

Village-3: Samton

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

Village 3: Samton Village

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Feature of the Village (Samton)

(Total HH: 77, Population: 471)

(1) Composition of the ethnic group:

The composition of the ethnic group is 99.9% of Lao Theung and 0.1% of Lao Loum.

(2) Drinking water:

Due to topographical situation, a piped water system has not been developed in the village. The villagers depend on rivers, sources of streams or open dug wells for drinking water. This may be one of the main reasons that many households mainly live in “*Sanam*” (there are 9 field residential areas in the village)

(3) Rice availability:

It is estimated that 51.4% of households (40 households among a total of 77 households) face rice shortage for about 5.6 months.

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

Total rice production and consumption in the village is estimated at 131,500 kg/year and 152,000 kg/year, respectively. The balance of annual paddy production and consumption is negative, about 20,500 kg of rice shortage.

(5) Sources of major income:

Sources of major income are i) livestock (3,216,000 Kip/HH) and ii) NTFPs (812,000 Kip/HH), amounts of which are very differ from other sources of income like private business (223,000 Kip/HH), field crops (197,000 Kip/HH), and salary (182,000 Kip/HH).

(6) Estimated marketed volumes of major products:

The marketed volumes of paper mulberry and tree bark are the second largest among the 8 villages. Marketed number (heads) of goat is the highest 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	673	12) Cattle	head	18
2) Job's tear	kg	2,191	13) Buffalo	head	33
3) Sesame	kg	1,740	14) Goat	head	75
4) Paper mulberry	kg	14,430	15) Pig	head	42
5) Tree bark	kg	7,946	16) Chicken	head	207
6) Tiger grass	kg	1,756	17) Duck	head	9
7) Bamboo shoot	kg	-	18) Fish, **/	kg	-
8) Palm fruit	kg	-			
9) Eagle wood	kg	227			
10) Mushroom	kg	-			
11) Wild vegetables,*/	kg	-			

Note: */ Including rattan shoots.

PART 1 VILLAGE PROFILE SURVEY

Survey Period: 29 April to 01 May 2004

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

1. General Information

1.1 Location

Samton village is located in Viengkham district 202 km from Luang Prabang (4 hrs by car), 59 km from Muang Ngoi (1.5 hrs by car), and 10 km from Viengkham (20 minutes by car).

1.2 History of the village

History and major events related to Samton village is summarized below.

- 1971-1976: National Road No.1 was constructed.
- 1977: 8 households moved from Pakseng district.
- Middle of 1980s: Villagers cut trees along major streams and their water level began to decrease.
- 1987: Three (3) mango trees (Samton is named after these trees) were died.
- 1992: Samton village stopped accepting newcomers because of land scarcity.
- 1995: Rats ate all crops.
- 2004: Main road was rehabilitated.

1.3 Demography

The village has 77 households and a population of 471 habitants as of 20 September 2003. The average population is young with 51.2 % of the population under the age of 14. Available labor population (15~49) occupies 40.1 % of the total population. Female represents 53.5 % of the population as shown below.

Age Structure (as of 20 September 2003)

Age	Female	Male	Total	(%)
0 ~ 5	55	41	96	(20.4)
6 ~ 14	78	67	145	(30.8)
15 ~ 29	56	47	103	(21.9)
30 ~ 49	43	43	86	(18.2)
50 and above	20	21	41	(8.7)
<u>Total</u>	<u>252</u>	<u>219</u>	<u>471</u>	(100)

Source: Village head (29 April 2004)

The village population comprises all Lao Theung group except for only one household of Lao Loum as shown below.

Ethnic Structure

	Female	Male	Total	HH	(%)
Lao Loum	3	1	4	1	(0.1)
Lao Theung	249	218	467	76	(99.9)
Lao Sung	0	0	0	0	(0)
<u>Total</u>	<u>252</u>	<u>219</u>	<u>471</u>	77	(100)

Source: Village head (29 April 2004)

1.4 Organizational structure for administrative control

The village is administrated by a village head and two deputies. Samton village has 4 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 units’ 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. Samton has a bit different situation. The party secretariat is overall supervising the village affairs, due to may be political reasons. The Village Arbitration Committee is composed of i) Village Head, ii) Village Police, iii) Village 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 Samton 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. Lichanh
2) Deputy Village Head (1)	Mr. Sichang
3) Deputy Village Head (2)	Mr. Somphone
4) Head of Lao National Front (Neo Hom)	Mr. Bounthone
5) Head of Women’s Union	Ms. Dee
6) Head of Youth Association	Mr. Siphanh
7) Head of Council of Elder’s	Mr. Bounhing

8) Head of Village Police	Mr. Somchinh
9) Head of Village Army	Mr. Ka
10) Village Secretary of the party	Mr. Somphaeng

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

None.

1.6 Food security

10 families have no stock of rice in December and January. Another 10 families have eaten up all stock of rice in March and April. Relatives help such poor families by offering seasonal works (2.5kg of rice or 6,000 Kip per day) or just give rice to them. Rice deficiency doesn't mean they face a serious food deficiency because corn and cassava are still available.

1.7 Illiteracy rate

The illiteracy rate is estimated at 5~6 %. Illiterate rate is higher among the old.

1.8 Major diseases

Major diseases and their recent situation are summarized below.

- Malaria: from June to September. Malaria patients sharply decreased compared with five years ago. One of the reasons is mosquito nets were provided three years ago. Now many children in the village drink medicine against malaria so only a few cases of malaria are found for a year.
- Diarrhea: from March to June. Health advisers visit this village a couple of times a year for last 2-3 years. Now many people have stopped drinking un-boiled water and diarrhea patients got decreased.
- Lung diseases: Many old people suffer from lung diseases because of their long smoking history. About 80% of men smoke but most women don't in the village.
- Common cold: During cold season.
- Stomachache: Many men suffer stomachache because they drink too much alcohol.
- Deficiency of iodine: Not found in the village.
- Eye diseases: from August to September

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

i) Cooperative works

*Women's Union: Women in the village cooperatively keep 1.0 ha of shifting cultivation since 2001. They produce and sell 1.7 ton of rice a year and can buy 6 heads of goats with the money. They already sold more than 2 million Kips and the money were used for buying fishing nets and helping building houses. They have 22 heads of goats now. Youth Association also tried similar project but it failed.

*Slash and burn cultivation: The way of cooperative works on slash and burn cultivation in Samton is a little bit different from those in Pakseng and Hat Houay. Its cooperate unit is “*Nouai*”. Each “*Nouai*” works for all of its members. This system benefits to small (normally poor) families.

*Others: Building house, wedding, diseases and funeral.

ii) Ceremony

*Lao Theun New Year “Poppi”: December

2. Livelihood and Natural Resource Management

2.1 Topography

Habitat area of Samton is spread along a flat mountain ridge and its elevation is about 800meters high. Two streams (Houay Sa Nyao and Houay Yang) flow through the bottom of valleys parallel to the habitat area (Houay Yang flows at 600 meters high). Samton has little flat area suited for wetland rice.

2.2 Meteorological data

Annual rainfall records at Luang Prabang station 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 i) monthly rainfall records at Luang Prabang (1993-2002), ii) monthly rainfall of Viengkham district station (1999-2003), and the maximum, minimum, and mean monthly average temperatures at Luang Prabang station (1999-2003) are presented in **Table 1**.

2.3 Land allocation

Government regulated one household to cultivate at three plots in 1997. One plot is between 1~2 ha.

According to DAFO staff, the next step for land allocation should be the preparation of the documents, which 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 should be a section for drawing a sketch of the plot with its measurements. However, this procedure is not undertaken in this village.

2.4 Land classification and distribution of each land use category

2.4.1 Data of PAFO

There were some unclear understanding of the land use categories between the government and villagers. Further, the areas of each category were mostly estimated using 1/50,000~1/100,000 topographical maps through simple site investigation.

According to the data from Provincial Agricultural and Forestry Office (PAFO) of Luang Prabang, the areas of each category of Samton village is as shown below.

Area by Land Classification (as of 1997)

Land Classification	Area (ha)
A. Agricultural Land	223
B. Forest Land	
1) Conservation Forest “ <i>Pa SaNgouan</i> ”	5.1
2) Protection Forest “ <i>Pa Pongkhanh</i> ”	242
3) Production Forest “ <i>Pa Phalith</i> ”	250
4) Rehabilitated Forest “ <i>Pa Feumfu</i> ”	305
5) Degraded Forest “ <i>Pa Sutsom</i> ”	173
6) Others	36.9
Total Village Area	1,335 */

Source: PAFO of Luang Prabang (obtained during the survey)

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. The information about the areas of Teak plantation and Eagle wood plantation, Conservation forest, Production forest, and Degraded forest were not obtained from the village head.

Area by Land Classification by the Village

Land Classification	Area (ha)	**/
A. Agricultural Land		
1) Low land paddy	0	
2) Upland field “ <i>Hai</i> ”+ “ <i>Suan</i> ”	262.5,*/	
3) Teak plantation	n.a.	
4) Eagle wood plantation	n.a.	
B. Forest Land		
1) Conservation Forest “ <i>Pa SaNgouan</i> ”	n.a.	
2) Community Production Forest “ <i>Pa Somsai</i> ”	25	
3) Production Forest “ <i>Pa Phalith</i> ”	n.a.	
4) Degraded Forest “ <i>Pa Sutsom</i> ”	n.a.	
5) Cemetery “ <i>Pa Sa</i> ”	1	
C. Residential area	1	

Source: Village head (29 April 2004)

Note: */ 87.52 ha in 2003

**/ 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) “*Hai*” and “*Suan*”: (262.5 ha in total and 87.52 ha in 2003)

Soil of productive land “*Din Phalit*” began deteriorating in the middle of 1990s. Not only upland rice but sesame and Job’s tear cannot bear seeds well in some part of productive land. Soil deterioration in productive land compelled 12 households to

borrow land for shifting cultivation in other villages nearby - Ban Pokon (Lao Sung), Ban Umbrin (Lan Sung) and Ban Tankok (Lao Theun) in 2004. Rent is 150,000 Kip/ha/year.

(2) Teak plantation

There had been no teak trees in Vieng Kham district until DAFO introduced their saplings from Luang Prabang district in 1992. Now 4 households plant total 500 teak trees around habitat area.

(3) Eagle wood plantation

Villagers have just begun to plant Eagle wood this year. According to key informants, villagers will plant more Eagle wood next year (2005).

(B) Forest land¹:

(1) "*Pa Somsai*" (Community Production Forest): (10+15ha)

"*Pa Somsai*" in Samton spread along both sides of habitat area. "*Pa Somsai*" in the south has once been used as slash and burn cultivation area in the year of first settlers came to the village in 1977. "*Pa Somsai*" in the north has never been used for slash and burn cultivation. "*Pa Somsai*" in the village is not deep and trees are not so high. Villagers can cut trees for building house and collecting firewood. Main trees used as house material are "*Mai Mii*", "*Mai Sai*", "*Mai Kibe*" and "*Mak Mu*". They can cut any species. Big trees near the habitat area have already cut recently.

They collect bamboo shoots, mushrooms and bush shells and keep goats, buffalo and cattle in the forest. Many villagers call "*Pa Somsai*" as "*Pa SaNgouan*" (Protection Forest).

(2) "*Pa Sa*" (Cemetery forest): (1 ha)

"*Pa Sa*" located in the south area of "*Pa Somsai*". Typical trees in "*Pa Sa*" are "*Mak Mu*" and "*Mak Mii Kai*".

(C) Residential area: (1.0 ha)

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

2.5.1 Farming activity

Each household is allocated basically 3 plots (1.0 ha per plot) for 3-year rotation shifting cultivation system. Santon village has four (4) administrative/productive units "*Nouays*" and they further divide each "*Nouay*" into 2 sub-"*Nouays*", (totally 8 sub-"*Nouays*") for practicing shifting cultivation unit. They call it "*Nouay Hai*", which is composed of 5 to 8 households.

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

¹ Italics are Lao names of trees obtained from the village key informants, common/or genus/or family names of which could not be identified.

Job's tear are major cash crops and corn, taro and cassava are also important as substitutes for rice for the people during rice deficit period from August to October 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. 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*". 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:

If weather is good, 1 "*kron*" (10 kg) of rice seeds produce 15 "*pao*" (bags) (30 kg/bag x 15 = 450 kg) of rice. Normally 1 ha upland rice field needs 50 kg of rice seeds. The yield is 2.25 ton/ha. Of course, upland rice is greatly affected by rain. The average harvest is only 1.2 ton/ha in 2003.

Now burning day is regulated by DAFO depending on weather forecast and it was on 10th April this year. DAFO inform villages the burning date in advance by documents in December. Cropping calendar for upland rice is generally like slashing in February, burning in March, sowing in April-May, and harvest in October.

(2) Corn

They sow corn one month after burning forest. Harvest months are August and September. They tried using F1 corn seeds before. But they don't want to use any more because they have to buy expensive seeds every year. Corn production is increasing year by year for food security. They don't feel any problems on planting corn.

(3) Cassava

All households in the village produce cassava. They plant in March and April and dig out in November. Each stem is planted every 1.5 meters. And one stem produces 5~6 kg at fertile and 1~2 kg at infertile land per year. Cassava production is also increasing for food security reason. They don't feel any problems about planting cassava.

(4) Sesame (2 species)

"Mak ga pi": "*Mak ga pi*" is planted in May and harvested in December. "*Mak ga pi*" doesn't make seeds at infertile land. Despite of this uncertainty, villagers plant "*Mak ga pi*" because they are not busy in its harvest month of December.

"Mak ga don": "*Mak ga don*" is planted in April and harvested in August. "*Mak ga don*" can grow and make seeds even at infertile land. But the harvest month of August is one of the busiest months for villagers. Harvest of both species are 40~300kg/ ha depending on weather. But "*Mak ga pi*" tend to be lower productivity because of its sensitivity against soil fertility.

(5) Job's tear

All households plant Job's tear. They plant in May and harvest in December. Job's tear doesn't bear seeds at infertile land.

(6) Paper mulberry

They plant paper mulberry from March to July and harvest from February to April of the third year. About 50 households plant paper mulberry near streams. They don't feel any problems about planting paper mulberry.

2.5.3 Livestock

The numbers of each livestock in the village as of December 2003 are summarized below.

Livestock	Number (Heads)
1) Buffalo	74
2) Cattle	36
3) Pig	190
4) Goat	103
5) Poultry	764

(1) Buffalo: 74 heads (35 heads in April 2004)

Buffaloes are easily infected with epidemics and die. A lot of buffalo died in the village in 1995. But less number of buffalo died for last several years due to injection of every six month. 10 households sold about 30 heads of buffalo last year and bought rice, medicines or built house. Many villagers hope to raise buffalo but cannot because buffalo is too expensive for villagers to buy. Middle class households have just begun to raise buffalo this year.

(2) Cattle: 36 heads

Cattle suffer from epidemic diseases less than buffalo or pigs. So it's easier to grow cattle.

(3) Pig: 190 heads

Pigs easily suffer from diseases at any season of the year. One household can keep 10 heads of pigs at most because it takes long time to prepare feeds of pigs every day. Almost all pigs died from epidemics at the habitat area along the road in February 2004 but not so many have died at pastures near Houay Sa Nyao. Middle class households in the village sell small pigs and buy buffalo or goats these days. They feel it easier to raise buffalo or goats than pigs.

(4) Goat: 103 heads (More than 250 heads in April 2004)

Except cooperative growing by Women's Union of the village, they began to raise goats just last year (2003). DAFO staffs have been advising villagers to raise goats for a couple of years. They keep 103 heads of goats last year. The number has sharply increased to more than 250 heads in April 2004.

Villagers prefer goat and buffalo to pigs as livestock because it's easier to keep them (no need of feeding and less diseases). And villagers buy goats more than buffalo due to their cheap price. A female goat bears a couple of babies twice a year (March and

October).

- (5) Poultry: 764 heads
Poultry die from epidemics during hot season like March and April.

2.6 Collecting NTFPs²

Major NTFPs collected in the village are as follows.

NTFPs collected in the Village

Major NTFPs	Description
1) Paper mulberry	Average household collects 200 kg of paper mulberry and sale around 2,000 Kip/kg. Paper mulberries grow along streams, especially near Houay Sa Nyao.
2) Tree bark	They collect “tree bark” all the year and sell around 2,000~2,500 Kip/kg. “Tree bark” is vegetated near streams (Houay Sa Nyao and its tributaries).
3) Tiger grass	Tiger grass is collected near river/stream sides. Its price is 1,500~2,000 Kip/kg
4) “Ae”	They collect “Ae” in streams in October. “Ae” lives in Houay Sa Nyao more than Houay Yang.
5) Worm in bamboo “ <i>Me Nomai</i> ”	They collect “ <i>Me Nomai Hok</i> ” (<i>Dendrocalamus</i> sp. Gramineae) in September and October for sale. Its price is 12,000~20,000 Kip/kg. Village chairman told that the government prohibit collecting them but villagers still doing for their income.
6) Bamboo shoots	They collect bamboo shoots in Community Production Forest, Upland fallow lands or any other places they find. Harvest season for bamboo shoot is May and June.
7) Mushrooms	Mushrooms are collected in Community Production Forest during the rainy season.
8) Natural fruits	“ <i>Mak Fai</i> ”, wild mango, “ <i>Mak Ko</i> ” are collected in Community Production Forest and habitat area.
9) Medical plants	According to key informants, they often use several kinds of plants as herbal medicine.
10) Bee honey/nest/egg	They collect honey for house consumption in April.
11) Hunting and trapping	Hunting is prohibited in the village. But villagers hunt wild pigs, which come to eat their crops. Villagers have to pay 30,000 Kip as a tax to the village for every wild pig they catch.
12) Ant eggs	They collect ant eggs for house consumption in May.
13) Bush shell	They collect “ <i>Hoi Ban</i> ” and “ <i>Hoi Jian</i> ” in June and July in Community Production Forest. They can find a lot of bush shells after rain and collect for house consumption.

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.

14) “ <i>Kua Samhan</i> ”	They collect “ <i>Kua Samhan</i> ” in Community Production Forest throughout the year. Price is 500 Kip/kg.
15) Cardamon	They collect cardamon in Community Production Forest in August and sell about 8,000~10,000 Kip/kg. Its price goes up to 30,000 Kip/kg in some years. But it’s difficult to find cardamon in the village.
16) Benzoin	Very little
17) Rattan	Rattans grow in the village but traders from Viengkham don’t buy them.

2.7 Use of water products

(1) Fishing³

There is a village regulation on fishing in Houay Sa Nyao, where some of the villagers nearby also come to catch fishing. The village regulation prohibit to catch fishes with i) poisons (including natural poison), ii) explosives, iii) “*Soon*” (a mean of fishing). Villagers from other villages have to obey to this regulation if they catch fishes in Samton.

Houay Sa Nyao is a small stream but has many kinds of fishes like “*Pa Mom*”(Scaphiodontichtys sp.; carp), “*Pa Chat*”(Acrossocheilus deauratus), “*Pa Fan*”, “*Pa Dok*”(Catfish), “*Pa Ko*” and “*Pa Iyan*”(eel). Their sizes are small. Villagers catch fishes in Houay Sa Nyao throughout the year. They find a lot of fishes from June to November. Both men and women catch fishes in streams.

Houay Yang is smaller than Houay Sa Nyao and has less fishes. Houay Yang has a lot of water during the rainy season and fishes go up the stream in August.

As for seasonal movements, fishes go up streams in the rainy season (high water level) and go down in the dry season (low water level).

(2) Aquaculture (fish)

No households engage in aquaculture.

(3) Others

Villagers catch crabs throughout the year, shrimp in June and July and shell in April and May in Houay Sa Nyao and Houay Yang. There is no riverweed in streams of Samton.

2.8 Other activities

(1) Weaving/ Embroidery/Dyeing/Making Cloth/Spinning/Sericulture

Not exist.

(2) Bamboo handcrafts

They make bamboo handcrafts for family use.

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.

- (3) Rice wine
They make rice wine both “Lao-lao” and “Lao-hai” throughout the year.
- (4) Blacksmith
Many men repair agricultural tools and knives by themselves.

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
This village doesn't have water supply system. They mainly use water of five streams (Houay Nam San, Houay No, Houay Phu, Houay Hinpen, Houay Mak Ko). Nearest stream for drinking water is Houay Nam San. It's within 10 minutes' walk from the school. Members of a household go to the stream to fetch the water twice a day. They carry 20 liter of water each time. Water flow is 2.6 liter per minute at the stream (April 2004). Water flow changes by season. Quality of the water is very clear. About 60 households use this stream daily. This stream is used for taking a bath and washing clothes as well.
- (2) School
Elementary school (one building, Grade 1 and 2) was built in 1992. And other 2 building were built in 1998-1999. Now they have Grade 1 to 5. 182 children (82girls) attend the school. They go to junior and senior high school in Viengkham town (M1-6). High school in Viengkham is 12 km from the village and students live in the dormitory, which Samton villagers built in the town.
- (3) Clinic/Hospital
A doctor comes and sells medicine in the village everyday. If the medicine is not effective then villagers go to the hospital in Vieng Kham town.
- (4) Road
The road from Luang Prabang to the village is paved all the way. Road repair has just completed in February 2004.
- (5) Market
Traders of Vieng Kham town come to sell a lot of consumer goods with pickup-track

and many villagers buy from them. So villagers seldom go to the market in Vieng Kham despite of its 12 km's distance.

Periodical Market “*Talaat nat*” is held every 10 days in Houay Jo (8 km from Samton) but only not many villagers go to the market.

- (6) Electricity
No public electricity. Three households use electricity every night supplied with their own generators.

3.2 Agricultural infrastructure

- (1) Irrigation
No irrigation in the village.
- (2) Rice mill
There are 5 units of rice mill in the village.
- (3) Vehicle/Agricultural machine/Tractor
Villagers don't have any vehicle (including tractor) except 2 motorbikes.

3.3 Infrastructure development plan

At present, there is no infrastructure development plan.

4. Organization related to the Project Activities

4.1 Organizations available in the village

- (1) Water management unit
None (Because no irrigation or water supply system)
- (2) Forest management unit
None. Village chairman and vice-chairman are in charge of forest management.
- (3) Farmers management unit
Each “Nouay” has a farmers management unit. This unit works as one (about twenty households) or separated as two (about ten households) to cultivate at each member's plot. Leader and vice-leader of each unit coordinate works on slash and burn cultivation.

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

Viengkham 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) EU: Micro Projects Development through Local Communities

The EU project has an office in Viengkham town and four staffs (including one German) permanently stay there. The Project period is from 2002 to 2007 (The project started in 2001 on paper, but actually in 2002). The fields of the Project include agriculture, public health and road. Target villages are 13 villages along the National Route No.1 in Viengkham district. Samton is not in their target villages.

(2) Lao-American

The district office of Lao-American is now under construction in Viengkham town (Vangheung village). Samton is not in their target villages. The Project has launched in 2004. The Project objectives are "Reduction of opium production". The fields of the Project are agriculture, public health (e.g. water supply) and road.

4.4 Any agricultural promotion activities

Except DAFO, there is no agricultural promotion activity in the village.

4.5 Availability of agricultural technicians

Village head is willing to learn agricultural techniques and other villagers admit his willingness. He learned a veterinary course provided by DAFO a couple of years ago.

5. Others

5.1 DAFO extension staff activities to the village

DAFO staffs visit 10 times a year for watching forest and wild animals protection. They also visit a couple of times a year for introduce new agricultural products and techniques.

5.2 Any migration project in the future

Not exist

5.3 Situation of tax collection (land tax etc.)

Total tax revenue of the village was 3,848,500 Kip in 2003. The usage of the revenue is 90 % of amount to district government, 10 % of that was to the village such as salary of village Head and 2 vice head of the village, and so on.

PART 2 PARTICIPATORY VILLAGE SURVEY

- Survey period : 29 April to 01 May 2004
- Resource map and social map : 29 April 2004
- Venn diagram for marketing products : 29 April 2004
- Dependence on resources by well-being level : 30 April 2004
- Present rules on the use of resources : 01 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 10 villagers participated in this session. Based on the resource map, a transect walk was conducted together with some village key informants. 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.	Community Production Forests: "Pa Somsai"	Construction materials (poles and timber)
		Bamboo
		Bamboo shoot
		Rattan
		Rattan fruit
		Mushroom
		Rat and mouse
2.	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 Phalith"	Rice
		Sesame
		Corn
		Seasonal vegetables
		Job's tear
		Peanut
		Cassava
		Buffalo (in fallow land)
		Cattle (in fallow land)
		Goat (in fallow land)
3.	Rivers (Houay Sangiao And Houay Yang)	Fish
		Small shrimp and shellfish
		River weed
		Crab
4.	Streams	Shell, small fish, small shrimps

	(Houay Borlek, Chua, Poug, Harn, Noe, Namsang, Makkou, Morn, Maepao, Makmuang, Lottay, Nam Oy, Makhai, Khi Toling) Houay Peun for drinking.	
5.	River sides	Tiger grass Wild vegetables

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. Twenty (20) participants were divided into two groups, namely a male group (10 persons) and a female group (10 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, there were no remarkable differences between male and female, particularly up to Priority 5. They are, in order of importance, 1) rice, 2) pig, 3) goat, 4) paper mulberry, 5) tiger grass and tree bark, followed by 6) buffalo and cattle, 7) poultry, 8) sesame and Job's tear, etc.

The reasons of importance for those products are mainly for their high marketability as well as for their house consumption. Rice is grown mainly for house consumption, but they can be sold as well. On the other hand, sesame and Job's tear are grown only as cash crops. In addition, paper mulberry, tiger grass and tree bark are also very important NTFPs for earning money for the villagers. Corn plays triple roles for home consumption, for sale, and for feeding animals. Pigs, goats and poultry are kept for both sale and home consumption. Weaving is not practiced in this village. Difference 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	0	1	0	1	Households consumption (and sale)	The poor sell their rice for repayment of debts. Low yield due to short fallow rotation. Damaged by rats, wild pigs, and insects.
- Sesame	0	9	0	6	Sale (and households medicine: very little)	Very low yield when drought. Low price.
- Job's tear	0	10	0	7	Sale (and reserving a little for seeds)	Similar to sesame, very low yield when drought. Low price.

- Corn	O	11	O	-	Households consumption, feeding animal (and sale)	
- Pumpkin	O	13	O	-	Households consumption, feeding animal (and sale)	
- Cassava	O	12	O	-	Households consumption, feeding animal.	
- Cucumber	--	--	--	-		
- Sweet potato	--	-	--	-		
- Taro	--	-	--	-		
2. NTFPs						
- Paper mulberry	O	4	O	4	Sale	Natural P.M. is not maintained and found in the distance. Price goes lower.
- Tiger grass	O	14	O	5	Sale	
- Tree bark	O	5	O	-	Sale	
- Bamboo shoot	O	--	O	-	Households consumption (and sale)	
- Rattan	--	--	O	-		
- Rattan fruit	--	--	O	8	Sale	Very scarce, No maintenance.
- “ <i>Mak Kha</i> ”	--	--	O	10	Sale	Very little and they don’t think this can be good products for marketing.
- Cardamon	--	--	O	-		
3. Livestock						
- Buffalo	O	7	O	2	Sale	Only “over sufficient group” have buffalos.
- Cattle	O	8	O	2	Sale	
- Goat	O	2	O	3	Sale (and household consumption)	
- Pig	O	3	O	2	Sale (and household consumption)	
- Poultry	O	6	O	2	Sale and household consumption	
4. Others						
- Worm in bamboo “ <i>Me Nomai</i> ”	O	15	O	9	Sale	It is worth if compared to the distance and time consuming through it. 20,000 Kip/kg.
- Banana	O	--	O	-		
- Mango	O	--	O	-		

Note: -/ Claimed as major crops but be lower in rank.

--/ Not claimed as major crops.

*/Activities in parenthesis mean secondary/minor purposes.

3.2 Marketing situation of major products

(1) Licensed middlemen

There are nine (9) licensed middlemen in Viengkam district, to whom the producers/villagers to sell their products. They are Mr. Xeing Ma (for buffalo), Mrs.

Dorn and Mr. Xieng Khorn (for pig and poultry), Messrs. Keo and Bounpheng (for goat), and Messrs. Somchan, Somphorn, Somphan, and Pho Xieng (for cash crops and NTFPs).

(2) Five (5) village traders

However in reality, the villagers just give all the products to village traders. Those village traders decide to whom he will give the received products depending on the contract and the price/profit he would make from them. They are Messrs. Boun Thorn, Som Vang, Siphon, Thorn and Somphorn.

(3) Venn Diagram of major products

Destinations of major products were clarified through a Venn Diagram preparation as summarized in the following table. Through the Venn Diagram preparation, it was found that there was a village trader who sold rice to the villagers on credit. The repayment is made by rice twice as much after harvest.

Venn Diagrams in Samton village by male group and female group are presented in **Figure 5 and 6**, respectively.

Destination of Major Products

Products	Sell/Consume in the village	Sell to near other markets, 1/	Sell to Middlemen, 2/
1. Cultivated Crops			
- Rice	O	(repayment), 3/	
- Sesame			O
- Job's tear			O
- Corn	O	(O)	
- Pumpkin	O	(O)	
- Cassava	O	(O)	
2. NTFPs			
- Paper mulberry			O
- Tiger grass			O
- Tree bark			O
- Rattan fruit		O	
- "Mak Kha"		O	
3. Livestock			
- Buffalo			O
- Cattle			O
- Goat	O	O	O
- Pig		(O)	O
- Poultry	O	O	
Others			
- Larvae from bamboo		O	

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

1/ Carry products by themselves to Viengkham market.

2/ Licensed middlemen through village traders, or middlemen come directly to the village.

3/ Some villagers, who bought rice on credit from a village trader, repay him by rice.

4. Social Map

4.1 Well-being ranking

A social map was drawn by the villagers through a participatory process. A total of 10 villagers participated in this session. 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 78 households of the village, 13 households (16.7 %) were classified into “high level”, 18 (23.1 %) were “medium level”, and the other 47 (60.2 %) were “low level”, respectively. This clarification is not coincident with “rice deficiency”. Because, even the villagers of “medium” level face rice deficit for more than 6 months every year and those of “low” level face rice deficit for more than 8 months. Therefore, the survey team estimates that “rice deficiency doesn’t always mean they face a serious food deficiency because other substitutes such as corn and cassava are still available”. However, further, these figures are not coincident either with the figures obtained from the village key informants described in Chapter 1.6, “10 families have no stock of rice in December and January. Another 10 families have eaten up all stock of rice in March and April.” One of the reasons for this discrepancy may be from different impressions between village key informants and normal villagers about rice deficits.

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 a number of animals such as buffalos, goats and pigs. Living situation of each level clarified by the participants is summarized in the following table.

Living Situation by Each Level

Level	Living Situation
“High” 13 HHs (16.7 %)	<ul style="list-style-type: none"> - Some have surplus of rice; - Have permanent wooden house with a tin (or fiver cement) roof; - Some have a rice mill; - Have CD video system; - Have cash not less than 3 million Kip; - Have and sell large animals (cattle and buffalo); - Have and sell small animals (pig, goat and poultry); - Practice large “Hai” field; - Have large gardens of cassava, Job’s tear, sesame, corn and paper mulberry; - Some are village traders and doing business of agricultural products and NTFPs; - Own shops; - They engage in trading rather than producing; - Some of them own paper mulberry and sesame gardens and hiring the under sufficient group to do the work.
“Medium” 18 HHs (23.1 %)	<ul style="list-style-type: none"> - Rice deficit for 6 months or more; - Have large garden of cassava and corn for consumption and animal feeds; - Have garden of Job’s tear, sesame, and paper mulberry; - Have a few buffalo, cattle, pig and poultry, not for sale but as

	<ul style="list-style-type: none"> household saving (they sell one when they really need money); - Sell labor to meet the need of rice; - Collect NTFPs for sale to village traders; - Work in allocated lands (3 plots with 3 year rotation); - Grow dry season vegetables on the river sides; - This group utilizes their natural resources most.
<p>“Low” 47 HHs (60.2 %)</p>	<ul style="list-style-type: none"> - Rice deficit from February; - Most of them and most of the time they sell labor; - Collect NTFPs; - Have no large animals; - Have only one or two pits, and 3~5 chickens or ducks per HH, because they have no feeds since the eat up corn, cassava and other related seasonal vegetables; - Have no paper mulberry garden; - Have only small gardens of cassava, Job’s tear, sesame and corm; - Collect wild vegetables to eat with rice; - Work hard but have less production due to various reasons such as small family labor, drought, etc. - Tend to sell labor more than to work in their own fields.

4.2 Dependence on various resources by well-being level

The group discussions were organized by each well-being level 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) “High” level group ranked their resources like i) buffalo, ii) goat, iii) pig, iv) paper mulberry, and v) rice, in order of importance.
- 2) “Medium” level” group ranked their resources like i) rice, ii) pig, iii) paper mulberry, iv) corn.
- 3) “Low” level group ranked their resources like i) paper mulberry, ii) corn, iii) tree bark, iv) selling labor, v) tiger grass, vi) cardamon, vii) larvae from bamboo.

The above suggests that the poor people depend on more NTFPs for food security. The dependence on resources by each level is summarized below.

Dependence on Resource by Each Level

Level	Resources	Dependence/Management on Resources	Problems/Difficulties
<p>“High” 13 HHs (16.7 %)</p>	Buffalo	<ul style="list-style-type: none"> - There are totally 60 buffalos in the village, being raised by about 12 HHs; - 2/3 HHs vaccinate their buffalos, the others don’t; - Vaccination is done twice a year and it costs are 1,500~2,000 Kip/injection; - Gardens are to be fenced in order to prevent 	<ul style="list-style-type: none"> - Buffalo disease occurs some years; - Buffalo owners make fences of the gardens belonging to

	<ul style="list-style-type: none"> from buffalos; - All buffalos are kept in “<i>Sanam</i>”(a base in the field) at Houay Sanio river for whole the year; - They sell buffalos for buying rice, clothes, etc.; - Income from selling one buffalo is enough to meet annual need of rice; - The price of buffalos varies from 1,500,000 to 4,000,000 Kip each. 	<ul style="list-style-type: none"> those who have no buffalos; - A few HHs of this group still haven’t got buffalos due to insufficient investment money.
Goat	<ul style="list-style-type: none"> - Most of people in this level have goats, about 5 to 8 goats per HH in average; - Goats are mainly raised in “<i>Sanam</i>” (a base in the field) at Houay Sanio river area; - Gardens are to be fenced in order to prevent from buffalos, goats and pigs; - Goats are sold all year round; - The size of a goat sold is 25~25 kg, costing 12,000 Kip/kg; - Old female goats and big male goats are sold, and the income from which is use for buying rice, clothes and medicines. 	<ul style="list-style-type: none"> - Shortage of grass in January and February; - Goats tend to be less healthy.
Pig	<ul style="list-style-type: none"> - Most of households in this level are raising 8 to 15 pigs through traditional system without vaccination. - They are fed in the morning and in the evening, and released into the field in the day time; - Feeds are cassava, corn and wild banana leaves; - Pigs are no longer allowed to raise in the village due to sanitation issues; - Pigs are raised mainly during June to November when animal feeds available and are sold out during September to December; - Pigs are sold when they are 1 year ole with the weight of 40~50 kg, and the selling price of which is 8,000 Kip/kg; - Income from pigs is used for clothes, medicines, etc.; 	<ul style="list-style-type: none"> - Hog cholera; - A large number of pigs often die at a time in every 3~4 years.
Paper mulberry	<ul style="list-style-type: none"> - Paper mulberry are normally collected in the fallow land of slash and burn areas, particularly in “<i>Sanam</i>”(a base in the field) at Houay Sanio river area; - “Over sufficient” group have just start growing paper mulberry in their gardens, which are fenced and weeding is done twice a year; - Paper mulberry are harvested when they are 1 to 3 years old; - After 4 years old, they are felled down and regenerated; - The production in 1/4 ha is about 200 kg, which costs 170,000 Kip in total with a unit price of 2,000 Kip/kg. 	<ul style="list-style-type: none"> - Management technology of paper mulberry is limited, since the villagers have never had an experience to share with other paper mulberry producers before; - Price is not stable, high at the beginning and at the end

		of production period, and low when products amount is too plenty.	
	Rice	<ul style="list-style-type: none"> - Rice is grown in 3 plots of land allocated; - They grow both sticky and ordinary rice; - Rice is planted in April and harvested in September for short life variety of sticky rice, and in November for normal sticky rice; - Rice is sufficient for all the year round for this “over sufficient” group; - Weeding is done three times per season. 	<ul style="list-style-type: none"> - Drought occurs every 4~5 years; - It was drought last year, caused shortage of rice. - The villagers sold their animals for rice.
“Middle” 18 HHs (23.1 %)	Rice	- The yield is 1.5 ton/ha in good rain year and 0.7 ton/ha in drought year;	- Rice is damaged by rats, wild pigs and birds.
	Goat	<ul style="list-style-type: none"> - Raised in “<i>Sanam</i>” (a base in the field) in Houay Sanio river area all the year round; - Each household in this level has 5~6 goats, they reproduce about 12 goats per year; - A mother goat usually bears 2 young goats per year; - They normally sell 3 years old goats to the market; - The villagers sell Job’s tear to buy goats; - The income (600,000 Kip) from selling goats was used to buy 2 young goats and rice. 	- Tigers attack small goats.
	Pig	<ul style="list-style-type: none"> - A household in this level raises about 5~10 pigs; - Pigs are sold when they are about 40 kg of weight; - A piglet costs 300,000 Kip and a large pig costs 350,000 to 500,000 Kip/head; - This level people are interested in raising buffalos; - The income (1,500,000 Kip) from selling 3 pigs was used to buy one young buffalo costing 900,000 Kip, and 600,000 Kip of rice; - The income (1,800,000 Kip) from selling 5 pigs was used for buying a large buffalo costing 1,600,000 Kip, and 175,000 Kip of one young goat. 	<ul style="list-style-type: none"> - Hog cholera occurs in April and September; - Pigs eat much feed, and raising pigs is time consuming; - If this group have money, they prefer raising buffalo and cattle to pig.
	Paper mulberry and tree bark	<ul style="list-style-type: none"> - 80 % of paper mulberry is collected in natural forests and the other 20 % is grown in gardens “<i>Suan</i>”; - Tree bark is collected from natural forests; - A large size household collects about 200 Kg pf 	<ul style="list-style-type: none"> - Difficult to harvest; - Price changes up and down all the time.

	<p>paper mulberry per year, making 400,000 Kip of income;</p> <ul style="list-style-type: none"> - A small size household collects just 100 Kg, making 200,000 Kip per year; - A household collects about 50 Kg of tree bark, making 200,000 Kip per year; - The income (600,000 Kip) from selling tree bark and paper mulberry is used for buying school supplies for children and medical treatment. 			
Corn	<ul style="list-style-type: none"> - Grown in 3 plots of land allocated; - Planted in April-May and harvested in July for a short life variety and in September for an ordinary variety; - Corn is used for family consumption and for animal feed. 			
“Low” 47 HHs (60.2 %)	<p>This group people normally face rice deficits from February. Therefore, they collect daily foods from forests such as bamboo shoots, mushrooms, and grown cassava and corn as substitutes for rice. They also collect NTFPs such as paper mulberry and tree bark for selling. Further, they earn money by labor in weeding, felling trees in slash and burning, and sawing lumber for sale. For example, income made from major products/resources last year is estimated at about 870,000 Kip per HHs summarized as below.</p>			
Resources	Average Quantity	Income Amount	Use of Income	Problems/Difficulties
Paper mulberry	80~100 kg/HH @ 2,500~3,000 Kip/kg	200,000 ~ 300,000 Kip/year	Buying rice	<ul style="list-style-type: none"> - Small amount of rice product due to low yields; - A small labor force in the family but many consumers (average household size is 4 ~16 people); - Amounts of paper mulberry and tree bark collected in natural forests have decreased due to (but not limited to) insects; - They raise and sell poultry to have medical treatment, and to buy clothes for school children; - They have no large animals due to lack of money; - They are interested in raising goats because they think it is easy and makes good income;
Corn			Household consumption and feeding animals	
Tree bark	30 kg @4,500 Kip/kg	130,000 Kip/year	Buying rice	
Selling labor	45 days @5,000 Kip/day	200,000 Kip/year	Payment is in kind (rice)	
Tiger grass	80 Kg @2,000 Kip/kg	160,000 Kip/year	Buying rice	

Cardamon	5 kg @10,000 Kip/kg	50,000 Kip/year	Buying rice	- They think that labor selling is important among their resources because they can surely get money/rice;
Larvae from bamboo	8 kg @10,000 Kip/kg	80,000 Kip/year	Buying rice	- Sesame and Job's tear are damaged by insects; - Rice yield is not high due to unfertile soil, which was brought by short period fallow rotation farming; - Before 1 "kalong" (10 kg) of seeds produced 360 kg of paddy, and now 1 "kalong" of seeds produces only 120 kg of paddy.

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

A plenary discussion with a total of 22 participants was organized 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

According to the DAFO of Viengkham district, "land zoning" was conducted in 1993. A number of PAFO and DAFO came to the village and introduced "land zoning" (different forest types such as conservation forest, production forest, protection forest and degraded forest, and uses and their management) to the villagers. They discussed with the villagers if the village had any of the above forest types and decided which area they would like to designate as which forest types. Any measurement works have not been conducted in the field for the land zoning, but done only on estimated basis. So far, there are seven (7) forest types or land use types designated by DAFO as below.

- i) Productive land "*Din Phalith*" by DAFO, and "*Pa Phalith*" by the villagers = 223 ha;
- ii) Conservation forest "*Pa SaNgouan*" = 5.1 ha;
- iii) Community Production forest "*Pa Somsai*" = 250 ha;
- iv) Protection forest "*Pa Pongkanh*" = 242 ha;
- v) Degraded forest "*Pa Sotsom*" = 173 ha;
- vi) Regeneration Forest "*Pa Feumfoo*" = 305 ha;;
- vii) Other forests including small rivers, lakes, ponds, etc. = 36.9 ha

For the villagers, they don't know how to differentiate among the above forests or lands. The villagers can see only one forest type called "*Pa Somsai*" (Community Production Forest), and one land use type (productive lands), villagers called it "*Pa Phalith*" or "*Lao Orn*".

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

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

“*Pa Somsai*” is so called ‘community forest’. “*Pa Somsai*” in Samton spread along both sides of habitat area. “*Pa Somsai*” in the south has once been used as slash and burn cultivation area in the year of first settlers came to the village in 1977. “*Pa Somsai*” in the north has never been used for slash and burn cultivation. The present use of “*Pa Somsai*” is:

- Use for house construction materials;
- Use for collecting NTFPs such as bamboo shoot, mushrooms, etc.

The present rules on this area understood by the villagers are as follows.

- Logging large trees for housing construction purpose is allowed by paying tax (50 % of the value decided by the village authority) and the cost of tree;
- No forms of any requests or payment are required for cutting small poles and collecting NTFPs;
- No forms of any agricultural activities are allowed.

The villagers are now facing difficulties to maintain NTFP resources as described below.

- For collecting rattan fruit, they cut out every thing including the rattan stem and rattan shoots;
- They dig out all “tree bark” stem and roots and let the remaining roots buried and decayed in the earth.

The villagers know how to solve such problems in a sustainable way. However actually such ideas are not kept by the villagers properly. The villagers understanding for proper maintenance of “tree bark” and rattan is as follows.

“*Puak Muak*” (tree bark):

- Plant new seedlings to replace with exploited trees;
- Cut 2 stems (if there are 3~4 stems) and leave 1~2 stems for the following year with fencing and noticing their ownership;
- Cut out and take away the roots as much as possible. Then pull the remain parts of the roots out above the ground level so that they will spring up later;
- Establish “tree bark” plantation with proper fencing and full ownership. He will plant the seedlings and will start harvesting when the plants are 3 years old. He will leave the stumps about 40 cm high above the ground;
- Proper weeding should be done and he will harvest the products every year in this way.

“Rattan”:

- Use a hook to pull the upper part of the rattan plant to collect just the fruits;
- Leave all the rattan stems and small plants for the future harvest.

(2) “*Din Phalith*”(Agricultural Production land)

The productive lands “*Din Palith*” are 3 pieces/places of land allocated to each household for practicing upland cultivation. The present rules on this area understood by the villagers are as follows.

- Stable rotation of shifting cultivation is allowed;
- Allocated lands is allowed to be transferred to relatives or friends;
- Selling any pieces of allocated lands is forbidden.

PART 3 HOUSEHOLD INTERVIEW SURVEY

<u>Survey period:</u>	29 April to 01 May 2004
<u>Total Household:</u>	77 HHs
<u>Total Number of Sampled HHs:</u>	35 HHs

A. HOUSEHOLD INTERVIEW SURVEY

1. General Information

1.1 Interviewees

Total number of interviewees is 35 persons, all of which are Lao Theung and 33 are male and 2 are female. Among those interviewees, the youngest one is 21 years old and the oldest is 63, as summarized below.

Summary of Interviewees

Total No.of interviewees	Ethnic group			Sex		Age	
	Lao Sung	Lao Theung	Lao Loum	Male	Female	Min	Max
35	0	35	0	33	2	21	63

1.2 Households members

Total number of households members surveyed is 245 persons, among which 118 (48.2%) are male and 127 (51.8%) are female, and 19 are temporarily absentees.

1.3 Household age structure

As per household, the average number of household is 7.0 persons, among which 2.9 (41.4%) are less than 12 years old, 3.5 (50.0%) are between 12 and 45 years old, and 0.6 (8.6%) 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	101	41	60	2.9	41.4
2. 12 to 45 years old	123	66	57	3.5	50.0
3. More than 45 years old	21	11	10	0.6	8.6
Total	245	118	127	7.0	100

1.4 Living period

Among all the 35 interviewed households, 31 households (89%) 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	4	11.4
2. From 10 to 20 years ago	14	40.0
3. From 20 to 30 years ago	14	40.0
4. More than 30 years ago	3	8.6
Total	35	100

1.5 Educational background

Among all the 245 household members, 125 persons (51.1%) are primary school graduated/or attending, or drop out of primary school level, 43 (17.5%) are more than secondary school graduated/or attending level, and the remaining 77 (31.4%) 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	23	54	77	31.4
2. Drop out of primary school	20	23	43	17.6
3. Primary school graduated/ Attending	48	34	82	33.5
4. Drop out of secondary	9	8	17	6.9
5. Secondary school graduated/ Attending	13	7	20	8.2
6. Drop out of high school	1	0	1	0.4
7. High school graduated/ Attending	4	1	5	2.0
8. Graduate of professional high school/ Attending	0	0	0	0.0
9. More than high school/ Attending	0	0	0	0.0
Total	118	127	245	100

1.6 Farming

Among all the 245 household members, 127 persons (51.8%) are engaging in farming.

1.7 Occupation

Among all the 245 household members, 97 persons (39.6%) are farmers, 2 persons (0.8%) are private business workers, 79 (32.3%) are pupils/students, 48 (19.6%) are below school age children, and 13 (5.3%) have no job (including housework), and 6 (2.4%) are others, as summarized below.

Summary of Occupation

Occupation	Number	(%)
1. Farmer	97	39.6
2. Wage labor	0	0.0
3. Salary worker	0	0.0
4. Private business	2	0.8
5. Pupil/Student	79	32.3
6. Child (below school age children)	48	19.6
7. No job (including house work)	13	5.3
8. Others	6	2.4
Total	245	100

1.8 Organization

Among all the 245 household members, more than 75% of people do not belong to any specific organizations, but 41 persons (16.7%) are members of Women's union, Youth organization, Elder's group, or Village committee. In addition, 18 persons are members/ or staff belonging to "Others" like i) party, ii) parent association, and iii) voluntary village vigilante corps, etc. The villager's membership of organizations is summarized below.

Organization	Number	%
1. Member of Women's Union	21	8.6
2. Member of Youth Organization	13	5.3
3. Member of Elder's Group	3	1.2
4. Member of Water Users Group	0	0.0
5. Member of Village Committee	4	1.6
6. Member of Ethnic Organization	0	0.0
7. Member of religious Organization	0	0.0
8. Others (government, party, vigilante, etc.)	18	7.4
9. No member	186	75.9
Total	245	100

2. Living Condition

2.1 Drinking water

Among all the 35 interviewed households, almost all households (27 households, 77.1%) use rivers for getting drinking water, which are located within 2 to 70 minutes walking distance. The other options are sources of streams, open dug wells and a tube well, which are used by very limited villagers depending on water availability and their locations. It is very serious situation for the villagers that the water even in the river is not enough, particularly 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. Sources of streams, */	5	14.3	3	60	1	0	3	1
	b. River	27	77.1	2	70	7	0	11	9
	c. Open dug well	3	8.6	2	6	0	0	3	0
Wet	a. Sources of streams, */	5	14.3	1	6	2	1	2	0
	b. River	26	74.3	2	70	16	2	6	2
	c. Open dug well	3	8.6	2	60	3	0	0	0
	d. Tube well	1	2.8	15	15	1	0	0	0

Note: */ Sources of streams, where the villagers put pipes (steel, bamboo, PVC) to collect water.

2.2 Fuel for cooking/heating

All the 35 interviewed households reply that they use fuel wood for cooking/heating and 25 households (71.4%) of which can collect fuel wood easily, and 10 households (28.6%) feel difficult to obtain fuel wood. Further, 9 households (25.7%) reply that kerosene is the second option for fuel, as summarized below.

Sources of fuel	No		Availability	No	
	of HH	%		of HH	%
Fuel wood	35	100	a. Easy to obtain	25	71.4
			b. Difficult to obtain	10	28.6
			c. Very difficult to obtain	0	0
Kerosene	9	25.7	a. Easy to obtain	4	11.4
			b. Difficult to obtain	5	14.3
			c. Very difficult to obtain	0	0

2.3 Food availability

2.3.1 Rice

Among all the 35 interviewed households, 4 households (11.4%) can produce rice more than the household demand and 9 households (25.7%) can produce rice just enough to meet the household demand. However, 21 households (60.0%) 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 18 households face difficulty to obtain rice enough to meet the household demand. The average shortage months for those 18 households is calculated to be 5.6 months.

Further, there is one household (2.9%) who do not produce rice, but he replied that he could purchase rice to meet the household demand.

Therefore, totally, it is estimated that among 35 households, 18 households (51.4%) face rice shortage for about 5.6 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	11.4	-	-	-	-
2. Product is just enough to meet the HH demand	9	25.7	-	-	-	-
3. Product is not enough to meet the HH demand	21	60.0	18	51.4	100	5.6
4. No product	1	2.9	-	-	-	-
Total	35	100	18	51.4	100	5.6

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 (about 91-94%) feel that such products are enough to meet the household demand or exceed the household demand.

However, there are 2 households who cannot produce sufficient other cereals, or root, tube crops. Further, there are some households who do not produce such other products than rice, 1 household (2.9%) for other cereals, 2 households (5.7%) for root and tube crops, and 2 households (5.7%) for vegetables. They reply that they purchase or exchange such products depending on their needs.

Meat:

Twenty-three (23) households (65.7%) reply that the product of meat is enough to meet the household demand or exceed the household demand, and the other 12 households (34.2%) of households reply that the product of meat is not enough to meet the household demand. Among the above 12 households, only 2 households reply that they face a shortage of meat with an average period of 1.0 month.

Fish:

Twenty-one (21) households (60.0%) reply that the product of fish is enough to meet the household demand or exceed the household demand. However, 9 households (25.7%) reply that the product of fish is not enough to meet the household demand. Further, 5 households do not produce/ catch any fish. They reply that they purchase or exchange fish depending on their needs. But 5 households reply that they face a shortage of fish for about 1.0 month.

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	4	1	1	6	0
2. Product is just enough to meet the HH demand	29	31	32	17	21
3. Product is not enough to meet the HH demand	1	1	0	12	9
4. No product	1	2	2	0	5
Total	35	35	35	35	35
5. No. of HHs having a shortage of each product	0	0	0	2	2
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	12	34.2
2. VCD	1	2.9
3. TV	1	2.9
4. Bicycle	7	20.0
5. Motorcycle	1	2.9
6. Car	0	-
7. Refrigerator	0	-
8. Electric fan	0	-
9. Sewing machine	0	-
10. Gas stove	0	-
11. Toilet	0	-
12. Hand tractor	0	-
13. Rice mill	1	2.9
14. Wardrobe	1	2.9
15. Generator	1	2.9
16. Clock	1	2.9

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) malaria, and those for adults are i) cold, ii) body aches, iii) malaria, as summarized below.

Major Diseases

Children under 15 years old			Adults		
Major diseases	No.of HH	%	Major diseases	No.of HH	%
1. Cold	27	77.1	1. Cold	15	42.8
2. Dysentery	15	54.2	2. Body aches	14	40.0
3. Malaria	13	37.1	3. Malaria	11	31.4
4. ....	...	...	4. ....	...	...

2.5.2 Treatment for diseases

Major treatments for slight diseases are i) buy medicine and ii) go to the district hospital, 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	28	80.0	1. Go to the district hospital	32	91.4
2. Go to the district hospital	3	8.5	2. Go to the provincial hospital	2	5.7
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 35 households, 28 households have ownership for “Hai-A”. Total area of “Hai-A” is 56.0 ha with a total of 59 plots and an average area of 0.95 ha/plot and 1.6 ha/HH. Further, there are 6.20 ha of lands rented from others, thus the average operated land is 1.77 ha/HH.

“Hai-B”:

Among all the 35 households, 28 households have ownership for “Hai-B”. Total area of “Hai-B” is 29.80 ha with a total of 51 plots and an average area of 0.53 ha/plot and 0.77 ha/HH. Further, there are 2.70 ha of land rented from others, thus the average operated land is 0.85 ha/HH.

“Fruits/ vegetables” field:

Among all the 35 households, 10 households have ownership for “Fruits/ vegetables” field. Total area of “Fruits/ vegetables” field is 5.97 ha with a total of 11 plots and an average area of 0.54 ha/plot and 0.17 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, 0.17 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 Own- ed (ha) (a)/35	Land Operat- ed (ha) (d)/35
1. Hai-A, 1/	28	59	56.00	0.95	6.20	-	62.20	1.60	1.77
2. Hai-B, 2/	28	51	27.10	0.53	2.70	-	29.80	0.77	0.85
3. Na (Lowland paddy)	-	-	-	-	-	-	-	-	-
4. Fruit/Vegetable, 3/	10	11	5.97	0.54	-	-	5.97	0.17	0.17
Total/Average	-	121	89.07	0.73	8.90	-	97.97	2.54	2.79

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 ownership 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 28 households, the lands of 15 households (53.6%) are “privately owned”, the lands of 4 households (14.2%) are “government land but they have a right to cultivate traditionally”, the lands of 7 households (25.0%) are “government land but allocated by the village committee, and the lands of 2 households (7.1%) are “they don't know whose land that is, but they cultivate”. In addition, there are 6 households who rent the lands with a total of 6.20 ha for farming practice in “Hai-A”

Among the “Hai-B” of 28 households, the lands of 15 households (53.6%) are “privately owned”, the lands of 4 households (14.2%) are “government land but they have a right to cultivate traditionally”, the lands of 7 households (25.0%) are “government land but allocated by the village committee, and the lands of 2 households (7.1%) are “they don't know whose land that is, but they cultivate”. In addition, there are 6 households who rent the lands with a total of 2.70 ha for farming practice in “Hai-B”

Among the “Fruits/ vegetables” fields of 10 households, the lands of 2 households (20%) are “privately owned”, the lands of 3 households (30%) are “government land but they have a right to cultivate traditionally”, the lands of 3 households (30%) are “government land but allocated by the village committee, and the lands of 2 households (20%) are “they don't know whose land that is, but they cultivate”. There are no households who rent “Fruits/ vegetables” fields from others.

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

Land Category	Future of the Land Ownership					Others, 8/
	Total No.	Private, 4/	Gov.(1), 5/	Gov.(2), 6/	Unclear, 7/	
1. Hai-A, 1/	28	15	4	7	2	6
2. Hai-B, 2/	28	15	4	7	2	6
3. Na (Lowland paddy)	-	-	-	-	-	-
4. Fruit/Vegetable, 3/	10	2	3	3	2	-

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 farm lands from others)

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

3.2.1 Time required

Among all the 35 households, 34 households have replied to the times required to go to their “Hai” area, which vary from 15 min. to 180 min. with an average of 90 minutes.

3.2.2 Repeated use of “Hai” area

“Hai-A”: Among 32 households who cultivated Hai-A in 2003, all of them answered that they would use the same lands within 1 to 3 years for cropping upland rice, and no households answered that they would not use those lands in near future. Among 32 households above, 19 households used the same lands in 2001 and 14 households used the same land in 2002.

“Hai-B”: Among 33 households who cultivated Hai-B in 2003, all of them answered that they would use the same lands within 1 to 3 years for cropping upland crops (only one household reply that he would use for cropping upland rice), and no households answered that they would not use the same lands in near future. Among 33 households above, 19 households used the same land in 2001 and 17 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”	32	1 to 3	Rice	0	-	14	19
“Hai-B”	33	1 to 3	Upland crops (1 HH for upland rice)	0	-	17	19

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 0.61 ha/HH in 2002 to 0.82 ha/HH in 2003, with an average of 0.70 ha/HH, as summarized below.

Total “Hai” (A+B) Used Area

Year	Total Used Area (ha)	Used Area per HH (ha)
2000	48.62	1.38
2001	36.90	1.05
2002	34.90	0.99
2003	49.88	1.42
Average	42.57	1.21

3.2.4 Staying “Hai” area

Among the 35 households, 14 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, 14 households do not stay in the field but go there based on requirements. In addition to those who stay in the field continuously, one household answered that they stayed in the field during the season for slash and burn, 2 households during the season for seeding, and 12 households during the season for harvesting. The future of staying “Hai” area is summarized below.

Situation	Number of HH
1. Stay during the season for slash and burn	1
2. Stay during the season for seeding	2
3. Stay during the season for harvesting	12
4. Stay continuously from slash & burn to harvest	14
5. Not stay, go there based on requirement	14

3.2.5 Decision maker for the “Hai” area selection

Among all the 35 households, 33 households (94.2%) answered that the head of household was a decision maker for the “Hai” area selection, as summarized below.

Decision Maker	Number of HH
1. Head of household	33
2. Other household member(s)	1
3. Village committee	0
4. Relatives	0
5. No comments	1

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 (33 households), ii) Job’s tear (20 households) and iii) sesame (19 households) and iv) maize (18 households). No crops were enumerated for the dry season.

3.3.1 Production of 3 major crops in “Hai” area

Rice:

Total production area of rice by all the 35 interviewees is 32.35 ha with a total production of 50,100 kg, among which, 1,020 kg (20.3% of the total production) were sold for cash. As for per household, it is estimated that the production of rice is 1,431 kg/HH with an average planted area of 0.92 ha, among which 29 kg were sold for cash, with a value of 29,142 Kip.

Job’s tear:

Total production area of Job’s tear is 6.45 ha with a total production of 1,236 kg, among which 996 kg (80.5% of the total production) were sold for cash. As for per

household, it is estimated that the production of Job's tear is 35 kg/HH with an average planted area of 0.18 ha, among which 29 kg were sold for cash with a value of 57,362 Kip.

Sesame:

Total production area of sesame is 5.05 ha with a total production of 918 kg, among which 791 kg (86.1% of the total production) were sold for cash. As for per household, it is estimated that the production of sesame is 26 kg/HH with an average planted area of 0.14 ha, among which 22 kg were sold for cash, with a value of 139,781 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 by the 35 Interviewee Households

Items	Major Crops		
	Rice	Job's tear	Sesame
1. Name of crops			
2. Planted area : (ha)	32.35	6.45	5.05
: (kg seed)	1,618	161	50.50
3. Total production (kg)	50,100	1,236	918
4. Form of Products	Paddy	Grain (unhusked)	Seed
5. Production sold (kg)	1,020	996	791
6. Price at sold (Kip / kg)	1,000	1,978	6,185
7. Total sales (Kip)	1,020,000	1,970,000	4,892,000
8. Production given to others (exchanged or lent to others) (kg)	160	-	-
9. Chemical fertilizer used (kg)	No chemical fertilizer / Pesticide used		
10. Major crop damage, if any	Pests, insects, rats, wild pigs and birds		

Production of 3 Major Crops per HH

Items	Production Volume per HH		
	Crop 1 (a)/35	Crop 2(b)/35	Crop 3(c)/35
1. Name of crops	Rice	Job's tear	Sesame
2. Planted area : (ha)	0.92	0.18	0.14
: (kg seed)	46	4.50	1.4
3. Total production (kg)	1,431	35.31	26.22
4. Form of Products	Paddy	Grain (unhusked)	Seed
5. Production sold (kg)	29.14	29.00	22.60
6. Price at sold (Kip / kg)	1,000	1,978	6,185
7. Total sales (Kip)	29,142	57,362	139,781

3.4 Crop production in "Na"

There are no lowland paddy fields in this village.

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 3.3.1 (50,100 kg) and Section 3.5 (59,800 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.

Paddy Production and Consumption	Quantity (a)	Typical volume per HH (a)/35
1. Paddy production in paddy land “Kao Na”	0 kg/year	0 kg/year
2. Paddy production in slash and burn area “Kao Hai”	59,800 kg/year	1,709 kg/year
3. Total paddy production (3 = 1 + 2)	59,800 kg/year	1,709 kg/year
4. Total paddy consumption in a month (average)	5,757 kg/month	165 kg/month
5. Total paddy consumption in a year (average)	69,080 kg/year	1,974 kg/year
6. Balance of paddy in household (6 = 3 – 5)	- 9,280 kg/year	- 265 kg/year

The survey result suggests that in average each household faces about 265 kg of rice shortage per year. On the other hand, as seen in Section 2.3.1, it is estimated that among 35 households, 18 households (51.4%) face rice shortage for about 5.6 months. It is understood that some can produce rice to meet their demand and the other can purchase rice based on their requirements, and such food availability much depends on the land availability and their family labor availability, etc.

3.6 Fruits/Tree crops

Most 5 major fruits/tree crops (including industrial tree such as teak tree) among the 35 households are i) paper mulberry, ii) banana, iii) mango, iv) guava, and v) teak tree in order of number, and the average numbers of those bearing trees per HH are i) 71 trees, ii) 10 trees, iii) 8 trees, iv) 4.8 trees, and v) 2.8 trees, respectively, as summarized below.

Type	Numbers of trees		Numbers of trees per HH	
	Bearing trees (a)	Non-bearing trees (b)	Bearing trees (a)/35	Non-bearing trees (b)/35
1. Orange	34	7	0.9	0.2
2. Lemon	-	-	-	-
3. Lime	-	-	-	-
4. Longan	2	1	-	-
5. Jackfruit	22	9	0.6	0.2
6. Tamarind	17	7	0.4	0.2
7. Guava	168	3	4.8	-
8. Papaya	37	-	1.0	-
9. Banana	379	388	10.8	11.0
10. Coconut	7	5	0.2	0.1
11. Coffee	5	-	0.1	-
12. Tea	-	-	-	-

13. Mangoes	281	7	8.0	0.2
14. Teak tree	100	1,600	2.8	45.7
15. Paper mulberry	2,503	4,190	71.5	119.7
16. Bark tree	-	200	-	5.7

3.7 Non-timber forest products

3.7.1 Major NTFPs

Most 5 major NTFPs among the 35 households are i) paper mulberry, ii) tiger grass, iii) tree bark, iv) eagle wood, and v) rattan seed in order of cash income available, as summarized below.

Major Non-Timber Forest Products

Items	Priority order of cash income available up to 5					Total
	1	2	3	4	5	
1. Mak neng (Cardamon)	0	0	0	0	0	0
2. Mak wai (Rattan seed)	0	2	0	1	0	3
3. Wai (Rattan)	0	0	1	0	0	1
4. Ynan (Benzoin)	0	0	0	0	0	0
5. Puack muak (Tree bark)	3	9	6	1	0	19
6. Po sa (Paper mulberry)	24	5	0	0	0	29
7. Mak kha (Wild ginger)	0	0	0	0	0	0
8. Nohmai (Bamboo shoot)	0	1	1	3	0	5
9. Khem (Tiger grass)	4	11	13	0	0	28
10. Mai ketsana (Eagle wood)	1	1	0	0	0	2
11. Sa pan (a kind of tea)	0	0	0	0	0	0
12. Others (Mushroom)	0	0	0	0	0	0

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 35 Interviewee Households

Items	NTFP 1(a)	NTFP 2(b)	NTFP 3 (c)	NTFP 4 (d)	NTFP 5 (e)
1. Name of NTFPs	Paper mulberry	Tree bark	Tiger grass	Eagle wood	Rattan seed
2. Harvest season	1-12	1-9	1-12	6-8	1-9
3. Volume of harvest in 2003 (kg)	6,559	3,612	798	102	103
5. Price at sold in 2003 (Kip/kg)	1,791	3,612	4,237	33,333	3,238
6. Total sales (Kip)	11,747,500	9,086,000	3,381,000	3,400,000	333,500

Production and Sale of Major NTFPs per HH

Items	NTFP 1(a)/35	NTFP 2(b)/35	NTFP 3 (c)/35	NTFP 4 (d)/35	NTFP 5 (e)/35
1. Name of NTFPs	Paper mulberry	Tree bark	Tiger grass	Eagle wood	Rattan seed
2. Harvest season	1-12	1-9	1-12	6-8	1-9
3. Volume of harvest in 2003 (kg)	187	103	23	3	3
5. Price at sold in 2003 (Kip/kg)	1,791	3,612	4,237	33,333	3,238
6. Total sales (Kip)	335,643	259,600	96,600	97,143	9,529

3.8 Livestock and fish

3.8.1 Livestock

The average numbers of livestock raised per household are i) cattle (1.0 head), ii) buffalo (1.7 head), iii) goat (6.4 head), iv) pig (5.9 head), v) chicken (22.6 heads), vi) duck (0.4 heads), respectively, as summarized below.

Livestock Raising

Type	No. (a)	No. of HH	Feeding				Typical livestock per HH (a)/35
			Wet Season		Dry Season		
			Main feed	Sufficiency	Main feed	Sufficiency	
1. Cattle	35	9	Grass	Sufficient, Just enough	Grass	Sufficient, Just enough	1.0
2. Buffalo	60	17	Grass	Sufficient, Just enough	Grass	Sufficient, Just enough	1.7
3. Goat	224	27	Grass, C. residue	Sufficient, Just enough	Grass, C. residue	Sufficient, Just enough	6.4
4. Pig	209	34	C. residue Grain	Sufficient, Just enough	C. residue Grain	Sufficient, Just enough	5.9
5. Chicken	794	31	C. residue Grain, Root & tuber crop	Sufficient, Just enough	C. residue Grain, Root & tuber crop	Sufficient, Just enough	22.6
6. Duck	14	2	Crop residue	Sufficient, Just enough	Crop residue	Sufficient, Just enough	0.4

3.8.2 Catch of fishes

Main types of fishes caught are:

“Pa Buk”(Pungasius gigas), Cat fish, “Pa Kang”(Snakehead fish), “Pa Kheng”(Osteochilus prosemion fowler, Cirrhinus molitorella), “Pa Mom”(Scaphiodontichtys sp.; carp), “Pa Phanh”(Noemacheilus) and “Pa Nam”(Mystacoleucus greenwayi; small carp).

Season of fishing is all the year. The total production by the 35 households is 54 kg per week and average catch of fishes per week per HH is estimated at 1.54 kg/week/HH.

3.8.3 Fish raising

Among the 35 households, one household has their fish pond raising 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 0.2, ii) buffalo (0.4 head), iii) pig (1.0 head), iv) chicken (5.3 heads), v) duck (0.2 heads), respectively. As for fishes, 0.1 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	8	-	2	0.2	-
2. Buffalo	15	6	10	0.4	0.1
3. Goat	49	9	17	1.4	0.2
4. Pig	38	44	30	1.0	1.2
5. Chicken	188	34	19	5.3	0.9
6. Duck	8	-	2	0.2	-
7. Fish	4 kg (weight of fishes)		2	0.1 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 673 kg of rice, 1,740 kg of sesame, 2,191 kg of Job's tear. Total major NTFPs sold outside the village are 14,430 kg of paper mulberry, 7,946 kg of tree bark, 1,756 kg of tiger grass, 224 kg of eagle wood, and 227 kg of rattan seed. Total major livestock and fish sold outside the village are 18 heads of cattle, 33 heads of buffalo, 75 heads of goat, 42 heads of pig, 207 heads of chicken, and 9 heads of duck.

Estimated Marketed Volumes of Major Products (Samton)

Description	3 Major Crops			5 NTFPs				
	Upland Rice	Sesame	Job's tear	Paper mulberry	Tree bark	Tiger grass	Eagle wood	Rattan seed
I. Total of Sampled 35 HHs								
- Volume harvested in 2003	50,100	918	1,236	6,559	3,612	798	102	103
- Volume sold in 2003	1,020	791	996	6,559	3,612	798	102	103
- Average price at sold in 2003 (Kip/kg)	1,000	6,185	1,978	1,791	3,612	4,237	33,333	3,238
- Form of products	paddy	seed	grain	dry bark	dry bark	dry grass	dry wood	dry seed
- Unit	kg	kg	kg	kg	kg	kg	kg	kg
II. Total of the Village (77 HHs)								
- Total volume sold	2,244	1,740	2,191	14,430	7,946	1,756	224	227

- Sold within the village,*/ (estimated,**/)	1,571	0	0	0	0	0	0	0
- Sold outside the village (estimated,**/)	673	1,740	2,191	14,430	7,946	1,756	224	227

(continued)

Description	Livestock/Fish						
	Cattle	Buffalo	Goat	Pig	Chicken	Duck	Fish
I. Total of Sampled 35 HHs							
- Volume harvested in 2003	-	-	-	-	-	-	-
- Volume sold in 2003	8	15	49	38	188	8	4
- 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 (77 HHs)							
- Total volume sold	18	33	108	84	414	18	9
- Sold within the village,*/ (estimated,**/)	0	0	32	42	207	9	9
- Sold outside the village (estimated,**/)	18	33	75	42	207	9	0

Note: */ including Viengkham district market,

**/ estimated based on the results of the Venn Diagram Preparation

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 (34 households), ii) selling NTFPs (33 households), iii) private business (3 households), iv) selling field crops/vegetables (16 households), and v) salary from permanent job (4 households), in order of amount of income. Average amounts of major income sources per household are presented as shown below.

Average Amount of Major Income Sources per HH

Income Sources	No.of HHs	Amount of Annual Major Income (Kip/year) (a)	Average per HH (a)/35 (Kip/year/HH)
1. Selling livestock/ poultry/ products	34	112,568,000	3,216,229
2. Selling NTFPs	33	28,427,000	812,200
3. Private business	3	7,800,000	222,857
4. Selling field crops/ vegetables	16	6,905,000	197,286
5. Salary from permanent job	4	6,367,000	181,914

5.2 Major income per HH

Annual amounts of major income per household vary from 490,000 Kip/year to 53,800,000 Kip/year with an average of 5,136,886 Kip/year/HH (a total of 179,791,000 Kip/year by the 35 households).

Major Cash Income per HH

Range of Cash Income	Kip/year/HH
1. Maximum	53,800,000
2. Minimum	490,000
3. Average	5,136,886

5.3 Major income of sample households

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

Major Income of Typical Sample Household (High Level)

Income Sources	Kip/year/HH
1. Selling livestock and poultry products	10,550,000
2. Private business (trading, shop, etc.)	1,150,000
3. Selling NTFPs	845,000
4. Selling field crops/ vegetables	514,000
5. -	-
Total	13,059,000

Major Income of Typical Sample Household (Medium Level)

Income Sources	Kip/year/HH
1. Selling NYFPs	2,810,000
2. Selling livestock/ poultry products	800,000
3. Selling Fruits	130,000
4. Selling field crops/ vegetables	100,000
5. Selling fishes	30,000
Total	3,870,000

Major Income of Typical Sample Household (Low Level)

Income Sources	Kip/year/HH
1. Selling NTFPs	630,000
2. Selling livestock/ poultry products	205,000
3. Selling fuel wood	80,000
4. -	-
5. -	-
Total	915,000

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) food (35 households) ii) health (29 households), iii) clothes (28 households), iv) education (28 households) and v) social activities (festivals, ceremonies, religious events, etc.) (11 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)/35 (Kip/year/HH)
1. Food	35	46,660,000	1,333,142
2. Health	29	19,920,000	569,143
3. Clothes	28	13,206,500	377,329
4. Education	28	11,414,000	326,114
5. Social activities/events	11	8,082,000	230,914

5.5 Major expenditure per HH

Annual amounts of major expenditure per household vary from 408,000 Kip/year to 14,400,000 Kip/year with an average of 2,993,144 Kip/year/HH (a total of 104,759,000 Kip/year by the 45 households).

Major Expenditure per HH	
Range of Expenditure Amount	Kip/year/HH
1. Maximum	14,400,000
2. Minimum	408,000
3. Average	2,993,144

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.

Major Expenditure of Typical Sample Household (High Level)	
Expenditure Items	Kip/year/HH
1. Food	2,400,000
2. Education	2,200,000
3. Fuel wood/ Kerosene	1,140,000
4. Clothes	700,000
5. Transportation/ Travel	384,000
Total	6,824,000

Major Expenditure of Typical Sample Household (Medium Level)	
Expenditure Items	Kip/year/HH
1. Health	3,000,000
2. Clothes	150,000
3. Food	100,000
4. Education	100,000
5. Tax payment	54,000
Total	3,404,000

Major Expenditure of Typical Sample Household (Low Level)

Expenditure Items	Kip/year/HH
1. Food	180,000
2. Loan payment	150,000
3. Clothes	41,000
4. Health	30,000
5. Social (festival, events, etc.)	7,000
Total	408,000

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 (3 households) ii) livestock (10 households), and iii) livestock (16 households), in order of amount of investment. On the other hand, 10 households did not invest any money last year. Average amounts per investment item per household are shown below.

Average Amounts per Investment Item per HH

Investment Item	No. of HHs	Amount of Last Year Major Investments (Kip/year)	Average per HH (Kip/year/HH)
1. Private business	3	9,000,000	257,143
2. Livestock	10	7,877,000	225,057
3. Household appliance	16	4,125,000	117,857

5.8 Major investment per HH

Annual amounts of major investment per household vary from 24,000 Kip/year (excluding 10 households, who did not invest any money last year) to 6,000,000 Kip/year with an average of 750,371 Kip/year/HH (a total of 26,263,000 Kip/year by the 35 households).

Major Investment per HH

Range of Investment Amount	Kip/year/HH
1. Maximum	26,263,000
2. Minimum (excluding no invest 10 households)	24,000
3. Average	750,371

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.

Major Investment of Typical Sample Household (High Level)

Investment Items	Kip/year/HH
1. Livestock	2,565,000
2. Farm machinery/ tools	40,000
3. -	-
Total	2,605,000

Major Investment of Typical Sample Household (Medium Level)

Investment Items	Kip/year/HH
1. Household appliance	500,000
2. Land	48,000
3. Farm machinery/ tools	46,000
Total	594,000

Major Investment of Typical Sample Household (Low Level)

Investment Items	Kip/year/HH
1. Land	550,000
2. Household appliance	540,000
	-
Total	109,000

6. Utilization of Credit/Loan

Among all the 35 interviewees, 8 households have borrowed money from relatives, of which 6 households have already paid off the loan and the other 2 have still the remaining to be returned with amounts of 250,000 Kip and 8,000 Kip, respectively. The purposes for borrowing money are for medical, asset purchase and buying rice. The borrowing amounts vary from 60,000 Kip to 400,000 Kip with an average of 195,000 Kip, with a monthly interest of 0 to 3%.

In addition to the loan above, there is one borrower who borrowed money from his neighbor. He borrowed 50,000 Kip for the medical purpose and all of which were already returned. There are no other borrowers, who received any loan or credit in the village.

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	Remaining
					(Kip)	(Kip)
1. Bank	-	-	-	-	-	-
2. Cooperative	-	-	-	-	-	-
3. Relative	8	Medical, Asset purchase Buy rice	1,560,000	0-3	1,302,000	258,000

4. Neighbor / Friend	1	Medical	50,000	0	50,000	0
5. Trader / Dealer	-	-	-	-	-	-
6. Mutual aid group	-	-	-	-	-	-
7. Others	-	-	-	-	-	-

7. Extension

Among the 35 interviewees, 27 (77.1%) have never received any training or technical advice from DAFO extension staff. The other 8 have received training or technical advice one to four times before, like 1 time (2 households), 2 times (4 households), 3 times (1 household), and 4 times (1 household), 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
35	27	8	2 HHs	4 HHs	1 HHs	1 HHs

B. HOUSEHOLD MEMBER SURVEY

Among the sampled 35 households for Household Interview Survey, a half of households (18 households) were further selected for Household Member Survey (HMS) (18 males and 18 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, for which males or the heads of the household seem to be responsible.

(2) Farming activities (concerned low land rice cultivation):

The farmers in this village don't have low land rice fields, therefore the farming activities concerned lowland rice cultivation are not practiced yet in their society.

(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.

- (4) Livestock and poultry raising activities:
Both of male and female 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 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.
- (8) Domestic business activities:
Males are mainly responsible for the domestic business activities.
- (9) Communication activities:
Males and females are responsible for attending at community meetings, getting information from media and discussions among villagers, but the resolving in-village conflicts is in charge of males.
- (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	7	15	9	2	1	1	1	0	18	18
2. Cooking	7	18	3	0	8	0	0	0	18	18
3. Washing	6	18	4	0	4	0	4	0	18	18
4. Sweeping the house	6	18	2	0	8	0	2	0	18	18
5. House repair	15	0	0	7	3	3	0	8	18	18
6. Child / elderly care	3	16	9	0	2	1	4	1	18	18
7. Kitchen gardening	13	8	0	5	2	2	3	3	18	18
8. Sewing and knitting	0	2	0	0	0	0	18	16	18	18
9. Shopping in market	3	7	1	0	11	9	3	2	18	18
Total	60	101	28	12	39	16	35	30	162	162
Farming activities										

10. Plowing	0	0	0	0	0	0	18	18	18	18
11. Seeding/ transplanting	0	0	0	0	0	0	18	18	18	18
12. Weeding	0	0	0	0	0	0	18	18	18	18
13. Application of chemical fertilizers	0	0	0	0	0	0	18	18	18	18
14. Harvesting	0	0	0	0	0	0	18	18	18	18
15. Repairing of farm	0	0	0	0	0	0	18	18	18	18
Total	0	0	0	0	0	0	108	108	108	108
<u>Slash & burn activities</u>										
16. Slashing	17	8	1	8	0	2	0	0	18	18
17. Burning	18	3	0	7	0	2	6	2	18	18
18. Clearing	16	8	2	8	0	2	0	0	18	18
19. Fencing	14	4	0	4	0	2	4	8	18	18
20. Seeding	16	12	2	5	0	1	0	0	18	18
21. Weeding	13	14	4	3	0	1	0	0	17	18
22. Harvesting	11	7	0	4	0	1	7	6	18	18
Total	105	56	9	43	0	11	17	16	125	126
<u>Livestock & poultry raising activities</u>										
23. Grazing control	12	10	3	3	0	2	3	30	18	18
24. Feeding	13	13	5	2	0	1	0	2	18	18
25. Watering	10	11	4	1	0	1	4	5	18	18
26. Collection/ production of fodder	4	3	2	3	1	1	11	11	18	18
27. Sweeping of livestock & poultry stall	11	10	3	2	1	1	3	5	18	18
Total	50	47	17	11	26	6	21	53	90	90
<u>Fishing activities</u>										
28. Fish catching in dam reservoir	5	5	1	1	0	0	12	12	18	18
29. Fish catching in river	12	7	1	1	2	5	3	5	18	18
30. Fish production in pond	1	0	0	0	0	1	17	17	18	18
31. Maintenance of boat / engine	0	0	0	0	0	0	18	18	18	18
32. Maintenance of pond	1	0	0	0	0	1	17	17	18	18
Total	19	12	2	2	2	7	67	69	90	90
<u>Forestry activities</u>										
33. Collection of fuel wood	3	15	10	3	0	0	5	0	18	18
34. Collection of forest vegetable/crops	4	14	6	2	3	1	5	1	18	18
35. Timber harvest	0	0	0	0	0	0	18	18	18	18
36. Charcoal production	0	0	0	0	0	0	18	18	18	18
Total	7	29	16	5	3	1	46	37	72	72
<u>Post-harvest & marketing activities</u>										
37. Threshing of cereals	1	1	1	1	0	0	16	16	18	18
38. Processing livestock & poultry products	1	6	3	0	6	8	8	4	18	18
39. Processing fishes	2	8	3	0	6	7	7	3	18	18
40. Processing of forest vegetables/crops	2	7	3	0	3	6	10	5	18	18
41. Selling crops	4	2	0	2	1	1	13	13	18	18
42. Selling livestock & poultry products	3	3	0	2	2	1	13	12	18	18
43. Selling fishes & fishery products	0	0	0	0	1	1	17	17	18	18
44. Selling forest vegetables/crops	1	3	1	1	3	1	13	13	18	18
45. Selling of fuel wood/charcoal	0	0	0	0	0	0	18	18	18	18
Total	14	30	11	6	22	25	115	101	162	162
<u>Domestic business activities</u>										
46. Rice mill	1	0	0	0	0	1	17	17	18	18

47. Trading	3	2	0	2	3	2	12	12	18	18
48. Shop keeping	0	1	0	0	1	1	17	16	18	18
49. Handicraft	1	0	0	0	0	0	17	18	18	18
Total	5	3	0	2	4	4	63	63	72	72
Communication activities										
50. Attending community meetings	14	7	0	0	4	10	0	1	18	18
51. Resolving in-village conflicts	9	3	0	1	3	3	6	11	18	18
52. Getting information from TV	0	0	0	0	3	1	15	17	18	18
53. Getting information from Radio	7	7	0	0	5	4	6	7	18	18
54. Political discussion with others	10	11	0	2	6	1	2	4	18	18
55. Official letter writing	2	0	0	0	1	0	15	18	18	18
Total	42	28	0	3	22	19	44	58	108	108
Religious / cultural activities										
56. Dance party	6	5	0	0	6	5	6	8	18	18
57. Picnic	6	5	1	0	6	6	5	7	18	18
58. Worship ceremony	8	5	1	0	9	10	0	3	18	18
59. Sport events	0	0	0	0	1	1	17	17	18	18
60. Playing music	1	1	0	0	1	2	16	15	18	18
61. Drawing	1	0	1	0	1	1	15	17	18	18
Total	22	16	3	0	24	25	59	67	108	108

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. Fencing	2. Fetching of drinking water
2. Harvesting	3. Harvesting
4. Clearing	3. Collection of fuel wood
4. Slashing	3. Collection of forest vegetable/ crops

Summary of Priorities to Make Easy

Activities	Priorities wanted to make easy											
	1st		2nd		3rd		4th		5th		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Home activities												
1. Fetching of drinking water	2	5					1	2	2	3	5	10
2. Cooking	1	2	2	3	1	1		1	1		5	7
3. Washing				1		2		1		1	0	5
4. Sweeping the house					1	2			1	1	2	3
5. House repair	1		1				2				4	0
6. Child / elderly care		2				1	1	1			4	1
7. Kitchen gardening	1		1				2	1	1	1	5	2
8. Sewing and knitting												
9. Shopping in market												
Farming activities												

10. Plowing												
11. Seeding/ transplanting												
12. Weeding												
13. Application of chemical fertilizers												
14. Harvesting												
15. Repairing of farm												
<u>Slash & burn activities</u>												
16. Slashing	6	1		2	1	1					7	4
17. Burning			2								2	0
18. Clearing	1	2	5	3	1	2		1	1		8	8
19. Fencing			3		4		2	1	1		10	1
20. Seeding								1	2	2	3	2
21. Weeding	2	4	2	4	5	3	3	2	2		14	13
22. Harvesting	1		1	2	2	4	3	1	3	1	10	8
<u>Livestock & poultry raising</u>												
23. Grazing control												
24. Feeding	1	1	1	1	1				1	2	4	4
25. Watering								1			0	1
26. Collection/ production of fodder												
27. Sweeping of livestock & poultry stall					1						1	0
<u>Fishing activities</u>												
28. Fish catching in dam reservoir												
29. Fish catching in river	2				1		1	1			4	1
30. Fish production in pond												
31. Maintenance of boat / engine												
32. Maintenance of pond												
<u>Forestry activities</u>												
33. Collection of fuel wood				1		2		2	1	3	1	8
34. Collection of forest vegetable/crops		1		1			1	2		4	1	8
35. Timber harvest												
36. Charcoal production												
<u>Post-harvest & marketing activities</u>												
37. Threshing of cereals												
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												
47. Trading												
48. Shop keeping												
49. Handicraft												
Total	18	18	18	18	18	18	18	18	18	18		

Table & Figures

Table V3-1 Meteorological Data (Samton)

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

Raifall at Viengkham District Station, **/													(unit: mm)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1999	11.3	0.0	25.9	153.1	262.3	84.4	210.4	343.1	71.8	15.5	0.0	0.0	1,177.8
2000	0.0	0.0	26.5	31.2	218.0	185.6	214.7	170.0	132.1	26.9	23.9	0.0	1,028.9
2001	19.8	0.0	97.7	180.3	342.2	341.2	609.8	295.0	0.0	0.0	0.0	0.0	1,886.0
2002	0.0	0.0	105.7	115.2	232.1	477.9	699.2	286.7	96.1	44.5	72.3	105.5	2,235.2
2003	43.7	39.5	72.8	162.2	197.5	125.7	65.7	87.6	76.8	0.0	0.0	28.2	899.7

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

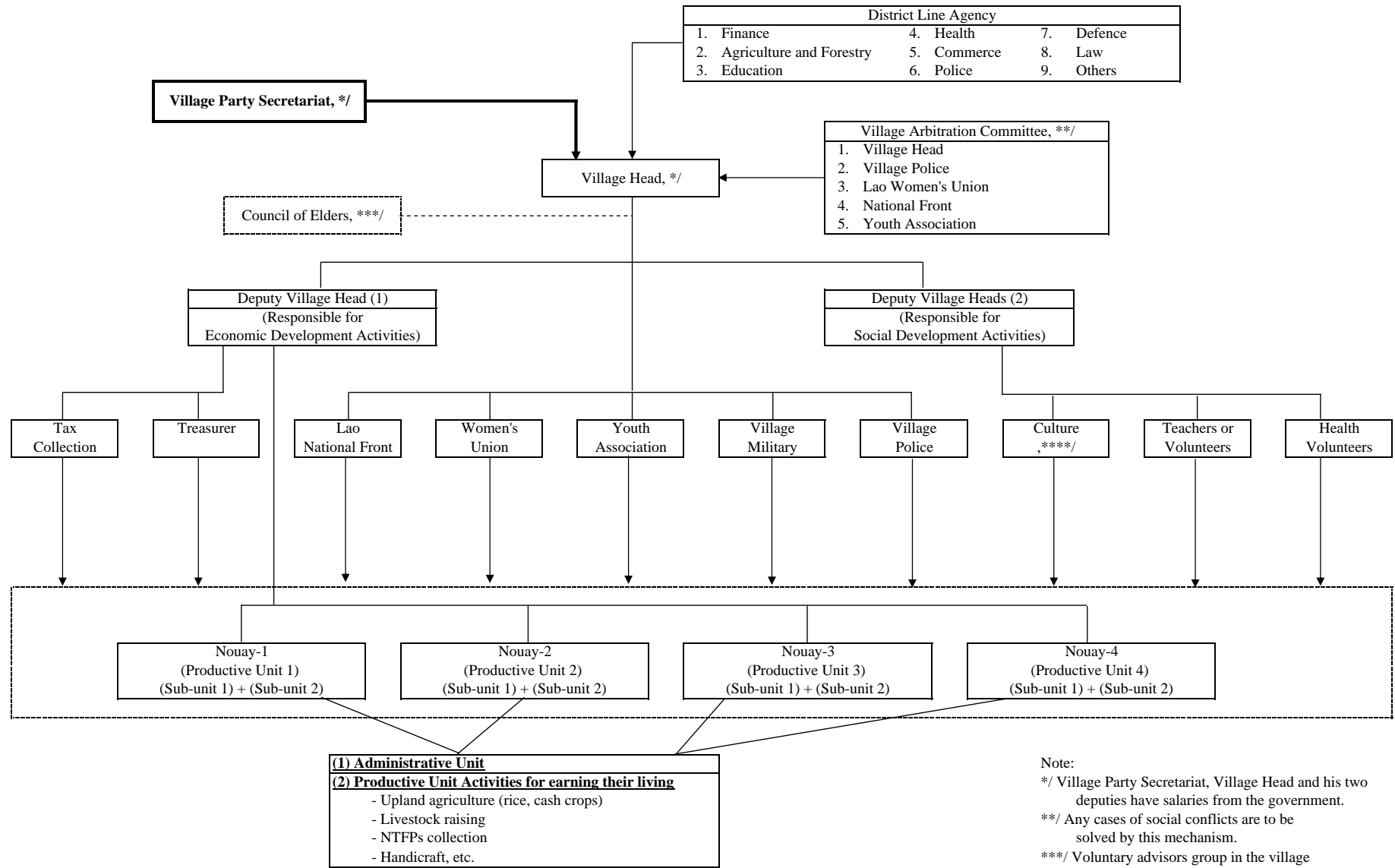


Figure V3-1 Village Organization (Samton)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
AGRICULTURE																			
Upland Rice																			
Slashing		█																	
Buring			█																
Fencing			█	█	█	█	█	█	█	█	█	█							
Sowing				█															
Weeding					(1)		(2)	(3)											
Harvest										█	█								
Transport of rice										█	█								
Corn				█	█	█	█	█	█										
Sesame				█	█	█	█	█	█										
<i>Mak Ga Do</i>				█	█	█	█	█	█										
<i>Mak Ga Wa</i>				█	█	█	█	█	█	█	█	█							
Job's Tear				█	█	█	█	█	█	█	█	█							
Cassava			█	█	█	█	█	█	█	█	█	█							
Rats				█					█	█									
Wild Pig								█	█										
LIVESTOCK																			
Diseases of Poultry			█	█															
Diseases of Baffalo					█	█													
NTFPs																			
<i>Kaem</i>	█	█																	
Mushrooms		█	█			█	█												
Paper Mulberry		█	█	█															
Bush Shells					█	█													
Bamboo Shoots					█	█													
Frog					█	█	█												
Cardamon								█											
Worm in Bamboo										█	█								
<i>Dok Kaem</i>	█	█									█	█	█	█					
<i>Puak Muak</i>	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
WATER PRODUCTS																			
Fish	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Shell				█	█														
Shrimp						█	█												
Crab	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
RAIN AND WATER LEVEL																			
Rain Fall				█	█	█	█	█	█										
Water Level		MIN					MAX						MIN						
FOOD SECURITY																			
Food Insecurity Months							█	█											
Price of Rice (kip/kg)				2300			3000	3000											
DISEASES																			
Diarrhea			█	█	█	█													

V3-F-3

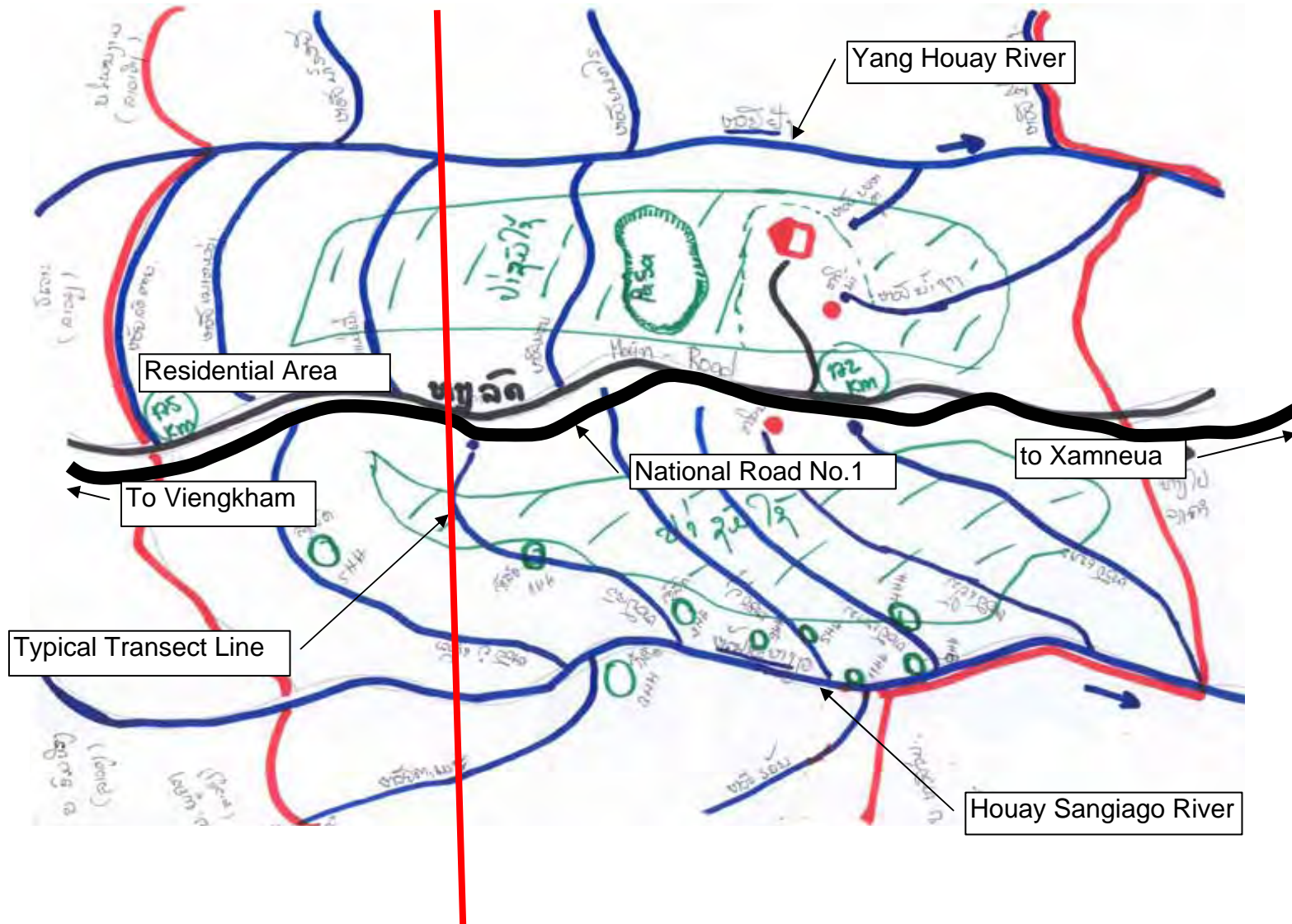


Figure V3-3 Resource Map (Samton)

Category	Shifting cultivation (1 of 3 years)	Houay Yang Streams & its circumference	Community Forest	Road & Habitat Area	Community Forest	Grazing Land (Fallow land)	Houay Sa Nyao & its circumference	St
(in Lao)	Hai Din Phalit	Houay Yang	Pa Somsai		Pa Somsai	Sanam Liyan Sat Din Phalit	Houay Sa Nyao	
Transect Line on Resouce Map								
Activity	Shifting Cultivation upland rice corn sesame job's tear cassava	Fishing small fishes Collecting crab shell shrimp (riverside) paper mulberry wild vegetables bamboo shoots Livestock goat chicken pig	Collecting bamboo shoots mushrooms bush shells <i>nyaa khaa</i> (cogon) Cutting Trees <i>mai mii</i> <i>mai sai</i> <i>mai kii bee</i> <i>mai mak muu</i> Animals (Hunting is prohibited) wild pig wild chicken mole small birds squirrel (<i>hok</i>) monkey	Livestock cattle pig chicken duck Fruit jackfruit mango coconut tamarind ko lambi/sour berry (<i>fa</i>) Blacksmith Rice Wine Planting paper mulberry	Collecting bamboo shoots mushrooms bush shells <i>nyaa khaa</i> (cogon) Cutting Trees <i>mai mii</i> <i>mai sai</i> <i>mai kii bee</i> <i>mai mak muu</i> Animals (Hunting is prohibited) wild pig wild hen mole small birds squirrel (<i>hok</i>) monkey	Livestock buffalo cattle goat poultry pig Collecting <i>kaem</i> <i>nyaa khaa</i> (cogon)	Fishing <i>pa mom</i> <i>pa chat</i> <i>pa fan</i> catfish <i>pa ko</i> (snake head fish) <i>pa hian</i> Collecting crab shell shrimp <i>ae</i> (a kind of amphibian) (riverside) paper mulberry wild vegetables <i>kaem</i> bamboo shoots <i>puak muak</i> Plant paper mulberry <i>pak gaad</i>	Shi up co se: Jo ca
Problems		Water level get decreased Fishes in streams are also declining in number.	Soil deterioration got apparent in the 1990s	Number of fruit trees are limited. Livestock tend to suffer from more diseases than in field.	Soil deterioration got apparent in the 1990s		Water level get decreased Fishes in streams are also declining. They collect too much NTFPs.	
Others						Villagers prefer goat and buffalo to others.		

Figure V3-4 Transect (Samton)

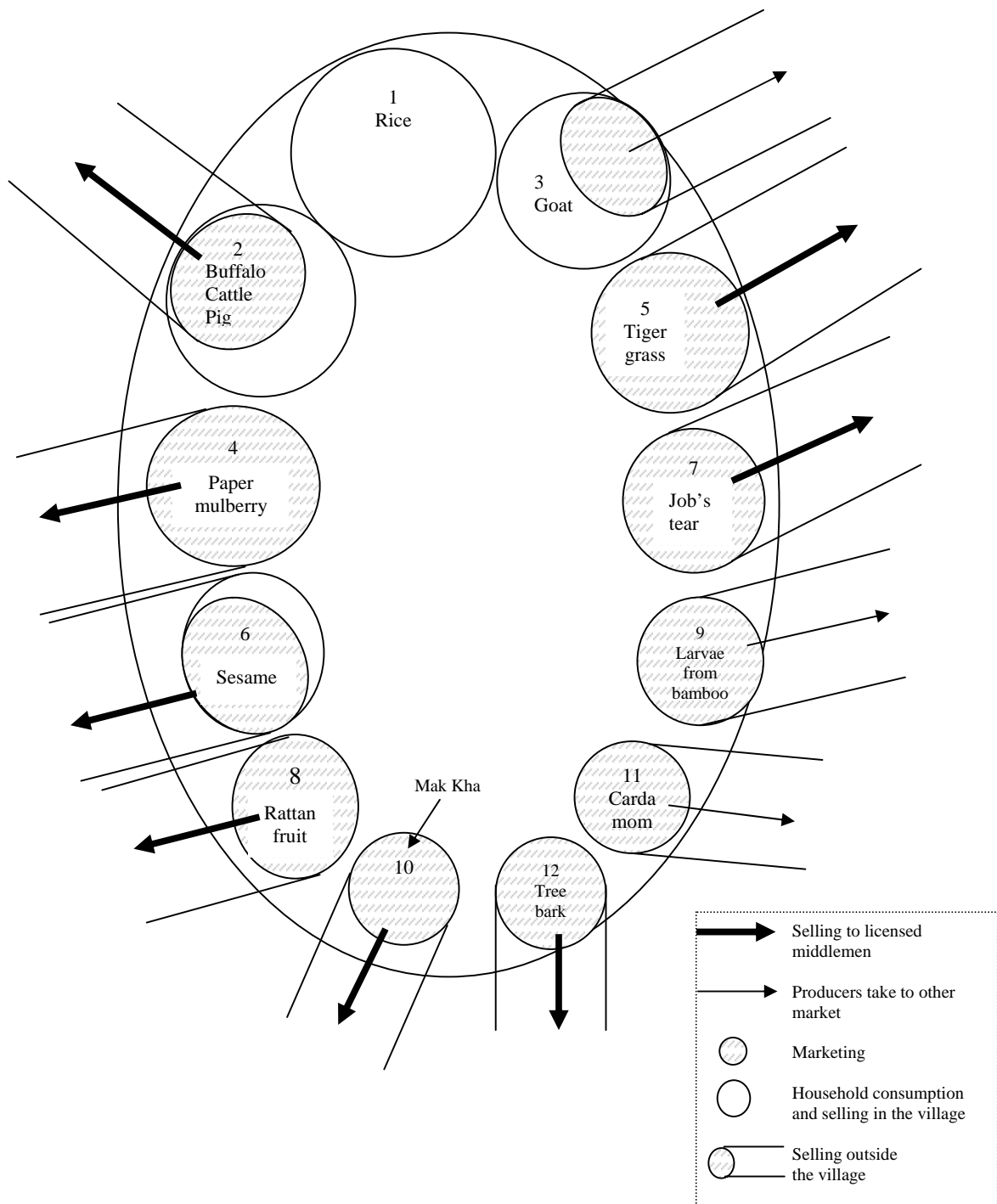


Figure V3-6 Venn Diagram of Major Products by Female Group (Samton)

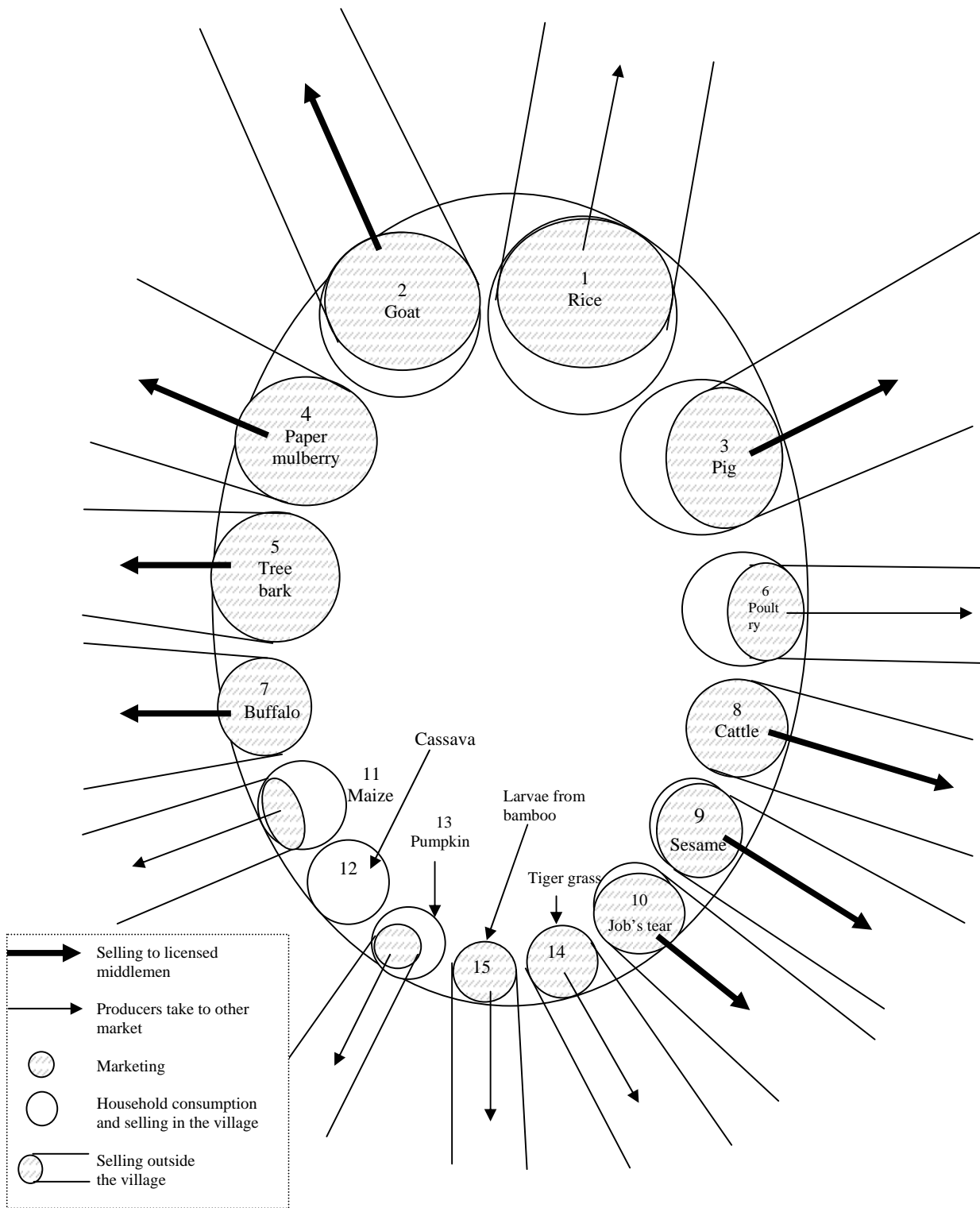


Figure V3-5 Venn Diagram of Major Products by Male Group (Samton)

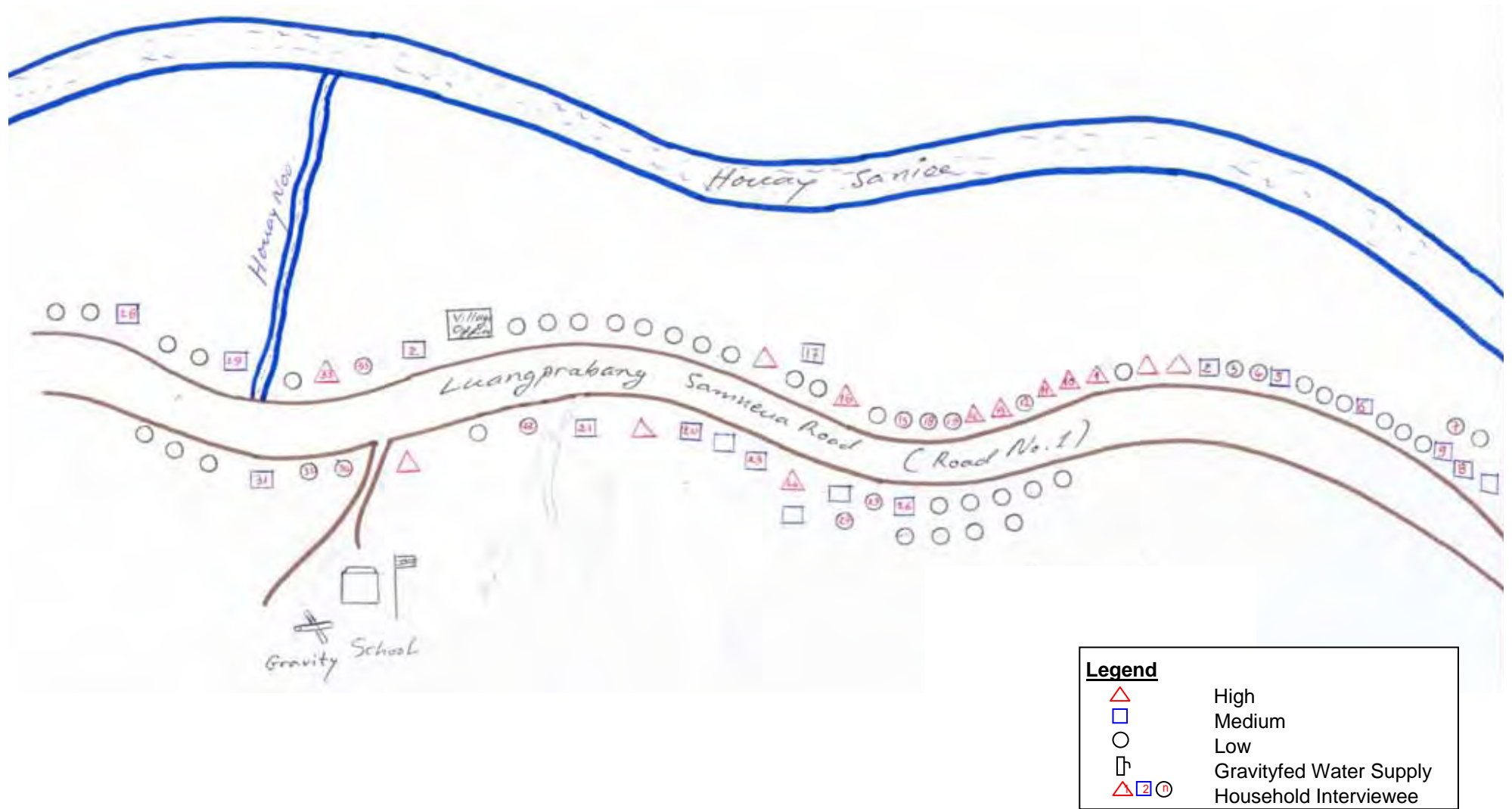


Figure V3-7 Social Map (Samton)

Village-4: Vangheung

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

Village 4: Vangheung Village

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Feature of the Village (Vangheung)

(Total HH: 54, Population: 292)

(1) Composition of the ethnic group:

The village population comprises 81% of Lao Loum and 19% of Lao Theung.

(2) Rice availability:

It is estimated that 26.7% of households (14 households among a total of 54 households) face rice shortage for about 5.4 months.

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

Total rice production and consumption in the village is estimated at 55,900 kg/year and 113,200 kg/year, respectively. The balance of annual paddy production and consumption is negative, about 57,300 kg of rice shortage.

(4) Farmland owned per HH:

Among the 8 villages, the farmland owned per HH in Vangheung is the secondary largest (2.60 ha/HH; 2.22 ha of Hai-A, 0.25 ha of Hai-B, and 0.13 ha of orchard/tree crop area) compared with the average of 2.14 ha/HH in the 8 villages.

(5) Sources of major income:

“Temporary job” is one of the features of major income sources in Vangheung compared with the other 7 villages. The reason is that the village is located near Viengkham district town, which provide more opportunities for temporary jobs. Sources of major income in Vangheung are i) livestock (1,105,000 Kip/HH), ii) temporary job (843,000 Kip/HH), iii) salary (829,000 Kip/HH), and iv) private business (589,000 Kip/HH), in order of amounts of income.

(6) Estimated marketed volumes of major products:

Marketed volumes of major products in the whole village are very small compared with those of the other 7 villages as shown below.

Estimated Marketed Volumes of Major Products by Village

Major Products	(unit)	Marketed Volume	Livestock/fish	(unit)	Marketed Volume
1) Rice	kg	-	12) Cattle	head	-
2) Job's tear	kg	-	13) Buffalo	head	-
3) Sesame	kg	445	14) Goat	head	15
4) Paper mulberry	kg	835	15) Pig	head	23
5) Tree bark	kg	90	16) Chicken	head	138
6) Tiger grass	kg	495	17) Duck	head	77
7) Bamboo shoot	kg	-	18) Fish, **/	kg	(626)
8) Palm fruit	kg	-			
9) Eagle wood	kg	-			
10) Mushroom	kg	-			
11) Wild vegetables,*/	kg	-			

Note: */ Including rattan shoots. **/ Figure in a parenthesis is product sold within/or near the village including Viengkham district market.

PART 1 VILLAGE PROFILE SURVEY

Survey Period: 02 to 04 May 2004

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

1. General Information

1.1 Location

Vangheung village is located in Viengkahm district 190 km from Luang Prabang (3 hrs 40 min. by car), 47 km from Muang Ngoi (1 hrs 10 min. by car), and 1 km from Viengkham.

1.2 History of the village

In 1971 (during 2nd Indochina War), about 40 families of Ban Houay Chang (along Houay Noy) moved to Nam Seng river bank and built Vangheung village. Soon after they moved here, they cultivated the land now categorized as “Pa SaNgouan” and “Pa Somsai” near the village.

The road connecting Muang Ngoi and Viengkham has completed in 1976 by the assistance of China. In 1978, their cultivation area expanded to Houay Noy and Houay Pae. In 1981~82, they stopped accepting newcomers due to land scarcity.

Water levels of both Nam Seng river and Houay Noy river have decreased by 30~50% for last five years. The road from Muang Ngoi to Viengkham has just rehabilitated in 2004.

1.3 Demography

The village has 54 households and a population of 292 habitants as of 22 April 2004. Available labor population (16~49) occupies 46.6 % of the total population. Female represents 53.5 % of the population as shown below.

Age Structure (as of 22 April 2004)

Age	Female	Male	Total	(%)
0 ~ 5	7	6	13	(4.4)
6 ~ 15	32	45	77	(26.4)
16 ~ 30	51	54	105	(36.0)
31 ~ 49	29	33	62	(21.2)
50 and above	17	18	35	(12.0)
<u>Total</u>	<u>136</u>	<u>156</u>	<u>292</u>	<u>(100)</u>

Source: Village head (02 May 2004)

The village population comprises two ethnic groups, Lao Loum and Lao Theung with a ratio of 4 to 1 as shown below.

Ethnic Structure

	Female	Male	Total	HH	(%)
Lao Loum	109	131	240	40	(80.8)
Lao Theung	27	30	57	14	(19.2)
Lao Sung	0	0	0	0	(0)
<u>Total</u>	<u>136</u>	<u>161</u>	<u>297</u>	54	(100)

Source: Village head (02 May 2004)

Note: Comparing both data above, there are some discrepancies. However, due to limited survey period, the survey team could not clarify them and would like to understand that the latter data about the ethnic structure show that the ratio of Lao Loum to Lao Theung is 4 to 1.

1.4 Organizational structure for administrative control

The village is administrated by a village head (Nai Ban) and two deputies. Vangheung village has 4 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 units’ 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. The Village Arbitration Committee is composed of i) Village Head, ii) Village Police, iii) Village 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 Vangheung 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. Buala
2) Deputy Village Head (1)	Mr. Phouthon
3) Deputy Village Head (2)	n.a.
4) Head of Lao National Front (Neo Hom)	Mr. Kham On
5) Head of Women’s Union	Ms. Tood

6) Head of Youth Association	Mr. Somphan
7) Head of Council of Elder's	Mr. Bounchan
8) Head of Village Police	Mr. Champheng
9) Head of Village Army	Mr. Somchan
10) Court Unit	Mr. Sunthone
11) Village Secretary of the party	Mr. Somchit

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

The village has a Buddhism organization, called Culture and Society Organization “*Kamakaan Wattanatam Sankom*”. The organization manages Buddhism festivals and marriage ceremonies.

1.6 Food security

Insecurity months are from July to September. Many households eat up all of their rice stock during such period and they sell their animals or look for NTFPs like bamboo shoots for food. Poor households (about 25 HHs) sell their labor (e.g. carrying rice) at 10,000 Kip per day to buy rice.

1.7 Illiteracy rate

Illiteracy rate of the village is 8~9 % (15 years old and above), among which 10 persons (3 females) are 15~40 years old and 8 persons (4 females) are 41 and above. According to statistics offered by the village head, educational histories of the villagers (15~40 years old) are as follows.

- Graduate Grade 3 (P3, including informal education): 37 persons
- Graduate Primary School (P5): 26 persons
- Graduate Junior High School (M3): 12 persons
- Graduate Senior High School (M6): 5 persons

1.8 Major diseases

Major diseases and their recent situation are summarized below.

- Malaria: About 10~15 persons suffers from malaria from May to September.
- Diarrhea and Vomiting: Not serious. May and June.
- Chronic Stomachache: 20 persons in the village.
- Pneumonia: from December to February.
- Bloody excrement: 10 persons died in 1992. This epidemic spread just once in the village's history.

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

i) Cooperative works

* Village cooperative upland rice field “*Hai samakii kon ban*”: The village has 1 ha of community upland rice field. Every household in the village offers one labor to cultivate the field. After the harvest they keep rice and use for ceremonies when

officials visit the village, or helping families in need (e.g. marriage, the poor). This system was invented by the villagers without outsiders' advice and have been well functioning for ten years.

* Other cooperative works

- Shifting cultivation: Labor exchange as a unit of household.
- Building house (e.g. woods carriage), marriage, sick and funeral.
- Building water supply system (now under construction): by villagers with government investment.

ii) Festival

- “*Bun Song Heua*” (Boat Festival): April
- New Year (Lao Loum): April
- “*Bun Pacham Pi*” (Yearly Festival): November

2. Livelihood and Natural Resource Management

2.1 Topography

Habitat area of Vangheung is on the Nam Seng riverbank in Vieng Kham town. Nam Seng river and Houay Noy stream flows from north to south through the village. And three mountains (Phu Vieng Noy, Phu Kho and Phu Kacham) stand between Nam Seng and Houay Noy. There is a little flat land along Houay Noy, which can be possible to develop as wetland paddy field but presently used for upland shifting cultivation. Elevation of Nam Seng river is around 410~420 m and that of the top of Phu Kho mountain is around 760~770 m.

The water level of Nam Seng river goes up to maximum in August and to minimum in May, the difference of which is about 10 m. During the 1970s, they faced a couple of natural disasters. In 1973, caterpillars ate up all the crops. In 1975, lands near Nam Seng river was flooded but the damage was limited. In 1977, serious drought hit the village.

2.2 Meteorological data

Annual rainfall records at Luang Prabang station 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 i) monthly rainfall records at Luang Prabang (1999-2002), ii) monthly rainfall of Viengkham district station (1999-2003), and iii) the maximum, minimum, and mean monthly average temperatures at Luang Prabang station (1999-2003) are presented in **Table 1**.

2.3 Land allocation

Before, each household cultivated about seven plots and came back to the same place in the eighth year. In 1993, government regulated each household to cultivate at three plots only. Each plot is about 1ha for small 2~3 ha for big families.

According to DAFO staff, the next step for land allocation should be the preparation of the documents, which 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 should be a section for drawing a sketch of the plot with its measurements. However, this procedure is not undertaken in this village.

2.4 Land classification and distribution of each land use category

2.4.1 Data of PAFO

There were some unclear understanding of the land use categories between the government and villagers. Further, the areas of each category were mostly estimated using 1/50,000~1/100,000 topographical maps through simple site investigation. According to the data from Provincial Agricultural and Forestry Office (PAFO) of Luang Prabang, the areas of each category of Vangheung village is as shown below.

Area by Land Classification (as of 1997)

Land Classification	Area (ha)
A. Agricultural Land	138
B. Forest Land	
1) Conservation Forest “ <i>Pa SaNgouan</i> ”	150
2) Protection Forest “ <i>Pa Pongkhanh</i> ”	50.5
3) Production Forest “ <i>Pa Phalith</i> ”	90
4) Rehabilitated Forest “ <i>Pa Feumfu</i> ”	35
5) Degraded Forest “ <i>Pa Sutsom</i> ”	30.5
6) Others	10.5
<u>Total Village Area</u>	<u>356</u> */

Source: PAFO of Luang Prabang (obtained during the survey)

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 chief.

Area by Land Classification by the Village

Land Classification	Area (ha), */
A. Agricultural Land	
1) Low land paddy	0
2) Upland field “ <i>Hai</i> ”+ “ <i>Suan</i> ”	38
3) Teak Plantation	3
B. Forest Land	
1) Conservation Forest “ <i>Pa SaNgouan</i> ”	80
2) Community Production Forest “ <i>Pa Somsai</i> ”	5
3) Production Forest “ <i>Pa Phalith</i> ”	124
4) Watershed Protection Forest “ <i>Hak Sa Len Nam</i> ”	4
5) Degraded Forest “ <i>Pa Sutsom</i> ”	1
C. Residential area	1

Source: Village head (02 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) “*Hai*”+ “*Suan*”: (38 ha in total)
“*Hai*” for upland rice was 30.5 ha for 34 households in 2003 and “*Suan*” for corn was 7.5 ha and for Sesame was less than 1 ha.
 - (2) Teak Plantation: (3 ha, 8 HHs)
Teak trees were planted more than 20 years ago for a small scale. But most teak trees were planted for last five years. Only one household in the village has ever sold teak trees (2003).
- (B) Forest land¹:
- (1) “*Pa SaNgouan*” (Conservation Forest): (80 ha)
“*Pa SaNgouan*” in Vangheung had been used for shifting cultivation until mid 1980s. Villagers decided not to use for shifting cultivation because this forest is located near the village. Typical plants in “*Pa SaNgouan*” are bamboo trees (“*MaiHia*”(Cephalostachyum sp. Gramineae), “*Mai Sot*”) because soil is poor. Villagers can cut any trees in “*Pa SaNgouan*” with permission from Village Forest Management Unit. Trees near Houay Heun stream are prohibited to cut. They can collect mushrooms but not bamboo shoots near Houay Heun stream.
 - (2) “*Pa Somsai*” (Community Production Forest): (2 places, 5 ha)
“*Pa Somsai*”(Community Production Forest) in Vangheung spread around “*Pa SaNgouan*” (Conservation Forest). Most trees in the forest are bamboos (“*Mai Hia*” (Cephalostachyum sp. Gramineae), “*Mai Sot*”). People from other villages ask Village Forest Management Unit for cutting trees in “*Pa Somsai*”. (For example, a village want to built a dormitory for its children to go to school in Viengkham.) Village Forest Management Unit in Vangheuang allows cutting trees for free.
 - (3) “*Pa Phalit*” (Production Forest): (124 ha)
Forest used for slash and burn cultivation. A part of production forest is already burned four times and cannot be used for agriculture any more.
 - (4) “*Hak Sa Len Nam*” (Watershed Protection Forest): (4 ha)
Woods in watershed of Houay Heung stream (3 ha) and Houay Hieh stream (1 ha) are prohibited to cut.
 - (5) “*Pa Sutsom*” (Degraded forest): (1 ha)
Tops of Mt. Veng Noy and Mt. Kho are land covered with cogon “*Nya*”. According to the village key informants, this area has never been used for shifting cultivation.
- (C) Residential area: (1.0 ha)

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.

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

2.5.1 Farming activity

Each household is allocated basically 3 plots (1.0 ha per plot) for 3-year rotation shifting cultivation system. Depending on the situation of the area, they practice shifting cultivation in a group “*Nouay Hai*”, which is composed of 4 to 6 households.

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 as substitutes for rice for the people during rice deficit period from August to October 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. 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*” (garden/orchard/ or fixed upland field crop area). 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:

34 households plant 30.5ha of upland rice in 2003. Upland rice production in the village in 2003 was 41.15 tons. Until the beginning of 1990s, they can harvest 2.0 tons/ha. But now harvest is at most 1.0 ha and sometimes only 300~500 kg if weather is not good. A key informant explained problems on planting upland rice as follows.

- Unexpected burning to neighboring forest
- Hard work (e.g. weeding): They have only 4 months for other works like physical labor (Some villagers go to Luang Prabang or Oudomsay for house or road construction.).
- Drought and rats (Rats and wild pig eat 40% of the harvest.)
- Soil deterioration
- Forest destruction (soil deterioration accelerates forest destruction)

(2) Corn

Corn was planted 7.5ha and its harvest was 45ton in 2003. (Since each corn field is very small, we calculated its area by the amount of seeds they planted in 2003. Normally, 1 ha of corn field needs 20 kg of seeds and they planted 150 kg of seeds in 2003 and they harvested 10 “*pao*” (bag) (30 kg/bag x 10 bags =300 kg) of 1 kg corn seeds.) The only problem of planting corn is rats. Rats eat almost half of the crops last year. Rats have increased for last five years.

(3) Sesame (2 species)

Sesame garden is also scattered in small pieces. But its whole area in the village was less than 1 ha by key informants’ estimation. They mostly plant “*Mak ga doo*” specie.

- (4) Cassava
One plant produces 10 kg of cassava in the fourth year. Cassava is used as feed for pig and poultry and also plays an important role for human food security during the rainy season. Cassava is planted in shifting cultivation area and near the habitat area.
- (5) Chili:
Average household grows 100 chili plants and harvest 14~15 kg of chili.
- (6) Others
They plant many kinds of vegetable as a small scale and sell to Viengkham market (less than 2 km to the market).

2.5.3 Livestock²

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

Number of Livestock	
Livestock	Number (Heads)
1) Buffalo	7
2) Cattle	0
3) Pig	150~200
4) Poultry	700~800
5) Goat	6

- (1) Buffalo: 7 heads
Before they raised more than 200 heads of buffalo along Houay Noy stream. But after epidemics spread in 1996~97, most villagers sold them and stopped raising buffalo. Now only 3 households raise 7 buffalo at the pasture (they call ‘sanam’) beside Houay Noi. Major diseases are “*Koothiip*” in December and January, and “*Homruat*” in March.
- (2) Cattle: none
No households raise cattle.
- (3) Pig: 150~200 heads
Pigs are raised in habitat area and the pasture “sanam” along Houay Noi stream. Major diseases are “*Ahivaa Muu*” and “*Taisai*” in April and May.
- (4) Poultry: 700~800 heads
Almost all the households in the village keep a small number (around 10 heads) of poultry (chicken and duck). Major disease is “*Ahivaa Kai*”. This disease spread a couple of times a year.
- (5) Goat: 6 heads

² Italics are Lao names of animal diseases obtained from the village key informants, common names of which could not be identified.

Villagers have just begun to raise goats in 2003 and have 40 heads of goats last year. But they have sold most of them because goats eat crops in shifting cultivation area.

2.6 Collecting NTFPs³

Major NTFPs collected in the village are as follows.

NTFPs collected in the Village

Major NTFPs	Description
1) Paper mulberry	The village produce 700~800 kg of paper mulberry (including both wild and planted) a year. Paper mulberry can be seen relatively a lot along Houay Pae stream. But it's far from habitat area and people from nearby villages take them away.
2) Tree bark	"Tree bark" is collected along Houay Pae stream. But production volume is relatively small.
3) Tiger grass	"Tiger grass" is collected in Community Production Forest.
4) Worm in bamboo "Me Nomai"	A lot of " <i>Me Nomaihok</i> " are collected in the village. But " <i>Mai Hok</i> " bamboo trees in the village bear fruits and died in 2003. So they will have little " <i>Me Nomaihok</i> " in the near future.
5) Bamboo shoots	" <i>Nomai Hok</i> " (<i>Dendrocalamus</i> sp. Graineae), " <i>Nomai Hia</i> " (<i>Cephalostachyum</i> sp. Gramineae) and " <i>Nomai Sot</i> " are collected in slash and burn cultivation area and Community Production Forest in July and August. Collecting bamboo shoots near Houay Heun stream in Conservation Forest is prohibited.
6) Mushrooms	Jew's ear and " <i>Het Kadan</i> " are collected in slash and burn cultivation area, Community Production Forest and Conservation Forest from April to July. " <i>Het Taap</i> " and " <i>Het Puak</i> " (<i>Termitomycetes</i> sp., <i>Agaricus integer</i> Loureiro) are collected in Conservation Forest and near Nam Seng river and small streams in August and September.
7) Medical plants	Typical herbal medicines are for 1) stomachache 2) antipyretic, and 3) neuralgia. More than 20 kinds of plants are used for the remedy of above three purposes.
8) Hunting and trapping	Government collected all guns in the village three years ago. So nobody hunt any more. Wild pig, small birds and wild chicken are captured with traps. Wild pigs are captured in shifting cultivation area while small birds and wild chicken are in bushes after shifting cultivation. About 10 heads of wild pigs are captured each year. Capturing birds and wild chicken in Conservation Forest are prohibited.
9) Cardamon	Cardamon bear fruit in the fourth year after germination in shifting cultivation area. Now they burn the area every three years, so cardamon have no chance to bear fruit before

³ 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.

	burning.
10) Benzoin	Benzoin is collected in Production Forest.

2.7 Use of water products

(1) Fishing

About 5~30 households a day go fishing mainly in Nam Seng river. Houay Noy stream is so far that villagers don't usually go fishing there. Many people from nearby villages come fishing in Houay Noy stream. According key informants, compared with 10 years ago, number of fishes in Nam Seng river and Houay Noy stream decreased significantly. The reasons are:

- Before they caught fishes for family consumption. But now they catch fishes for sale. So they catch more fishes than before.
- Tools and techniques of fishing have improved.
- More and more people from other villages come to catch fishes.

Fishing calendar in Nam Seng river and Houay Noy stream is:

- Feb~May: Fishes go up river and stream. Fishing season.
- Jun~Aug: Not good for fishing due to high water level.
- Sep~Oct: Fishes go down river and stream. Fishing season.
- Nov~Jan: Still have some fishes.

(2) Aquaculture (fish)

7 households raise fishes in ponds for house consumption. They raise fishes for several years but the number is too small to sell.

(3) Others

A lot of small shrimps are collected in both Nam Seng and Houay Noy rivers from December to September. Crabs are collected in all streams in the village for house consumption throughout the year. Nam Seng has crabs less than Houay Noy. Shells are collected in Nam Seng river. There is no shell in Houay Noy.

2.8 Other activities

(1) Weaving: Women of 40 households weave from December to March. They weave 5~10 "sins" (Lao skirts) a month. "Sin" is sold at 38,000 Kip/sin but the profit is only 5,000 Kip/sin. They use factory-made cotton thread.

(2) Spinning: Nobody in the village spin cotton for several years.

(3) Bamboo handcrafts: Bamboo handcraft is made for family use.

(4) Rice wine: About 10 households in the village produced rice wine for sale in 1995~2001. And many people came to buy from upstream villages of Nam Seng river. But they don't produce for sale any more due to rice shortage. There is no profit if they produce rice wine from purchased rice.

- (5) Blacksmith: Men of all households repair agricultural tools and knives by themselves from February to August.

2.9 Collective activities by the village for forest conservation

According to the key informants, villagers feel the needs of NTFPs (e.g. paper mulberry) protection. But no efforts have done yet.

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
Villagers carry water from Nam Seng river for everyday use even during the rainy season. New gravity-fed water supply system with 10 faucets is now under construction by villagers with government investment. It will be completed in May 2004.
- (2) School
Children in the village attended the primary school in Ban Sae until the primary school (P1&2) was built in the village in 1995. The school has been expanded to P4 (Grade 4) in 2003. P5 pupils still attend the school in Ban Sae. They go to the ethnic school in Viengkham town for high school (M1~M6).
- (3) Clinic/Hospital
No clinic or hospital in the village. But Vangheung is only 1 km from the district hospital in Viengkham town. They go to Provincial Hospital in Luang Prabang town or even to hospitals in Vientiane for serious diseases.
- (4) Road
Well paved. National Road No.1 near Viengkham was completed in 1976. This road had long been one of the worst roads in Laos until it has rehabilitated in January 2004.
- (5) Market
The market in Viengkham is just within 2 km from the village and they go to the market to buy vegetables, clothes and daily necessities.
- (6) Electricity
Public electricity is available from 7 to 9 pm. Electricity is supplied by a big generator in Viengkham town. This generating system was set up in 2001.

3.2 Agricultural infrastructure

- (1) Irrigation: None (No wetland rice field)
- (2) Rice mill:
There are three rice mills in the village. All of them were purchased after 1996.
- (3) Vehicle/Agricultural machine/Tractor:
There is no tractor. There are ten motorbikes in the village and most of them were purchased after 2000. One household bought a “*Tuktuk*” in 2003.

3.3 Infrastructure development plan

Water supply system is now under construction.

4. Organization related to the Project Activities

4.1 Organizations available in the village

- (1) Water management unit:
After completion of water system, water management unit will be set up.
- (2) Forest management unit:
Forest management unit is set up for watching illegal cutting. One head (Mr. Wandee) and two vice-heads (Mr. Taopan and Mr. Som Mai) are in charge of it.
- (3) Farmers management unit:
New farmer management units are set up every year with households, which cultivate in the same area. About 8 units are set up every year and each unit consists of 3~5 households. Family labor exchange is the basic cooperate system. But they work for free to families without enough labor, the disease or the elders.

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

Viengkham 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) EU: Micro Projects Development through Local Communities
The EU project has an office in Viengkham town and four staffs (including one German) permanently stay there. The Project period is from 2002 to 2007 (The project started in 2001 on paper, but actually in 2002). The fields of the Project include agriculture, public health and road. Target villages are 13 villages along the National Route No.1 in Viengkham district. Vangheung is not in their target villages.
- (2) Lao-American
The district office of Lao-American is now under construction in Viengkham town

(Vangheung village). But Vangheung is not in their target villages. The Project has launched in 2004. The Project objectives are “Reduction of opium production”. The fields of the Project are agriculture, public health (e.g. water supply) and road.

4.4 Any agricultural promotion activities

Only DAFO staffs visit the village for agricultural promotion activities.

4.5 Availability of agricultural technicians

Mr. Somchit(45), Mr. Kenchang(42) and Mr. Phuthone(31) went to learn raising pigs for a week at Agriculture and Forest College in Pak Suang in 2002. Mr. Kenchang and Mr. Thongkham learned raising chickens for a week. Veterinarian is Mr. Phuthone.

5. Others

5.1 DAFO extension staff activities to the village

Though DAFO office is in Vangheung village, officers teach in the village only twice a year (one in dry season and the other in rainy season).

5.2 Any migration project in the future

Not exist

5.3 Situation of tax collection (land tax etc.)

Total tax revenue of the village was 1,364,000 Kip in 2003. The usage of the revenue is 90 % (1,227,600 Kip) of amount to district government, 10 % (136,400 Kip) of that was to village government. Of village government revenue (100%=136,400 Kip), a 40% goes to village treasury (54,560 Kip) and a 60% is paid as 4 village staffs' salary (81,840 Kip).

PART 2 PARTICIPATORY VILLAGE SURVEY

- Survey period : 02 to 04 May 2004
- Resource map and social map : 02 May 2004
- Venn diagram for marketing products : 02 May 2004
- Dependence on resources by well-being level : 03 May 2004
- Present rules on the use of resources : 04 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 10 villagers participated in this session on 02 May 2004. Based on the resource map, a transect walk was conducted together with some village key informants on 03 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.	Community Production Forests: "Pa Somsai"	Construction materials (poles and timber)
		Bamboo
		Bamboo shoot
		Mushroom
		Winding plant
		Tiger grass
2.	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 Phalith"	Rice
		Sesame
		Corn
		Seasonal vegetables
		Job's tear
		Peanut
		Cassava
		Buffalo (in fallow land)
		Cattle (in fallow land)
		Goat (in fallow land)
Pig (in fallow land)		
3.	Rivers (Nam Seng)	Fish

		Small shrimp
		Crab
		Riverweed
4.	Streams (Houay Nho, Horm, Hien, Heung, Sor, Kengling, Kong, Pheung, Haet, Nga, and Pae)	Fish Shell Small shrimp
5.	River sides	Tiger grass Wild vegetables

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 02 May 2004. Twenty (20) participants were divided into two groups, namely a male group (10 persons) and a female group (10 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, there were some remarkable differences between male and female, particularly up to Priority 5. The female group listed up “rice” as the 1st priority, “water supply” as the 2nd, and “weaving” as the 3rd, “pig and poultry” as the 4th, and then “fish” as the 5th. “Water supply” is not a product but they think it is very important for their life, particularly among women’s daily works. “Weaving” is also ranked as a high priority by females because it is a good opportunity for cash income during the off-farming season, even though the amount of earning is very small. The similarities between male and female are “pig and poultry”, which 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.

By the male group, “paper mulberry” and “tiger grass” were ranked as a high priority than cash crops like sesame and Job’s tear. Normally, such cash crops are ranked as high priorities, however the both groups did not do so. This may be because of small amount of products due to limited farm lands and drought, and decreasing prices. 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 sale)	- Rice yield is low because of infertility of land and a short (3 year) fallow rotation. - Other than

						“sufficient” groups, they have to pay their debts with rice though they face rice deficiency for nine months.
- Sesame	O	6	O	7	Sale (and households medicine, ingredient: very little)	Very low yield or no fruits/seeds when drought.
- Job’s tear	--	--	O	9	Sale (and reserving a little for seeds)	Similar to sesame, very low yield when drought. Low price.
- Corn	O	8	O	9	Household consumption, feeding animal (and sale)	People here do not eat corn to substitute for rice unless they are really starved.
- Cassava	O	7	--	--	Household consumption, feeding animal.	
- Wet and dry season vegetable	O	-	O	-	Household consumption, (and sale)	Only one person has a good piece of land suitable for growing wet and dry season vegetables.
2. NTFPs						
- Paper mulberry	O	4	O	8	Sale	- Collection sites are too far to carry on their backs. - Paper mulberry trees are not well maintained.
- Tiger grass	O	5	O	8	Sale	
- Tree bark	O	10	--	--	Sale	It is stolen by neighboring villagers.
- Bamboo shoot	--	--	O	6	Household consumption and sale	Not so marketable
3. Livestock						
- Buffalo	O	11	--	--	Sale	Animal diseases
- Goat	O	9	O	10	Sale (and household consumption)	Animal diseases
- Pig	O	2	O	4	Sale (and household consumption)	Animal diseases
- Poultry	O	3	O	4	Sale and household consumption	Animal diseases
4. Others						
- Fish	--	--	O	5	Sale and household consumption	
- Weaving	--	--	O	3	Sale	Too low price
- Selling labor	O	-	--	--	For buying rice	
- Water supply	--	--	O	2	Drinking, washing, cooking, etc.	

Note: -/ Claimed as major crops but lower in rank.

--/ Not claimed as major crops.

*/Activities in parenthesis mean secondary/minor purposes.

3.2 Marketing situation of major products

(1) Licensed middlemen

There are nine (9) licensed middlemen in Viengkam district, to whom the producers/villagers to sell their products. They are Mr. Xeing Ma (for buffalo), Mrs. Dorn and Mr. Xieng Khorn (for pig and poultry), Messrs. Keo and Bounpheng (for goat), and Messrs. Somchan, Somphorn, Somphan, and Pho Xieng (for cash crops and NTFPs).

(2) No village traders

There are no village traders who collect the village products and sell to the licensed middlemen above. Since Vangheung village is very near to Vangheung district town (1 km), the products are 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 Vangheung village is presented in **Figure 5 and 6**.

Destination of Major Products

Products	Sell/Consume in the village	Sell to near other markets, 1/	Sell to Middlemen, 2/
1. Cultivated Crops			
- Rice	O	(O)	
- Sesame			O
- Job's tear			O
- Corn	O		
- Cassava	O		
- Wet and dry season vegetable	O	(O)	
2. NTFPs			
- Paper mulberry			O
- Tiger grass			O
- Tree bark			O
- Bamboo shoot	O	(O)	
3. Livestock			
- Buffalo			O
- Goat	O		
- Pig	(O)	(O)	O
- Poultry	O	(O)	
Others			
- Weaving products		O, 3/	
- Selling labor	O	O	

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

1/ Carry products by themselves to Viengkham 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 02 May 2004 with a total of 10 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 55 households of the village, 7 households (12.7 %) were classified into "high level", 28 (50.9 %) were "medium level", and the other 20 (36.4 %) were "low level", respectively. Among these, even "medium" level households normally 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 "Insecurity months are from July to September. Many households eat up all of their rice stock during such period and they sell their animals or look for NTFPs like bamboo shoots for food."

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 a number of animals such as buffalos, goats and pigs. Living situation of each level clarified by the participants is summarized in the following table.

Living Situation by Each Level

Level	Living Situation
"High" 7 HHs (12.7 %)	This group is consisted of 7 (excluding district governor) households. They are just sufficient with rice, which means that they are able to meet the needs of rice by other sources of income such as: <ul style="list-style-type: none"> - Government employee, weaving by his wife, and "Hai" practice; - Government employee, running a fuel shop by his wife; - House constructor, weaving by his wife, and "Hai" practice; - Selling labor, weaving by his wife, and "Hai" practice; - Medical business, weaving by his wife, and "Hai" practice; - Gardening business by husband and wife, "Hai" practice; - Government employees (both husband and wife), raising animals, weaving and running a small shop.
"Medium" 28 HHs (50.9 %)	<ul style="list-style-type: none"> - They are "Hai" farmers, both husbands and wives; - Some borrow rice from relatives and friends and repay the debts with rice when harvested, while others may recover their debts with their daily wages; - They keep and sell a few small animals, collect small quantity of NTFPs, and practice weaving; - Have simple houses with bamboo floor, roofing, and walling. The house frame materials are of sawn lumber; - Housewives do weaving.
"Low" 20 HHs (36.4 %)	<ul style="list-style-type: none"> - They are "Hai" farmers both husbands and wives; - They sell labor most of their time to meet the need of rice; - They keep and sell very few small animals, collect small quantity of NTFPs, and practice weaving;

	<ul style="list-style-type: none"> - They have large amount of debts fro their relatives and friends and very hard to recover them; - They have simple houses with bamboo floor, roofing, and walling. The house frame materials are of natural poles.
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4.2 Dependence on various resources by well-being level

The group discussions were organized by each well-being level on 3 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) “High” level group ranked their resources like i) buffalo, ii) pig, iii) goat, iv) tree bark, and v) paper mulberry, in order of importance.
- 2) “Medium” level” group ranked their resources like i) rice, ii) pig, iii) paper mulberry, iv) teak, and v) weaving.
- 3) “Low” level group ranked their resources like i) rice, ii) weaving, iii) selling labor, iv) livestock, v) paper mulberry, vi) tree bark, vii) tiger grass, and viii) 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. 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” 7 HHs (12.7 %)	Buffalo	<ul style="list-style-type: none"> - Raised at Phou Khor and Houay nam Noi stream; - Epidemics of diseases in 1996~97 killed most buffalos; - Before 1997, there were more than 100 buffalos in the village, and 28~29 (or 90 % of) households owned buffalos; - Epidemics of diseases (“<i>Kho Tiip</i>”, “<i>Tao Hom Leuad</i>”) occurred in two months; - Some households were able to sell remaining 4~5 buffalos and immediately used the income for construction materials; - Now there are very few buffalos in the village. 	One reason why the buffalos died was that nor animal vaccination had been made in that period.
	Pig	<ul style="list-style-type: none"> - Raised in both “<i>Sanam</i>” (field) and the village area; - Animal feeds are cassava, Job’s tear, corn, taro, and rice bran in the fields; - There is a shortage of rice bran in August and September in the village, but plenty of corn and other feeding crops in the fields; - Pigs are raised all year round and sold when they are 3~4 months old, with a value of 600,000 Kip/head; - They are interested in pig raising with an estimated profit as follows. 	-

	<ul style="list-style-type: none"> * Purchase 5 piglets x 300,000 Kip = 1,500,000 Kip * Rice bran for 3 months = 100,000 Kip x 5 pigs * Total cost = 2,000,000 Kip * Net profit = 600,000 x 5 pigs – 2,000,000 Kip = 1,000,000 Kip/3 months (330,000 Kip/month) 	
Goat	<ul style="list-style-type: none"> - Goats normally bear twice a year 3 kids each; - Raising goats is easy because they eat grass by themselves; - They are interested in goat raising with an estimated profit as follows. <ul style="list-style-type: none"> * Purchase 10 matured goats x 400,000 Kip = 4,000,000 Kip (Total investment cost); * Within 2 years, 60 heads of 1 year old goats would be sold out; * 60 goats x 400,000 Kip = 24,000,000 Kip/24 months; * Net profit = 800,000 Kip/month. 	Goats are healthy in the dry season, but usually have stomach problems in the wet season
Tree bark	It is very rare to find “tree bark” in the forest. Therefore the villagers has just started establishing “tree bark” gardens. It will take another two years for harvesting.	Lack of suitable lands to establish “tree bark” gardens, which are only on the riversides.
Paper mulberry	<ul style="list-style-type: none"> - Most are collected in the forest all year round, and an small amount is collected in the gardens. Establishing of paper mulberry gardens have just started recently; - It is collected twice a year, in December and in June; - About 40 households are practicing this activity at present; - One participant collected 120 kg of paper mulberry last year, making about 300,000 Kip. 	
Poultry	<ul style="list-style-type: none"> - Well raised in “<i>Sanam</i>” (field) because they are fed well and less suffer from diseases; - Each household of this group has about 10 chickens and 20 chicks; - Feeds for poultry are cassava, corn, and rice bran; - A chicken can be sold about 20,000 ~25,000 Kip/head; - Most of chickens are not sold but consumed by family. 	Poultry often suffer from diseases and die twice a year, before cold season and before wet season.
Weaving	<ul style="list-style-type: none"> - Lao traditional skirts and dress materials; - About 40 households practice weaving activities; - They use their own money (no loans from any informal money lenders); - Investment is approximately 400,000 Kip; - Net profit is about 100,000 Kip/month. 	Price is not stable, usually goes down.
“Medium” 28 HHs (50.9 %)	Rice <ul style="list-style-type: none"> - Grown in allocated land “<i>Pa Phalith</i>”; - If the weather is good, the yield is 1.0 ton/ha, and rice is enough for 6 months; - If the weather is not good, the yield is 0.2 ton/ha; - When facing rice deficit, they sell labor, gaining 	<ul style="list-style-type: none"> - It can be said that good weather years come only 2 to 3 times in 10 years. - Soil is unfertile;

	<ul style="list-style-type: none"> 10,000 Kip/day to meet the need of rice; - They borrow 10 kg of rice from their relatives or friends, and repay 20 kg of rice (100% of interest) after harvest; - They also eat cassava, wild roots, bamboo shoots, and wild vegetables as substitutes for rice; - They also sometimes do fishing in the river. 	<ul style="list-style-type: none"> - Rice is often damaged by rats and insects.
Pig	<ul style="list-style-type: none"> - Raised in both “<i>Sanam</i>”(field) and village area; - Estimated that only 50 % of households in this level are raising pigs with a small number per household, maybe 2 pigs each; - They normally raise pigs for about 6~12 months for selling; - One farmer made 600,000 Kip by selling 2 pigs after 3 months raising; - Another farmer made 1,200,000 Kip by selling 3 pigs after 4 months raising; - Both spent all the income from pigs for buying rice. 	<ul style="list-style-type: none"> - Many villagers want to raise buffalo, cattle, and goat but they don’t have enough money to invest it. - Chickens and ducks often have chicken cholera epidemics.
Paper mulberry and Tree bark	<ul style="list-style-type: none"> - Collected along valleys in production forest; - Some farmers in this level collected paper mulberry about 5~10 kg, making 12,000 to 25,000 Kip per year. 	<ul style="list-style-type: none"> - Neighboring villagers came and stole the paper mulberry in their lands; - Price is not stable, which tend to go down according to the amount of supply during the season.
Sesame	The villagers have just started planting sesame last year, but all the crops died.	
Teak	<ul style="list-style-type: none"> - Teak trees are planted in the lands surrounding the village; - One farmer has 40 teak trees, which are 5 to 10 years old trees; - Two farmers have 300 teak trees each in their plantations; - Another 2 farmers have 10 teak trees each; - Teak plantation was introduced by DAFO. 	Since it takes a long time until teak trees can be soled, no farmers have ever earn money from selling their teak trees until now.
Weaving	<ul style="list-style-type: none"> - All households practice weaving activities, spending about 2~3 months during off-farm season, and make about 200,000 Kip out of 30 pieces of skirts per year; - All the income from weaving is used for buying foods and other related food ingredients, medical treatments, clothing and other household utensils. 	Time consuming but small income.

<p>“Low” 20 HHs (36.4 %)</p>	<p>This group people normally face rice deficits from February. Therefore, they collect daily foods from forests such as bamboo shoots, mushrooms, and grown cassava and corn as substitutes for rice. They also collect NTFPs such as paper mulberry and tree bark for selling. Further, they earn money by labor in weeding, felling trees in slash and burning, and sawing lumber for sale. For example, income made from major products/resources last year is estimated at about 1,329,000 Kip per HHs summarized as below.</p>			
	Resource	Management	Production/ Income	Problems
	Rice	<ul style="list-style-type: none"> - Six (6) farmers participated in this session described that their production of rice were normally not sufficient for their families’ consumption from March/June to October, say “5 to 6 months rice deficit in average; - Because of rice deficit, they have to do other works than farming activities like weaving, selling labor, raising and selling livestock and collecting NTFPs. 	<p>Average rice production is about 0.6 ton/ HH/year, equivalent to about 400 kg of milled rice (400 kg x 2,500 Kip = 1,000,000 Kip)</p>	<p>Upland rice cultivation is very hard work, but small production comparing to raising animals. The profit from selling one buffalo would be enough for annual rice needs (\$300 per head).</p>
	Weaving	<ul style="list-style-type: none"> - It takes 3 days for 1 piece of “sin” (Lao skirt), which is worth for 38,000 Kip each but net profit is not more than 5,000 Kip when material costs are excluded; - The total income is about 50,000 Kip/month, or 100,000 Kip/year with average time spent of 2 months/year for weaving. 	<p>100,000 Kip</p>	<p>All the income they make from various activities is likely to be enough for buying rice in short.</p> <p>It is difficult to meet the rest of household needs such as medical treatment, clothing, school supplies for school children and others.</p>
Selling labor	<ul style="list-style-type: none"> - Building houses in the district town and neighboring villages; - Normally done by men while women do weaving at home; - Average time spent for selling labor is about 2 months/year; - Average unskilled labor cost is 6,000 Kip/day, while a skilled worker makes 600,000 Kip/month. 	<p>600,000 Kip</p>	<p>If they have money, they would like to buy and raise goats, pigs, and buffalos.</p> <p>The villagers also have a future plan to open lowland paddy fields along Houay Noi stream.</p> <p>Nowadays, livestock is</p>	

Raising and selling livestock	<ul style="list-style-type: none"> - One of participants sold 2 pigs with 700,000 Kip last year; - Another one sold one pig with 550,000 Kip, and - The other one sold one with 450,000 Kip; - An average income from pig is estimated at about 500,000 Kip/year. 	500,000 Kip	considered the best alternative for them, followed by lowland paddy activities.
Paper mulberry	<ul style="list-style-type: none"> - Collected in community production forest “<i>Pa Somsai</i>”; - Average quantity collected is 30 kg/ HH/ year, making 75,000 Kip (2,500 Kip x 30 kg). 	75,000 Kip	
Tree bark	<ul style="list-style-type: none"> - Collected in community production forest “<i>Pa Somsai</i>” ; - Average quantity collected is 3 kg/ HH/ year, making 9,000 Kip (3,000 Kip x 3 kg). 	9,000 Kip	
Tiger grass	<ul style="list-style-type: none"> - Collected in community production forest “<i>Pa Somsai</i>”; - Average quantity collected is 30 kg/ HH/ year, making 45,000 Kip (1,500 Kip x 30 kg). 	45,000 Kip	
Poultry	<ul style="list-style-type: none"> - Raised at the village and “<i>Sanam</i>” (field) - Average income from selling poultry is about 100,000 Kip/year 	100,000 Kip	
	Total average cash income/ year:	1,429,000 Kip	

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

A plenary discussion with a total of 20 participants was organized 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

According to the DAFO of Viengkham district, “land zoning” was conducted in 1993. A number of PAFO and DAFO came to the village and introduced “land zoning” (different forest types such as conservation forest, production forest, protection forest and degraded forest, and uses and their management) to the villagers. They discussed with the villagers if the village had any of the above forest types and decided which area they would like to designate as which forest types. Any measurement works have not been conducted in the field for the land zoning, but done only on estimated basis. So far, there are seven (7) forest types or land use types designated by DAFO as below.

- i) Productive land “*Din Phalith*” by DAFO, and “*Pa Phalith*” by Villagers = 138 ha;
- ii) Conservation forest “*Pa SaNgouan*” = 150 ha;
- iii) Production forest “*Pa Phalith*” = 90.0 ha;
- iv) Protection forest “*Pa Pongkanh*” = 50.5 ha;
- v) Degraded forest “*Pa Sotsom*” = 30.5 ha;
- vii) Regeneration Forest “*Pa Feumfoo*” = 35.0 ha;;
- viii) Other forests including small rivers, lakes, ponds, etc. = 10.5 ha

For the villagers, they don’t know how to differentiate among the above forests or lands. The villagers understand three (3) different forest categories, i) Community Production forest “*Pa Somsai*”, ii) Conservation forest “*Pa SaNgouan*”, and iii) Productive land “*Din Phalit*”.

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

- (1) “*Pa Somsai*”(Community Production Forest)
They use this forest for house construction materials including big trees, poles and bamboo. Felling of a big tree has to be authorized by the deputy village head, who is responsible for economic activities including agriculture and forestry. Large scale logging is not allowed unless it is licensed by DAFO through the village authority. The villagers are also allowed to collect NTFPs such as mushrooms, wild vegetables, tiger grass, tree bark, paper mulberry and cardamon.
- (2) “*Pa SaNgouan*” (Conservation forest)
According to the villagers’ understanding, nothing is allowed to interfere in the conservation area. However, practically, some villagers sometimes do collect a few poles for minor construction for the households.
- (3) “*Din Phalith*” (Productive land)
The land for upland rice production, which was provided 3 plots to each household. The area allocated to each household varies by the number of labor forces in each household. If there are 2 labors, 1.0 ha of land is allocated per year. If there are 4 labors, 2.0 ha of land are allocated per year and so on. Three plots of land means a 3-year fallow rotation. Each land is allocated to the farmers group of “Nouay of Hai” consisting of 3~5 households depending on the area.

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	After Land Zoning
<ol style="list-style-type: none"> 1. There were dense forests with big trees. 2. They were free to select any sites/area for shifting cultivation. They used to select big trees growing area with lower percent of slope. 3. They were free to practice any size of shifting cultivation and free to be bordered with any neighbors or being alone. 4. Average size was about 0.5 ha for small households and 1.0 ha for large families. 5. Practicing in a small area but could get a good production. 6. With 50 kg of rice seeds for 1.0 ha, normal yields were 1.5 ton of paddy. 7. Fallow rotation was at least 7 years. 8. Never have rice deficit. 9. Good weather with good rain. 	<ol style="list-style-type: none"> 1. No more big and good trees are found. 2. All the lands are allocated to each household and the farmers are to form in a group called “Nouay Hai” (consisting of 3~5 households) to practice shifting cultivation. 3. They must have one ha if there are two labors in the household. 4. Average size is about 1.0 ha. It is impossible to have more than 1.0 ha due to too much weeding work, 3~4 times per season. 5. Practicing in a large area but cannot get a good production 6. With 50 kg of rice seeds for 1.0 ha, normal yields now are 0.7~0.8 ton of paddy. 7. Fallow rotation is 3 years. 8. Rice deficit is every year. 9. Less rains and often drought years. <p>(The villagers project that rice will no longer be grown in this area if the same traditional technology of existing shifting cultivation is practiced, and thatch roofing grass will become dominant vegetation.)</p>

The villagers further indicated the problems in their areas as follows.

- Rice and other crops are eaten by wild animals including wild pigs, monkeys and rats;
- Good lands suitable for farming (raising animals and crops) are not available;
- NTFPs grown/found in their managed land/forest have been stolen by neighboring villagers for recent 6 years. The total loss by such theft is about 50 % of total products. The villagers notified this issue to the concerned village authority, but nothing has been improved. The reason they were not able to protect the thefts because village women are busy with their weaving activities and men are busy with selling labor to various construction works in the district town;
- “Tree bark” and “tiger grass” are now found only in very long distance;
- A villager tried to grow “tree bark” but he could not get a good result because “tree bark” normally can grow only near riverside;
- They said they knew how to maintain natural “tree bark” in a sustainable way, but the thefts would no doubt exploit them for their benefits if they were found.

PART 3 HOUSEHOLD INTERVIEW SURVEY

Survey period: 02 to 04 May 2004
Total Household: 54 HHs
Total Number of Sampled HHs: 30 HHs

A. HOUSEHOLD INTERVIEW SURVEY

1. General Information

1.1 Interviewees

Total number of interviewees is 30 persons, among which, 24 are Lao Loum, 5 are Lao Theung and one is Lao Sung. As for sex, 26 are male and 4 are female. Among those interviewees, the youngest one is 25 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
30	1	5	24	26	4	25	65

1.2 Households members

Total number of households members surveyed is 195 persons, among which 104 (53.3%) are male and 91 (46.7%) are female, and 3 are temporarily absentees.

1.3 Household age structure

As per household, the average number of household is 6.5 persons, among which 2.0 (30.8%) are less than 12 years old, 3.6 (55.4%) are between 12 and 45 years old, and 0.9 (13.8%) 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	60	32	28	2.0	30.8
2. 12 to 45 years old	109	57	52	3.6	55.4
3. More than 45 years old	26	15	11	0.9	13.8
Total	195	104	91	6.5	100

1.4 Living period

Among all the 30 interviewed households, 18 households (60%) 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	12	40.0
2. From 10 to 20 years ago	2	6.7
3. From 20 to 30 years ago	9	30.0
4. More than 30 years ago	7	23.3
Total	30	100

1.5 Educational background

Among all the 195 household members, 118 persons (60.5%) are primary school graduated/or attending, or drop out of primary school level, 42 (21.5%) are more than secondary school graduated/or attending level, and the remaining 35 (18.0%) 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	14	21	35	18.0
2. Drop out of primary school	15	19	34	17.4
3. Primary school graduated/ Attending	43	41	84	43.1
4. Drop out of secondary	7	3	10	5.1
5. Secondary school graduated/ Attending	17	7	24	12.3
6. Drop out of high school	1	0	1	0.5
7. High school graduated/ Attending	6	0	6	3.1
8. Graduate of professional high school/ Attending	0	0	0	0
9. More than high school/ Attending	1	0	1	0.5
Total	104	91	195	

1.6 Farming

Among all the 195 household members, 88 persons (45.1%) are engaging in farming.

1.7 Occupation

Among all the 195 household members, 69 persons (35.4%) are farmers, 2 persons (1.0%) are salary workers, 6 persons (3.1%) are private business workers, 63 (32.3%) are pupils/students, 22 (11.3%) are below school age children, and 10 (5.1%) have no job (including housework), and 23 (11.8%) are others, as summarized below.

Summary of Occupation

Occupation	Number	(%)
1. Farmer	69	35.4
2. Wage labor	-	-
3. Salary worker	2	1.0
4. Private business	6	3.1
5. Pupil/Student	63	32.3
6. Child (below school age children)	22	11.3
7. No job (including house work)	10	5.1
8. Others	23	11.8
Total	195	100

1.8 Organization

Among all the 195 household members, more than 75% of people do not belong to any specific organizations, but 31 persons (15.8%) are members of Women’s union, Youth organization, Elder’s group, or Village committee. In addition, 11 persons are members/ or staff belonging to “Others” like i) party and ii) village unit, etc. The villager’s membership of organizations is summarizes below.

Organization	Number	%
1. Member of Women’s Union	16	8.2
2. Member of Youth Organization	11	5.6
3. Member of Elder’s Group	2	1.0
4. Member of Water Users Group	-	-
5. Member of Village Committee	2	1.0
6. Member of Ethnic Organization	-	-
7. Member of religious Organization	-	-
8. Others (party, village unit, etc.)	11	5.6
9. No member	153	78.5
Total	195	100

2. Living Condition

2.1 Drinking water

Among all the 30 interviewed households, only 5 households (16.7%) enjoy sufficient water through piped gravity water system (PGW) in both dry and wet seasons. Ten (10) households (33.3%) use both such PGW and river depending on the water availability. Thirteen (13) households use only river for drinking water. The other 2 households use an open dug well or make a combination of river and an open dug well.

The distances to these water sources vary from one to 30 minutes. As for sufficiency of water, about 9 households face short of water in the dry season and 4 households in the wet season, as shown below.

Season	Main Source	Household		Distance		No.of HH sufficiency			
		No.	(%)	Min. (min.)	Max. (min.)	Suffic ient	Just enough	Short	Very short
Dry	a. Piped gravity water	5	16.7	1	3	5			
	b. River and PGW	10	33.3	2	30	2	4	4	
	c. River	13	43.3	2	20	9	1	2	1
	d. Open dug well	1	3.3	3	5			1	
	e. River and ODW	1	3.3	5	5			1	
Wet	a. Piped gravity water	5	16.7	1	3	5			
	b. River and PGW	10	33.3	2	30	5	4	1	
	c. River	13	43.3	2	20	10		3	
	d. Open dug well	1	3.3	3	5	1			
	e. River and ODW	1	3.3	5	5		1		

2.2 Fuel for cooking/heating

All the 30 interviewed households reply that they use fuel wood for cooking/heating and 22 households (73%) of which can collect fuel wood easily, and 8 households (27%) feel difficult to obtain fuel wood, as summarized below.

Sources of fuel	No		Availability	No	
	of HH	%		of HH	%
Fuel wood	30	100	a. Easy to obtain	22	73
			b. Difficult to obtain	8	27
			c. Very difficult to obtain	-	-

2.3 Food availability

2.3.1 Rice

Among all the 30 interviewed households, no households (0%) can produce rice more than the household demand and only 3 households (10%) can produce rice just enough to meet the household demand. On the other hand, 19 households (63.3%) cannot produce rice to meet the household demand, among which 11 households reply that they purchase (or exchange) rice to meet the household demand, but the other 8 households face difficulty to obtain rice enough to meet the household demand. The average shortage months for those 8 households is calculated to be 5.4 months.

Further, there is 8 household (26.7%) who do not produce rice, but they reply that they can purchase rice to meet the household demand.

Therefore, totally, it is estimated that among 30 households, 8 households (26.7%) face rice shortage for about 5.4 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	0	-	-	-	-	-
2. Product is just enough to meet the HH demand	3	10.0	-	-	-	-
3. Product is not enough to meet the HH demand	19	63.3	8	26.7	43	5.4
4. No product	8	26.7	-	-	-	-
Total	30	100	8	26.7	43	5.4

2.3.2 Other than rice

Other cereals, root, 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 among 30 households, 18-20 households (60-67%) of interviewed households feel that such products are enough to meet the household demand or exceed the household demand.

However, there are 3 households who can not produce such crops to meet their demand. Further, there are some households who do not produce such crops, 9 household (30%) for other cereals, 11 households (36.7%) for root and tube crops and 9 households (30%) for vegetables. They reply that they purchase or exchange such crops depending on their needs. There is only one household who face a shortage of vegetables for about 1.0 month.

Meat:

Only 8 households (26.7%) reply that the product of meat is enough to meet the household demand or exceed the household demand. Fifteen (15) households (50%) of households reply that the product of meat is not enough to meet the household demand and 7 households do not produce any meat. They reply that they purchase or exchange meat depending on their needs, but only 2 households reply that they face a shortage of meat for about 3.0 months.

Fish:

Fifteen (15) households (50%) reply that the product of fish is enough to meet the household demand or exceed the household demand. However, 6 households (20%) reply that the product of fish is not enough to meet the household demand. Further 9 households do not produce/ catch any fish. They reply that they purchase or exchange fish depending on their needs and no households 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	1	0	1	0	2
2. Product is just enough to meet the HH demand	19	18	19	8	13
3. Product is not enough to meet the HH demand	1	1	1	15	6
4. No product	9	11	9	7	9
(Total)	30	30	30	30	30
5. No.of HHs having a shortage of each product	0	0	1	2	0
6. Average shortage period per HH above (month)	0	0	1.0	3.0	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	9	30
2. VCD	6	20
3. TV	6	20

4. Bicycle	15	50
5. Motorcycle	6	20
6. Car	0	-
7. Refrigerator	0	-
8. Electric fan	3	10
9. Sewing machine	7	23.3
10. Gas stove	1	3.3
11. Toilet	7	23.3
12. Hand tractor	0	-
13. Rice mill	1	3.3
14. Satellite disk antenna	2	6.7
15. Amplifier	2	6.7
16. Wardrobe	1	3.3
17. Motor boat	3	10

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) respiratory, and those for adults are i) dysentery, ii) cold, iii) malaria, as summarized below.

Children under 15 years old			Adults		
Major diseases	No.of HH	%	Major diseases	No.of HH	%
1. Cold	17	56.7	1. Dysentery	5	16.7
2. Dysentery	12	40.0	2. Cold	3	10.0
3. Respiratory	3	10.0	3. Malaria	2	6.7
4. ....	...	...	4. ....	...	...

2.5.2 Treatment for diseases

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

Slight diseases			Severe diseases		
Major treatment	No.of HH	%	Major treatment	No.of HH	%
1. Buy medicine	19	63.3	1. Go to the district hospital	13	43.3
2. Go to village health worker	4	13.3	2. Go to the provincial hospital	5	16.7
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 30 households, 21 households have ownership for “Hai-A”. Total area of “Hai-A” is 66.6 ha with a total of 53 plots and an average area of 1.25 ha/plot and 2.22 ha/HH. Since, there are no lands rented from others, thus the average operated land is the same as that of owned land, 2.22 ha/HH.

“Hai-B”:

Among all the 30 households, 15 households have ownership for “Hai-B”. Total area of “Hai-B” is 7.55 ha with a total of 46 plots and an average area of 0.16 ha/plot and 0.25 ha/HH. Since, there are no lands rented from others, thus the average operated land is the same as that of owned land, 0.25 ha/HH.

“Fruits/ vegetables” field:

Among all the 30 households, 6 households have ownership for “Fruits/ vegetables” field. Total area of “Fruits/ vegetables” field is 3.94 ha with a total of 6 plots and an average area of 0.65 ha/plot and 0.13 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, 0.13 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)/30	Land Operated (ha) (d)/30
1. Hai-A, 1/	21	53	66.60	1.25	-	-	66.60	2.22	2.22
2. Hai-B, 2/	15	46	7.55	0.16	-	-	7.55	0.25	0.25
3. Na (Lowland paddy)	-	-	-	-	-	-	-	-	-
4. Fruit/Vegetable, 3/	6	6	3.94	0.65	-	-	3.94	0.13	0.13
Total/Average	-	105	78.09	0.74	-	-	78.09	2.60	2.60

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 ownership 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 21 households, the lands of 12 households (57.1%) is “privately owned”, the lands of 9 households (42.9%) is “government land but allocated by the village committee.

Among the “Hai-B” of 15 households, the lands of 8 households (53.3%) are “privately owned”, the lands of 7 households (48.7%) are “government land but allocated by the village committee.

Among the “Fruit/Vegetable” fields of 6 households, the lands of 4 households (66.7%) are “privately owned” and the lands of 2 households (33.3%) are “government land but allocated by the village committee”.

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

Land Category	Future of the Land Ownership					
	Land Owned by the HH					Others, 8/
	Total No.	Private, 4/	Gov.(1), 5/	Gov.(2), 6/	Unclear, 7/	
1. Hai-A, 1/	21	12	0	9	0	0
2. Hai-B, 2/	15	8	0	7	0	0
3. Na (Lowland paddy)	-	-	-	-	-	0
4. Fruit/Vegetable, 3/	6	4	0	2	-	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 lands from others)

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

3.2.1 Time required

Among all the 30 households, 24 households have replied to the times required to go to their “Hai”area, which vary from 3 min. to 180 min. with an average of 90 minutes.

3.2.2 Repeated use of “Hai” area

“Hai-A”: Among 20 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 those lands in near future. Among 20 households above, 14 households used the same lands in 2001 and 9 households used the same land in 2002.

“Hai-B”: Among 15 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 crops, upland rice or teak tree and no households answered that they would not use the same lands in near future. Among 15 households above, 9 households used the same land in 2001 and 6 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”	20	1 to 4	Rice	0	-	9	14
“Hai-B”	15	1 to 4	Rice, Upland crops, and Teak tree	0	-	6	9

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 0.69 ha/HH in 2002 to 1.07 ha/HH in 2003, with an average of 0.88 ha/HH, as summarized below.

Total “Hai” (A+B) Used Area

Year	Total Used Area (ha)	Used Area per HH (ha)
2000	27.30	0.91
2001	25.75	0.85
2002	20.80	0.69
2003	32.35	1.07
Average	26.55	0.88

3.2.4 Staying “Hai” area

Among the 30 households, 6 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, 17 households do not stay in the field but go there based on requirements. In addition to those who stay in the field continuously, one household answered that they stayed in the field during the season for slash and burn, and 4 households during the season 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	1
2. Stay during the season for seeding	0
3. Stay during the season for harvesting	4
4. Stay continuously from slash & burn to harvest	6
5. Not stay, go there based on requirement	17

3.2.5 Decision maker for the “Hai” area selection

Among all the 30 households, 13 households (43.3%) answered that the head of household was a decision maker for the “Hai” area selection, as summarized below.

Decision Maker	Number of HH
1. Head of household	13
2. Other household member(s)	0
3. Village committee	1
4. Relatives	0
5. No comments	6

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 (21 households), ii) sesame (7 households) and iii) maize (7 households), iv) Job’s tear (2 households), v) cassava (1 household), chili (1 household), and other vegetables (4 households). No crops were enumerated for the dry season.

3.3.1 Production of 3 major crops in “Hai” area

Rice:

Total production area of rice by all the 30 interviewees is 23.1 ha with a total production of 25,140 kg, and no rice was sold. As for per household, it is estimated that the production of rice is 838 kg/HH with an average planted area of 0.77 ha.

Maize:

Total production area of maize is 1.63 ha with a total production of 1,355 kg (green corn), among which only 56 kg (4% of the total production) were sold for cash. As for per household, it is estimated that the production of maize is 45 kg/HH with an average planted area of 0.05 ha, among which only 1.86 kg were sold for cash with a value of 930 Kip.

Sesame:

Total production area of sesame is 1.38 ha with a total production of 255 kg, among which 247 kg (96.8% of the total production) were sold for cash. As for per household, it is estimated that the production of sesame is 8.5 kg/HH with an average planted area of 0.04 ha, among which 8.2 kg were sold for cash, with a value of 92,135 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 by the 30 Interviewee Households

Items	Major Crops		
	Rice	Maize	Sesame
1. Name of crops			
2. Planted area : (ha)	23.1	1.63	1.38
: (kg seed)	1,155	41	14
3. Total production (kg)	25,140	1,355	255
4. Form of Products	Paddy	Green corn	Seed
5. Production sold (kg)	-	56	247
6. Price at sold (Kip / kg)	-	500	11,195 (*)
7. Total sales (Kip)	-	28,000	2,765,000
8. Production given to others (exchanged or lent to others) (kg)	None	50	None
9. Chemical fertilizer used (kg)	No chemical fertilizer / Pesticide used		
10. Major crop damage, if any	drought, pests, insects, rats, wild pigs and birds		

Note: (*) the price at sold for “sesame” seems to be very high. This may come from mis-inputs by the surveyors or mis-answers by the interviewees in some interview sheets, but the Study team used the figures based on the raw data.

Production of 3 Major Crops per HH

Items	Production Volume per HH		
	Crop 1 (a)/30	Crop 2(b)/30	Crop 3(c)/30
1. Name of crops	Rice	Maize	Sesame
2. Planted area : (ha)	0.77	0.05	0.04
: (kg seed)	38.5	1.25	0.40
3. Total production (kg)	838	45	8.50
4. Form of Products	Paddy	Green corn	Seed
5. Production sold (kg)	-	1.86	8.23
6. Price at sold (Kip / kg)	-	500	11,195 (*)
7. Total sales (Kip)	-	930	92,167

Note: (*) the price at sold for “sesame” seems to be very high. This may come from mis-inputs by the surveyors or mis-answers by the interviewees in some interview sheets, but the Study team used the figures based on the raw data.

3.4 Crop production in “Na”

There are no lowland paddy fields in this village.

3.5 Annual paddy production and consumption per HH

The interviewees were asked their annual paddy production and consumption in their households. Some difference between the results of questions of the paddy production in Section 3.3.1 (25,140 kg) and Section 3.5 (31,060 kg) is found during the analysis of the results of the survey and no adjustments were made for those data. 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)/30
1. Paddy production in paddy land “Kao Na”	0 kg/year	0 kg/year
2. Paddy production in slash and burn area “Kao Hai”	31,060 kg/year	1,035 kg/year
3. Total paddy production (3 = 1 + 2)	31,060 kg/year	1,035 kg/year

4. Total paddy consumption in a month (average)	5,241 kg/month	175 kg/month
5. Total paddy consumption in a year (average)	62,894 kg/year	2,096 kg/year
6. Balance of paddy in household (6 = 3 – 5)	-31,834 kg/year	-1,061 kg/year

The survey result suggests that in average each household faces about 1,061 kg of rice shortage per year. On the other hand, as seen in Section 2.3.1, it is estimated that among 30 households, only 8 households (14.7%) face rice shortage for about 5.4 months. It is understood that some can produce rice to meet their demand and the other can purchase rice based on their requirements, and such food availability much depends on the land availability and their family labor availability, etc.

3.6 Fruits/Tree crops

Most 5 major fruits/tree crops (including industrial trees) among the 30 households are i) paper mulberry, ii) teak tree, iii) banana, iv) mango, and v) pomegranate in order of number, and the average numbers of those bearing trees per HH are i) 72 trees, ii) 68 trees, iii) 7.9 trees, iv) 4.4 trees, and v) 3.3 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)/30	Non-bearing trees (b)/30
1. Orange	7	15	0.2	0.5
2. Lemon	10	11	0.3	0.3
3. Lime	-	-	-	-
4. Longan	-	9	-	0.3
5. Jackfruit	31	24	1.0	0.8
6. Tamarind	30	23	1.0	0.7
7. Guava	63	5	2.1	0.1
8. Papaya	13	-	0.4	-
9. Banana	239	40	7.9	1.3
10. Coconut	56	68	1.8	2.2
11. Coffee	40	-	1.3	-
12. Tea	5	-	0.1	-
13. Mangoes	133	46	4.4	1.5
14. Teak tree	2,040	2,878	68.0	95.9
15. Paper mulberry	2,177	548	72.5	18.2
16. Bark tree	3	-	0.1	-
17. Pineapple	50	390	1.6	13.0
18. Pamegranate	100	3	3.3	0.1

3.7 Non-timber forest products

3.7.1 Major NTFPs

Most 5 major NTFPs among the 30 households are i) paper mulberry, ii) tiger grass, iii) tree bark, iv) cardamon, and v) bamboo shoot in order of cash income available, as summarized below.

Major Non-Timber Forest Products

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

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 30 Interviewee Households

Items	NTFP 1(a)	NTFP 2(b)	NTFP 3 (c)	NTFP 4 (d)	NTFP 5 (e)
1. Name of NTFPs	Paper mulberry	Tree bark	Tiger grass	Bamboo shoot	Cardamon
2. Harvest season	1-12	1-12	1-5	3-9	8
3. Volume of harvest in 2003 (kg)	464	50	275	395	12
5. Price at sold in 2003 (Kip/kg)	2,424	4,000	2,382	-	8,000
6. Total sales (Kip)	1,124,500	200,000	655,000	-	96,000

Production and Sale of Major NTFPs per HH

Items	NTFP 1(a)/30	NTFP 2(b)/30	NTFP 3 (c)/30	NTFP 4 (d)/30	NTFP 5 (e)/30
1. Name of NTFPs	Paper mulberry	Tree bark	Tiger grass	Bamboo shoot	Cardamon
2. Harvest season	1-12	1-12	1-5	3-9	8
3. Volume of harvest in 2003 (kg)	15.46	1.66	9.16	13.16	0.40
5. Price at sold in 2003 (Kip/kg)	2,424	4,000	2,382	-	8,000
6. Total sales (Kip)	37,475	6,640	21,819	-	3,200

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 (0.1 head), iii) goat (0.9 head), iv) pig (1.9 head), v) chicken (24.5 heads), vi) duck (6.6 heads), respectively, as summarized below.

Type	No. (a)	No. of HH	Feeding				Typical livestock per HH (a)/30
			Wet Season		Dry Season		
			Main feed	Sufficiency	Main feed	Sufficiency	
1. Cattle	8	1	Grass	Sufficient	Grass	Sufficient	0.2
2. Buffalo	4	3	Grass	Sufficient	Grass	Sufficient	0.1
3. Goat	29	7	Grass, C. residue	Sufficient	Grass, C. residue	Sufficient	0.9
4. Pig	58	18	C. residue	Sufficient	C. residue	Sufficient	1.9
5. Chicken	735	26	C. residue	Sufficient	C. residue	Sufficient	24.5
6. Duck	200	15	Root & tuber crop	Sufficient	Root & tuber crop	Sufficient	6.6

3.8.2 Catch of fishes

Main types of fishes caught are:

“Pa Kheung” (*Mystus wyckii*), “Pa King” (*Onychostoma* sp: carp), “Pa Chat”(Acrossocheilus deauratus), “Pa Nang” (*Kryptopterus apogon*), “Pa Keng”(Osteochilus prosemion fowler, *Cirrhinus molitorella*), “Pa Mom” (*Scaphodontichtys* sp.: carp), “Pa Tong”(Notopterus chitala), and “Pa Nam”(Mystacoleucus greenwayi: small carp).

Season of fishing is all the year. The total production by the 35 households is 98 kg per week and average catch of fishes per week per HH is estimated at 3.26 kg/week/HH.

3.8.3 Fish raising

Among the 30 households, 3 households have their fish pond raising carp and cat 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) goat (0.4 head), ii) pig (0.8 head), iii) chicken (5.1 heads), iv) duck (8.0 heads), respectively. As for fishes, 11.6 kg/HH of fishes were sold in the last 12 months, as summarized below.

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	-	1	1	-	-
3. Goat	12	1	5	0.4	-
4. Pig	25	15	14	0.8	0.5

5. Chicken	153	-	12	5.1	-
6. Duck	85	-	8	8.0	-
7. Fish	348 kg (weight of fishes)		7	11.6 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.

Marketed products in this village are very small comparing with other 7 villages. Total major crop sold outside the village is only 445 kg of sesame and other crops like rice, Job's tear and maze are not sold. Total major NTFPs sold outside the village are 835 kg of paper mulberry, 90 kg of tree bark, 495 kg of tiger grass, and 22 kg of cardamon. Total major livestock and fish sold outside the village are 15 heads of goat, 23 heads of pig, 138 heads of chicken, and 77 heads of duck.

Estimated Marketed Volumes of Major Products (Vangheung)

Description	3 Major Crops			5 NTFPs				
	Upland Rice	Sesame,***/	Maze	Paper mulberry	Tree bark	Tiger grass	Bamboo shoot	Cardamon
I. Total of Sampled 30 HHs								
- Volume harvested in 2003	25,140	255	1,355	464	50	275	395	12
- Volume sold in 2003	0	247	56	464	50	275	0	12
- Average price at sold in 2003 (Kip/kg)	-	11,195	500	2,424	4,000	2,382		8,000
- Form of products	paddy	seed	green	dry bark	dry bark	dry grass	raw	dry seed
- Unit	kg	kg	kg	kg	kg	kg	kg	kg
II. Total of the Village (54 HHs)								
- Total volume sold	0	445	101	835	90	495	0	22
- Sold within the village,*/ (estimated,**/)	0	0	101	0	0	0	0	0
- Sold outside the village (estimated,**/)	0	445	0	835	90	495	0	22

(continued)

Description	Livestock/Fish						
	Cattle	Buffalo	Goat	Pig	Chicken	Duck	Fish
I. Total of Sampled 30 HHs							
- Volume harvested in 2003	-	-	-	-	-	-	-
- Volume sold in 2003	0	0	12	25	153	85	348
- 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 (54 HHs)							
- Total volume sold	0	0	22	45	275	153	626
- Sold within the village,*/ (estimated,**/)	0	0	6	23	138	77	626
- Sold outside the village (estimated,**/)	0	0	15	23	138	77	0

Note: */ including Viengkham district market,

**/ estimated based on the results of the Venn Diagram Preparation

***/ the price at sold for "sesame" seems to be very high, which might come from mis-inputs by the surveyors or mis-answers by the interviewees.

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 (22 households), ii) wage from temporary job out of farm (13 households), iii) salary from permanent job (8 households), iv) private business (8 households), and v) selling handicraft (17 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)/30 (Kip/year/HH)
1. Selling livestock/ poultry/ products	22	33,141,000	1,104,700
2. Wage from temporary job out of farm	13	25,290,000	843,000
3. Salary from permanent job	8	24,877,200	829,240
4. Private business (trading, shops, etc.)	8	17,662,000	588,733
5. Selling handicraft	17	7,745,000	258,167

5.2 Major income per HH

Annual amounts of major income per household vary from 395,000 Kip/year to 13,480,000 Kip/year with an average of 4,347,540 Kip/year/HH (a total of 130,426,200 Kip/year by the 30 households).

Range of Cash Income	Kip/year/HH
1. Maximum	13,480,000
2. Minimum	395,000
3. Average	4,347,540

5.3 Major income of sample households

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

Income Sources	Kip/year/HH
1. Salary from permanent job	3,900,000
2. Selling asset	3,700,000
3. Private business (trading, shop, etc.)	3,000,000
4. Selling agri-products and handicraft	1,085,000
5. Wage from temporary job out of farm	1,050,000
Total	12,795,000

Major Income of Typical Sample Household (Medium Level)

Income Sources	Kip/year/HH
1. Wage from temporary job out of farm	3,900,000
2. Selling handicraft	400,000
3. Selling NTFPs	80,000
4. -	-
5. -	-
Total	4,380,000

Major Income of Typical Sample Household (Low Level)

Income Sources	Kip/year/HH
1. Selling field crops/ vegetables	200,000
2. Remittance from family members	150,000
3. Selling NTFPs	45,000
4. -	-
5. -	-
Total	395,000

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) food (30 households) ii) health (23 households), iii) clothes (23 households), iv) education (18 households) and v) social activities (festivals, ceremonies, religious events, etc.) (20 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)/30 (Kip/year/HH)
1. Food	30	80,420,700	2,680,690
2. Health	23	27,873,000	929,100
3. Clothes	23	7,180,000	229,333
4. Education	18	6,380,000	212,667
5. Social activities/events	20	3,232,000	107,733

5.5 Major expenditure per HH

Annual amounts of major expenditure per household vary from 298,000 Kip/year to 14,505,000 Kip/year with an average of 4,320,623 Kip/year/HH (a total of 129,618,700 Kip/year by the 30 households).

Major Expenditure per HH	
Range of Expenditure Amount	Kip/year/HH
1. Maximum	14,505,000
2. Minimum	298,000
3. Average	4,320,623

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	7,200,000
2. Health	560,000
3. Transport and travel	500,000
4. Social activities/ events	500,000
5. Education	400,000
Total	9,160,000

Expenditure Items	Kip/year/HH
1. Food	4,024,000
2. Clothes	500,000
3. Health	200,000
4. Social activities/ events	16,500
5. -	-
Total	5,092,000

Expenditure Items	Kip/year/HH
1. Health	120,000
2. Food	100,000
3. Social activities/ events	50,000
4. Tax payment	28,000
5. -	-
Total	298,000

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) livestock (12 households) ii) private business (6 households), and iii) household appliance (7 households), in order of amount of investment. On the other hand, 5 households did not invest any money 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)	Average per HH (Kip/year/HH)
1. Livestock	12	7,494,000	249,800
2. Private business	6	6,700,000	223,333
3. Household appliance	7	2,509,000	83,633

5.8 Major investment per HH

Annual amounts of major investment per household vary from 34,000 Kip/year (excluding 5 households, who did not invest any money last year) to 5,200,000 Kip/year with an average of 795,333 Kip/year/HH (a total of 23,860,000 Kip/year by the 30 households).

Major Investment per HH	
Range of Investment Amount	Kip/year/HH
1. Maximum	5,200,000
2. Minimum (excluding no invest 5 households)	34,000
3. Average	795,333

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 5 households, who did not invest any money last year.

Major Investment of Typical Sample Household (High Level)	
Investment Items	Kip/year/HH
1. Transportation means	4,500,000
2. Private business	700,000
3. -	-
Total	5,200,000

Major Investment of Typical Sample Household (Medium Level)	
Investment Items	Kip/year/HH
1. Livestock	580,000
2. Farm machinery/ tools	60,000
3. -	-
Total	640,000

Major Investment of Typical Sample Household (Low Level)	
Investment Items	Kip/year/HH
1. Household appliance	40,000
2. -	-
3. -	-
Total	40,000

6. Utilization of Credit/Loan

Among all the 30 interviewees, 12 households have borrowed money from bank, of which 4 households have already paid off the loan and the other 8 have still the

remaining to be returned with amounts varying from 307,500 Kip to 2,000,000 Kip. The purposes for borrowing money are for purchasing livestock, private business, medical treatment and weaving. The borrowing amounts vary from 300,000 Kip to 2,000,000 Kip with an average of 1,275,000 Kip, with a monthly interest of 0.25 to 2.16%.

In addition to the loan above, there are 8 households who borrowed money from their relatives, of which 4 households have already paid off the loan and the other 4 have still the remaining to be returned with amounts varying from 100,000 Kip to 1,200,000 Kip. The purpose for borrowing money are for private business, medical treatment, asset purchase, buying rice and paying debt. The borrowing amounts vary from 60,000 Kip to 4,000,000 Kip with an average of 1,272,500 Kip, with a monthly interest of 0 to 1.5 %.

Further, there is one person who borrowed money from a trader. He borrowed 500,000 Kip for private business.

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	12	Livestock, Private business, Medical treatment, Weaving	15,300,000	0.25-2.16	5,975,500	9,324,500
2. Cooperative	-	-	-	-	-	-
3. Relative	8	Private business, Medical, Asset purchase, Buying rice, Paying debt.	10,180,000	0.0-1.5	7,980,000	2,200,000
4. Neighbor / Friend	-	-	-	-	-	-
5. Trader / Dealer	1	Private business	500,000	-	-	500,000
6. Mutual aid group	-	-	-	-	-	-
7. Others	-	-	-	-	-	-

7. Extension

Among the 30 interviewees, 18 (60%) have never received any training or technical advice from DAFO extension staff. The other 12 have received training or technical advice one to three times before, like 1 time (6 households), 2 times (5 households) and 3 times (1 household), 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
30	18	12	6 HHs	5 HHs	1 HHs	-

B. HOUSEHOLD MEMBER SURVEY

Among the sampled 30 households for Household Interview Survey, a half of households (18 households) were further selected for Household Member Survey (HMS) (15 males and 15 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, for which males or the heads of the household seem to be responsible.

(2) Farming activities (concerned low land rice cultivation):

The farmers in this village don't have low land rice fields, therefore the farming activities concerned lowland rice cultivation are not practiced yet in their society.

(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.

(4) Livestock and poultry raising activities:

Mostly females 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 responsible for collection of forest vegetables/ crops and collection of fuel wood, while timber harvest and charcoal production are mostly 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.

(8) Domestic business activities:

Both males and females are responsible for trading, but for handicraft business females are responsible.

(9) Communication activities:

Both of male and female are responsible for attending at community meetings and discussions among villagers, but the resolving in-village conflicts is in charge of males.

(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	2	13	9	0	4	1	0	1	15	15
2. Cooking	1	15	8	0	4	0	2	0	15	15
3. Washing	2	15	7	0	6	0	0	0	15	15
4. Sweeping the house	3	14	6	1	6	0	0	0	15	15
5. House repair	15	1	0	6	0	4	0	4	15	15
6. Child / elderly care	3	14	8	0	3	0	1	1	15	15
7. Kitchen gardening	7	8	3	3	1	2	4	2	15	15
8. Sewing and knitting	0	10	0	1	0	0	15	4	15	15
9. Shopping in market	4	5	2	1	7	5	2	4	15	15
Total	37	95	43	12	31	12	24	16	135	135
Farming activities										
10. Plowing	1	0	0	0	0	0	14	15	15	15
11. Seeding/ transplanting	1	0	0	0	0	0	14	15	15	15
12. Weeding	1	0	0	0	0	0	14	15	15	15
13. Application of chemical fertilizers	1	0	0	0	0	0	14	15	15	15
14. Harvesting	1	0	0	0	0	0	14	15	15	15
15. Repairing of farm	1	0	0	0	0	0	14	15	15	15
Total	6	0	0	0	0	0	84	90	90	90
Slash & burn activities										
16. Slashing	10	1	0	7	1	1	4	6	15	15
17. Burning	10	1	0	5	1	1	4	8	15	15
18. Clearing	10	1	0	7	1	1	4	6	15	15
19. Fencing	6	1	0	3	1	1	8	10	15	15
20. Seeding	9	6	1	4	1	1	4	4	15	15
21. Weeding	10	5	0	5	1	1	4	4	15	15
22. Harvesting	8	3	0	5	1	1	6	6	15	15

Total	63	18	1	36	7	7	34	44	105	105
<u>Livestock & poultry raising activities</u>										
23. Grazing control	4	5	2	1	0	0	9	9	15	15
24. Feeding	4	11	8	2	2	1	1	1	15	15
25. Watering	4	12	8	1	2	0	1	2	15	15
26. Collection/ production of fodder	0	1	2	0	0	0	13	14	15	15
27. Sweeping of livestock & poultry stall	6	9	4	2	2	1	3	3	15	15
Total	18	38	24	6	6	2	27	29	75	75
<u>Fishing activities</u>										
28. Fish catching in dam reservoir	4	2	0	1	0	1	11	11	15	15
29. Fish catching in river	11	3	0	1	1	4	3	7	15	15
30. Fish production in pond	2	0	0	0	0	1	13	14	15	15
31. Maintenance of boat / engine	7	0	0	1	0	0	8	14	15	15
32. Maintenance of pond	2	1	0	0	0	0	13	14	15	15
Total	26	6	0	3	1	6	48	60	75	75
<u>Forestry activities</u>										
33. Collection of fuel wood	3	13	7	0	4	1	0	1	14	15
34. Collection of forest vegetable/crops	1	14	5	0	8	0	0	1	14	15
35. Timber harvest	0	0	0	0	0	0	14	15	14	15
36. Charcoal production	1	0	0	0	2	1	11	14	14	15
Total	5	27	12	0	14	2	25	31	56	60
<u>Post-harvest & marketing activities</u>										
37. Threshing of cereals	1	1	0	1	1	0	13	13	15	15
38. Processing livestock & poultry products	1	7	4	0	5	5	5	3	15	15
39. Processing fishes	1	10	5	0	4	5	5	0	15	15
40. Processing of forest vegetables/crops	1	10	4	0	6	5	4	0	15	15
41. Selling crops	0	6	3	0	1	4	11	5	15	15
42. Selling livestock & poultry products	1	4	2	1	3	3	9	7	15	15
43. Selling fishes & fishery products	0	4	1	0	3	2	11	9	15	15
44. Selling forest vegetables/crops	1	4	0	0	3	3	11	8	15	15
45. Selling of fuel wood/charcoal	1	0	0	0	0	0	14	15	15	15
Total	7	46	19	2	26	27	65	60	135	135
<u>Domestic business activities</u>										
46. Rice mill	2	0	0	0	0	0	13	15	15	15
47. Trading	3	4	0	0	2	2	10	9	15	15
48. Shop keeping	1	1	0	0	0	2	14	12	15	15
49. Handicraft	0	9	1	0	1	1	13	5	15	15
Total	6	14	1	0	3	5	50	41	60	60
<u>Communication activities</u>										
50. Attending community meetings	12	5	1	3	2	7	0	0	15	15
51. Resolving in-village conflicts	10	0	0	0	1	2	4	13	15	15
52. Getting information from TV	3	4	0	0	3	3	9	8	15	15
53. Getting information from Radio	3	3	0	0	8	7	4	5	15	15
54. Political discussion with others	7	6	1	1	6	3	1	5	15	15
55. Official letter writing	1	0	0	0	0	0	14	0	15	15
Total	36	18	2	4	20	22	32	31	90	90
<u>Religious / cultural activities</u>										
56. Dance party	5	3	2	1	7	9	1	2	15	15
57. Picnic	4	3	1	0	7	7	3	5	15	15
58. Worship ceremony	4	3	2	0	9	11	0	1	15	15

59. Sport events	0	0	0	0	1	0	14	15	15	15
60. Playing music	1	0	0	0	3	4	11	11	15	15
61. Drawing	2	0	0	0	0	0	13	15	15	15
Total	16	9	5	1	27	31	42	49	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. Slashing	2. Harvesting
2. Fish catching in the river	3. Cooking
4. Harvesting	4. Collection of forest vegetable/ crops
5. Kitchen gardening	5. Collection of fuel wood
6. Feeding	5. Slashing
	5. Child/ elderly care

Summary of Priorities to Make Easy

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

22. Harvesting		1	1	3	2	2			2	2	5	8
Livestock & poultry raising												
23. Grazing control											0	0
24. Feeding	2		1	1		1			1	1	4	3
25. Watering											0	0
26. Collection/ production of fodder											0	0
27. Sweeping of livestock & poultry stall						1					0	1
Fishing activities												
28. Fish catching in dam reservoir											0	0
29. Fish catching in river	1				1		3		2		7	0
30. Fish production in pond											0	0
31. Maintenance of boat / engine	1										1	0
32. Maintenance of pond											0	0
Forestry activities												
33. Collection of fuel wood		1					2	2	1	2	3	5
34. Collection of forest vegetable/crops				2				3		1	0	6
35. Timber harvest											0	0
36. Charcoal production									1		1	0
Post-harvest & marketing activities												
37. Threshing of cereals											0	0
38. Processing livestock & poultry products											0	0
39. Processing fishes											0	0
40. Processing of forest vegetables/crops											0	0
41. Selling crops											0	0
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			2								2	0
47. Trading			1					1		1	1	2
48. Shop keeping									1		1	0
49. Handicraft								1		2	0	3
Total	15	15	15	15	14	15	14	14	13	14		

Table & Figures

Table V4-1 Meteorological Data (Vangheung)

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

Raifall at Viengkham District Station, **/													(unit: mm)
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1999	11.3	0.0	25.9	153.1	262.3	84.4	210.4	343.1	71.8	15.5	0.0	0.0	1,177.8
2000	0.0	0.0	26.5	31.2	218.0	185.6	214.7	170.0	132.1	26.9	23.9	0.0	1,028.9
2001	19.8	0.0	97.7	180.3	342.2	341.2	609.8	295.0	0.0	0.0	0.0	0.0	1,886.0
2002	0.0	0.0	105.7	115.2	232.1	477.9	699.2	286.7	96.1	44.5	72.3	105.5	2,235.2
2003	43.7	39.5	72.8	162.2	197.5	125.7	65.7	87.6	76.8	0.0	0.0	28.2	899.7

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

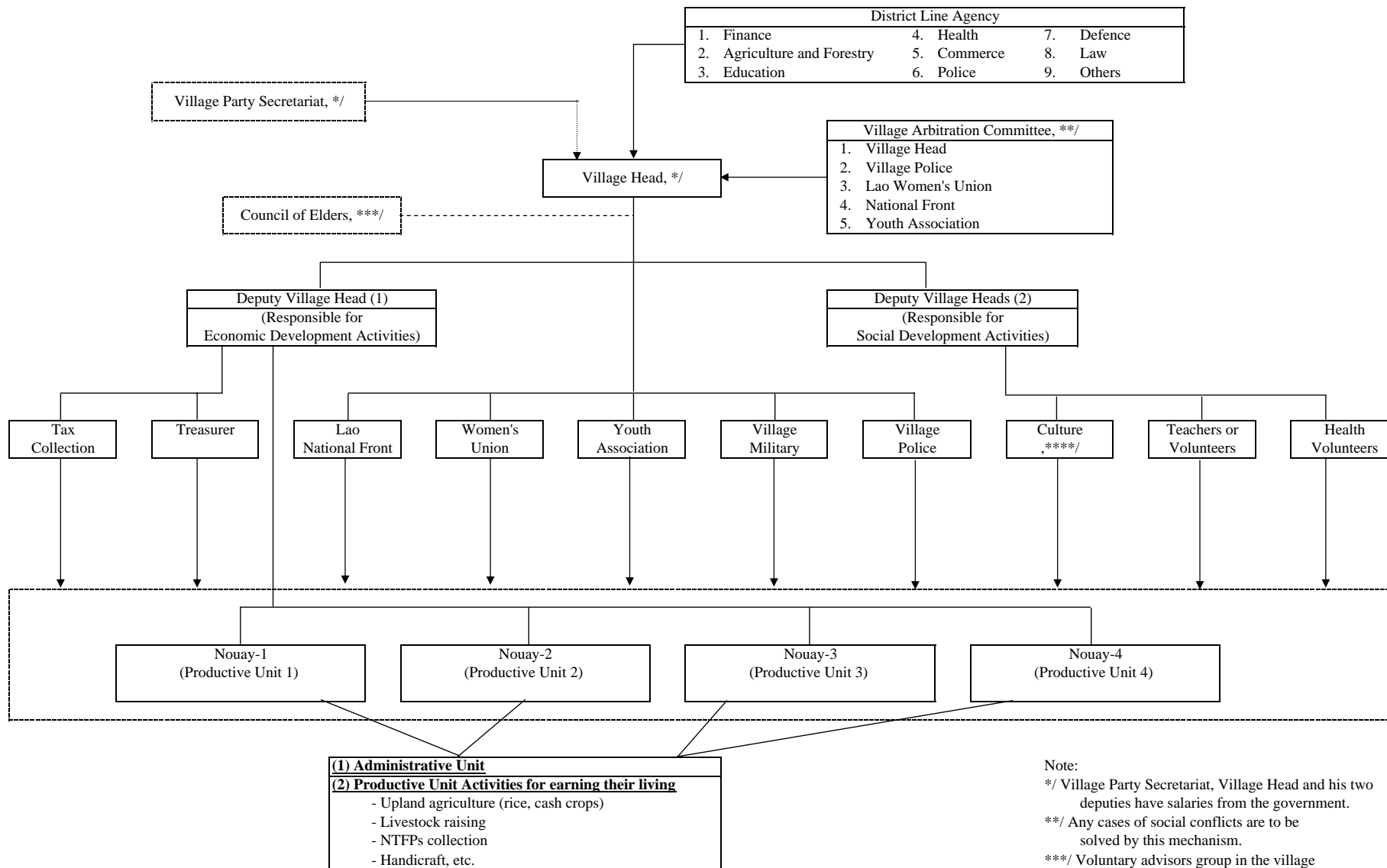
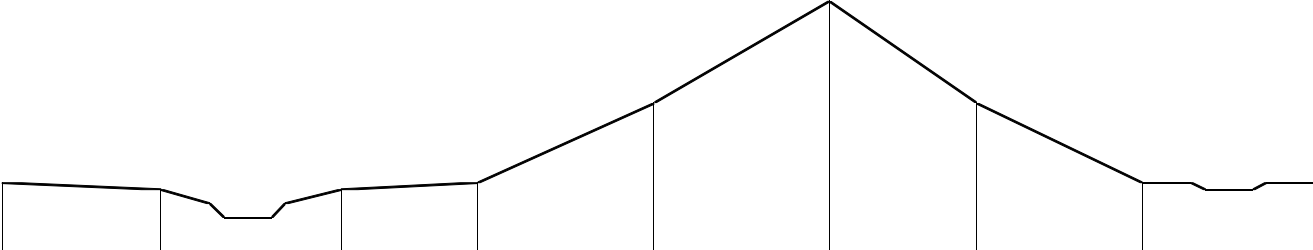


Figure V4-1 Village Organization (Vangheung)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
AGRICULTURE																		
Upland Rice Slashing		■	■															
Buring		■	■	■														
Fencing			■	■														
Sowing				■	■													
Weeding						(1)	(2)	(3)										
Harvest									■	■								
Transport of rice										■	■	■						
Corn					■	■	■	■										
Sesame(<i>Mak ga do</i>)					■	■	■	■										
Chili					■	■	■	■										
Cassava				■	■	■	■	■	■	■	■	■						
LIVESTOCK																		
Diseases of Buffalo	■		■									■	■	■		■		
Diseases of Pig				■	■												■	■
NTFPs																		
Mushrooms (April-June and July&August are different species.)				■	■	■	■	■	■									
Paper Mulberry						■	■					■						■
Bamboo Shoots							■	■										
Puak Muak	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WATER PRODUCTS																		
Fish	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Shrimp	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Shell	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Crab	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
River Weed	■	■	■								■	■	■	■	■			
RAIN AND WATER LEVEL																		
Rain Fall					■	■	■	■	■									
Water Level					MIN			MAX									MIN	
FOOD SECURITY																		
Food Insecurity Months							■	■	■									
DISEASES																		
Diarrhea					■	■	■											
Malaria							■	■										
Pneumonia	■	■										■	■	■				
OTHER ACTIVITIES																		
Weaving	■	■	■	■	■						■	■	■	■	■	■	■	■
House Maintenance	■	■									■	■	■					
Rice Wine	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Agricultural Tools Repairing		■	■	■	■	■	■	■						■	■	■	■	■
CEREMONIES																		
Boat Racing Festival				*														
New Year (Lao Loum)				*														
Yearly Festival (<i>Bun Pa Cham Pi</i>)											*							

Figure V4-2 Seasonal Calender (Vangheung)



Category	Road & Habitat	Nam Seng river & its circumference	Teak Plantation / Gardens	Conservation Forest	Community Forest	Production Forest Fallow Land (2 of 3 years)	Shifting Cultivation (1 of 3 years) Hai Din Phalit	Houay Noy & its circumference
(in Lao)		Nam Seng	Pa Mai Sak / Suan	Pa SaNgoan	Pa Somsai			Houay Noy
Transect Line on Resource Map								
Activity	<u>Weaving</u> Rice Wine Bamboo Handcraft Repairing Fish Net <u>Livestock</u> pig chicken duck <u>Fruit</u> jackfruit tamarind coconut pomelo mango <u>Vegetable Garden</u> cucumber garlic morning glory	<u>Fishing</u> <i>pa chat</i> <i>pa naam</i> <i>pa king</i> <u>Collecting</u> small shrimp shell (along riverside) paper mulberry wild vegetables bamboo shoots <i>puak muak</i> <u>Planting</u> paper mulberry <i>pak gaad</i>	<u>Planting</u> teak paper mulberry <u>Gardens</u> <i>pak gaad</i> onion garlic	<u>Collecting</u> mushrooms bamboo shoots* <u>Cutting Trees*</u> <u>Animals</u> (Hunting is prohibited) bark deer <u>Trapping</u> wild pig mole small birds	<u>Collecting</u> mushrooms bamboo shoots <u>Cutting Trees</u> <u>Animals</u> (Hunting is prohibited) bark deer <u>Trapping</u> wild pig mole small birds	<u>Collecting</u> <i>kaem</i> bamboo shoots <u>Livestock</u> pig chicken <u>Trapping</u> wild pig mole small birds	<u>Shifting Cultivation</u> upland rice corn sesame cassava	Carrying rice from "hai" to the village by boat (Nov. and Dec.) <u>Fishing</u> <i>pa chat</i> <i>pa naam</i> <i>pa king</i> <u>Collecting</u> crab small shrimp paper mulberry <i>puak muak</i> <u>Livestock (at sanam)</u> goat chicken pig buffalo
Problems		Number of fishes is decreasing.	Flat land is small	Most trees are bamboos	Most trees are bamboos	Some fallow lands cannot be used due to soil deterioration.	Sesame dies before bear seeds due to soil deterioration.	Number of fishes is decreasing.
Others	Offices DAFO EU Lao-American			*Cutting trees and collecting bamboo shoots are prohibited along streams. "Pa SaNgoan" is used by only Vangheung villagers.	People from other villages ask for cutting trees in "Pa Somsai".			

Figure V4-4 Transect (Vangheung)

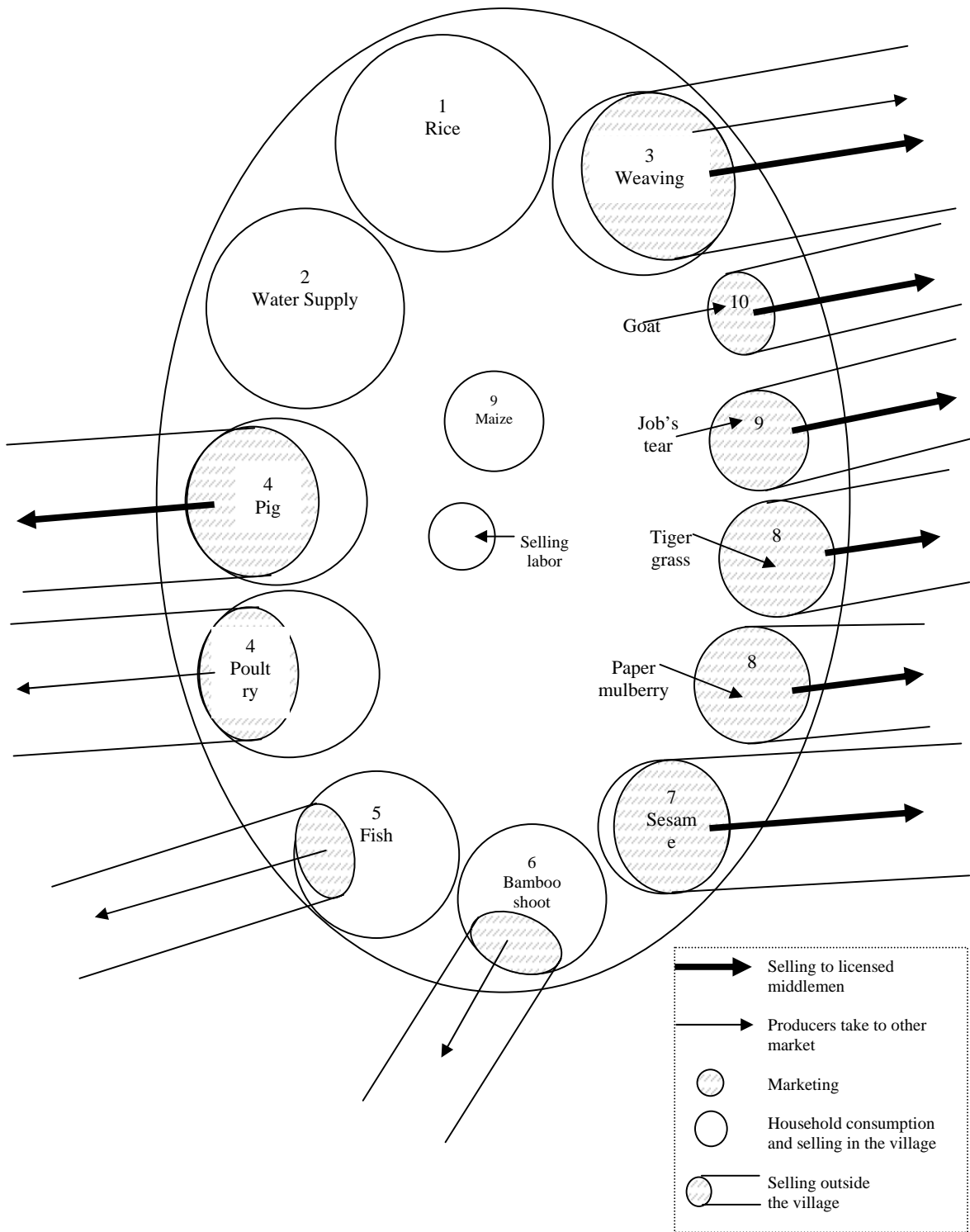


Figure V4-6 Venn Diagram of Major Products by Female Group (Vangheung)

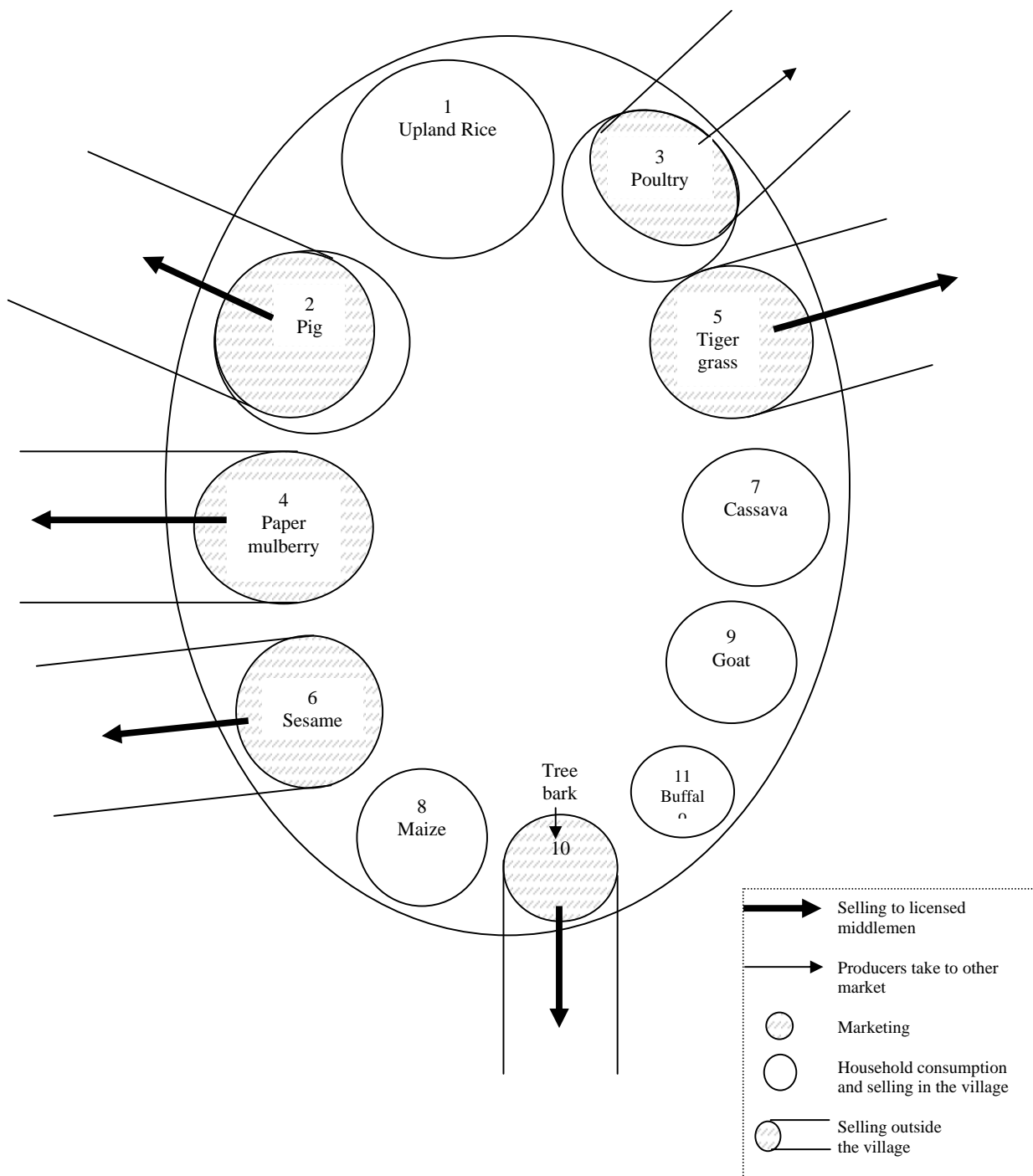


Figure V4-5 Venn Diagram of Major Products by Male Group (Vangheung)

Legend	
△	High
□	Medium
○	Low
⌂	Gravityfed Water Supply
△ 2 ○	Household Interviewee

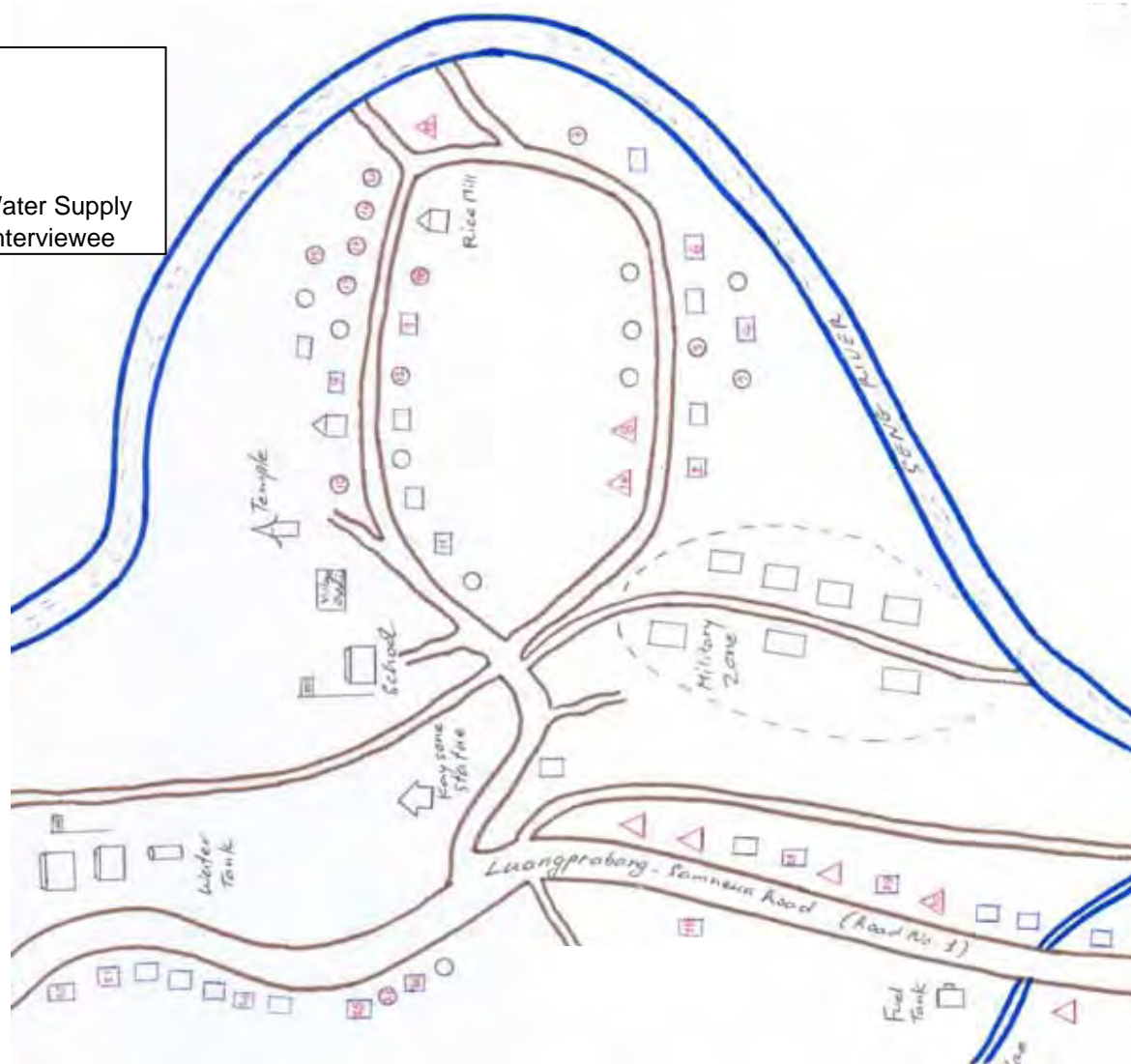


Figure V4-7 Social Map