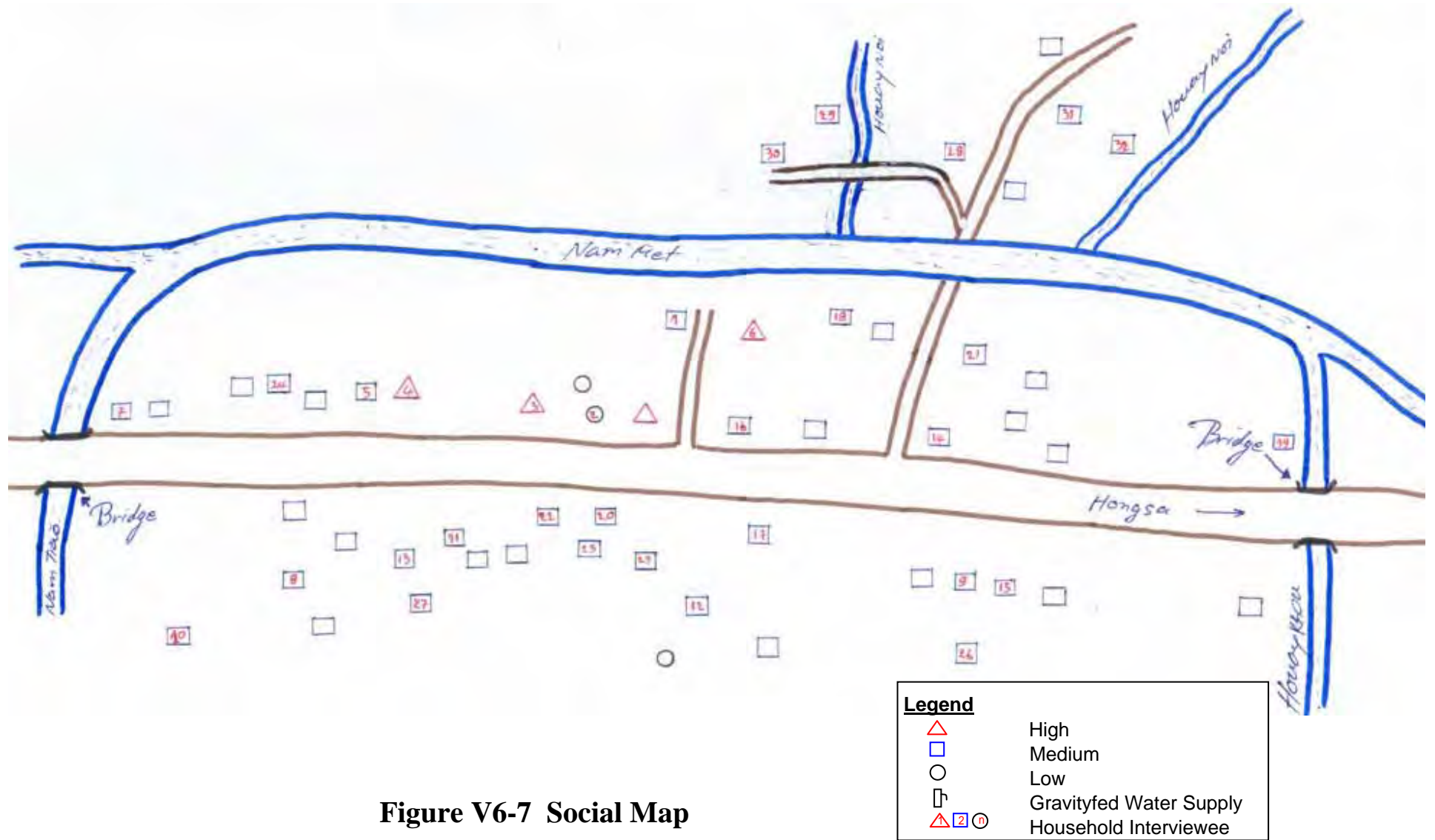


Figure V6-7 Social Map