

CHAPTER - 2

FISHERIES SURVEY

**FISHERY SURVEY
AND
DOWNSTREAM FISHERY MONITORING**

| | | |
|-------------|---|-------------|
| 2.1. | PART 1. FISHERY SURVEY | II-1 |
| | 2.1.1 Introduction | II-1 |
| | 2.1.2 The survey areas | II-1 |
| | 2.1.3. Method and Procedures | II-2 |
| | 2.1.4. Results of Survey | II-3 |
| | 2.1.4.1. Fishing Activities | II-3 |
| | 2.1.4.2. Fish Catch | II-4 |
| | 2.1.4.3. Fishing Gear | II-5 |
| | 2.1.4.4. Fishing Area | II-6 |
| | 2.1.4.5. Fish Consumption, Processing and Marketing | II-6 |
| | 2.1.4.6. Fish Migration Observation | II-7 |
| | 2.1.4.7. Aquaculture | II-8 |
| | 2.1.4.8. Opportunities of Becoming Fishers | II-8 |
| | REFERENCES | II-9 |
| 2.2 | PART 2. DOWNSTREAM FISHERY MONITORING | |
| | 2.2.1 Introduction | II-10 |
| | 2.2.2. Boat census | II-10 |
| | 2.2.2.1. Introduction | II-10 |
| | 2.2.2.2. Materials | II-10 |
| | 2.2.2.3. Methodology | II-11 |
| | 2.2.2.4. Boat census results | II-11 |
| | 2.2.3 Subsistence Fishery Monitoring | II-15 |
| | 2.2.3.1 Introduction | II-15 |
| | 2.2.3.2 Materials | II-16 |
| | 2.2.3.3 Methods and procedures | II-16 |
| | 2.2.3.4 Subsistence Fishery Monitoring Results | II-17 |
| | 2.2.3.4.1 Aquatic products | II-17 |
| | 2.2.3.4.2 Aquatic products Distribution | II-17 |
| | 2.2.3.4.3 Aquatic preservation forms | II-18 |
| | 2.2.4 Conclusion | II-19 |

LIST OF ANNEXES FOR FISHERY SURVEY AND DOWNSTREAM FISHERY MONITORING

1. FISHERY SURVEY

- Annex 1.1. Subsistence Fisheries Activities Survey Tables
For Upper and Lower Reservoirs area
- Annex 1.2. Subsistence Fisheries Activities Survey Tables
For Downstream area
- Annex 1.3. Demography of the Survey Villages
- Annex 1.4. Fisheries Survey Questionnaire Form

2. DOWNSTREAM FISHERY MONITORING

- Annex 2.1 Tables Summarized of Boat census
- Annex 2.2 Tables Summarized of Subsistence Fishery
Monitoring
- Annex 2.3 Tables Summarized of Aquatic production and
distribution by village for the First Survey
- Annex 2.4 Tables Summarized of Aquatic production and
distribution by village for the First Survey
- Annex 2.5 Total weight of individual species caught in the
day of survey
- Annex 2.6 Form No.1 for Boat Census
- Annex 2.7 Questionnaire form No.2 for Subsistence Fishery
Monitoring

CHAPTER II.

FISHERY SURVEY AND DOWNSTREAM FISHERY MONITORING

PART 1. FISHERY SURVEY

2.1.1. INTRODUCTION

Very few data on fisheries information in Lao PDR have been published. Apart from few reports published by some projects e.g. Socio-economic Survey of Fisheries Communities in Nam Ngum Reservoir, 1992. There is still no reliable information on fishery activities throughout Laos, while it is generally recognized that fish is the first source of animal protein in rural areas (Singkham, 1995). Since the beginning of 1998, the Assessment of the Mekong Fisheries Project of the Mekong River Commission (MRC) started data collection and studies have been made throughout the Lower Mekong basin. Part of the Data will probably be available by the end of year 1999.

This report is presenting the results of the field investigated from the Upper, Lower Reservoirs as well as downstream areas, where is possible effected from Nam Ngiep 1 Hydropower Development Project.

2.1.2. The Survey Areas.

The project area is covered totally 31 villages, of which 13 villages in Upper Reservoir; 4 villages in Lower Reservoir and 14 villages in Downstream area. These survey villages are belonging to two provinces. Those villages in the reservoir areas are under Xaysomboun Special Zone and all the downstream villages are in Borikhamxay province. There are 243 households were selected for the purpose. These selected households are divided into Upper Reservoir area 133 HH; Lower reservoir area 46 HH and 64 HH in downstream area. The Table 2.1.2. is a summary of demographic features of the survey villages by survey sections.

Table 2.1.2. Summarized of the demographic features of the survey villages

| Survey areas | Total population | Total Number of households | Number of household by Ethnicity | | | Nos. of household survey | % of household survey |
|-----------------|------------------|----------------------------|----------------------------------|------|------|--------------------------|-----------------------|
| | | | LS* | LTH* | LL* | | |
| Upper Reservoir | 3997 | 659 | 45 | 190 | 424 | 133 | 20.2 |
| Lower Reservoir | 1207 | 194 | 193 | 0 | 1 | 46 | 23.7 |
| Downstream | 6577 | 1159 | 17 | 97 | 1044 | 64 | 5.5 |
| Total | 11781 | 2012 | 255 | 287 | 1469 | 243 | 16.5 |

2.1.3. METHOD AND PROCEDURES OF SURVEY

1. Selection of the households for interview was based on the Socio-economic Survey team. The same households selected for socio-economic survey are also used for the Subsistence fisheries purposed. In average of 16.5% of the total households in the areas were interviewed. Of which, 20.2% in Upper

Reservoir Area, 23.7% in Lower Reservoir Area and 5.5% in Downstream Area (see Annex 1.3)

- 2 The village level questionnaire was attached to the village's form for interviewing the Head of villages or village's authorities for the general information on subsistence fisheries practice in the village.
- 3 All information related to fishing activities such as fishing gears, fishing practice, fish consumption, aquaculture practice and how the fisheries is important to his/her family living condition etc are recorded by using the prepared questionnaire forms (See Annex 1.4).
- 4 The information collected from Upper and Lower reservoirs are summarized together in Annex 1.1. But the information from Downstream is summarized separately in Annex 1.2.
- 5 The text presentation and discussion of the results of the survey is combined all the information from three survey areas together.

2.1.4. RESULTS OF SURVEY

2.1.4.1. Fishing Activities.

Fishing activities are present in all of the 31 surveyed villages. Which divided in to Upper reservoir 13 villages, Lower reservoir 4 villages and 14 villages in the Downstream area. According to Table 2.1.4.1, it appears that in the Lower Reservoir Lao Song are more involved in fishing activities. The number of persons fishing in each household in the Upper Reservoir is about 1.1, whereas in the lower reservoir it is 1.5, and 1.3 in the Downstream, and the average of all areas is 1.3. The survey indicates that up to 68 % of the households interviewed fish all year long. It also appears from Table 2.1.4.1 that the percentage of villagers fishing all year long in the Lower Reservoir (80%) is higher if compare to the Upper Reservoir (67%) and 56 % in downstream.

Table 2.1.4.1. Average number of person fishing per household and percentage of household fulltime /part time fishing

| Description | Upper reservoir | Lower reservoir | Down-stream | All |
|------------------------------|-----------------|-----------------|-------------|-----|
| Av. Nos. of pers. Fishing/HH | 1.1 | 1.5 | 1.3 | 1.3 |
| Year long fishing (%) | 67 | 80 | 56 | 68 |
| Fishing part time (%) | 33 | 20 | 44 | 32 |

The preferable time for fishing can be seen in the Table 2.1.4.1.2. One can assume that most of the households will prefer fishing any time when it is convenient (47.3%) Although, some household prefer early morning and late afternoon fishing (23.3%) and some others also did not reply(6.3%)

Table 2.1.4.1.2. The preferable time of fishing

| Description | Upper reservoir | Lower reservoir | Down-stream | All |
|--------------------|-----------------|-----------------|-------------|------|
| Early morning (%) | 21 | 13 | 36 | 23.3 |
| Late afternoon (%) | 26 | 28 | 16 | 23.3 |
| Any time (%) | 47 | 59 | 36 | 47.3 |
| No answer (%) | 6 | 0 | 13 | 6.3 |

Most of the villagers fish about 2-3 days a week, details can be seen in the Table 2.1.4.1.3

Table 2.1.4.1.3. The frequency of fishing in percentage of the reply

| Nos.of day fishing/week | | Upper reservoir | Lower reservoir | Down-stream | All |
|-------------------------|------------|-----------------|-----------------|-------------|------|
| 1 day | Dry season | 11 | 7 | 17.2 | 11.7 |
| | Wet season | 24 | 17 | 9.4 | 16.8 |
| 2 days | Dry season | 15 | 17 | 31.3 | 21.1 |
| | Wet season | 23 | 30 | 15.6 | 22.8 |
| 3 days | Dry season | 30 | 30 | 6.3 | 22.1 |
| | Wet season | 19 | 35 | 15.6 | 23.2 |
| 4 days | Dry season | 16 | 22 | 7.8 | 15.2 |
| | Wet season | 11 | 7 | 4.7 | 7.5 |
| 5 days | Dry season | 8 | 11 | 7.8 | 8.9 |
| | Wet season | 8 | 7 | 15.6 | 10.2 |
| 6 days | Dry season | 2 | 9 | 6.3 | 5.7 |
| | Wet season | 4 | 0 | 6.3 | 3.4 |
| Every day | Dry season | 2 | 2 | 6.3 | 3.4 |
| | Wet season | 2 | 0 | 12.5 | 4.8 |
| No reply | Dry season | 17 | 2 | 17.2 | 12.0 |
| | Wet season | 11 | 4 | 20.3 | 11.7 |

2.1.4.2.FISH CATCH

- Upper and Lower reservoirs area.

According to Table 1.22 in Annex 1.1 fish is catch best in Nam Ngiep River which is about 42% if compare to other water for the Upper Reservoir and 46% for the Lower Reservoir. For the Lower Reservoir, the second fishing area will be in the tributaries. As for the Upper Reservoir it will be in the tributaries and also in the ponds.

It appears from Table 1.23 in Annex 1.1 that the best time for the villagers to catch fish in the Nam Ngiep River and the tributaries is in the dry season. This applies for the Upper as well as for the Lower Reservoirs. As for the ponds it is in the wet season.

The detail quantities of catch, data does not available. However, at the downstream area these informations are described in the Table 2.1.4.2.

- **Downstream area.**

From the data collected, it can be clearly observed that the main source of fish catches is in the upstream (47%) and downstream (22%) of the Nam Ngiep river. The second main source of fish catches is in the upstream (11%) and downstream (8%) of tributaries (see Table 2.31 in Annex 1.2).

Most of the villagers interviewed replied that, in the Nam Ngiep River, fish catches are at its peak is November-December. May-June are also a significant time for fish catches.

The quantities of fish catches are summarized in the Table 2.3.2. It is indicated that the average was 0.7 kg/time/household. And the total average fish catches in this area were 338 kg/household/year.

Table 2.14.2. Average fish catch per household from different fishing area and different season at The Downstream area.

| Fishing area/ season | Av. Per time(kg) | Av. Per season(kg) |
|-------------------------------|------------------|--------------------|
| Nam Ngiep | | |
| -Dry season | 1.4 | 90.8 |
| -Wet season | 1.6 | 101.7 |
| Tributaries | | |
| -Dry season | 0.9 | 36.1 |
| -Wet season | 1.4 | 82.7 |
| Paddy fields | | |
| -Dry season | 0.04 | 1.9 |
| -Wet season | 0.2 | 13.7 |
| Ponds and other places | | |
| -Dry season | 0.05 | 4.8 |
| -Wet season | 0.1 | 6.3 |
| Average/year/household | 0.7 | 338 |

2.1.4.3. FISHING GEAR

Fishing gears commonly used in the survey areas are summarized in the Table 2.1.4.3. Apart from the fishing gears use, the gill net is more popular used than other gears except hook and line. Table 2.1.4.3 is summarized of the number of each fishing gear from the household surveys and Table 2.1.4.3.1 is shown the average of each fishing gear per household surveys in the all areas. The average gill net per household is 2.8. it is observed that at Downstream area gill net was used more 4.3 number/HH, where as in Upper and Lower reservoir was 2.0 and 2.3 respectively. The cast net is a third fishing gear popular use in the area about 1 number/HH. The hook and line is coming as No.1 in term of number per household (37.4/HH). No basket net, basket trap and funnel trap are used in the Lower reservoir, because this area is hundred percent Lao Soung, This ethnic group

does not have experience of using these types of gear. Therefore, they fish by gill net, cast net and hook and line only.

Table 2.1.4.3. The number of fishing gear from the household surveyed

| Types of fishing gear commonly used in the survey areas | Upper reservoir | Lower reservoir | Down-stream | Total |
|---|-----------------|-----------------|-------------|-------|
| Gill net | 269 | 106 | 233 | 608 |
| Cast net | 117 | 49 | 63 | 229 |
| Scoop net | 89 | 1 | 19 | 109 |
| Basket net | 1 | 0 | 24 | 25 |
| Basket trap | 1 | 0 | 121 | 122 |
| Funnel trap | 49 | 0 | 20 | 69 |
| Hook and line | 3752 | 1033 | 3882 | 8667 |

Table 2.1.4.3.1. The average number of fishing gear per household surveyed

| Types of fishing gear commonly used in the survey areas | Upper reservoir | Lower reservoir | Down-stream | All |
|---|-----------------|-----------------|-------------|------|
| Gill net | 2.0 | 2.3 | 4.3 | 2.8 |
| Cast net | 0.9 | 0.9 | 1.2 | 1.0 |
| Scoop net | 0.7 | 0.02 | 0.4 | 0.4 |
| Basket net | 0.005 | 0.0 | 0.7 | 0.2 |
| Basket trap | 0.005 | 0.0 | 2.2 | 0.7 |
| Funnel trap | 0.3 | 0.0 | 0.4 | 0.2 |
| Hook and line | 22.4 | 24.4 | 65.4 | 37.4 |

The boat is an important means of transportation in the areas. But boat is also one of the fishing equipment. With out boat, fishing in the Nam Ngiep is difficult. From the survey indicated that the percentage of household having is less only 33% of the household surveyed. This can be explained that more survey villages are located some distance from Nam Ngiep, the fishing take place in the paddy field and stream which no need a boat. It is observed that at Downstream area have more boat (44%) than at the Upper and Lower reservoir areas.

The available boats are including motor and paddle boat (with out motor) The percentage of paddle boat is more (72%) than motor boat (28%). But it is noticed that at the Downstream area (Table 2.1.4.3.3) the motor boat is more (61%) than the boat with out motor (39%).

Table 2.1.4.3.2. The percentages of HH surveyed have and have no boat.

| Descriptions | Upper reservoir | Lower reservoir | Down-stream | All |
|----------------------|-----------------|-----------------|-------------|-----|
| % of HH having boat | 32 | 24 | 44 | 33 |
| % of HH have no boat | 68 | 76 | 56 | 67 |

Table 2.1.4.3.3. Number of HH having motor boats and the boat with motor

| % number of HH having: | Upper reservoir | Lower reservoir | Down-stream | All |
|------------------------|-----------------|-----------------|-------------|-----|
| Motor boats (%) | 14 | 9 | 61 | 28 |
| With out motor (%) | 86 | 91 | 39 | 72 |

2.1.4.4. FISHING AREAS

The fishing grounds in the survey area is included of Nam Ngiep River, It tributaries, paddy fields and ponds.

Nam Ngiep River is a main fishing area. At the Upper and Lower Reservoirs over 50 of the fishing will be done in the Nam Ngiep for all the season. Villagers leaving in the Lower Reservoir will fish up to 78% during beginning of the wet season in particular. The same is practiced at the Downstream area, but in wet season the villagers fishing less in the Nam Ngiep main stream. In the dry season villagers will also fish mainly in the Nam Ngiep River. The figures are summarized in Table 2.1.4.4 for the Upper and Lower Reservoirs. According to the household interview less fishing activities will occur in the raining season in the Nam Ngiep River due to water depth and strong current. During wet season period fishing activities will occur more in tributaries and paddy fields. Some villagers are fishing in paddy field during between July to November. The demand of fish from paddy field is however relatively less than fish caught in the river. The peak season for fishing in the rivers are reported to be in May-June when discharge increases and fish move upwards the river. The figures can be seen in Table 2.23, 2.25 and 2.27 in Annex 1.2.

Table 2.1.4.4. Fishing areas at the Upper and Lower reservoirs where the villagers use to fish according to season. (Calculated as percentage in this table)

| Fishing areas | Seasons | | | |
|---------------|------------------|-----|------------------|-----|
| | Beginning of wet | Wet | Beginning of dry | Dry |
| Nam Ngiep | 52 | 55 | 53 | 55 |
| Tributaries | 31 | 43 | 44 | 44 |
| Ponds | 3 | 2 | 2 | 1 |
| Others | 13 | 0 | 0 | 0 |

2.1.4.5. FISH CONSUMPTION, PROCESSING AND MARKETING

The average fish consumption per household/year in the Downstream area was 137 kg/HH/year (Table 2.16 in annex 1.2) . The data on fish consumption from the Upper and Lower reservoir are not available.

About 47% of the villagers interviewed will buy fish from the market or from other fishers in the village or neighboring villages but that happens only time to time

(77%). Upper reservoir area where villagers buy fish more compared to other areas. See Table 2.1.4.5.1 and Table 2.1.4.5.2.

About 41 % of the villagers interviewed will sell part of their catches (Table 2.1.4.5) but that happens only sometime (80%) in the Reservoir areas (table 1.7 in Annex 1.1) and 68% for Downstream area (Table 2.13 in Annex 1.2) . The average fish price in the area was varied from 2200 kips/kg at Upper reservoir, where as the price of the fish at downstream area was extremely high 7100 kips/kg (see Table 2.1.4.5.3).

Some of the catches after selling and directly consumed the villagers has preserved in different forms such as dry by sun or dry by smoking and prepared fish paste named PADEK. In the Downstream area 72 % of the interviewed villagers answered prepared Padek, 59 % answered prepared dry fish, there was only 16% not prepared any preservation of fish (Table 2.14 in Annex 1.2) . But at the Upper and Lower reservoirs the answer was 36% prepared Padek and 64% did not prepared (Table 1.8 in Annex 1.1)

Table 2.1.4.5. Selling part of the catches

| Percentage of HH selling fish | Upper reservoir | Lower reservoir | Down-stream | All |
|-------------------------------|-----------------|-----------------|-------------|-----|
| % of HH selling | 39 | 37 | 48 | 41 |
| % of HH not selling | 61 | 63 | 44 | 56 |
| No reply | 0 | 0 | 8 | 3 |

Table 2.1.4.5.1 . The percentage of HH surveyed buy fish for consumption

| Percentage of HH buy fish | Upper reservoir | Lower reservoir | Down-stream | All |
|---------------------------|-----------------|-----------------|-------------|-----|
| Buy | 59 | 35 | 48 | 47 |
| Not buy | 41 | 65 | 41 | 49 |
| No reply | 0 | 0 | 11 | 4 |

Table 2.1.4.5.2. The frequency of buying fish

| How often? | Upper reservoir | Lower reservoir | Down-stream | All |
|------------|-----------------|-----------------|-------------|-----|
| Frequently | 11 | 31 | 26 | 23 |
| Sometime | 89 | 69 | 74 | 77 |

Table 2.1.4.5.3. The average price of the fish selling in the areas

| Average fish price | Upper reservoir | Lower reservoir | Down-stream | Av. |
|--------------------|-----------------|-----------------|-------------|------|
| Kips/kg | 2200 | 2400 | 7100 | 3900 |

2.1.4.6. FISH MIGRATION OBSERVATION

From the interview, it was noticed that 69% of the interviewed villagers observed fish migration, 31 % was not observed any fish migration. In the Upper reservoir 55% observed upstream migration and 45% was observed downstream migration. Where in Lower reservoir 59% and 41% was observed upstream and downstream migration respectively (Table 2.1.4.6). ** In the Downstream area the answers was more details than information from the reservoirs areas, more than 80% observed upstream migration within

May-August. The downstream migration was observed in September to December (97.8 %) see also Table 2.36 in Annex 1.2.

The fish migration species observed in wet and dry season are listed in the table 2.37 in Annex 1.2 for Downstream area, but the fish migration species from the Upper and Lower reservoirs are lack of information.

Table 2.1.4.6. Summarized of fish migration observation.

| Description | Upper reservoir | Lower reservoir | Down-stream | All |
|-----------------------------|-----------------|-----------------|-------------|-----|
| Observed fish migration (%) | 57 | 78 | 72 | 69 |
| Not observed (%) | 43 | 22 | 28 | 31 |
| Going Upstream | 55 | 59 | ** | ** |
| Going Downstream | 45 | 41 | ** | ** |

2.1.4.7. AQUACULTURE

The aquaculture practices in the survey areas is very little and very new to the local communities. It was observed that fishing from the river or natural fish production is still good and enough for the living condition, plus the communication system is very poor and the technical services for aquaculture does not introduced in to the area. There is recently fish culture is started by some of the government officers (Personal field observation). There is only 34 household or 1.7% of the total household in the area is doing fish culture. Of which there was no aquaculture has been reported from the lower reservoir area. There were 3.03 ha of fish pond has been reported during the survey. The production from aquaculture was still very low. It was only about 300 kg/ha/year. It was observed that fish culture technique used by the villagers in the areas was traditional method (stocked or allowed the wild fish to enter to the pond and live them with out any or very little feeding was given). Therefor the production is very low. The table 2.1.4.7. is summarized the information on aquaculture practices in the survey areas. The details can be seen also in Annex 1.1(Table 1.27) and Annex 1.2 (Table 2.38, 2.39 and 2.40).

Table. 2.1.4.7. Summary of aquaculture information.

| Description | Upper reservoir | Lower reservoir | Down-stream | All |
|-------------------------------|-----------------|-----------------|-------------|-------|
| Nb.of HH doing fish culture | 16 | 00 | 18 | 34 |
| Areas (ha) | 1.13 | 00 | 1.9 | 3.03 |
| Average production Kg/ha/year | 376 | 00 | 516 | 294.3 |

2.1.4.8. OPPORTUNITIES FOR BEING FISHERMAN IN THE RESERVOIR.

During the field survey, the villagers was asked for their willingness to be a fishermen and do fishing as for their professional when the reservoir is being created. The answers are summarized in the Table 2.1.4.8. and the details can be seen also in Anne 1.1 (Table 1.28 and 1.29) for Upper and Lower reservoir, an in Annex 1.2 (Table 2.41, 2.42 and 2.43) for downstream area. Less than 40% of the household surveys want to be a professional

fisher. Over 60% of those who want to be fishers are expected more income from fishing and they like fishing. Those do not want to be a fisher is over 60 % has the reasons as: 35% do not know fishing, 10% afraid large water in the reservoir, 12% said that agriculture is better than fishing and 43% with other reasons.

Table 2.1.4.8. Professional fisherman opportunities in the reservoir.

| Descriptions | Upper Reservoir | Lower Reservoir | Downstream | Average (%) |
|----------------------------------|-----------------|-----------------|------------|-------------|
| -Want to be a fisherman | 44% | 26% | 47% | 39% |
| <i>Reasons:</i> | | | | |
| -Expect more income | 56 | 67 | 80 | 68 |
| -Like fishing | 44 | 33 | 10 | 29 |
| -Fishing is better than cropping | 0 | 0 | 3 | 1 |
| -Others | 0 | 0 | 7 | 2 |
| -Do not want | 56% | 74% | 53% | 61% |
| <i>Reasons:</i> | | | | |
| -Do not know fishing | 45 | 39 | 21 | 35 |
| -Afraid of large water | 15 | 13 | 3 | 10 |
| -Cropping is better | 11 | 12 | 12 | 12 |
| -Others | 29 | 36 | 64 | 43 |

Reference:

- Bouarapha Consultants Co.Ltd. 1992. The Report on Socio-Economic Survey of Fisheries Communities in Nam Ngum Reservoir (in Lao version). Prepared for Nam Ngum Fisheries Communities Development Project; 63 pages.
- Singkham, P. 1995. Policy Framework for Fishery Sub-sector, Department of Livestock and Fisheries, Ministry of Agriculture and Forestry. 11 pages.

PART 2. DOWNSTREAM FISHERY MONITORING

2.2.1. INTRODUCTION

The downstream fishery monitoring is a part of the environmental assessment program. The fishery monitoring seeks to assess the present situation baseline information for environmental impact of the Nam Ngiep Hydropower Project. At the same time it promotes approaches to improve, when possible, the quality of life of the communities concerned by the Project.

The aim of the downstream fisheries monitoring is mainly to establish baseline fish catches downstream of the proposed dam site down to the confluence of Nam Ngiep and Mekong River. Other objectives are:

- To monitor fish catches before impoundment;
- To assess the important of fishery resources in the local communities, their living situation includes level of fish consumption, dependency on fish catches and family income earning of the indigenous people.
- To further prepare compensation systems if it is seen that the Project lead to a significant decrease of catches after impoundment of the reservoir

This report describes the results of two monitoring surveys and analyses the data obtained from the surveys as baseline information.

The downstream fishery monitoring is divided into a boat census observation and subsistence fisheries survey

2.2.2. BOAT CENSUS

2.2.2.1. Introduction

The boat census was carried out in the downstream from the proposed dam site down to its confluence with Mekong River, which has a distance of 53 Km. The boat census was divided in to two sections: Section No.1 started from Ban Somseuan/Muangmai down to the confluence of Nam Ngiep River with River Mekong with a distance of 22 km.; The Section No.2 started from Ban Somseun/Muangmai upstream to the proposed dam site with a distance of 31 km. (base on 1:100 000 Geographique D'Etat Service map No.E-48-52 with)

The boat census were carried out twice, first in dry season (April, 99) and the second in wet season (July,99).

2.2.2.2 Materials

1. A Service Geographique D'Etat map No.E-48-52 with 1:100 000 is used for the river section marked.
2. Form No.1 to be filled for each section and noted the visual observation during the trips.

3. A telescope is use to observe the fishing gears when the boat cannot pass close to riverbank due to unfavourable condition.

2.2.2.3. Methodology

During a boat census, all evidence of fishing activities (canoes, fishing equipment, people at the riverbank, in the water or in boat, etc.) are recorded for the demarcated river sections, using the prepared form No 1 (Annex 2.6)

Each boat census survey taking one full day to complete started early morning when the people starting activities in the river, till late afternoon to complete the hole river section in downstream.

Starting from Ban Muangmai down along the right bank to the confluence with Mekong River and back to Ban Muangmai for the Section No.1. A Section No.2 started from Ban Muangmai upstream to further Ban Halkham and back to Ban Muangmai. All fishing activities, fishing gears including boats observed during the trip were recorded in the forms.

2.2.2.4. Boat Census Results

The details results of boat census are presented in Annex 2.1. Table1a, 1b, Table2 and Table 3. Also the results of the survey are summarized as follows:

Boats.

Boats per km of river

| | First Survey | Second Survey |
|--------------------------|--------------|---------------|
| Nos.of boats/km of river | 9.26 | 9.35 |
| In use (%) | 12.42 | 15.32 |
| Motor boats | 215 | 236 |
| With No motor | 276 | 260 |
| Total Nos. of boats | 491 | 496 |

Fishing gears.

There were 13 fishing gears were operating observed during the first survey in dry season. Where as, In the Wet season survey there were only 7 fishing gears was observed. The details of individual operation gears are described below:

1. Setting gill-net

The setting gill net was popular used gear in the areas. The common practise was that when the people to go field which normally located along the Nam Ngiep riverbank, before started working they will set the gill net near to their and at lunch time they will harvest the fish fore lunch and again setting the net for the evening meal. Different mesh-

size was used depending on season, normally 2.5 to 6.0 cm with 1.5 to 2 m depth and 50 to 100 m long.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 21 | 25 |
| Section No.2 | 30 | 40 |
| Total | 51 | 65 |

2. Floating gill-net

This type of gill net was used during daytime, operation with two men and using the boat to float the net along some distance of river. The Second river section was more common operating area because there are more suitable sites for operation this type of gear.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 3 | 4 |
| Section No.2 | 4 | 18 |
| Total | 7 | 22 |

3. Rounded gill-net

Rounded gill net was also same type of setting gill net, but has different operation method. This operation was normally practices in dry season when the suitable sites are available. The operation method is set the net around the pool or attraction tree branch in the water and using the bamboo pole to bit the water then the fish is harvested.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 1 | 0 |
| Section No.2 | 1 | 0 |
| Total | 2 | 0 |

4. Cast-net

Cast netting normally operate in dry season, at the riffles, rapids .

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 8 | 0 |
| Section No.2 | 13 | 3 |
| Total | 21 | 3 |

5. Scoop net

Scoop-net is also use in the dry season at the shallow areas mostly operate by women and children. It was reported that, in the rainy season this gear is also use in the small stream, rice field and swamps. Therefore during the second survey was not observed.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 1 | 0 |
| Section No.2 | 1 | 0 |
| Total | 2 | 0 |

6. Set-pole and line

Set-pole hook and line was use through out the year. The following table indicated that in the second river section was used more. This operation was commonly operated overnight period. The gear will set in the evening and the next morning will be harvest.

| | First Survey | | | Second Survey | | |
|--------------|--------------|------------|-------|---------------|------------|-------|
| | In use | Not in use | Total | In use | Not in use | total |
| Section No.1 | 10 | 19 | 29 | 56 | 30 | 86 |
| Section No.2 | 69 | 63 | 132 | 62 | 56 | 118 |
| Total | 79 | 82 | 161 | 118 | 86 | 204 |

7. Bottom long line

The bottom long line was operated more in the wet season as indicated in the following table.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 20 | 85 |
| Section No.2 | 2 | 68 |
| Total | 22 | 153 |

8. Drop-door basket trap

This type of trap was operated only in the dry season. It was reported that the catch from this gear normally big size of carps and catfish.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 10 | 0 |
| Section No.2 | 17 | 0 |
| Total | 27 | 0 |

9. Fish-attraction basket

This gear was operated in dry season only. The method of operation was: The cutting branches were put in to the basket then dumped under the water river for at least 4-7 days to attract the fish to be in the trap.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 7 | 0 |
| Section No.2 | 0 | 0 |
| Total | 7 | 0 |

10. Horizontal Cylinder trap

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 2 | 0 |
| Section No.2 | 0 | 0 |
| Total | 2 | 0 |

11. Upright basket trap

The upright basket trap was normally used in the rainy season, the catch from trap mainly *Mystus nemurus* (Pa kot), *Sinkukia gudgeri* (Pa Khaoxay) and other small species of Cyprinous.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 7 | 22 |
| Section No.2 | 3 | 21 |
| Total | 10 | 43 |

12. Pole and line fishing from riverbank and boats

Pole and line fishing is very common gear use by the people in this area. Children and women are the main group using this gear and fishing near to their villages. Therefore, more observation was at Section No.1 where many villages are situated along the river Nam Ngiep.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 12 | 47 |
| Section No.2 | 1 | 21 |
| Total | 13 | 68 |

13. Brach-bundle Fish-attraction.

This type of fishing method is normally operated in dry season, at pools and near the riverbank. During the survey, it was observed only in Section No.1.

| | First Survey | Second Survey |
|--------------|--------------|---------------|
| Section No.1 | 5 | 0 |
| Section No.2 | 0 | 0 |
| Total | 5 | 0 |

Other Activities observed during the boat census

1. Fish Conservation pools

Two Conservation pools were observed during the First Survey in dry season one in each river section. The written signs of the Conservation Pool were observed at the riverbank near those pools. One located at confluence of Nam Xao , this pool was belong to Ban Hatkham. An other one was located at downstream of the Nam Pa confluence, this was belong to Ban Nam Pa village. But during the Second Survey in wet season there was only one that belongs to Ban Hatkham still remained. The other one that belongs to Ban Nampa was not existed; According to the fishermen interviewed, this Conservation Pool is controlled only in dry season when the water level is low and formed the pool.

2. Fishing Camps

Two Fishing Camps were observed along the Second River Section in dry season survey. According to the people interviewed during the Second survey in wet season, Fishing activities is more busy in dry season when the people have less work in their agriculture field. Therefore, there was no Fishing Camp observed. But fishing activities are going on, the farmer are normally stay at their field and also do fishing for their daily consumption.

3. Water Collection/pumps

There were 7 water collection stations along the riverbank of the section No.1, of which 4 stations located at the left bank and the other 3 stations located at the right bank. One of these was temporally station, because in the second survey there were only 6 stations still remained and none of these were operated.

2.2.3. SUBSISTENCE FISHERY MONITORING

2.2.3.1. Introduction

As mentioned previously, the aim of this study is to determine baseline levels of subsistence fishing in the downstream of Nam Gniep Hydropower proposed dam. The studies were conducted twice side by side with the boat census for fishing activities along the target river portion. First survey was conducted from 24th to 29th April 1999 and the second surveys were carried out from 25th to 30th July 1999.

The survey was conducted at 6 villages along the River Nam Gniep at downstream (See Table 2.2.3.1). Each village 4-6 households were selected for monitoring survey purpose.

The main demographic features of the villages surveyed are set out below:

Table 2.2.3.1: Populations of surveyed villages in fishery surveys

| Village name | Total Population | Number of females | Number of households | Distribution by ethnicity (households) | | |
|--------------|------------------|-------------------|----------------------|--|-----------|-----------|
| | | | | LL* | LT* | LS* |
| Hatkham | 533 | 250 | 88 | 71 | 00 | 17 |
| Somseuan | 1136 | 536 | 185 | 185 | 00 | 00 |
| Songkhone | 343 | 119 | 42 | 37 | 5 | 00 |
| Namtek | 203 | 102 | 39 | 39 | 00 | 00 |
| Thakokkhen | 349 | 168 | 58 | 00 | 58 | 00 |
| Nampa | 427 | 217 | 71 | 58 | 13 | 00 |
| Total | 2991 | 1392 | 483 | 390 | 76 | 17 |

Sources: All population data is from the socio-economic survey in March 1999

Remarks : LL* Lao Loum, LT* Lao Theung, LS* Lao Soung.

2.2.3.2 Materials

- 2 kg spring balance with 10 g increment; 20 kg spring balance and 100 kg long tail hanging scale.
- 30 liters capacity plastic bucket,
- 10 liters capacity collection bottle
- Camera
- 5% Formalin solution
- Questionnaire form No 2 (see Annex 2.7)

2.2.3.3 Methods and procedures

- The surveyed staffs stay at night in the selected villages. They visit to the selected households early in the morning, preferably before sunrise, when the households have not yet preparing breakfast.
- The staff interviewed inhabitants at the selected household, identifying, quantifying and recording all aquatic products available in the house including fresh ones, dry form and other preservation forms. Using the questionnaire form No.2 for interviewing and recording.
- The fresh aquatic animal will be weight in individual species. The new observation species will be collected and preserved in formalin solution for further identification.
- For the subsequent series of visits. The staff will record of any aquatic products since their previous visit. All products are evaluated in the same way as before.
- The second visit begins before lunchtime around 11:30 hour, when lunch is to be prepared. The same procedure is applied for the purpose.
- The final visit starts at around 6:00 , when the household are coming back home from the fieldwork or fishing excursions and before dinner is to be prepared. The same manner is applied

- The basic demographic features of the surveyed villages and socio-economic profiles for the household surveyed are used the information collected by the Socio-economic survey team conducted in March, 1999.
- The questionnaire form No.2 establishes for a notional 24 hours period the production/collection and consumption/disposal of all aquatic products.

2.2.3.4 Subsistence Fisheries Activities Monitoring Results.

Fishes are the main group of aquatic animal contributed more than 99% to total aquatic production in the survey areas and the species composition observed from the catch of the survey household are presented in Annex (Table 7). The result information from two surveys are summarised as Table 4.1 and Table 4.2 in Annex 2.2. The fishing activities including fish production, fish consumption and distributions of individual household surveyed are presented as Annex 2.3 for dry season survey and wet season survey presented as annex 2.4.

2.2.3.4.1 Aquatic products.

Table 2.2.3.4.1. Aquatic Catches by villages

| Name of villages | Aquatic production | | | |
|------------------|--------------------|----------------------|-----------------|----------------------|
| | First Survey | | Second Survey | |
| | Total catch (g) | Per household survey | Total catch (g) | Per household survey |
| Hatkham | 18,063 | 3,011 | 17,630 | 2,938 |
| Xomseun/Muangmai | 16,840 | 2,807 | 20,830 | 3,471 |
| Songkhone | 11,460 | 2,865 | 9,200 | 2,300 |
| Namtek | 18,920 | 4,730 | 16,690 | 4,173 |
| Thakokkhene | 3,470 | 694 | 3,930 | 786 |
| Nam Pa | 13,680 | 2,280 | 18,610 | 3,102 |
| Total | 82,433 | 2,659 | 86,890 | 2,803 |

2.2.3.4.2 Aquatic Products Distribution

The following table indicated that fish catches in this area were not only for local consumption, but over 50% of the catches were sold as income for the families. The household consumed about 28% only. The quantity of fresh aquatics consumption was estimated at 108.4 g/per/day in dry season and 119.6 g/pers./day.

Table :2.2.3.4.2.1 Aquatic Product Distribution

| Types of distribution | First Survey | | Second Survey | |
|-----------------------|---------------|--------------|---------------|--------------|
| | By weight (g) | % | By weight (g) | % |
| Eaten | 22,730 | 27.5 | 25,410 | 28.66 |
| Preserved | 15,120 | 18.29 | 7,760 | 8.75 |
| Sold | 42,200 | 51.06 | 49,700 | 56.06 |
| Given away | 2,600 | 3.14 | 2,600 | 2.93 |
| Total | 82,633 | 100.0 | 88,640 | 100.0 |

Table: 2.2.3.4.2.2 Average aquatic consumption in a day person

| Name of villages | Dry Season | | | Wet Season | | |
|------------------|---------------|--------------|--------------|---------------|--------------|--------------|
| | Total eaten | @/HH /day | @/per/ day | Total eaten | @/HH /day | @/per/ day |
| Hatkham | 5200 | 866.6 | 135.4 | 4180 | 696.6 | 108.8 |
| Xomseun | 5480 | 913.3 | 127.7 | 5130 | 855 | 119.5 |
| Songkhone | 3610 | 902.5 | 128.0 | 3410 | 852.5 | 120.9 |
| Namtek | 2970 | 742.5 | 122.1 | 3390 | 847.5 | 139.3 |
| Thakokkhene | 3210 | 642 | 86.7 | 4380 | 876 | 118.3 |
| Nam Pa | 2260 | 376.6 | 50.8 | 4920 | 820 | 110.8 |
| | 22 730 | 733.2 | 108.4 | 25 410 | 819.6 | 119.6 |

2.2.3.4.3. Aquatic preservation forms available in the survey household

Aquatic production produced by the villagers was distributed to four types as mentioned in chapter 2.2.3.4.2. Beside this, It was a traditional practice for Lao family especially in the rural area to have fish paste named " Padek" . In the survey villages are also have the same practise. Almost of the survey household has Padek. Padek is a base for most of Lao cooking. It is an important source of the proteins needed. It is especially important when the villagers have no time to fish or when fishing is not productive. Padek is also an important seasoning for most of the Lao food. According to the interviewed household, preparations of Padek in some of the villages were not only for their own consumption, but also for sale. Padek is an additional source of family income. Padek production figure from the household survey is presenting in the following table. An other form of fish preservation found during the survey was dry fish (both sun dry and smoke). It was prepared for household consumption not for sale. The information collected from the survey can be seen in the following table.

| Name of villages | First Survey | | Second Survey | |
|--------------------------|--------------|--------------|---------------|--------------|
| | Padek (g) | Dry fish (g) | Padek (g) | Dry fish (g) |
| Hatkham | 12,850 | 320 | 22,150 | 3,100 |
| Xomseur/Muangmai | 89,000 | 3,880 | 88,750 | 2,900 |
| Songkhone | 55,140 | 0 | 61,750 | 950 |
| Namtek | 46,350 | 0 | 51,300 | 4,250 |
| Thakokkhene | 4,060 | 510 | 3,900 | 0 |
| Nam Pa | 33,100 | 0 | 40,350 | 2,650 |
| Total | 240,500 | 4,710 | 227,850 | 13,850 |
| Average/household survey | 7,758 | 152 | 7,350 | 447 |

2.2.4. CONCLUSION.

The fishing methods are each adapted to a river flow type. During the first survey in dry season, more types of fishing were operated when the water's level is low (Table 1a.2) compared to the wet season survey observation (Table 1b.2). The setting gill net and pole and line were popular used gears in both dry and wet seasons. In the second survey the bottom long line was prominent used then in the dry season. Cast nets fishing was not common used in wet season. Scoop nets, drop-door basket trap, fish attraction basket, branch-bundle fish-attraction were not observed in the wet season. During the wet season Upright basket trap was used more. However it seems that set-pole and line and the pole and lines fishing were used a lot in wet season.

As lower part of Nam Ngiep is wide and deep enough for the use of boat for transportation including fishing, cargo and passenger services. Therefore the numbers of boat using in both season are similar (Table 1a.1 and Table 1b.1). Cargo and passenger boats are normally used motor boat. The boat with out motor is used for fishing at the small stream in particular and for going to agriculture fields in short distances.

Boat is only a mean transportation between Ban Muangmai and Ban Hatkham (Section No.2). The road system cannot be reached in the rainy season.

SUBSISTENCE FISHERIES ACTIVITIES SURVEY

TABLE: SUMMARY OF FISHERIES ACTIVITIES IN UPPER AND LOWER RESERVOIRS FISHING PRACTICES.

Table 1. 1: Number of persons fishing in the household

| Villages | Upper Reservoir | | | | | | | | | | Lower Reservoir | | | All Reservoirs | | | | | | |
|---------------------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|-------|----------------|-----|-----|-----|-------|-------|-----|
| | NK | VTH | NNA | NX | NH | PH | DO | PHT | HA | POU | NL | NK | Sub-T | HP | SPH | SPY | NMY | Sub-T | Total | |
| Number of persons fishing | 1.4 | 1.1 | 1.2 | 1.4 | 0.9 | 1.5 | 0.9 | 1.4 | 1.1 | 1.2 | 1.0 | 1.0 | 0.6 | 1.1 | 1.3 | 2.3 | 1.0 | 1.5 | 1.5 | 1.3 |

Table 1.2. Do you fish all year long?

| Villages | Upper Reservoir | | | | | | | | | | Lower Reservoir | | | All Reservoirs | | | | | | | | |
|----------|-----------------|-----|-----|----|----|----|----|-----|----|-----|-----------------|----|------|----------------|----|-----|-----|-----|----|-----|-----|-----|
| | NK | VTH | NNA | NX | NH | PH | DO | PHT | HA | POU | NL | NK | Sub- | % | HP | SPH | SPY | NMY | Su | % | ot | % |
| YES | 6 | 5 | 3 | 15 | 10 | 7 | 14 | 9 | 2 | 7 | 2 | 2 | 89 | 67 | 4 | 5 | 15 | 13 | 37 | 80 | 126 | 70 |
| NO | 2 | 5 | 2 | 1 | 5 | 6 | 2 | 1 | 4 | 5 | 3 | 3 | 44 | 33 | 0 | 1 | 1 | 7 | 9 | 20 | 53 | 30 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.3: How many days/week do you fish in the dry season?

| Villages | Upper Reservoir | | | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | |
|------------|-----------------|-----|----|----|----|----|----|-----|-----|-----|----|----|-----|-----------------|----|-----|-----|-----|----------------|-----|-------|-----|
| | VTH | NXA | NX | NH | PH | PH | DO | PHT | ILA | POU | NL | NK | ub. | % | HP | SPH | SPY | NMY | Sub. | % | Total | % |
| 1 day | 2 | 2 | 0 | 1 | 1 | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 14 | 11 | 0 | 0 | 1 | 2 | 3 | 7 | 17 | 9 |
| 2 days | 0 | 0 | 4 | 2 | 4 | 2 | 3 | 1 | 1 | 2 | 0 | 1 | 20 | 15 | 2 | 1 | 1 | 4 | 8 | 17 | 28 | 16 |
| 3 days | 4 | 4 | 0 | 5 | 3 | 1 | 5 | 3 | 2 | 4 | 2 | 2 | 40 | 30 | 0 | 0 | 6 | 8 | 14 | 30 | 54 | 30 |
| 4 days | 2 | 0 | 0 | 4 | 2 | 2 | 1 | 4 | 2 | 1 | 2 | 0 | 21 | 16 | 1 | 2 | 5 | 2 | 10 | 22 | 31 | 17 |
| 5 days | 1 | 1 | 0 | 2 | 1 | 0 | 2 | 1 | 2 | 0 | 1 | 0 | 11 | 8 | 1 | 0 | 2 | 2 | 5 | 11 | 16 | 9 |
| 6 days | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 1 | 2 | 4 | 9 | 6 | 3 |
| Every days | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 1 | 2 | 3 | 2 |
| No reply | 0 | 2 | 2 | 0 | 4 | 3 | 4 | 1 | 2 | 2 | 1 | 1 | 23 | 17 | 0 | 1 | 0 | 0 | 1 | 2 | 24 | 13 |
| Total | 8 | 10 | 5 | 16 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.4: How many days/week do you fish in the wet season?

| Nos of days | Upper Reservoir | | | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | |
|-------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|----------------|-----|-------|-----|
| | VTH | NXA | NXO | NHO | PHO | PHY | DON | PHT | HAT | POU | NLO | NKA | ub. | % | HPI | SPH | SPY | NMY | ub. | % | Total | % |
| 1 day | 2 | 2 | 3 | 2 | 4 | 2 | 4 | 4 | 2 | 3 | 1 | 2 | 32 | 24 | 0 | 1 | 3 | 4 | 8 | 17 | 40 | 22 |
| 2 days | 4 | 2 | 0 | 6 | 3 | 2 | 6 | 2 | 1 | 1 | 1 | 1 | 31 | 23 | 1 | 2 | 7 | 4 | 14 | 30 | 45 | 25 |
| 3 days | 0 | 1 | 0 | 7 | 2 | 2 | 3 | 3 | 1 | 1 | 2 | 1 | 25 | 19 | 2 | 1 | 5 | 8 | 16 | 35 | 41 | 23 |
| 4 days | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 14 | 11 | 0 | 2 | 1 | 0 | 3 | 7 | 17 | 9 |
| 5 days | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 10 | 8 | 1 | 0 | 0 | 2 | 3 | 7 | 13 | 7 |
| 6 days | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 3 |
| Every days | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| No reply | 2 | 1 | 1 | 0 | 4 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 14 | 11 | 0 | 0 | 0 | 2 | 2 | 4 | 16 | 9 |
| Total | 8 | 10 | 5 | 16 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.5: When do you fish preferable?

| Villages | Upper Reservoir | | | | | | | | | | | | | | Lower Reservoir | | | | | | All Reservoirs | | |
|----------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|----------------|-------|-----|
| | XX | VTH | NXA | NXC | NHO | PHO | PHY | DON | PHT | HAT | POU | NLO | NKA | ub. | % | HPM | SPH | SPY | NMY | ub. | % | Total | % |
| Early morning | 2 | 2 | 0 | 0 | 3 | 1 | 5 | 3 | 1 | 4 | 3 | 1 | 3 | 28 | 21 | 0 | 3 | 0 | 3 | 6 | 13 | 34 | 19 |
| Late afternoon | 2 | 5 | 0 | 6 | 7 | 2 | 3 | 2 | 4 | 1 | 1 | 1 | 1 | 35 | 26 | 1 | 1 | 4 | 7 | 13 | 28 | 48 | 27 |
| Any time | 4 | 2 | 4 | 10 | 5 | 7 | 4 | 10 | 5 | 1 | 6 | 3 | 1 | 62 | 47 | 3 | 2 | 12 | 10 | 27 | 59 | 89 | 50 |
| No answer | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 8 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 4 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.6: Do you sell part of your catches?

| Villages | Upper Reservoir | | | | | | | | | | | | | | Lower Reservoir | | | | | | All Reservoirs | | |
|----------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|----------------|-------|-----|
| | XX | VTH | NXA | NXC | NHO | PHO | PHY | DON | PHT | HAT | POU | NLO | NKA | ub. | % | HPM | SPH | SPY | NMY | ub. | % | Total | % |
| YES | 7 | 2 | 1 | 12 | 3 | 1 | 1 | 7 | 4 | 4 | 7 | 1 | 2 | 52 | 39 | 2 | 4 | 6 | 5 | 17 | 37 | 69 | 39 |
| NO | 1 | 8 | 4 | 4 | 12 | 12 | 11 | 9 | 5 | 2 | 5 | 4 | 3 | 81 | 61 | 2 | 2 | 10 | 15 | 29 | 63 | 110 | 61 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.7: If yes, how often?

| Villages | Upper Reservoir | | | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | | |
|------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|----------------|-----|-----|-------|-----|
| | XX | VTH | NXA | NXD | NHO | PHO | PHY | DON | PHT | HAT | POU | NLO | NKA | ub. | % | HPM | SPH | SPY | NMY | ub. | % | Total | % |
| Every time | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 6 | 12 | 0 | 1 | 0 | 0 | 1 | 6 | 7 | 10 |
| Often | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 3 | 1 | 6 | 35 | 7 | 10 | |
| Sometime | 5 | 2 | 1 | 10 | 3 | 1 | 1 | 6 | 3 | 4 | 6 | 1 | 2 | 45 | 87 | 1 | 2 | 3 | 4 | 10 | 59 | 55 | 80 |
| Total | 7 | 2 | 1 | 12 | 3 | 1 | 1 | 7 | 4 | 4 | 7 | 1 | 2 | 52 | 100 | 2 | 4 | 6 | 5 | 17 | 100 | 69 | 100 |

Table 1.8: Do you prepare Padak ?

| Villages | Upper Reservoir | | | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | | |
|----------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|----|-----|-----------------|-----|----|-----|-----|----------------|-----|-----|-------|-----|
| | XX | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| YES | 5 | 3 | 0 | 15 | 8 | 1 | 2 | 9 | 4 | 2 | 3 | 2 | 0 | 54 | 41 | 0 | 1 | 4 | 6 | 11 | 24 | 65 | 36 |
| NO | 3 | 7 | 5 | 1 | 7 | 12 | 10 | 7 | 6 | 4 | 9 | 3 | 5 | 79 | 59 | 4 | 5 | 12 | 14 | 35 | 76 | 114 | 64 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.9: Do you buy fish from market or from other fishers ?

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | | | All Reservoirs | | | | | |
|----------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----|-----|----------------|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| YES | 3 | 4 | 2 | 12 | 8 | 8 | 10 | 13 | 7 | 2 | 5 | 2 | 3 | 79 | 59 | 1 | 2 | 6 | 7 | 16 | 35 | 95 | 53 |
| NO | 5 | 6 | 3 | 4 | 7 | 5 | 2 | 3 | 3 | 4 | 7 | 3 | 2 | 54 | 41 | 3 | 4 | 10 | 13 | 30 | 65 | 84 | 47 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.10: If Yes, how often?

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | | | All Reservoirs | | | | | |
|------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----|-----|----------------|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| Frequently | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 1 | 0 | 2 | 0 | 0 | 9 | 11 | 0 | 0 | 0 | 0 | 5 | 31 | 14 | 15 | |
| Sometime | 3 | 4 | 2 | 12 | 8 | 5 | 8 | 12 | 6 | 2 | 3 | 2 | 3 | 70 | 89 | 1 | 2 | 6 | 2 | 11 | 69 | 81 | 85 |
| Total | 3 | 4 | 2 | 12 | 8 | 8 | 10 | 13 | 7 | 2 | 5 | 2 | 3 | 79 | 100 | 1 | 2 | 6 | 7 | 16 | 100 | 96 | 100 |

Table 1.11: For what reason?

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | | | All Reservoirs | | | | | |
|-------------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----|-----|----------------|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| with crop cultiv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| busy with other j | 2 | 0 | 1 | 5 | 5 | 4 | 4 | 7 | 4 | 1 | 3 | 0 | 1 | 37 | 47 | 1 | 0 | 5 | 1 | 7 | 44 | 44 | 46 |
| on't know fishin | 0 | 4 | 1 | 5 | 3 | 4 | 5 | 5 | 1 | 1 | 2 | 1 | 1 | 33 | 42 | 0 | 2 | 1 | 6 | 9 | 56 | 42 | 44 |
| Difficult to fish | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 |
| Total | 3 | 4 | 2 | 12 | 8 | 8 | 10 | 13 | 7 | 2 | 5 | 2 | 3 | 79 | 100 | 1 | 2 | 6 | 7 | 16 | 100 | 95 | 100 |

Table 1.12: What is average price of the fish you bought ?

| Villages | Upper Reservoir | | | | | | | | | | Lower Reservoir | | | All Reservoirs | | | | | | |
|----------|-----------------|------|------|------|------|------|------|------|------|------|-----------------|------|------|----------------|------|------|------|------|---------|------|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | Average | HP | SPH | SPY | NMY | Average | |
| Kips/Kg | 2500 | 2166 | 2500 | 2269 | 2312 | 2125 | 2444 | 2500 | 2142 | 2500 | 2200 | 1800 | 1666 | 2217 | 2500 | 3000 | 2083 | 2000 | 2396 | 2366 |

Table 1.13: Is there any period of the year you eat less frequently fish?

| Villages | Upper Reservoir | | | | | | | | | | Lower Reservoir | | | All Reservoirs | | | | | | | | | |
|----------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----------------|----|-----|----------------|-----|----|-----|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| YES | 8 | 8 | 1 | 4 | 13 | 17 | 9 | 7 | 1 | 2 | 9 | 4 | 3 | 80 | 60 | 2 | 4 | 11 | 17 | 34 | 74 | 114 | 64 |
| NO | 0 | 2 | 4 | 12 | 2 | 2 | 3 | 9 | 9 | 4 | 3 | 1 | 2 | 53 | 40 | 2 | 2 | 5 | 3 | 12 | 28 | 65 | 36 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.14: If Yes, Which period ? (HH)

| Months | Upper Reservoir | | | | | | | | | | Lower Reservoir | | | All Reservoirs | | | | | | | | | |
|----------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----------------|----|-----|----------------|-----|----|-----|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| 1,2,3 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 9 | 0 | 2 | 0 | 0 | 2 | 6 | 9 | 8 |
| 4,5,6 | 0 | 0 | 0 | 2 | 7 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 18 | 23 | 0 | 0 | 0 | 2 | 2 | 6 | 20 | 18 |
| 7,8,9 | 8 | 6 | 0 | 2 | 2 | 4 | 0 | 7 | 0 | 0 | 9 | 3 | 0 | 41 | 51 | 2 | 2 | 10 | 15 | 29 | 85 | 70 | 61 |
| 10,11,12 | 0 | 2 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 1 | 2 | 14 | 18 | 0 | 0 | 1 | 0 | 1 | 3 | 15 | 13 |
| Total | 8 | 8 | 1 | 4 | 13 | 11 | 9 | 7 | 1 | 2 | 9 | 4 | 3 | 80 | 100 | 2 | 4 | 11 | 17 | 34 | 100 | 114 | 100 |

NOTE: 1,2,3,4,5.....12 = January, February.....December

Table 1.15: Number of particular Fishing gear from the household surveys of each village in the area.

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | |
|---------------|-----------------|-----|----|-----|-----|-------|-----|-----|-----|-----|-----|-----------------|----|------|-----|----------------|-------|-------|------|------|
| | VTH | NXA | NX | NH | PH | PHYDO | PHT | HAT | POU | NL | NKA | Sub.I | HP | SPH | SPY | NMY | Sub.T | Total | | |
| Gill net | 46 | 9 | 4 | 47 | 21 | 10 | 11 | 36 | 18 | 20 | 37 | 5 | 5 | 269 | 9 | 13 | 43 | 41 | 106 | 375 |
| Cast net | 12 | 10 | 4 | 23 | 10 | 5 | 6 | 13 | 9 | 8 | 11 | 3 | 3 | 117 | 3 | 3 | 19 | 24 | 49 | 166 |
| Scoop net | 2 | 9 | 3 | 13 | 7 | 17 | 6 | 9 | 4 | 5 | 7 | 4 | 3 | 89 | 0 | 0 | 0 | 1 | 1 | 90 |
| Basket net | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Basket trap | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Funnel trap | 3 | 2 | 0 | 7 | 20 | 3 | 0 | 1 | 0 | 2 | 10 | 0 | 1 | 49 | 0 | 0 | 0 | 0 | 0 | 49 |
| Hook and line | 141 | 65 | 1 | 595 | 405 | 335 | 300 | ### | 240 | 112 | 238 | 50 | 0 | 3752 | 120 | 146 | 378 | 389 | 1033 | 4785 |

Table 1.16: Average of individual fishing gear per household in each village

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | |
|---------------|-----------------|-----|-----|------|------|-------|------|------|------|------|------|-----------------|-----|------|-----|----------------|-------|-------|------|------|
| | VTH | NXA | NX | NH | PH | PHYDO | PHT | HAT | POU | NL | NKA | Sub.I | HP | SPH | SPY | NMY | Sub.T | Total | | |
| Gill net | 5.8 | 0.9 | 0.8 | 2.9 | 1.4 | 0.8 | 0.9 | 2.3 | 1.8 | 3.3 | 3.1 | 1.0 | 1.0 | 2.0 | 2.3 | 2.2 | 2.7 | 2.1 | 2.3 | 2.1 |
| Cast net | 1.5 | 1.0 | 0.8 | 1.4 | 0.7 | 0.4 | 0.5 | 0.8 | 0.9 | 1.3 | 0.9 | 0.6 | 0.6 | 0.9 | 0.8 | 0.5 | 1.2 | 1.2 | 0.9 | 0.9 |
| Scoop net | 0.3 | 0.9 | 0.6 | 0.8 | 0.5 | 1.3 | 0.5 | 0.6 | 0.4 | 0.8 | 0.6 | 0.8 | 0.6 | 0.7 | 0 | 0 | 0 | 0.05 | 0.0 | 0.3 |
| Basket net | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 |
| Basket trap | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 |
| Funnel trap | 0.4 | 0.2 | 0.0 | 0.4 | 1.3 | 0.2 | 0.0 | 0.1 | 0.0 | 0.3 | 0.8 | 0.0 | 0.2 | 0.3 | 0 | 0 | 0 | 0 | 0.0 | 0.2 |
| Hook and line | 17.6 | 6.5 | 0.2 | 37.2 | 27.0 | 25.8 | 25.0 | 79.4 | 24.0 | 18.7 | 19.8 | 10.0 | 0.0 | 22.4 | 30 | 24 | 23.6 | 19.5 | 24.4 | 23.4 |

Table 1.17: Number of household having boats

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | | |
|----------|-----------------|-----|----|----|----|-------|-----|-----|-----|----|-----|-----------------|-----|-----|-----|----------------|-----|-----|----|-------|-----|
| | VTH | NXA | NX | NH | PH | PHYDO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | |
| Have | 7 | 3 | 2 | 0 | 0 | 2 | 9 | 6 | 4 | 9 | 0 | 0 | 42 | 32 | 2 | 1 | 8 | 0 | 11 | 24 | 53 |
| No have | 1 | 7 | 3 | 16 | 15 | 13 | 10 | 7 | 4 | 2 | 3 | 5 | 91 | 68 | 2 | 5 | 8 | 20 | 95 | 76 | 126 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 |

Table 1.17.1. Number of households having motor boats and with out motor

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | | | | |
|----------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----------------|-----|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| With motor | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 6 | 14 | 0 | 1 | 0 | 0 | 1 | 9 | 7 | 13 |
| With out motor | 7 | 3 | 2 | 0 | 0 | 0 | 2 | 6 | 6 | 4 | 6 | 0 | 0 | 36 | 86 | 2 | 0 | 8 | 0 | 10 | 91 | 46 | 87 |
| Total | 7 | 3 | 2 | 0 | 0 | 0 | 2 | 9 | 6 | 4 | 9 | 0 | 0 | 42 | 100 | 2 | 1 | 8 | 0 | 11 | 100 | 53 | 100 |

FISHING AREAS. Where do you fish according to the season ?

Table 1.18: Beginning of wet season (May - July)

| Fishing areas | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | | | | |
|---------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----------------|-----|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| Nam Ngiep | 4 | 5 | 2 | 11 | 5 | 1 | 4 | 11 | 7 | 4 | 5 | 0 | 0 | 59 | 44 | 4 | 3 | 16 | 13 | 36 | 78 | 96 | 52 |
| Tributaries | 2 | 3 | 2 | 5 | 8 | 6 | 1 | 5 | 4 | 0 | 1 | 5 | 5 | 47 | 35 | 0 | 0 | 3 | 7 | 10 | 22 | 57 | 31 |
| Ponds | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 3 |
| Others | 2 | 2 | 1 | 0 | 4 | 6 | 5 | 0 | 0 | 0 | 4 | 0 | 0 | 24 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 13 |
| Total | 8 | 10 | 5 | 16 | 17 | 13 | 11 | 16 | 11 | 6 | 12 | 5 | 5 | 135 | 100 | 4 | 3 | 19 | 20 | 46 | 100 | 181 | 100 |

Table 1.19: Wet season (August- October)

| Fishing areas | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | | | | |
|---------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----------------|-----|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| Nam Ngiep | 3 | 4 | 2 | 16 | 5 | 1 | 4 | 10 | 7 | 4 | 4 | 0 | 0 | 60 | 57 | 2 | 3 | 10 | 12 | 27 | 50 | 87 | 55 |
| Tributaries | 2 | 3 | 2 | 5 | 8 | 7 | 1 | 4 | 3 | 3 | 1 | 2 | 1 | 42 | 40 | 2 | 3 | 6 | 16 | 27 | 50 | 69 | 43 |
| Ponds | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 5 | 7 | 4 | 21 | 13 | 8 | 6 | 14 | 10 | 8 | 6 | 2 | 1 | 105 | 100 | 4 | 6 | 16 | 28 | 54 | 100 | 159 | 100 |

Table 1.20: Beginning of dry season (November-December)

| Fishing areas | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | | | | |
|---------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----|----------------|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| Nam Ngiep | 8 | 7 | 4 | 16 | 9 | 5 | 7 | 15 | 8 | 5 | 8 | 0 | 2 | 94 | 56 | 3 | 3 | 16 | 15 | 37 | 48 | 131 | 53 |
| Tributaries | 4 | 8 | 2 | 9 | 10 | 10 | 1 | 9 | 4 | 3 | 4 | 3 | 2 | 69 | 41 | 2 | 3 | 15 | 20 | 40 | 52 | 109 | 44 |
| Ponds | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 0 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 2 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 12 | 15 | 6 | 25 | 19 | 15 | 9 | 26 | 12 | 9 | 14 | 3 | 4 | 169 | 100 | 5 | 6 | 31 | 35 | 77 | 100 | 246 | 100 |

Table 1.21: Dry season (January- April)

| Fishing areas | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | | | | |
|---------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|----|----------------|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| Nam Ngiep | 6 | 9 | 4 | 16 | 10 | 5 | 7 | 15 | 9 | 5 | 8 | 0 | 2 | 96 | 57 | 4 | 3 | 16 | 15 | 38 | 50 | 134 | 55 |
| Tributaries | 5 | 8 | 2 | 10 | 8 | 10 | 1 | 9 | 4 | 3 | 4 | 4 | 2 | 70 | 41 | 2 | 3 | 14 | 19 | 38 | 50 | 108 | 44 |
| Ponds | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 11 | 17 | 6 | 26 | 18 | 15 | 9 | 24 | 13 | 9 | 13 | 4 | 4 | 169 | 100 | 6 | 6 | 30 | 34 | 76 | 100 | 245 | 100 |

Table 1.22: Where fish catch is best ? (HH)

FISH CATCHES

| Fishing areas | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | | | |
|---------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|-----------------|-----|-----|----|----|----------------|-----|-----|-----|----|-------|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total |
| Nam Ngiep | 8 | 7 | 5 | 16 | 10 | 5 | 7 | 15 | 9 | 5 | 8 | 0 | 2 | 97 | 42 | 4 | 3 | 16 | 15 | 38 | 46 | 135 |
| Upstream | 6 | 5 | 5 | 13 | 2 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 37 | 16 | 4 | 2 | 0 | 4 | 10 | 12 | 47 |
| Downstream | 2 | 2 | 0 | 3 | 8 | 3 | 5 | 14 | 8 | 5 | 8 | 0 | 2 | 60 | 26 | 0 | 1 | 16 | 11 | 28 | 34 | 88 |
| Tributaries | 5 | 7 | 3 | 13 | 10 | 10 | 1 | 8 | 4 | 3 | 4 | 2 | 2 | 72 | 31 | 2 | 3 | 16 | 17 | 38 | 46 | 110 |

| | | | | | | | | | | | | | | | | | | | | | | |
|------------|---|---|---|----|----|---|---|----|---|---|---|---|---|----|----|----|---|----|----|----|----|----|
| Upstream | 4 | 5 | 3 | 11 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 14 | 2 | 2 | 7 | 13 | 16 | 46 |
| Downstream | 1 | 2 | 0 | 2 | 7 | 3 | 1 | 8 | 4 | 3 | 4 | 2 | 2 | 39 | 17 | 0 | 1 | 14 | 10 | 25 | 30 | 64 |
| Ponds | 5 | 0 | 1 | 10 | 10 | 4 | 4 | 12 | 2 | 1 | 4 | 0 | 1 | 54 | 23 | 0 | 0 | 2 | 4 | 6 | 7 | 60 |
| Upstream | 3 | 0 | 1 | 8 | 4 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 22 | 10 | 0 | 0 | 2 | 2 | 2 | 2 | 24 |
| Downstream | 2 | 0 | 0 | 2 | 6 | 1 | 2 | 11 | 2 | 1 | 4 | 0 | 1 | 32 | 14 | 0 | 0 | 2 | 2 | 4 | 5 | 36 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 3 | 1 | 0 | 8 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |

Table 1.23: When fish catch is best?

| Fishing areas | Upper Reservoir | | | | | | | | | | | | | Lower Reservoir | | | | | | | All Reservoirs | | | |
|------------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|----|-----|-----------------|----|----|-----|-----|-----|-----|----------------|-------|----|--|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % | |
| Nam Ngiep | | | | | | | | | | | | | | | | | | | | | | | | |
| Early dry season | 4 | 3 | 2 | 8 | 1 | 3 | 3 | 2 | 6 | 1 | 2 | 0 | 2 | 37 | 27 | 1 | 0 | 4 | 6 | 11 | 18 | 48 | 24 | |
| Dry season | 6 | 6 | 3 | 11 | 4 | 2 | 5 | 12 | 4 | 5 | 4 | 0 | 1 | 63 | 46 | 2 | 0 | 6 | 11 | 19 | 31 | 82 | 42 | |
| Early wet seas | 2 | 2 | 1 | 4 | 2 | 1 | 4 | 2 | 3 | 1 | 1 | 0 | 0 | 23 | 17 | 3 | 1 | 7 | 7 | 18 | 30 | 41 | 21 | |
| Wet season | 0 | 1 | 1 | 0 | 2 | 0 | 3 | 0 | 4 | 1 | 1 | 0 | 0 | 13 | 10 | 1 | 3 | 1 | 8 | 13 | 21 | 26 | 13 | |
| Tributaries | | | | | | | | | | | | | | | | | | | | | | | | |
| Early dry season | 1 | 4 | 1 | 2 | 1 | 4 | 2 | 3 | 1 | 0 | 0 | 1 | 2 | 22 | 21 | 0 | 0 | 5 | 8 | 13 | 25 | 35 | 22 | |
| Dry season | 3 | 2 | 2 | 5 | 5 | 5 | 7 | 8 | 1 | 3 | 3 | 2 | 0 | 46 | 44 | 0 | 3 | 5 | 9 | 17 | 33 | 63 | 40 | |
| Early wet seas | 0 | 4 | 2 | 4 | 1 | 4 | 1 | 1 | 2 | 0 | 1 | 1 | 1 | 22 | 21 | 2 | 1 | 4 | 3 | 10 | 20 | 32 | 21 | |
| Wet season | 2 | 1 | 0 | 2 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 15 | 14 | 0 | 1 | 0 | 10 | 11 | 22 | 26 | 17 | |
| Ponds | | | | | | | | | | | | | | | | | | | | | | | | |
| Early dry season | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | |
| Dry season | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 8 | |
| Early wet seas | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 11 | 0 | 0 | 0 | 3 | 3 | 33 | 9 | 14 | |
| Wet season | 5 | 0 | 1 | 8 | 9 | 4 | 0 | 9 | 2 | 0 | 2 | 0 | 1 | 41 | 75 | 0 | 0 | 2 | 4 | 6 | 67 | 47 | 73 | |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 1 | 0 | 7 | | 0 | 0 | 0 | 0 | 0 | 0 | 7 | | |

FISH MIGRATION OBSERVATION

Table 1.25: Did you observe any fish migration near your village?

| Villages | Upper Reservoir | | | | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | |
|----------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|----|-----|-----|-----------------|----|-----|-----|-----|----------------|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| YES | 8 | 4 | 5 | 12 | 5 | 7 | 6 | 7 | 6 | 5 | 6 | 3 | 2 | 76 | 57 | 4 | 2 | 14 | 16 | 36 | 78 | 112 | 63 |
| NO | 0 | 6 | 0 | 4 | 10 | 6 | 6 | 9 | 4 | 1 | 6 | 2 | 3 | 57 | 43 | 0 | 4 | 2 | 4 | 10 | 22 | 67 | 37 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.26: Migration going upstream or downstream?

| Villages | Upper Reservoir | | | | | | | | | | | | | | Lower Reservoir | | | | | All Reservoirs | | | |
|------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----|----|-----|-----|-----------------|----|-----|-----|-----|----------------|----|-------|----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| Upstream | 8 | 4 | 5 | 12 | 5 | 7 | 6 | 7 | 6 | 5 | 6 | 3 | 2 | 76 | 55 | 4 | 2 | 14 | 16 | 36 | 59 | 112 | 56 |
| Downstream | 5 | 4 | 2 | 12 | 5 | 6 | 6 | 6 | 5 | 4 | 4 | 1 | 2 | 62 | 45 | 2 | 1 | 13 | 9 | 25 | 41 | 87 | 44 |

AQUACULTURE PRACTICE.

(The following information on aquaculture was re-checked during the wet season fish survey, with the village's authorities)

Table 1.27. How many household doing culture in your village ?

| Villages | Upper Reservoir | | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | | |
|-------------|-----------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|------|----|----------------|-----|-----|-----|---|-------|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub.T | HP | SPH | SPY | NMY | ub. | % | Total |
| Nb.of HH | 0 | 0 | 1 | 2 | 3 | 3 | 2 | 3 | 1 | 1 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Nb.of ponds | 0 | 0 | 1 | 2 | 3 | 4 | 2 | 3 | 1 | 1 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| Area (ha) | 0 | 0 | 0.05 | 0.1 | 0.2 | 0.3 | 0.1 | 0.2 | 0 | 0.1 | 0 | 0 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 1.13 |

Table 1.27.1. The production from aquaculture estimated

| | Upper Reservoir | | | | | | | | | | | NKA | otal | |
|------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | | | NL |
| kg/year | 0 | 0 | 15 | 30 | 75 | 120 | 40 | 105 | 15 | 25 | 0 | 0 | 0 | 425 |
| Kg/ha/year | 0 | 0 | 300 | 300 | 313 | 375 | 393 | 593 | 375 | 313 | 0 | 0 | 0 | 376 |

OPPORTUNITIES OF BECOMING FISHER, WHEN RESERVOIR IS CREATED

Table 1.28: Do you want to be a professional fisher ?

| Villages | Upper Reservoir | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | | | | | |
|----------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----------------|----|-----|-----|----------------|----|-----|-----|-----|-----|-----|-------|-----|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % |
| YES | 6 | 3 | 0 | 7 | 7 | 4 | 3 | 11 | 6 | 4 | 5 | 0 | 3 | 59 | 44 | 2 | 2 | 2 | 6 | 12 | 26 | 71 | 40 |
| NO | 2 | 7 | 5 | 9 | 8 | 9 | 9 | 5 | 4 | 2 | 7 | 5 | 2 | 74 | 56 | 2 | 4 | 14 | 14 | 34 | 74 | 108 | 60 |
| Total | 8 | 10 | 5 | 16 | 15 | 13 | 12 | 16 | 10 | 6 | 12 | 5 | 5 | 133 | 100 | 4 | 6 | 16 | 20 | 46 | 100 | 179 | 100 |

Table 1.29: What are the reason

| Reasons | Upper Reservoir | | | | | | | | | | Lower Reservoir | | | | All Reservoirs | | | | | | | | | |
|-------------------|-----------------|-----|-----|----|----|----|-----|----|-----|-----|-----------------|----|-----|-----|----------------|----|-----|-----|-----|-----|----|-------|-----|--|
| | XK | VTH | NXA | NX | NH | PH | PHY | DO | PHT | HAT | POU | NL | NKA | ub. | % | HP | SPH | SPY | NMY | ub. | % | Total | % | |
| 1. If no | | | | | | | | | | | | | | | | | | | | | | | | |
| Don't know fis | 1 | 5 | 3 | 2 | 3 | 4 | 2 | 1 | 2 | 1 | 4 | 3 | 2 | 33 | 45 | 2 | 2 | 7 | 7 | 19 | 39 | 51 | 28 | |
| Agriculture bet | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 8 | 11 | 0 | 0 | 3 | 1 | 4 | 9 | 12 | 7 | |
| Afraid large wa | 0 | 0 | 0 | 2 | 2 | 3 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 11 | 15 | 0 | 0 | 2 | 0 | 2 | 4 | 13 | 7 | |
| Don't like fishin | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 3 | 1 | 0 | 2 | 1 | 0 | 22 | 30 | 0 | 2 | 2 | 6 | 10 | 22 | 32 | 18 | |
| 2. If yes | | | | | | | | | | | | | | | | | | | | | | | | |
| Expect more in | 4 | 2 | 0 | 3 | 4 | 2 | 2 | 7 | 4 | 1 | 3 | 0 | 1 | 33 | 56 | 2 | 1 | 1 | 4 | 9 | 67 | 41 | 58 | |
| Like fishing | 2 | 1 | 0 | 4 | 3 | 2 | 1 | 4 | 2 | 3 | 2 | 0 | 2 | 26 | 44 | 0 | 1 | 1 | 2 | 4 | 33 | 30 | 42 | |
| Total | 6 | 3 | 0 | 7 | 7 | 4 | 3 | 11 | 6 | 4 | 5 | 0 | 3 | 59 | | 2 | 2 | 2 | 6 | 12 | | 71 | 100 | |

Note : NMY = Ban Namyouk PHO = Ban Phnom PHY = Ban Phnyeng NKA = Ban Nakang SPY = Ban Sopyouak
 XK= Ban Xiengkhong HAT = Ban Hat Samkhone POU = Ban Pou NXO = Ban Naxong
 NXA = Ban Naxay HPM = Ban Houaypamom SPH = Ban Sophouanh DON = Ban Dong
 NHO = Ban Nahong VTH= Ban Viengkong PHT= Ban Phiangla NLO = Ban Nam long

Summarized of Subsistence Fisheries Survey Downstream

Annex 1.2

Table 2.1. Average of person fishing per household.

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | Av. |
|-----------------------------|-----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|
| Nb.of pers.fishing by villa | 6 | 3 | 12 | 4 | 9 | 3 | 4 | 5 | 4 | 4 | 5 | 3 | 6 | 4 | 4 | 72 |
| Average per HH | 1.2 | 1 | 1.2 | 1 | 0.6 | 1.5 | 1.3 | 1.3 | 1.3 | 1.3 | 1.7 | 1.5 | 1.5 | 1.5 | 1 | 1.3 |

Table 2.2. Do you fish all year long?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Yes | 4 | 3 | 5 | 2 | 2 | 2 | 4 | 2 | 1 | 2 | 2 | 2 | 1 | 4 | 4 | 36 |
| NO | 1 | 0 | 5 | 2 | 12 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 3 | 0 | 28 | 44 |
| Total | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 64 | 100 |

How many days/week do yo fish?

Table 2.3 : In dry season

| Nb.of days | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-------|
| 1 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 11 | 17.2 |
| 2 | 1 | 1 | 2 | 0 | 3 | 0 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 20 | 31.3 |
| 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 6.3 |
| 4 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 7.8 |
| 5 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 7.8 |
| 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 4 | 6.3 |
| Every day | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 4 | 6.3 |
| No reply | 0 | 0 | 2 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 17.2 |
| Total HH interviewed | 5 | 3 | 10 | 4 | 14 | 1 | 3 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 64 | 100.0 |

Table 2.4 In wet season

| Nb.of days | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-------|
| 1 | 1 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 9.4 |
| 2 | 1 | 0 | 2 | 0 | 1 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 10 | 15.6 |
| 3 | 2 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 10 | 15.6 |
| 4 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4.7 |
| 5 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 2 | 0 | 10 | 15.6 |
| 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 6.3 |
| Every day | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 8 | 12.5 |
| No reply | 1 | 0 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13 | 20.3 |
| Total HH interviewed | 5 | 3 | 10 | 4 | 14 | 1 | 3 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 64 | 100.0 |

Table 2.5. Average days fishing per week in each village per household

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Av. |
|------------|-----|-----|-----|-----|-----|----|-----|-----|----|-----|-----|-----|-----|-----|-----|
| Dry season | 4.8 | 4.7 | 2.9 | 2.3 | 0.7 | 4 | 2.3 | 2.3 | 5 | 1.7 | 1.7 | 1.7 | 2 | 4 | 2.9 |
| Wet season | 1.8 | 4.3 | 2.3 | 5.8 | 1.5 | 4 | 2.7 | 4.3 | 5 | 1.7 | 3.3 | 3.3 | 4.8 | 5.3 | 3.6 |

Table 2.6. Average of fishing hour in each time

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Av. |
|------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-----|
| Dry season | 2 | 3 | 4 | 6 | 2 | 4 | 5 | 4 | 4 | 4 | 4 | 5 | 2 | 4 | 3.8 |
| Wet season | 2 | 3 | 4 | 4 | 1 | 4 | 4 | 4 | 3 | 1 | 3 | 5 | 2 | 4 | 3.1 |

Table 2.7. When do you prefer to fish?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Early morning | 2 | 0 | 1 | 0 | 2 | 0 | 3 | 3 | 0 | 2 | 2 | 2 | 4 | 2 | 23 | 36 |
| Late afternoon | 2 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 10 | 16 |
| Any time | 1 | 2 | 6 | 3 | 5 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 23 | 36 |
| NO reply | 0 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 | 13 |
| | | | | | | | | | | | | | | | 64 | 100 |

Table 2.8. Do you buy fish from market or from other fishers?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Yes | 3 | 0 | 6 | 3 | 0 | 2 | 1 | 3 | 2 | 1 | 2 | 1 | 4 | 3 | 31 | 48 |
| NO | 1 | 3 | 4 | 1 | 8 | 0 | 2 | 1 | 1 | 2 | 1 | 1 | 0 | 1 | 26 | 41 |
| No-reply | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 11 |
| | | | | | | | | | | | | | | | 64 | 100 |

Table 2.9. (follow the table 2.8) If Yes, how often?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Frequently | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 2 | 8 | 26 |
| Sometime | 3 | 0 | 6 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 2 | 1 | 3 | 1 | 23 | 74 |
| | 3 | 0 | 6 | 3 | 0 | 2 | 1 | 3 | 2 | 1 | 2 | 1 | 4 | 3 | 31 | 100 |

Table 2.10. (follow table 2.8) If Yes, for what reason?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|---------|
| Busy with crop cultivation | 2 | 0 | 2 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 15 | #DIV/0! |
| Bust with other job | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 8 | #DIV/0! |
| Don't know fishing | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | #DIV/0! |
| Difficult to fish | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | #DIV/0! |
| other | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | #DIV/0! |

Table 2.11. Average of fish's price per Kg that you bought

| Villages | HK | TH | SS | NP | HK | NP | SK | PS | TKK | NT | NN | SO | Av. | | |
|----------|------|------|------|------|------|------|------|-------|------|------|------|------|-------|------|-------|
| | 3767 | 7000 | 6667 | 6500 | 9250 | 7000 | 6667 | 11000 | 7000 | 6000 | 6500 | 7000 | 10500 | 5000 | 7,132 |

Table 2.12. Do you sell part of your catches?

| Villages | HK | TH | SS | NP | HK | NP | SK | PS | TKK | NT | NN | SO | Total | % | |
|----------|----|----|----|----|----|----|----|----|-----|----|----|----|-------|---|----|
| Yes | 3 | 0 | 6 | 3 | 0 | 0 | 1 | 3 | 3 | 1 | 2 | 2 | 4 | 3 | 31 |
| No | 2 | 3 | 4 | 1 | 9 | 2 | 2 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 28 |
| No reply | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Total | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 2 | 4 | 4 | 4 | 64 |

Table 2.13: How often do you sell part of your caught? (follow the table 2.12)

| Villages | HK | TH | SS | NP | HK | NP | SK | PS | TKK | NT | NN | SO | Total | % |
|------------|----|----|----|----|----|----|----|----|-----|----|----|----|-------|----|
| Every time | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 2 | 5 |
| Frequently | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 5 |
| Sometime | 3 | 0 | 6 | 2 | 0 | 0 | 2 | 1 | 1 | 2 | 0 | 3 | 1 | 21 |
| Total | 3 | 0 | 6 | 3 | 0 | 0 | 1 | 3 | 3 | 1 | 2 | 4 | 3 | 31 |

Table 2.14. Do you process your fish?

| Villages | HK | TH | SS | NP | HK | NP | TG | SK | PS | TKK | NT | NN | SO | Total | % of 64hh |
|----------|----|----|----|----|----|----|----|----|----|-----|----|----|----|-------|-----------|
| Padek | 4 | 2 | 7 | 3 | 10 | 0 | 2 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 46 |
| Dry fish | 4 | 2 | 9 | 2 | 6 | 0 | 1 | 2 | 2 | 1 | 3 | 0 | 3 | 3 | 38 |
| No | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 10 |

Table 2.15: How often do you eat fish in your family?

| Villages | HK | TH | SS | NP | HK | NP | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|--------------|----|----|----|----|----|----|----|----|----|-----|----|----|----|-------|----|
| Every day | 4 | 1 | 5 | 3 | 3 | 0 | 0 | 2 | 2 | 0 | 1 | 1 | 3 | 2 | 27 |
| Time to time | 0 | 2 | 5 | 1 | 9 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 32 |
| Not often | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 |
| Total | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 64 |

Table 2.16: Average of consumed fish per year /household surveyed

| Villages | HK | TH | SS | NP | HK | NP | TG | SK | PS | TKK | NT | NN | SO | Av. |
|------------|-----|-----|-----|-----|-----|----|----|-----|-----|-----|----|-----|-----|-----|
| | 168 | 133 | 201 | 140 | 111 | 55 | 88 | 133 | 127 | 53 | 93 | 275 | 140 | 205 |
| Kg/year/HH | | | | | | | | | | | | | | 137 |

Table 2.17: Period of less fish consumption

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|-------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-------|
| November-December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| January-April | 0 | 2 | 1 | 2 | 6 | 1 | 3 | 4 | 2 | 3 | 2 | 2 | 4 | 4 | 36 | 56.3 |
| May-July | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 7.8 |
| August -October | 5 | 1 | 7 | 1 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 21 | 32.8 |
| No reply | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3.1 |
| | | | | | | | | | | | | | | | 64 | 100.0 |

Table 2.18: Reason of less fish consumption

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-------|
| No time | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 13 | 20.3 |
| No fish | 0 | 1 | 3 | 2 | 6 | 1 | 1 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 32 | 50.0 |
| Other | 1 | 1 | 4 | 1 | 5 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 17 | 26.6 |
| No reply | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3.1 |
| | | | | | | | | | | | | | | | 64 | 100.0 |

TOOLS AND EQUIPMENT(FISHING GEAR)

Table 2.19 : Number of particular fishing gear from household surveyed in each village

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|---------------|-----|----|-----|-----|-----|-----|----|-----|-----|----|-----|----|-----|-----|-------|
| Gill net | 24 | 5 | 28 | 31 | 6 | 3 | 6 | 24 | 17 | 4 | 12 | 13 | 29 | 31 | 233 |
| Cast net | 4 | 3 | 3 | 4 | 6 | 1 | 5 | 7 | 4 | 4 | 3 | 3 | 9 | 6 | 62 |
| Scoop net | 3 | 0 | 2 | 2 | 1 | 1 | 3 | 1 | 2 | 1 | 2 | 0 | 0 | 1 | 19 |
| Basket net | 0 | 0 | 0 | 1 | 0 | 9 | 10 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 24 |
| Basket trap | 0 | 3 | 9 | 30 | 0 | 0 | 20 | 4 | 0 | 5 | 0 | 0 | 0 | 50 | 121 |
| Funnel trap | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 1 | 0 | 5 | 20 |
| Hook and line | 390 | 47 | 838 | 312 | 60 | 102 | 4 | 400 | 605 | 2 | 201 | 13 | 205 | 703 | 3882 |

Table 2.20. Average of individual fishing gear per household

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Av. |
|---------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|------|
| Gill net | 4.8 | 1.7 | 2.8 | 7.8 | 0.4 | 1.5 | 2 | 6 | 5.7 | 1.3 | 4 | 6.5 | 7.3 | 7.8 | 4.3 |
| Cast net | 0.8 | 1 | 0.3 | 1 | 0.4 | 0.5 | 1.7 | 1.8 | 1.3 | 1.3 | 1 | 1.5 | 2.3 | 1.5 | 1.2 |
| Scoop net | 0.6 | 0 | 0.2 | 0.5 | 0.1 | 0.5 | 1 | 0.3 | 0.7 | 0.3 | 0.7 | 0 | 0 | 0.3 | 0.4 |
| Basket net | 0 | 0 | 0 | 0.3 | 0 | 4.5 | 3.3 | 0.5 | 0.3 | 0.3 | 0 | 0 | 0 | 0 | 0.7 |
| Basket trap | 0 | 1 | 0.9 | 7.5 | 0 | 0 | 6.7 | 1 | 0 | 1.7 | 0 | 0 | 0 | 0 | 2.2 |
| Funnel trap | 0.4 | 0 | 0.1 | 0.3 | 0 | 0 | 0 | 0 | 3.3 | 0 | 0 | 0.5 | 0 | 1.3 | 0.4 |
| Hook and line | 78 | 15.7 | 83.8 | 78 | 4.3 | 51 | 1.3 | 100 | 202 | 0.7 | 67 | 6.5 | 51.3 | 175.8 | 65.4 |

Table 2.21. Number of households having boats

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Yes | 4 | 1 | 6 | 3 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 2 | 3 | 3 | 28 | 44 |
| No | 1 | 2 | 4 | 1 | 14 | 2 | 2 | 2 | 1 | 2 | 3 | 0 | 1 | 1 | 36 | 56 |
| Total | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 64 | 100 |

Table 2.22. Number of households having motor boats and boat with out motor

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Motor boats | 3 | 1 | 4 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 1 | 17 | 61 |
| Boats no motor | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 0 | 0 | 1 | 2 | 11 | 39 |
| Total | 4 | 1 | 6 | 3 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 2 | 3 | 3 | 28 | 100 |

FISHING AREAS

Table 2.23. Where do you fish sometime in the beginning of wet season (May-July)

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|--------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|
| Nam Ngiep | 0 | 2 | 2 | 0 | 10 | 0 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 21 |
| VO | 3 | 1 | 4 | 3 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 3 | 3 | 25 |
| SO | 2 | 0 | 4 | 1 | 3 | 1 | 0 | 2 | 1 | 2 | 0 | 0 | 1 | 1 | 18 |
| Tributaries | 3 | 0 | 7 | 1 | 11 | 2 | 3 | 4 | 2 | 2 | 2 | 0 | 1 | 2 | 40 |
| VO | 1 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 1 | 2 | 14 |
| SO | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 10 |
| Paddy-fields | 5 | 3 | 9 | 3 | 14 | 2 | 1 | 2 | 3 | 3 | 3 | 2 | 4 | 4 | 58 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| SO | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Ponds | 4 | 3 | 10 | 4 | 12 | 2 | 2 | 4 | 3 | 3 | 3 | 2 | 4 | 2 | 58 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SO | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Others | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 3 | 63 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Note. NO : Not

VO : Very often

SO : Sometime

Table 2.24. Distance by walking time to go to fish in the beginning of wet season (May~July) in hour.

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | INT | NN | SO | Total |
|---------------|----|----|----|----|-----|----|----|----|----|----|-----|-----|----|----|-------|
| Fishing areas | | | | | | | | | | | | | | | |
| Nam Ngiep | 1 | 1 | 2 | 2 | 1 | 2 | 1 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| Tributaries | 1 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 1 | 2 | 1.1 |
| Paddy fields | 0 | 0 | 3 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 |
| Ponds | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |

Table 2.25. Where do you fish sometime in wet season (August-October)?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | INT | NN | SO | Total |
|--------------|----|----|----|----|-----|----|----|----|----|----|-----|-----|----|----|-------|
| Nam Ngiep | 2 | 2 | 6 | 0 | 11 | 0 | 3 | 2 | 0 | 2 | 1 | 1 | 0 | 0 | 30 |
| VO | 0 | 1 | 2 | 2 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 3 | 16 |
| SO | 3 | 0 | 2 | 2 | 2 | 1 | 0 | 2 | 1 | 1 | 1 | 0 | 2 | 1 | 18 |
| Tributaries | 3 | 0 | 8 | 1 | 11 | 2 | 3 | 4 | 2 | 2 | 0 | 0 | 1 | 2 | 39 |
| VO | 1 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 1 | 2 | 14 |
| SO | 1 | 2 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 11 |
| Paddy-fields | 5 | 3 | 9 | 2 | 14 | 2 | 0 | 2 | 3 | 3 | 3 | 1 | 4 | 4 | 55 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 5 |
| SO | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Ponds | 4 | 3 | 10 | 4 | 12 | 2 | 2 | 4 | 3 | 3 | 3 | 2 | 4 | 2 | 58 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| SO | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Others | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 3 | 63 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| SO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 2.26. Distance by walking time to go fishing in wet season (Aug-Oct.) in hour

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | INT | NN | SO | Total |
|---------------|----|----|----|----|-----|----|----|----|----|----|-----|-----|----|----|-------|
| Fishing areas | | | | | | | | | | | | | | | |
| Nam Ngiep | 1 | 1 | 2 | 1 | 1 | 2 | 0 | 1 | 3 | 3 | 1 | 1 | 1 | 2 | 1.4 |
| Tributaries | 1 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 3 | 1 | 2 | 1 | 2 | 1.2 |
| Paddy fields | 0 | 0 | 3 | 2 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0.8 |
| Ponds | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.4 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0.2 |

Table 2.27. Where do you fish sometime in beginning of dry season (November-December)?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|--------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|
| Nam Ngiep | NO | 1 | 1 | 1 | 11 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 19 |
| VO | 2 | 1 | 4 | 1 | 0 | 1 | 1 | 2 | 2 | 0 | 1 | 0 | 1 | 2 | 18 |
| SO | 2 | 1 | 5 | 2 | 3 | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 2 | 2 | 27 |
| Tributaries | NO | 2 | 1 | 4 | 1 | 13 | 2 | 3 | 2 | 2 | 1 | 0 | 4 | 2 | 39 |
| VO | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 9 |
| SO | 2 | 2 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 16 |
| Paddy-fields | NO | 5 | 3 | 10 | 4 | 13 | 2 | 4 | 3 | 3 | 3 | 1 | 4 | 4 | 61 |
| VO | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 |
| SO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ponds | NO | 4 | 3 | 10 | 4 | 13 | 2 | 3 | 3 | 3 | 3 | 2 | 4 | 2 | 58 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SO | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Others | NO | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 63 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 2.28. Distance by walking time to go fishing in beginning of dry season (Nov.-Dec.) in hour

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|---------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|
| Fishing areas | | | | | | | | | | | | | | | |
| Nam Ngiep | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 1 | 2 | 1 | 3 | 1.8 |
| Tributaries | 2 | 2 | 2 | 1 | 1 | 0 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 0 | 1.3 |
| Paddy fields | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 |
| Ponds | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.2 |

Table 2.30. Distance by walking time to go fishing in dry season (Jan.-April) in hour

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Av. |
|---------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-----|
| Fishing areas | | | | | | | | | | | | | | | |
| Nam Ngiep | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1.6 |
| Tributaries | 1 | 1 | 2 | 1 | 1 | 0 | 0 | 1 | 1 | 3 | 1 | 2 | 0 | 0 | 1.1 |
| Paddy fields | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| Ponds | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 |
| Others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.2 |

Table 2.29. Where do you fish sometime in dry season (January-April)?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|--------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|
| Nam Ngiep | 0 | 1 | 1 | 1 | 11 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 19 |
| VO | 4 | 1 | 6 | 1 | 0 | 1 | 0 | 2 | 2 | 0 | 1 | 0 | 2 | 2 | 22 |
| SO | 1 | 1 | 3 | 2 | 3 | 1 | 2 | 2 | 1 | 3 | 1 | 1 | 0 | 2 | 23 |
| Tributaries | 2 | 0 | 6 | 1 | 13 | 2 | 3 | 3 | 2 | 2 | 1 | 0 | 4 | 2 | 41 |
| VO | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 2 | 10 |
| SO | 2 | 3 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 13 |
| Paddy-fields | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 64 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ponds | 4 | 3 | 10 | 4 | 13 | 2 | 2 | 1 | 3 | 3 | 3 | 2 | 4 | 2 | 56 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| SO | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 6 |
| Others | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 3 | 63 |
| VO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

FISH CATCHES

Table 2.31. (Where is best?) Sources of fish catches (Upstream or Downstream of their villiges)

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Nam Ngiep | 5 | 0 | 7 | 1 | 2 | 2 | 3 | 3 | 1 | 3 | 1 | | | 2 | 30 | 47 |
| Downstream | | 2 | 3 | 1 | 3 | | | | 1 | | | | | 2 | 14 | 22 |
| Tributaries | | 1 | | 1 | 1 | | | | 1 | 1 | 1 | 1 | | 1 | 7 | 11 |
| Downstream | | | | 1 | 1 | | | 1 | | | 1 | 1 | | | 5 | 8 |
| Paddy fields | | | | | 0 | | | | | | | | | | 0 | |
| Downstream | | | | | 1 | | | | | | | | | | 1 | 2 |
| Ponds | | | | | | | | | | | | | | | | |
| Upstream | | | | | | | | | | | | | | 1 | 2 | 3 |
| Downstream | | | | | 1 | | | | | | | | | | 5 | 8 |
| No reply | | | | | | | | | | | | | | | | |
| Total of answers | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 64 | 100 |

Table 2.32. (When is best?) Period of fish catches

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|-------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|
| Nam Ngiep | | | | | | | | | | | | | | | |
| November-December | | | 6 | 1 | 2 | | 2 | 1 | 1 | 1 | 1 | | | 1 | 16 |
| Jan-April | 2 | 2 | 2 | 1 | 1 | | | | | | | | | | 8 |
| May-June | 3 | 1 | 1 | 1 | 1 | | | 2 | 1 | 2 | | | 1 | 1 | 12 |
| July-October | | | | | 1 | 2 | 1 | | | | | | | 2 | 8 |
| Tributaries | | | | | | | | | | | | | | | |
| November-December | | | | | 2 | | | | | | 1 | 1 | | | 4 |
| January-April | | | | | | | | 1 | | | | | | | 1 |
| May-June | | | | | | | | | | | 1 | | | | 1 |
| July-October | | | | 2 | | | | | 1 | | | 1 | | 1 | 5 |
| Paddy fields | | | | | | | | | | | | | | | |
| November-December | | | | | | | | | | | | | | | |
| January-April | | | | | | | | | | | | | | | |
| May-June | | | | | | | | | | | | | | | |
| July-October | | | | | 1 | | | | | | | | | | 1 |
| Ponds | | | | | | | | | | | | | | | |
| November-December | | | | | | | | | | | | | | | |
| January-April | | | | | 1 | | | | | | | | | | 1 |
| May-June | | | | | | | | | | | | | | | |
| July-October | | | | | | | | | | | | | | | |
| No reply | | | 1 | | | 5 | | | | | | | | | 6 |

Average fish catch
per household
per year is 338 kg

Table 2.33. Average fish catch per household by village (in kilogram)

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Av. |
|-----------------------|-----|-----|------|-----|------|------|------|------|-----|-----|------|-----|------|-----|-------|
| Nam Ngiep | | | | | | | | | | | | | | | |
| Dry season | 2.5 | 0.8 | 2.9 | 2 | 1.1 | 0.2 | 1.6 | 1 | 2.4 | 1.4 | 0.8 | 0.7 | 0.8 | 1.5 | 1.4 |
| During all dry season | 209 | 123 | 132 | 138 | 37.3 | 23.3 | 60 | 67.2 | 249 | 57 | 28.8 | 32 | 39.7 | 76 | 90.8 |
| Wet season | 1 | 0.7 | 0.9 | 5.3 | 0.9 | 0.4 | 0.6 | 1.2 | 5.8 | 1 | 0.6 | 0.7 | 1.7 | 1.8 | 1.6 |
| During all wet season | 53 | 112 | 23.2 | 225 | 69.3 | 50 | 36.3 | 139 | 315 | 30 | 25.2 | 112 | 70 | 216 | 101.7 |
| Tributaries | | | | | | | | | | | | | | | |
| Dry season | 0.3 | 1.5 | 0.4 | 1.6 | 0.7 | 0 | 0.3 | 0.6 | 0.8 | 0.5 | 1.4 | 4.3 | 0 | 0.4 | 0.9 |

or 0.7 kg / day

| | | | | | | | | | | | | | | | |
|-----------------------|-----|-----|------|------|------|---|------|------|-----|-----|-----|-----|------|-----|------|
| During all dry season | 12 | 136 | 9.7 | 45 | 30.7 | 0 | 5.8 | 43.2 | 25 | 12 | 49 | 128 | 0 | 9 | 36.1 |
| Wet season per time | 0.5 | 1.2 | 0.3 | 5.8 | 0.4 | 0 | 0 | 0 | 2.5 | 0.5 | 0.8 | 4.3 | 1.3 | 2.5 | 1.4 |
| During all wet season | 12 | 108 | 12.6 | 138 | 62 | 0 | 0 | 0 | 50 | 12 | 115 | 408 | 43.3 | 197 | 82.7 |
| Paddy fields | | | | | | | | | | | | | | | |
| Dry season Per time | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.04 |
| During all dry season | 0 | 0 | 0 | 0 | 26.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.9 |
| Wet season per time | 0 | 0 | 0.1 | 0.3 | 0.2 | 0 | 0.8 | 0.6 | 0 | 0 | 0 | 0.3 | 0 | 0 | 0.2 |
| During all wet season | 0 | 0 | 1.8 | 12.5 | 37.3 | 0 | 11.8 | 72 | 0 | 0 | 0 | 56 | 0 | 0 | 13.7 |
| Other places | | | | | | | | | | | | | | | |
| Dry season Per time | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 |
| During all dry season | 0 | 0 | 0 | 0 | 10.7 | 0 | 0 | 14.4 | 0 | 0 | 0 | 0 | 0 | 42 | 4.8 |
| Wet season per time | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 1.3 | 0.1 |
| During all wet season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 84 | 6.3 |

Table 2.34. The most common fish species caught.

| Name of fish species | Villages | HK | TH | SS | NP | HKN | IND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|----------------------------------|----------|----|----|----|----|-----|-----|----|----|----|----|-----|----|----|----|-------|
| Puntius sp.(Papak) | | 1 | 2 | 4 | 4 | 3 | | 2 | 2 | 2 | 2 | 1 | | 3 | 2 | 26 |
| Cirrhinus moolirella (Pakeng) | | | | 2 | | 1 | | 1 | 1 | 1 | 1 | 1 | | 4 | 2 | 13 |
| Bangana sp.(Pa Va) | | 2 | | 3 | | | | | | | | | 1 | 1 | 1 | 8 |
| Rasbora (Pasiew) | | | | | | 2 | | | | 1 | | | | | | 3 |
| Sikukia gudgeri (Pakhaoxay) | | 1 | 1 | 8 | 3 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | | | 2 | 25 |
| Kryptopterus sp.(Papeek kai) | | | | | | | | | | | | | | | 1 | 1 |
| Channa striatus (PaKho) | | | | | | 3 | 1 | | | | 1 | | | | | 5 |
| Osteochilus waandersii(PaLaykai) | | | | | | | | 1 | 1 | 1 | | | | | | 2 |
| Hemibagrus wuchoides(Pakheung) | | | | | | | | | | | 1 | | 1 | | | 2 |
| Ciarias batrachus (Padouk) | | | | | | 1 | 1 | 1 | | | 1 | | | | | 4 |
| Chitala sp. (PaTong) | | | | | | | | | | | 1 | | | | | 1 |
| Labeo erythropterus(PaPhao/Sa I) | | 2 | | | | | | | 1 | | | | | 1 | | 4 |
| Poropuntius sp. (PaChart) | | 3 | 1 | | | | | | 1 | 1 | | 1 | | | | 7 |
| Bagarius sp.(PaKhea) | | 1 | | | | | | | | | | | 1 | | | 2 |
| Onychostoma elongata(Paking) | | 1 | | | | | | | | | | | | | | 1 |

| | | | | | | | | | |
|---------------------------------------|---|---|---|---|---|---|---|---|---|
| Mystus nemurus (Pakot) | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 9 |
| Osteochilus hasselti (Pa lthai) | 1 | 1 | | | | | 1 | | 3 |
| Trichogaster trichopterus (P. Kadeut) | | | | | | | | 1 | 1 |
| Morulius chrysofihikadon (P. Phia) | | | | | | | | 1 | 1 |

FISH MIGRATION OBSERVATION

Table 2.35. Do you observed any fish migration near you villages?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Yes | 4 | 2 | 9 | 3 | 8 | 0 | 2 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 46 | 72 |
| No | 1 | 1 | 1 | 1 | 6 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 18 | 28 |
| Total | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 64 | 100 |

Table 2.36. Which period migration taken place

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|------|
| Going upstream | | | | | | | | | | | | | | | | 100 |
| Jan-April | 1 | | 4 | | | | | | 2 | | | | | | 7 | 15.2 |
| May-Aug. | 3 | 1 | 5 | 3 | 8 | | 2 | 4 | 1 | 2 | 3 | 1 | 2 | 2 | 37 | 80.4 |
| Sept.-Dec. | | 1 | | | | | | | | | | 1 | | | 2 | 4.3 |
| Going downstream | | | | | | | | | | | | | | | | 100 |
| Jan-April | 1 | | | | | | | | | | | | | | 1 | 2.2 |
| May-Aug. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| Sept.-Dec. | 3 | 2 | 9 | 3 | 8 | | 2 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 45 | 97.8 |

Table 2.37. The species observed during the migration

| Species / Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|------------------------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|
| Going upstream | | | | | | | | | | | | | | | |
| Mystus nemurus (Pakot) | 1 | 2 | | | 5 | | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 16 |
| Poropuntius sp. (PaChart) | 2 | 2 | 3 | | 1 | | | 1 | 2 | | | | | | 11 |
| Osteochilus waandersii (Pa.Laykai) | | | | | | | 1 | 1 | 1 | 1 | | | | 1 | 4 |
| Puntius sp. (Papak) | 3 | 1 | 6 | 1 | 4 | | | | 1 | 1 | 1 | | 2 | 1 | 20 |
| Osteochilus hasselti (Pa lthai) | 1 | | 3 | | | | 1 | | | | 1 | 1 | 2 | | 8 |

AQUACULTURE (These information was re-checked with the village authorities during the wet season fish survey

Table 2.38. Number of household doing fish culture

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|--------------------------|----|----|------|----|------|----|------|------|----|------|-----|------|------|------|-------|
| Nos. of HH. Having ponds | 0 | 0 | 3 | 0 | 2 | 0 | 1 | 1 | 0 | 3 | 0 | 2 | 3 | 3 | 18 |
| Number of ponds | 0 | 0 | 3 | 0 | 2 | 0 | 1 | 1 | 0 | 4 | 0 | 2 | 3 | 4 | 20 |
| Area (ha) | 0 | 0 | 0.32 | 0 | 0.24 | 0 | 0.08 | 0.04 | 0 | 0.38 | 0 | 0.16 | 0.32 | 0.36 | 1.9 |

Table 2.39. Fish species cultured

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO |
|-------------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|
| Tilapia (Panai) | | | * | | * | * | * | * | * | * | * | * | * | * |
| Cyprinus carpio (Panai) | | | * | | * | * | * | * | * | * | * | * | * | * |
| Chinese Carp(Pachin) | | | | | | | | | | | | | | * |
| Wild fishes | | | * | | | | | | | | | | | |

Table 2.40. Aquaculture production

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total |
|-------------------------|----|----|-----|----|-----|----|-----|-----|----|-----|-----|-----|-----|-----|-------|
| Average production (kg) | | | 150 | | 180 | | 50 | 30 | | 160 | | 80 | 150 | 180 | 980 |
| Kg/year/ha | | | 500 | | 750 | | 625 | 750 | | 421 | | 500 | 459 | 500 | 515.8 |

OPPORTUNITIES OF BECOMING FISHER IN WHEN RESERVOIR IS CREATED

Table 2.41. Do you like to be a professional fisher?

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|----------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|--------|
| Yes | 2 | 2 | 5 | 3 | 1 | 1 | 1 | 3 | 3 | 2 | 0 | 2 | 2 | 3 | 30 | 46.875 |
| No | 3 | 1 | 5 | 1 | 13 | 1 | 2 | 1 | 0 | 1 | 3 | 0 | 2 | 1 | 34 | 53.125 |
| Total | 5 | 3 | 10 | 4 | 14 | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 64 | 100 |

Table 2.42. Reason for being fisher

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|---------------------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Good income | 2 | 2 | 4 | 3 | 1 | 1 | 0 | 2 | 3 | 1 | 0 | 1 | 2 | 2 | 24 | 30 |
| Like fishing | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 10 |
| Fishing is better than cropping | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Do not have land for cropping | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 7 |
| Total | 2 | 2 | 5 | 3 | 1 | 1 | 1 | 3 | 3 | 2 | 0 | 2 | 2 | 3 | 30 | 100 |

Table. 2.43. Reason for not becoming fisher

| Villages | HK | TH | SS | NP | HKN | ND | TN | TG | SK | PS | TKK | NT | NN | SO | Total | % |
|---------------------------------|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|-------|-----|
| Do not know fishing | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 21 |
| Cropping is better than fishing | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 12 |
| Afraid of large water | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Do not like fishing | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 10 | 29 |
| No reply | 2 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 18 |
| Other reasons | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 18 |
| Total | 3 | 1 | 5 | 1 | 13 | 1 | 2 | 1 | 0 | 1 | 3 | 0 | 2 | 1 | 34 | 100 |

DEMOGRAPHY OF THE SERVEY VILLAGES

Table 1. The details demographic of the survey villages**

| Village's name | Total Population | Number of household | Number of HH by Ethnicity | | | Nos. of HH surveyed | % of HH surveyed |
|------------------------|------------------|---------------------|---------------------------|------------|-------------|---------------------|------------------|
| | | | LS* | LTH* | LL* | | |
| Upper Reservoir | | | | | | | |
| Xieng Khong | 247 | 39 | 0 | 5 | 34 | 8 | 20.5 |
| Phone Hom | 375 | 67 | 0 | 67 | 0 | 13 | 19.4 |
| Nakang | 132 | 25 | 0 | 15 | 10 | 5 | 20 |
| Nam Long | 107 | 17 | 0 | 4 | 13 | 5 | 29.4 |
| Naxay | 125 | 22 | 0 | 21 | 1 | 5 | 22.7 |
| Na Hong | 446 | 75 | 0 | 60 | 15 | 15 | 20 |
| Viengthong | 273 | 46 | 0 | 1 | 45 | 10 | 21.7 |
| Phonyeng | 349 | 63 | 31 | 0 | 32 | 12 | 19 |
| Naxong | 522 | 81 | 0 | 13 | 68 | 16 | 19.8 |
| Ban Dong | 509 | 82 | 0 | 0 | 82 | 16 | 19.5 |
| Hatsamkhone | 174 | 27 | 0 | 2 | 25 | 6 | 22.2 |
| Phiangta | 322 | 49 | 0 | 2 | 47 | 10 | 20.4 |
| Ban Pou | 416 | 66 | 14 | 0 | 52 | 12 | 18.2 |
| Sub-total | 3997 | 659 | 45 | 190 | 424 | 133 | 20.2 |
| Lower Reservoir | | | | | | | |
| Houay Pamom | 127 | 18 | 18 | 0 | 0 | 4 | 22.2 |
| Nam Youk | 540 | 86 | 86 | 0 | 0 | 20 | 23.3 |
| Sop Youk | 408 | 67 | 66 | 0 | 1 | 16 | 23.9 |
| Sop Phouane | 132 | 23 | 23 | 0 | 0 | 6 | 26.1 |
| Sub-total | 1207 | 194 | 193 | 0 | 1 | 46 | 23.7 |
| Downstream area | | | | | | | |
| Hatkham | 533 | 88 | 17 | 0 | 71 | 5 | 5.7 |
| Taheu | 253 | 55 | 0 | 10 | 45 | 3 | 5.5 |
| Xomseun/Muangm | 1136 | 212 | 0 | 0 | 212 | 10 | 4.7 |
| Nampa | 427 | 71 | 0 | 13 | 58 | 4 | 5.6 |
| Houay Koun | 1632 | 281 | 0 | 11 | 270 | 14 | 5 |
| Nong Deng | 112 | 19 | 0 | 0 | 19 | 2 | 10.5 |
| Thong Noi | 329 | 50 | 0 | 0 | 50 | 3 | 6 |
| Thong Gnai | 340 | 62 | 0 | 0 | 62 | 4 | 6.5 |
| Song Khone | 343 | 42 | 0 | 5 | 37 | 3 | 7.1 |
| Phonsi | 276 | 48 | 0 | 1 | 47 | 3 | 6.3 |
| Thakokkhene | 349 | 58 | 0 | 57 | 0 | 3 | 5.2 |
| Namtek | 203 | 39 | 0 | 0 | 39 | 2 | 5.1 |
| Nam Niep | 331 | 67 | 0 | 0 | 67 | 4 | 6 |
| Sene Oudom | 313 | 67 | 0 | 0 | 67 | 4 | 6 |
| Sub-total | 6577 | 1159 | 17 | 97 | 1044 | 64 | 5.5 |
| Grand total | 11781 | 2012 | 255 | 287 | 1469 | 243 | 16.5 |

Notes: *LS : Lao Soung, LTH : Lao Theung, LL :Lao Loum

** : These data are based on Socio-economic survey in the Chapter I in this report.

FISHERIES SURVEY
(For household)

• General information

Village name:.....

H.H name..... HH member.....

1. Importance of fishing activities

1.1. How many persons fish in the household?
(List)

1.2. Do you fish all year long? Yes no

1.3. How many days/week do you fish
-In dry season (put number of day)
-In wet season

1.4. How many hours in average (each time)-Wet S. hrs -Dry S. hrs

1.5. When do you fish preferable?
-Early morning
-Late after noon
-Any time

1.6. Do you sell part of your catches? Yes No

1.6.1. If yes,
-Every time
-Frequently
-Sometime

1.7. Fish processing
- Padek
- Dry fish
- No

1.8. Do you buy fish on the market or from other fishers? Yes No

1.8.1 If yes,
-Frequently - Cost per kilo
-Sometime

For what reason ?

- 1. Busy with crop cultivation
- 2. Busy with other job
- 3. Don't know fishing
- 4. Difficult to fish
- 5. Other

1.9. How often do you eat fish (including Padek) in your family?

- Every day
- Time to time
- Not often

1.10. Is there a period of the year you eat less frequently fish? Yes No

1.10.1. If yes, which period? (Please tick () the month below:)

- 11 - 12
- 01 - 04
- 05 - 07
- 08 - 10

1.10.2. For which reason?

- No time
- No fish
- Other

2. Tools and equipment (fishing gear)

- Which fishing equipment do you have in the household :

| | <u>Number</u> |
|----------------|---------------|
| - Gill net | _____ |
| - Cast net | _____ |
| - Scoop net | _____ |
| -Basket net | _____ |
| -Basket trap | _____ |
| -Funnel trap | _____ |
| -Hook and line | _____ |

- Do you have a canoe? Yes No With motor Yes No

3. Fishing areas

3.1. Where do you fish according to the season? (please fill the following table with this Legend :

NO = not; VO = very often; SO = some time)

3.2. Distance from the village (put hour or minute walking time in the table below:)

| Location | Beginning Wet season (May-July) | | Wet season (Aug-Oct) | | Beginning Dry season (Nov-Dec) | | Dry season (Jan-April) | |
|--------------------------|---------------------------------|-----------------|----------------------|-----------------|--------------------------------|-----------------|------------------------|-----------------|
| | How often | Time in walking | How often | Time in walking | How often | Time in walking | How often | Time in walking |
| Nam Ngiep | | | | | | | | |
| Tributaries (give names) | | | | | | | | |
| Paddy fields | | | | | | | | |
| Ponds | | | | | | | | |
| Others (describe) | | | | | | | | |

For time in working

(1= >1 hour, 2=1-2 hours, 3= <2 hours)

4. Fish catches

4.1. Where and when fish catches are the best : (please fill the following table)

4.1.1. Where ?

| Sources | Where | |
|--------------|---------------------|-----------------------|
| | Upstream of village | Downstream of village |
| Nam Ngiep | | |
| Tributaries | | |
| Paddy fields | | |
| Ponds | | |

4.1.2. When ?

| Sources | when | | | |
|--------------|-----------------------------|---------------------|-----------------------|----------------------|
| | Early dry Season (11-12) | dry Season (1-4) | Early wet S. (5-6) | Wet season (7-10) |
| Nam Ngiep | | | | |
| Tributaries | | | | |
| Ponds | | | | |
| Paddy fields | | | | |

4.2. How many kilogram of fish do you catch in average in each time?

| | Dry season | Wet season |
|--------------|------------|------------|
| Nam Ngiep | | |
| Tributaries | | |
| Paddy fields | | |
| Other place | | |

4.3. Which are the most frequent species you catch? (Please list Local fish name in the table below :)

| | |
|--------------|--|
| Nam Ngiep | |
| Tributaries | |
| Paddy fields | |

5. Fish migration observation

5.1. Are fish migration observed in the river near your village? Yes No

5.1.1. If yes, (please indicate in the table below)

| Migration | When observe | Species observed |
|-------------------|--------------|------------------|
| -Going upstream | | |
| -Going downstream | | |

6. Aquaculture practice .

6.1. Does your family culture the fish ?

6.1.1. If yes, what is pond area..... ha.

What species culture?.....

What is a production kg/year

6.2. Do you know if some body is making fish culture in a pond in your village Yes No

6.2.1. If yes, How many family.....

What is an average area(pond size).....ha.

7. If you had opportunities, would you like to become professional fishers in the new reservoir (Nam Ngiep) ?

Yes No

If Yes, why please explain the reason :

1.

2.

3.

or if NO, why please explain the reason :

1. Don't know fishing

2. Agriculture better than fishing

3. Afraid large water

4. Don't like fishing

5. Not reply

LIST OF ANNEXES FOR DOWNSTREAM FISHERY MONITORING

Annex 2.1

Table 1a: Summarised of the boat Census in Dry season: (April,99)

| River Section | With out motor | | Motor boats | | Other boats | | All |
|---------------|----------------|------------|-------------|------------|-------------|-------|-----|
| | In use | not in use | In use | Not in use | Passenger | Cargo | |
| No.1 | 9 | 213 | 6 | 102 | 3 | 3 | 336 |
| No.2 | 11 | 43 | 15 | 72 | 11 | 3 | 155 |
| Total | 20 | 256 | 21 | 174 | 14 | 6 | 491 |

Spiltted at Muang mai :

1=Downstream No 1

2=Upstream No 2

1a.2. Fishing gear and fishing practice

| River sections | Setting gill-net | Flooting gill-net | Rounded gill-net | Cast-net | Scoopnet | Number of fishing observed | | | | Branch-bundle Fish-attact | | |
|----------------|------------------|-------------------|------------------|----------|----------|----------------------------|-----------------|-----------------------|---------------------|---------------------------|--------------------------|---------------------|
| | | | | | | Setpole and line in use | Bottom longline | Drop-door Basket trap | Fish-attract basket | | Horizontal Cylinder trap | Upright Basket Trap |
| No.1 | 8 | 0 | 1 | 7 | 0 | 6 | 16 | 3 | 0 | 7 | 11 | 5 |
| No.2 | 13 | 3 | 0 | 1 | 1 | 4 | 3 | 7 | 4 | 0 | 1 | 0 |
| sub-total= | 21 | 3 | 1 | 8 | 1 | 10 | 19 | 10 | 7 | 7 | 12 | 5 |
| No.1 | 12 | 4 | 1 | 9 | 0 | 24 | 42 | 11 | 0 | 0 | 1 | 0 |
| No.2 | 18 | 0 | 0 | 4 | 1 | 45 | 21 | 6 | 0 | 3 | 0 | 0 |
| sub-total= | 30 | 4 | 1 | 13 | 1 | 69 | 63 | 17 | 0 | 3 | 1 | 0 |
| Grand Total | 51 | 7 | 2 | 21 | 2 | 79 | 82 | 27 | 7 | 10 | 13 | 5 |

1a.3. Other activities observed during the boat census

| River section | Fish conservt. pool | | Fishing Camp | | Water collection | |
|---------------|---------------------|------------|--------------|---------|------------------|--------|
| | left bank | Right bank | L. Bank | R. Bank | L.Bank | R.bank |
| No.1 | 1 | 0 | 0 | 0 | 4 | 3 |
| No.2 | 1 | 0 | 1 | 1 | 0 | 0 |
| Sub-T.t | 2 | 0 | 1 | 1 | 4 | 3 |
| Grand T.t | 2 | 0 | 2 | 2 | 7 | 3 |

Table 1b: Summarised of the boat Census in Wet season:(July,99)
 1b.1.Fishing boats

| River Section | With out motor | | Motor boats | | Other boats | | All |
|---------------|----------------|------------|-------------|------------|-------------|-------|-----|
| | In use | not in use | In use | Not in use | Passenger | Cargo | |
| No.1 | 6 | 198 | 20 | 98 | 8 | 6 | 336 |
| No.2 | 11 | 45 | 13 | 79 | 7 | 5 | 160 |
| Total | 17 | 243 | 33 | 177 | 15 | 11 | 496 |

Annex 2.1 (Cont..)

Spilted at Muang mai:
 1=Downstream
 2=Upstream

No 1
 No 2

1b.2. Fishing gear and fishing practice

| River sections | Number of fishing observed | | | | | | | | | | | | | |
|----------------|----------------------------|-------------------|------------------|----------|----------|------------------|------------|-----------------|-----------------------|---------------------|--------------------------|---------------------|-----------------------|----------------------------|
| | Setting gill-net | Flooting gill-net | Rounded gill-net | Cast-net | Scoopnet | Setpole and line | | Bottom longline | Drop-door Basket trap | Fish-attract basket | Horizontal Cylinder trap | Upright Basket Trap | Pole and line fishing | Branch-bundle Fish-attract |
| | | | | | | In use | not in use | | | | | | | |
| No.1 | 22 | 3 | 0 | 0 | 0 | 35 | 17 | 48 | 0 | 0 | 0 | 10 | 21 | 0 |
| No.2 | 3 | 1 | 0 | 0 | 0 | 21 | 13 | 37 | 0 | 0 | 0 | 12 | 26 | 0 |
| sub-total | 25 | 4 | 0 | 0 | 0 | 56 | 30 | 85 | 0 | 0 | 0 | 22 | 47 | 0 |
| No.1 | 21 | 7 | 0 | 1 | 0 | 32 | 35 | 37 | 0 | 0 | 0 | 8 | 15 | 0 |
| No.2 | 19 | 11 | 0 | 2 | 0 | 30 | 21 | 31 | 0 | 0 | 0 | 13 | 6 | 0 |
| sub-total | 40 | 18 | 0 | 3 | 0 | 62 | 56 | 68 | 0 | 0 | 0 | 21 | 21 | 0 |
| Grand T.T. | 65 | 22 | 0 | 3 | 0 | 118 | 86 | 153 | 0 | 0 | 0 | 43 | 68 | 0 |

1b.3. Other activities observed during the boat census

| River section | Fish conservt. pool | | Fishing Camp | | Water collection | |
|---------------|---------------------|------------|--------------|---------|------------------|---------|
| | left bank | Right bank | L. Bank | R. Bank | L. Bank | R. bank |
| No.1 | 0 | 0 | 0 | 0 | 3 | 3 |
| No.2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Sub-T.1 | 1 | 0 | 0 | 0 | 3 | 3 |
| Grand T | 2 | 0 | 0 | 0 | 6 | 6 |

Table 4. Summarised of subsistence fishery survey (by village)

4.1. First survey (April,99)

| Surveyed villages | Total HH | Total population | Nos. of HH surveyed | Ave. pers./ HH/survey | Tl. Aqua. produced in the day | | Aquatic products distribution | | | | preserved forms | | Other Aquatics | Av. Nos of pers./meal |
|-------------------|----------|------------------|---------------------|-----------------------|-------------------------------|---------|-------------------------------|--------|-----------|------------|-----------------|-------|----------------|-----------------------|
| | | | | | Catch | As gift | eat | solid | give away | pre-served | Padak | dry | | |
| Hatkham | 88 | 533 | 6 | 7.50 | 18,063 | 200 | 5,200 | 5,000 | 800 | 7,280 | 12,850 | 320 | - | 6.4 |
| Xomseun | 185 | 1136 | 6 | 7.60 | 16,840 | - | 5,480 | 8,800 | 550 | 2,010 | 89,000 | 3,880 | - | 7.15 |
| Songkhone | 42 | 343 | 4 | 8.00 | 11,460 | - | 3,610 | 4,000 | 400 | 3,450 | 55,140 | - | - | 7.05 |
| Namtek | 39 | 203 | 4 | 6.50 | 18,920 | - | 2,970 | 13,500 | 650 | 1,800 | 48,350 | - | - | 6.08 |
| Thakokkhen | 58 | 349 | 5 | 7.80 | 3,470 | - | 3,210 | - | - | 260 | 4,060 | 510 | - | 7.4 |
| Nampa | 71 | 427 | 6 | 8.00 | 13,680 | - | 2,260 | 10,900 | 200 | 320 | 93,100 | - | - | 7.4 |
| Total | 483 | 2991 | 31 | 7.57 | 82,433 | 200 | 22,730 | 42,200 | 2,600 | 15,120 | 240,500 | 4,710 | - | - |

4.2. Second survey (July,99)

| Surveyed villages | Total HH | Total population | Nos. of HH surveyed | Ave. pers./ HH/survey | Tl. Aqua. produced in the day | | Aquatic products distribution | | | | preserved forms | | Other Aquatics | Av. Nos of pers./meal |
|-------------------|----------|------------------|---------------------|-----------------------|-------------------------------|---------|-------------------------------|--------|-----------|------------|-----------------|--------|----------------|-----------------------|
| | | | | | Catch | As gift | eat | solid | give away | pre-served | Padak | dry | | |
| Hatkham | 88 | 533 | 6 | 7.50 | 17,630 | - | 4,180 | 11,000 | 700 | 1,370 | 22,150 | 3,100 | - | 6.4 |
| Xomseun | 185 | 1136 | 6 | 7.60 | 20,830 | - | 5,130 | 13,800 | 150 | 1,850 | 88,750 | 2,900 | 110 | 7.15 |
| Songkhone | 42 | 343 | 4 | 8.00 | 9,200 | 200 | 3,410 | 2,500 | 450 | 3,490 | 61,750 | 950 | - | 7.05 |
| Namtek | 39 | 203 | 4 | 6.50 | 16,690 | - | 3,390 | 12,700 | 300 | 200 | 51,300 | 4,250 | - | 6.08 |
| Thakokkhen | 58 | 349 | 5 | 7.80 | 3,930 | 1,100 | 4,380 | - | - | 850 | 3,900 | - | 450 | 7.4 |
| Nampa | 71 | 427 | 6 | 8.00 | 18,610 | - | 4,920 | 9,700 | 1,000 | 1,440 | 40,350 | 2,650 | 150 | 7.4 |
| Total | 483 | 2991 | 31 | 7.57 | 80,990 | 1,100 | 25,410 | 49,700 | 2,600 | 7,760 | 227,650 | 13,650 | 710 | - |

Note : -The species composition observed during the survey

-Source of the village profile was based on socio-economic survey team

Table 5: Summarised of Aquatic production and its distribution and consumption, by village (First Survey, April 99)

5.1. Ban Hatkham

| HH No | Average Nbs of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | quatic prod. preserved form (gr) | | | |
|-------|--------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|----------------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 8 | 3,650 | - | - | 3,650 | 1,200 | 1,000 | 1,450 | - | 2,500 | - |
| No.2 | 6.3 | 1,720 | - | - | 1,720 | 600 | 500 | 370 | 250 | 10,200 | - |
| No.3 | 8 | 3,300 | - | - | 3,300 | 1,400 | 1,500 | 320 | 100 | - | 120 |
| No.4 | 6.5 | 4,090 | - | - | 4,090 | 850 | 2,000 | 1,040 | 200 | 150 | 200 |
| No.5 | 3 | 5,000 | - | - | 5,000 | 750 | - | 4,000 | 250 | 4000* | - |
| No.6 | 5.6 | 300 | - | 200 | 500 | 400 | - | 100 | - | 100 | - |
| Total | Av. 6.23 | 16,060 | - | 200 | 16,260 | 5,200 | 5,000 | 7,280 | 800 | 12,950 | 320 |

5.2. Ban Xom Seun (B.Muangmai)

| HH No | Average Nbs of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | quatic prod. preserved form (gr) | | | |
|-------|--------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|----------------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 5.6 | 5,200 | - | - | 5,200 | 1,000 | 4,000 | 200 | - | 8,500 | 1,250 |
| No.2 | 10 | 3,400 | - | - | 3,400 | 1,100 | 2,300 | - | - | 3,200 | 1,100 |
| No.3 | 6 | 3,650 | - | - | 3,650 | 550 | 2,500 | 250 | 350 | 4,800 | 1,530 |
| No.4 | 12 | 2,760 | - | - | 2,760 | 1,000 | - | 1,560 | 200 | 12,000 | - |
| No.5 | 5.3 | 1,100 | - | - | 1,100 | 1,100 | - | - | - | 12,500 | - |
| No.6 | 5.3 | 730 | - | - | 730 | 730 | - | - | - | 48,000 | - |
| Total | Av. 7.36 | 16,840 | - | - | 16,840 | 5,480 | 8,800 | 2,010 | 550 | 89,000 | 3,880 |

Table 4. Summarised of subsistence fishery survey (by village)

4.1. First survey (April,99)

| Surveyed villages | Total HH | Total population | Nos. of HH surveyed | Ave. pers./ HH's survey | Tt. Aqua. produced in the day | | Aquatic products distribution | | | | preserved forms | | Other Aquamani | Av. Nos of pers./meal |
|-------------------|----------|------------------|---------------------|-------------------------|-------------------------------|---------|-------------------------------|--------|-----------|------------|-----------------|-------|----------------|-----------------------|
| | | | | | Catch | As gift | eat | sold | give away | pre-served | Padek | dry | | |
| Hatkham | 88 | 533 | 6 | 7.50 | 18,083 | 200 | 5,200 | 5,000 | 800 | 7,280 | 12,850 | 320 | - | 6.4 |
| Xomseun | 185 | 1136 | 6 | 7.60 | 16,840 | - | 5,480 | 8,800 | 550 | 2,010 | 89,000 | 3,880 | - | 7.15 |
| Songkhone | 42 | 343 | 4 | 8.00 | 11,460 | - | 3,610 | 4,000 | 400 | 3,450 | 55,140 | - | - | 7.05 |
| Namtek | 39 | 203 | 4 | 6.50 | 18,920 | - | 2,970 | 13,500 | 650 | 1,800 | 46,350 | - | - | 6.08 |
| Thakokkhen | 58 | 349 | 5 | 7.80 | 3,470 | - | 3,210 | - | - | 260 | 4,060 | 510 | - | 7.4 |
| Nampa | 71 | 427 | 6 | 8.00 | 13,680 | - | 2,260 | 10,900 | 200 | 320 | 33,100 | - | - | 7.4 |
| Total | 483 | 2991 | 31 | 7.57 | 82,433 | 200 | 22,730 | 42,200 | 2,600 | 15,120 | 240,500 | 4,710 | - | - |

4.2. Second survey (July,99)

| Surveyed villages | Total HH | Total population | Nos. of HH surveyed | Ave. pers./ HH's survey | Tt. Aqua. produced in the day | | Aquatic products distribution | | | | preserved forms | | Other Aquamani | Av. Nos of pers./meal |
|-------------------|----------|------------------|---------------------|-------------------------|-------------------------------|---------|-------------------------------|--------|-----------|------------|-----------------|--------|----------------|-----------------------|
| | | | | | Catch | As gift | eat | sold | give away | pre-served | Padek | dry | | |
| Hatkham | 88 | 533 | 6 | 7.50 | 17,630 | - | 4,180 | 11,000 | 700 | 1,370 | 22,150 | 3,100 | - | 6.4 |
| Xomseun | 185 | 1136 | 6 | 7.60 | 20,830 | - | 5,130 | 13,800 | 150 | 1,850 | 88,750 | 2,900 | 110 | 7.15 |
| Songkhone | 42 | 343 | 4 | 8.00 | 9,200 | 200 | 3,410 | 2,500 | 450 | 3,490 | 61,750 | 950 | - | 7.05 |
| Namtek | 39 | 203 | 4 | 6.50 | 16,690 | - | 3,390 | 12,700 | 300 | 200 | 51,300 | 4,250 | - | 6.08 |
| Thakokkhen | 58 | 349 | 5 | 7.80 | 3,930 | 200 | 4,380 | - | - | 850 | 3,900 | - | 450 | 7.4 |
| Nampa | 71 | 427 | 6 | 8.00 | 18,610 | 250 | 4,920 | 9,700 | 1,000 | 1,440 | 40,350 | 2,650 | 150 | 7.4 |
| Total | 483 | 2991 | 31 | 7.57 | 86,890 | 450 | 25,410 | 49,700 | 2,600 | 7,760 | 227,850 | 13,660 | 710 | - |

Note : -The species composition observed during the survey

-Source of the village profile was based on socio-economic survey team

Table 5: Summarised of Aquatic production and its distribution and consumption, by village (First Survey, April 99)

5.1. Ban Hatkham

| HH No | Average Nos. of pers/meal | Aquatic production in a day (gr) | | | total | eaten | Distribution the product (gr) | | | quatic prod. preserved form/gr | |
|-------|---------------------------|----------------------------------|--------|------|--------|-------|-------------------------------|------------|-------|--------------------------------|-----|
| | | Catch | bought | Gift | | | preserved | given away | Padek | Dry fish | |
| No.1 | 8 | 3,650 | - | - | 3,650 | 1,200 | 1,000 | 1,450 | - | 2,500 | - |
| No.2 | 6.3 | 1,720 | - | - | 1,720 | 600 | 500 | 370 | 250 | 10,200 | - |
| No.3 | 8 | 3,300 | - | - | 3,300 | 1,400 | 1,500 | 320 | 100 | - | 120 |
| No.4 | 6.5 | 4,090 | - | - | 4,090 | 850 | 2,000 | 1,040 | 200 | 150 | 200 |
| No.5 | 3 | 5,000 | - | - | 5,000 | 750 | - | 4,000 | 250 | 4000* | - |
| No.6 | 5.6 | 300 | - | 200 | 500 | 400 | - | 100 | - | 100 | - |
| Total | Av. 6.23 | 18,060 | - | 200 | 18,260 | 5,200 | 5,000 | 7,280 | 800 | 12,950 | 320 |

5.2. Ban Xom Seun (B. Muangmai)

| HH No | Average Nos. of pers/meal | Aquatic production in a day (gr) | | | total | eaten | Distribution the product (gr) | | | quatic prod. preserved form/gr | |
|-------|---------------------------|----------------------------------|--------|------|--------|-------|-------------------------------|------------|-------|--------------------------------|-------|
| | | Catch | bought | Gift | | | preserved | given away | Padek | Dry fish | |
| No.1 | 5.6 | 5,200 | - | - | 5,200 | 1,000 | 4,000 | 200 | - | 8,500 | 1,250 |
| No.2 | 10 | 3,400 | - | - | 3,400 | 1,100 | 2,300 | - | - | 3,200 | 1,100 |
| No.3 | 6 | 3,650 | - | - | 3,650 | 550 | 2,500 | 250 | 350 | 4,800 | 1,530 |
| No.4 | 12 | 2,760 | - | - | 2,760 | 1,000 | - | 1,560 | 200 | 12,000 | - |
| No.5 | 5.3 | 1,100 | - | - | 1,100 | 1,100 | - | - | - | 12,500 | - |
| No.6 | 5.3 | 730 | - | - | 730 | 730 | - | - | - | 48,000 | - |
| Total | Av. 7.36 | 16,840 | - | - | 16,840 | 5,480 | 8,800 | 2,010 | 550 | 89,000 | 3,880 |

ANNEX 2.3 (cont.)

5.3. Ban Nampa

| HH No | Average Nos of pers/meal | Aquatic production in a day (gp) | | | Distribution the product (gr) | | | quatic prod. preserved form (gr) | | | |
|-------|--------------------------|----------------------------------|--------|------|-------------------------------|-------|--------|----------------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 8 | 2,620 | - | - | 2,620 | 620 | 2,000 | - | - | 28,000 | - |
| No.2 | 9 | 3,900 | - | - | 3,900 | 300 | 3,400 | - | 200 | 4,350 | - |
| No.3 | 7 | 3,200 | - | - | 3,200 | 200 | 3,000 | - | - | - | - |
| No.4 | 8.3 | 2,750 | - | - | 2,750 | 250 | 2,500 | - | - | 200 | - |
| No.5 | 7.3 | 930 | - | - | 930 | 610 | - | 320 | - | 550 | - |
| No.6 | 7 | 280 | - | - | 280 | 280 | - | - | - | - | - |
| Total | Av. 7.7 | 13,680 | - | - | 13,680 | 2,260 | 10,900 | 320 | 200 | 33,100 | - |

5.4. Ban Songkhone(Nam Ngiep)

| HH No | Average Nos of pers/meal | Aquatic production in a day (gp) | | | Distribution the product (gr) | | | quatic prod. preserved form (gr) | | | |
|-------|--------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|----------------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 5.3 | 2,400 | - | - | 2,400 | 1,000 | - | 1,200 | 200 | 2,150 | - |
| No.2 | 9.6 | 2,750 | - | - | 2,750 | 1,050 | - | 1,500 | 200 | 48,000 | - |
| No.3 | 5.6 | 650 | - | - | 650 | 650 | - | - | - | 190 | - |
| No.4 | 6.3 | 5,660 | - | - | 5,660 | 910 | 4,000 | 750 | - | 4,800 | - |
| Total | Av. 6.7 | 11,460 | - | - | 11,460 | 3,610 | 4,000 | 3,450 | 400 | 55,140 | - |

5.5. Ban Thakokkhene

| HH No | Average Nos of pers/meal | Aquatic production in a day (gp) | | | Distribution the product (gr) | | | quatic prod. preserved form (gr) | | | |
|-------|--------------------------|----------------------------------|--------|------|-------------------------------|-------|------|----------------------------------|-----------|-------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 4 | 750 | - | - | 750 | 750 | - | - | - | 700 | - |
| No.2 | 8.3 | 370 | - | - | 370 | 370 | - | - | - | 1,850 | - |
| No.3 | 5 | 770 | - | - | 770 | 770 | - | - | - | - | - |
| No.4 | 8.3 | 870 | - | - | 870 | 610 | - | 260 | - | 1,500 | 510 |
| No.5 | 9.5 | 710 | - | - | 710 | 710 | - | - | - | - | - |
| Total | Av. 7 | 3,470 | - | - | 3,470 | 3,210 | - | 260 | - | 4,050 | 510 |

ANNEX 2.3 (cont.)

5.6. Ban Nam Tek

| HH No | Average Nos of permeal | Aquatic production in a day (gr) | | | total | Distribution the product (gr) | | | | quatic prod.preserved form(gr) | |
|-------|---------------------------|----------------------------------|--------|------|--------|-------------------------------|--------|-----------|-----------|--------------------------------|----------|
| | | Catch | bought | Gift | | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 5 | 4,300 | - | - | 4,300 | 600 | 2,700 | 700 | 300 | 1,800 | - |
| No.2 | 8 | 7,200 | - | - | 7,200 | 1,050 | 5,500 | 450 | 200 | 24,000 | - |
| No.3 | 4 | 4,320 | - | - | 4,320 | 620 | 3,300 | 400 | - | 550 | - |
| No.4 | 7 | 3,100 | - | - | 3,100 | 700 | 2,000 | 250 | 150 | 20,000 | - |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Total | Av. 6 | 18,920 | - | - | 18,920 | 2,970 | 13,500 | 1,800 | 650 | 46,350 | - |

5.3. Ban Nampa

ANNEX 2.3 (cont.)

| HH.No. | Average Nos. of pers./meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | quatic.prod.preserved form(gr) | | | |
|--------|----------------------------|----------------------------------|--------|------|-------------------------------|-------|--------|--------------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 8 | 2,620 | - | - | 2,620 | 620 | 2,000 | - | - | 28,000 | - |
| No.2 | 9 | 3,900 | - | - | 3,900 | 300 | 3,400 | - | 200 | 4,350 | - |
| No.3 | 7 | 3,200 | - | - | 3,200 | 200 | 3,000 | - | - | - | - |
| No.4 | 8.3 | 2,750 | - | - | 2,750 | 250 | 2,500 | - | - | 200 | - |
| No.5 | 7.3 | 930 | - | - | 930 | 610 | - | 320 | - | 550 | - |
| No.6 | 7 | 280 | - | - | 280 | 280 | - | - | - | - | - |
| Total | Av. 7.7 | 13,680 | - | - | 13,680 | 2,260 | 10,900 | 320 | 200 | 33,100 | - |

5.4. Ban Songkhone(Nam Ngiep)

| HH.No. | Average Nos. of pers./meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | quatic.prod.preserved form(gr) | | | |
|--------|----------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|--------------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 5.3 | 2,400 | - | - | 2,400 | 1,000 | - | 1,200 | 200 | 2,150 | - |
| No.2 | 9.6 | 2,750 | - | - | 2,750 | 1,050 | - | 1,500 | 200 | 48,000 | - |
| No.3 | 5.6 | 650 | - | - | 650 | 650 | - | - | - | 190 | - |
| No.4 | 6.3 | 5,660 | - | - | 5,660 | 910 | 4,000 | 750 | - | 4,800 | - |
| Total | Av. 6.7 | 11,460 | - | - | 11,460 | 3,610 | 4,000 | 3,450 | 400 | 55,140 | - |

5.5. Ban Thakokkhene

| HH.No. | Average Nos. of pers./meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | quatic.prod.preserved form(gr) | | | |
|--------|----------------------------|----------------------------------|--------|------|-------------------------------|-------|------|--------------------------------|-----------|-------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 4 | 750 | - | - | 750 | 750 | - | - | - | 700 | - |
| No.2 | 8.3 | 370 | - | - | 370 | 370 | - | - | - | 1,850 | - |
| No.3 | 5 | 770 | - | - | 770 | 770 | - | - | - | - | - |
| No.4 | 8.3 | 870 | - | - | 870 | 610 | - | 260 | - | 1,500 | 510 |
| No.5 | 9.5 | 710 | - | - | 710 | 710 | - | - | - | - | - |
| Total | Av. 7 | 3,470 | - | - | 3,470 | 3,210 | - | 260 | - | 4,050 | 510 |

ANNEX 2.3 (cont.)

5.6. Ban Nam Tek

| HH.No. | Average Nos. of pets/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | | quatic prod. preserved form (gr) | | |
|--------|---------------------------|----------------------------------|--------|------|-------------------------------|-------|--------|-----------|----------------------------------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | given away | Padek | Dry fish |
| No.1 | 5 | 4,300 | - | - | 4,300 | 600 | 2,700 | 700 | 300 | 1,800 | - |
| No.2 | 8 | 7,200 | - | - | 7,200 | 1,050 | 5,500 | 450 | 200 | 24,000 | - |
| No.3 | 4 | 4,320 | - | - | 4,320 | 620 | 3,300 | 400 | - | 550 | - |
| No.4 | 7 | 3,100 | - | - | 3,100 | 700 | 2,000 | 250 | 150 | 20,000 | - |
| Total | Average | 18,920 | - | - | 18,920 | 2,970 | 13,500 | 1,800 | 650 | 46,350 | - |

Table 6: Summarised of Aquatic production and its distribution and consumption, by village. Second Survey, July 99)
6.1. Ban Hatkham

| HH.No | Average No of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | | a prod. preserved for | | |
|-------|-------------------------|----------------------------------|--------|------|-------------------------------|-------|--------|-----------|-----------------------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 10.3 | 3,070 | - | - | 3,070 | 970 | 1,500 | 300 | 300 | 3,400 | - |
| No.2 | 7 | 4,540 | - | - | 4,540 | 890 | 3,200 | 450 | - | 10,200 | 2,400 |
| No.3 | 6 | 780 | - | - | 780 | 780 | - | - | - | 2,100 | - |
| No.4 | 6.3 | 3,740 | - | - | 3,740 | 820 | 2,700 | 270 | 200 | 200 | 500 |
| No.5 | 3 | 3,800 | - | - | 3,800 | 200 | 3,600 | - | - | 5,900 | - |
| No.6 | 6 | 1,700 | - | - | 1,700 | 520 | - | 350 | 200 | 350 | 200 |
| | 38.6 | | | | | | | | | | |
| Total | 6.4 | 17,630 | | | 17,630 | 4,180 | 11,000 | 1,370 | 700 | 22,150 | 3,100 |

6.2. Ban Xom Seun (B. Muangmai)

| HH.No | Average No of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | | a prod. preserved for | | |
|-------|-------------------------|----------------------------------|--------|------|-------------------------------|-------|--------|-----------|-----------------------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 6 | 4,870 | - | - | 4,870 | 720 | 3,000 | 1,000 | 150 | 9,550 | - |
| No.2 | 7.6 | 2,850 | - | - | 2,850 | 800 | 2,000 | 150 | - | 4,600 | 700 |
| No.3 | 6 | 2,210 | - | - | 2,210 | 710 | 1,500 | - | - | 4,600 | 2,200 |
| No.4 | 10 | 7,500 | - | - | 7,500 | 1,300 | 6,000 | 200 | - | 12,500 | - |
| No.5 | 7.3 | 1,650 | - | - | 1,650 | 1,150 | - | 500 | - | 11,500 | - |
| No.6 | 6 | 1,750 | - | - | 1,750 | 450 | 1,300 | - | - | 46,000 | - |
| | 42.9 | | | | | | | | | | |
| Total | 7.15 | 20,830 | | | 20,830 | 5,130 | 13,800 | 1,850 | 150 | 88,750 | 2,900 |

6.5. Ban Thakokkhene

| HH No | Average No of pers/meal | Aquatic production in a day (kg) | | | Distribution: the product (gr) | | | Agricultural product preserved for | | | |
|-------|-------------------------|----------------------------------|--------|------|--------------------------------|-------|------|------------------------------------|------------|-------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | given away | Padek | Dry fish |
| No.1 | 5 | 200 | - | 200 | 400 | 400 | - | - | - | 500 | - |
| No.2 | 7 | 600 | 500 | - | 1,100 | 1,100 | - | - | - | 1,200 | - |
| No.3 | 7 | 520 | 300 | - | 820 | 600 | - | 220 | - | - | - |
| No.4 | 8 | 830 | 300 | - | 1,130 | 1,130 | - | - | - | 1,000 | - |
| No.5 | 10 | 1,780 | - | - | 1,780 | 1,150 | - | 630 | - | 1,200 | - |
| | 37 | | | | | | | | | | |
| Total | 7.40 | 3,930 | 1,100 | 200 | 5,230 | 4,380 | - | 850 | - | 3,900 | - |

6.6. Ban Nam Tek

| HH No | Average No of pers/meal | Aquatic production in a day (kg) | | | Distribution: the product (gr) | | | Agricultural product preserved for | | | |
|-------|-------------------------|----------------------------------|--------|------|--------------------------------|-------|--------|------------------------------------|------------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | given away | Padek | Dry fish |
| No.1 | 5 | 4,750 | - | - | 4,750 | 650 | 4,000 | - | - | 1,800 | 1,500 |
| No.2 | 8.3 | 3,970 | - | - | 3,970 | 1,470 | 2,500 | - | - | 26,500 | 2,500 |
| No.3 | 4 | 1,820 | - | - | 1,820 | 420 | 1,200 | 200 | - | 500 | 250 |
| No.4 | 7 | 6,150 | - | - | 6,150 | 850 | 5,000 | - | 300 | 22,500 | - |
| | 24.3 | | | | | | | | | | |
| Total | 6.08 | 16,690 | - | - | 16,690 | 3,390 | 12,700 | 200 | 300 | 51,300 | 4,250 |

Table 6: Summarised of Aquatic production and its distribution and consumption, by village. Second Survey, July 99)
6.1. Ban Hatkham

| HH No | Average No of pers/meal | Aquatic production in a day (gr) | | | total | Distribution the product (gr) | | | a prod. preserved for | |
|-------|-------------------------|----------------------------------|--------|------|--------|-------------------------------|--------|-----------|-----------------------|-------|
| | | Catch | bought | Gift | | eaten | sold | preserved | given away | Padek |
| No.1 | 10.3 | 3,070 | - | - | 3,070 | 970 | 1,500 | 300 | 3,400 | - |
| No.2 | 7 | 4,540 | - | - | 4,540 | 890 | 3,200 | 450 | 10,200 | 2,400 |
| No.3 | 6 | 780 | - | - | 780 | 780 | - | - | 2,100 | - |
| No.4 | 6.3 | 3,740 | - | - | 3,740 | 820 | 2,700 | 270 | 200 | 500 |
| No.5 | 3 | 3,800 | - | - | 3,800 | 200 | 3,600 | - | 5,900 | - |
| No.6 | 6 | 1,700 | - | - | 1,700 | 520 | - | 350 | 350 | 200 |
| | 38.6 | | | | | | | | | |
| Total | 6.4 | 17,630 | - | - | 17,630 | 4,180 | 11,000 | 1,370 | 22,150 | 3,100 |

6.2. Ban Xom Seun (B. Muangmai)

| HH No | Average No of pers/meal | Aquatic production in a day (gr) | | | total | Distribution the product (gr) | | | a prod. preserved for | |
|-------|-------------------------|----------------------------------|--------|------|--------|-------------------------------|--------|-----------|-----------------------|-------|
| | | Catch | bought | Gift | | eaten | sold | preserved | given away | Padek |
| No.1 | 6 | 4,870 | - | - | 4,870 | 720 | 3,000 | 1,000 | 9,550 | - |
| No.2 | 7.6 | 2,850 | - | - | 2,850 | 800 | 2,000 | 150 | 4,600 | 700 |
| No.3 | 6 | 2,210 | - | - | 2,210 | 710 | 1,500 | - | 4,600 | 2,200 |
| No.4 | 10 | 7,500 | - | - | 7,500 | 1,300 | 6,000 | 200 | 12,500 | - |
| No.5 | 7.3 | 1,650 | - | - | 1,650 | 1,150 | - | 500 | 11,500 | - |
| No.6 | 6 | 1,750 | - | - | 1,750 | 450 | 1,300 | - | 46,000 | - |
| | 42.9 | | | | | | | | | |
| Total | 7.15 | 20,830 | - | - | 20,830 | 5,130 | 13,800 | 1,850 | 88,750 | 2,900 |

6.3. Ban Nampa

| FH No. | Average No of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | fish prod. preserved for | | | |
|--------|-------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|--------------------------|------------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | given away | Padak | Dry fish |
| No.1 | 7.5 | 4,870 | - | - | 4,870 | 720 | 4,000 | - | - | 27,500 | 1,500 |
| No.2 | 7.6 | 3,350 | - | - | 3,350 | 1,250 | 200 | - | 150 | 6,700 | 1,000 |
| No.3 | 7 | 2,270 | - | - | 2,270 | 650 | 1,500 | 120 | - | 3,700 | - |
| No.4 | 9 | 5,200 | - | - | 5,200 | 800 | 3,000 | 1,000 | 400 | 1,700 | - |
| No.5 | 7 | 350 | - | 250 | 600 | 600 | - | - | - | 750 | - |
| No.6 | 6.3 | 2,570 | - | - | 2,570 | 900 | 1,000 | 320 | 450 | - | 150 |
| 44.4 | | | | | | | | | | | |
| Total | 7.40 | 18,610 | - | 250 | 18,860 | 4,320 | 9,700 | 1,440 | 1,000 | 40,350 | 2,650 |

6.4. Ban Songkhone(Nam Ngiep)

| FH No. | Average No of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | fish prod. preserved for | | | |
|--------|-------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|--------------------------|------------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | given away | Padak | Dry fish |
| No.1 | 8 | 1,550 | - | - | 1,550 | 800 | - | 750 | - | 1,700 | 950 |
| No.2 | 7 | 2,100 | - | - | 2,100 | 760 | - | 1,140 | 200 | 49,700 | - |
| No.3 | 6.6 | 2,000 | - | 200 | 2,200 | 700 | - | 1,250 | 250 | 4,250 | - |
| No.4 | 6.6 | 3,550 | - | - | 3,550 | 1,150 | 2,500 | 350 | - | 6,100 | - |
| 28.2 | | | | | | | | | | | |
| Total | 7.05 | 9,200 | - | 200 | 9,400 | 3,410 | 2,500 | 3,490 | 450 | 61,750 | 950 |

Table 6: Summarised of Aquatic production and its distribution and consumption, by village. Second Survey, July 99)
6.1. Ban Hatkham

| HH.No. | Average No. of pers/meal | Aquatic production in a day (gr) | | | total | Distribution the product (gr) | | | a.prod.preserved for | | |
|--------|--------------------------|----------------------------------|--------|------|--------|-------------------------------|--------|---------------------|----------------------|----------|-------|
| | | Catch | bought | Gift | | eaten | sold | preserved givenaway | Padek | Dry fish | |
| No.1 | 10.3 | 3,070 | - | - | 3,070 | 970 | 1,500 | 300 | 300 | 3,400 | - |
| No.2 | 7 | 4,540 | - | - | 4,540 | 890 | 3,200 | 450 | - | 10,200 | 2,400 |
| No.3 | 6 | 780 | - | - | 780 | 780 | - | - | - | 2,100 | - |
| No.4 | 6.3 | 3,740 | - | - | 3,740 | 820 | 2,700 | 270 | 200 | 200 | 500 |
| No.5 | 3 | 3,800 | - | - | 3,800 | 200 | 3,600 | - | - | 5,900 | - |
| No.6 | 6 | 1,700 | - | - | 1,700 | 520 | - | 350 | 200 | 350 | 200 |
| Total | 38.6 | 17,630 | - | - | 17,630 | 4,180 | 11,000 | 1,370 | 700 | 22,150 | 3,100 |

6.2. Ban Xom Seun (B. Muangmai)

| HH.No. | Average No. of pers/meal | Aquatic production in a day (gr) | | | total | Distribution the product (gr) | | | tic.prod.preserved for | | |
|--------|--------------------------|----------------------------------|--------|------|--------|-------------------------------|--------|---------------------|------------------------|----------|-------|
| | | Catch | bought | Gift | | eaten | sold | preserved givenaway | Padek | Dry fish | |
| No.1 | 6 | 4,870 | - | - | 4,870 | 720 | 3,000 | 1,000 | 150 | 9,550 | - |
| No.2 | 7.6 | 2,850 | - | - | 2,850 | 800 | 2,000 | 150 | - | 4,600 | 700 |
| No.3 | 6 | 2,210 | - | - | 2,210 | 710 | 1,500 | - | - | 4,600 | 2,200 |
| No.4 | 10 | 7,500 | - | - | 7,500 | 1,300 | 6,000 | 200 | - | 12,500 | - |
| No.5 | 7.3 | 1,650 | - | - | 1,650 | 1,150 | - | 500 | - | 11,500 | - |
| No.6 | 6 | 1,750 | - | - | 1,750 | 450 | 1,300 | - | - | 46,000 | - |
| Total | 42.9 | 20,830 | - | - | 20,830 | 5,130 | 13,800 | 1,850 | 150 | 88,750 | 2,900 |

6.3. Ban Nampa

| HH.No. | Average No. of pers./meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | Itic.prod.preserved for | | | |
|--------|---------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|-------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 7.5 | 4,870 | - | - | 4,870 | 720 | 4,000 | - | - | 27,500 | 1,500 |
| No.2 | 7.6 | 3,350 | - | - | 3,350 | 1,250 | 200 | - | 150 | 6,700 | 1,000 |
| No.3 | 7 | 2,270 | - | - | 2,270 | 650 | 1,500 | 120 | - | 3,700 | - |
| No.4 | 9 | 5,200 | - | - | 5,200 | 800 | 3,000 | 1,000 | 400 | 1,700 | - |
| No.5 | 7 | 350 | - | 250 | 600 | 600 | - | - | - | 750 | - |
| No.6 | 6.3 | 2,570 | - | - | 2,570 | 900 | 1,000 | 320 | 450 | - | 150 |
| | 44.4 | | | | | | | | | | |
| Total | 7.40 | 18,610 | - | 250 | 18,860 | 4,920 | 9,700 | 1,440 | 1,000 | 40,350 | 2,650 |

6.4. Ban Songkhone(Nam Ngiep)

| HH.No. | Average No. of pers./meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | Itic.prod.preserved for | | | |
|--------|---------------------------|----------------------------------|--------|------|-------------------------------|-------|-------|-------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 8 | 1,550 | - | - | 1,550 | 800 | - | 750 | - | 1,700 | 950 |
| No.2 | 7 | 2,100 | - | - | 2,100 | 760 | - | 1,140 | 200 | 49,700 | - |
| No.3 | 6.6 | 2,000 | - | 200 | 2,200 | 700 | - | 1,250 | 250 | 4,250 | - |
| No.4 | 6.6 | 3,550 | - | - | 3,550 | 1,150 | 2,500 | 350 | - | 6,100 | - |
| | 28.2 | | | | | | | | | | |
| Total | 7.05 | 9,200 | - | 200 | 9,400 | 3,410 | 2,500 | 3,490 | 450 | 61,750 | 950 |

6.5. Ban Thakokkhene

| FH.No. | Average No of pers/meal | Aquatic production in a day (gr) | | | | Distribution the product (gr) | | | tic prod. preserved for | |
|--------|-------------------------|----------------------------------|--------|------|-------|-------------------------------|------|---------------------|-------------------------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved/givenaway | Padek | Dry fish |
| No.1 | 5 | 200 | - | 200 | 400 | 400 | - | - | 500 | - |
| No.2 | 7 | 600 | 500 | - | 1,100 | 1,100 | - | - | 1,200 | - |
| No.3 | 7 | 520 | 300 | - | 820 | 600 | 220 | - | - | - |
| No.4 | 8 | 830 | 300 | - | 1,130 | 1,130 | - | - | 1,000 | - |
| No.5 | 10 | 1,780 | - | - | 1,780 | 1,150 | 630 | - | 1,200 | - |
| | 37 | | | | | | | | | |
| Total | 7.40 | 3,930 | 1,100 | 200 | 5,230 | 4,380 | 850 | - | 3,900 | - |

6.6. Ban Nam Tek

| FH.No. | Average No of pers/meal | Aquatic production in a day (gr) | | | | Distribution the product (gr) | | | tic prod. preserved for | |
|--------|-------------------------|----------------------------------|--------|------|--------|-------------------------------|--------|---------------------|-------------------------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved/givenaway | Padek | Dry fish |
| No.1 | 5 | 4,750 | - | - | 4,750 | 650 | 4,000 | - | 1,800 | 1,500 |
| No.2 | 8.3 | 3,970 | - | - | 3,970 | 1,470 | 2,500 | - | 26,500 | 2,500 |
| No.3 | 4 | 1,820 | - | - | 1,820 | 420 | 1,200 | 200 | 500 | 250 |
| No.4 | 7 | 6,150 | - | - | 6,150 | 850 | 5,000 | - | 22,500 | - |
| | 24.3 | | | | | | | | | |
| Total | 6.08 | 16,690 | - | - | 16,690 | 3,390 | 12,700 | 200 | 51,300 | 4,250 |

Table 7: Total weight of individual species caught in the survey days

| Scientific Name | Local Name | Dry season | | Wet season | |
|----------------------------------|-------------|---------------|---------------|---------------|---------------|
| | | weight(g) | % | weight (g) | % |
| <i>Mystus nemurus</i> | Pa Kot | 8,400 | 10.19 | 25,970 | 29.89 |
| <i>Sikukia gudgeri</i> | Pa Khaoxay | 6,950 | 8.43 | 10,350 | 11.91 |
| <i>Poropuntus sp.</i> | Pa Chart | 8,790 | 10.66 | 6,190 | 7.12 |
| <i>Hampala sp.</i> | Pa Soud | 5,710 | 6.93 | 7,800 | 8.98 |
| <i>Mystacoleucus greewayi</i> | Pa Langnam | 1,150 | 1.40 | 670 | 0.77 |
| <i>Bangana behri</i> | Pa Va | 10,200 | 12.37 | 7,800 | 8.98 |
| <i>Hemibagrus wyckoides</i> | Pa Kheung | 12,300 | 14.92 | 14,650 | 16.86 |
| <i>Notopterus notopterus</i> | Pa Tong | 850 | 1.03 | 600 | 0.69 |
| <i>Cirrhinus molitorella</i> | Pa Keng | 5,800 | 7.04 | 3,190 | 3.67 |
| <i>Puntius gonionotus</i> | Pa Pak | 2,700 | 3.28 | 1,900 | 2.19 |
| <i>Osteochilus hasselti</i> | Pa I thai | 3,540 | 4.29 | 520 | 0.60 |
| <i>Puntioplites falcifer</i> | Pa Sakang | 2,400 | 2.91 | 1,100 | 1.27 |
| <i>Rasbora sp.</i> | Pa Siew | 340 | 0.41 | 100 | 0.12 |
| <i>Mastacembelus armatus</i> | Pa Lal | 980 | 1.19 | 590 | 0.68 |
| <i>Scaphognathops sp.</i> | Pa Pien | 3,650 | 4.43 | 820 | 0.94 |
| <i>Channa striata</i> | Pa Kho | 1,530 | 1.86 | 2,060 | 2.37 |
| <i>Clarias batrachus</i> | Pa Douk | 970 | 1.18 | 1,060 | 1.22 |
| <i>Morulius chrypsophekadion</i> | Pa Phia | 2,750 | 3.34 | 350 | 0.40 |
| <i>Dangila sp.</i> | Pa Kheelam | 1,740 | 2.11 | 350 | 0.40 |
| <i>Crossocheilus siamensis</i> | Pa Chi manh | 1010 | 1.23 | | |
| <i>Monopterus albus</i> | Eel | 360 | 0.44 | 110 | 0.13 |
| | Frog | 63 | 0.08 | 470 | 0.54 |
| | Shrimp | 100 | 0.12 | 110 | 0.13 |
| | Crab | 150 | 0.18 | 130 | 0.15 |
| Total weight | | 82,433 | 100.00 | 86,890 | 100.00 |

6.5. Ban Thakokkhene

| HH.No. | Average No. of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | tic prod. preserved for | | | |
|--------|--------------------------|----------------------------------|--------|------|-------------------------------|-------|------|-------------------------|-----------|-------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 5 | 200 | - | 200 | 400 | 400 | - | - | - | 500 | - |
| No.2 | 7 | 600 | 500 | - | 1,100 | 1,100 | - | - | - | 1,200 | - |
| No.3 | 7 | 520 | 300 | - | 820 | 600 | - | 220 | - | - | - |
| No.4 | 8 | 830 | 300 | - | 1,130 | 1,130 | - | - | - | 1,000 | - |
| No.5 | 10 | 1,780 | - | - | 1,780 | 1,150 | - | 630 | - | 1,200 | - |
| | 37 | | | | | | | | | | |
| Total | 7.40 | 3,930 | 1,100 | 200 | 5,230 | 4,380 | - | 850 | - | 3,900 | - |

6.6. Ban Nam Tek

| HH.No. | Average No. of pers/meal | Aquatic production in a day (gr) | | | Distribution the product (gr) | | | tic prod. preserved for | | | |
|--------|--------------------------|----------------------------------|--------|------|-------------------------------|-------|--------|-------------------------|-----------|--------|----------|
| | | Catch | bought | Gift | total | eaten | sold | preserved | givenaway | Padek | Dry fish |
| No.1 | 5 | 4,750 | - | - | 4,750 | 650 | 4,000 | - | - | 1,800 | 1,500 |
| No.2 | 8.3 | 3,970 | - | - | 3,970 | 1,470 | 2,500 | - | - | 26,500 | 2,500 |
| No.3 | 4 | 1,820 | - | - | 1,820 | 420 | 1,200 | 200 | - | 500 | 250 |
| No.4 | 7 | 6,150 | - | - | 6,150 | 850 | 5,000 | - | 300 | 22,500 | - |
| | 24.3 | | | | | | | | | | |
| Total | 6.08 | 16,690 | - | - | 16,690 | 3,390 | 12,700 | 200 | 300 | 51,300 | 4,250 |

Table 7: Total weight of individual species caught in the survey days

| Scientific Name | Local Name | Dry season | | Wet season | |
|--------------------------------|-------------|---------------|---------------|---------------|---------------|
| | | weight(g) | % | weight (g) | % |
| <i>Mystus nemurus</i> | Pa Kot | 8,400 | 10.19 | 25,970 | 29.89 |
| <i>Sikukia gudgeri</i> | Pa Khaoxay | 6,950 | 8.43 | 10,350 | 11.91 |
| <i>Poropuntus sp.</i> | Pa Chart | 8,790 | 10.66 | 6,190 | 7.12 |
| <i>Hampala sp.</i> | Pa Soud | 5,710 | 6.93 | 7,800 | 8.98 |
| <i>Mystacoleucus greewayi</i> | Pa Langnam | 1,150 | 1.40 | 670 | 0.77 |
| <i>Bangana behri</i> | Pa Va | 10,200 | 12.37 | 7,800 | 8.98 |
| <i>Hemibagrus wyckoides</i> | Pa Kheung | 12,300 | 14.92 | 14,650 | 16.86 |
| <i>Notopterus notopterus</i> | Pa Tong | 850 | 1.03 | 600 | 0.69 |
| <i>Cirrhinus molitorella</i> | Pa Keng | 5,800 | 7.04 | 3,190 | 3.67 |
| <i>Puntius gonionotus</i> | Pa Pak | 2,700 | 3.28 | 1,900 | 2.19 |
| <i>Osteochilus hasselli</i> | Pa I Thai | 3,540 | 4.29 | 520 | 0.60 |
| <i>Puntioplites falcifer</i> | Pa Sakang | 2,400 | 2.91 | 1,100 | 1.27 |
| <i>Rasbora sp.</i> | Pa Siew | 340 | 0.41 | 100 | 0.12 |
| <i>Mastacembelus armatus</i> | Pa Lat | 980 | 1.19 | 590 | 0.68 |
| <i>Scaphognathops sp.</i> | Pa Pien | 3,650 | 4.43 | 820 | 0.94 |
| <i>Channa striata</i> | Pa Kho | 1,530 | 1.86 | 2,060 | 2.37 |
| <i>Clarias batrachus</i> | Pa Douk | 970 | 1.18 | 1,060 | 1.22 |
| <i>Morulus chrysophekadion</i> | Pa Phia | 2,750 | 3.34 | 350 | 0.40 |
| <i>Dangila sp.</i> | Pa Kheelam | 1,740 | 2.11 | 350 | 0.40 |
| <i>Crossocheilus siamensis</i> | Pa Chi manh | 1010 | 1.23 | | |
| <i>Monopterus albus</i> | Eel | 360 | 0.44 | 110 | 0.13 |
| | Frog | 63 | 0.08 | 470 | 0.54 |
| | Shrimp | 100 | 0.12 | 110 | 0.13 |
| | Crab | 150 | 0.18 | 130 | 0.15 |
| Total weight | | 82,433 | 100.00 | 86,890 | 100.00 |

Form No.1. BOAT CENSUS OF FISHING ACTIVITY

Section No.

From: to:
Distance : Km.

Date :

Starting time :

Finishing time :

| | | | Numbers | |
|--------------------------------------|----------------|------------|-----------|------------|
| | | | Left bank | Right bank |
| Fishing boats | With out motor | In use | | |
| | | Not in use | | |
| | With motor | In use | | |
| | | Not in use | | |
| Transportation boats | Passenger boat | | | |
| | Cargo boat | | | |
| Setting gillnet | | | | |
| Floating gillnet | | | | |
| Rounding gillnet | | | | |
| Cast net | | | | |
| Scoop net | | | | |
| Set Pole and Line | In use | | | |
| | Not in use | | | |
| Bottom Longline | | | | |
| Drop-door Basket trap | | | | |
| Fish-attractant basket | | | | |
| Horizontal Cylinder trap | | | | |
| Lift net | In use | | | |
| | Not in use | | | |
| Upright Basket Trap | | | | |
| Pole and Line fishing | | | | |
| Branch-bundle Fish-attraction Device | | | | |
| Village's conservation pool | | | | |
| Water collection(Pump) | | | | |
| Others... | | | | |

