

FISHERIES SURVEY

FISHERY SURVEY AND DOWNSTREAM FISHERY MONITORING

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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 is 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 Downstrteam 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 feathers of the survey villages by survey sections.

Survey areas	Total population	Total Number of households	Numb	Number of household by Ethnicity		Nos. of household survey	% of household survey
			LS*	LTH*	LL*	1	_
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

Table 2.1.2. Summarized of the demographic feathers of the survey villages	Table 2.1.2.	Summarized of	f the demographic	feathers of the su	rvey villages
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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.

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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 Table2.1.4.1, it appears that in the Lower Reservoir Lao Soung 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 Table2.1.4.1 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%)

Description	Upper	Lower	Down-	All
	reservoir	reservoir	stream	
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

Table 2.1.4.1.2. The preferable time of fishing

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	Nos.of day fishing/week		Lower	Down-	All
		reservoir	reservoir	stream	
l 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.

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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.

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		6.3	
Average/year/househould	0.7	338	

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

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.

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. The number of fishing gear from the household surveyed

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	ILA
				
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	Ali
% of HH having boat	32	24	44	33
% of HH have no boat	68	76	56	67

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

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

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.

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

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)

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 tish 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)

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. Selling part of the catches

Table 2.1.4.5.1 The percentage of HH surveyed buy fish for consumption

Percentage of HH buy fish	Upper	Lower	Down-	All
	гезегуоіг	reservoir	stream	
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	Lower	Down-	All
	reservoir	reservoir	stream	
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	Lower	Down-	Av.
	reservoir	reservoir	stream	
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.

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	**	**

Table 2.1.4.6. Summarized of fish migration observation.

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).

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

Table. 2.1.4.7.	Summary of	of aquac	ulture	information.

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

tisher. 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.

Descriptions	Upper	Lower	Downstream	Average
· · · · · · · · · · · · · · · · · · ·	Reservoir	Reservoir		(%)
-Want to be a fisherman	44%	26%	47%	39%
Reasons:	1			
-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%
Reasons:				
-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

Table 2.1.4.8. Professional fisherman opportunities in the reservoir.

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 Hatkham 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 meshsize 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 4	
Section No.1	3		
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.

	ŀ	First Survey			Second Survey		
	In use	Not in use	Tota 1	In use	N o t 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.

<u> </u>	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 rentained. 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 24^{th 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	Ł	bution by (househo	ethnicity
				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 litters capacity plastic bucket,
- 10 litters 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 staft 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.

Name of villages		Aquatic p	roduction	
	First Survey	/	Second Su	rvey
-	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

2.2.3.4.1 Aquatic products.

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.

Types of distribution	First Sur	vey	Second Su	rvey
	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 :2.2.3.4.2.1 Aquatic Product Distribution

Table: 2.2.3.4.2.2 Average aquatic consumption in a day person

Name of villages	1	Dry Seaso	on		Wet Seas	on .
	Total	@/HH	@/per/	Total	@/HH	@/per/
	eaten	/day	day	eaten	/day	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	Secon	d Survey
	Padek	Dry fish	Padek	Dry fish
	(g)	(g)	(g)	(g)
Hatkham	12,850	320	22,150	3,100
Xomseun/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 Table1b.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.

Table1. 1: Number of persons fishing in the household

						2	Upper Reservoir	Rese	voir							Ľ	ower F	ower Reservoir	ż	All Reservoirs	oirs
Villages	X	HL	NNA	XX	HN	ЪН	Ηd	8	THY	HA I	noa	- S	ž	T-dus NN AN UN PH THA DO PHT HA POU NN ANA WY HTY	ЧН	HdS	γas	λWN	HP SPH SPY NMY Sub-T	Total	
Number of	1.4	1.1	1.2	1,4	6.0	1.5	0.0	4	1.1	4 17	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	0.	0.6	1.1	1.3	2.3	1.0	1.3 2.3 1.0 1.5 1.5	1.5	1.3	
persons fishing						-															

Table 1.2. Do you fish all year long?

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-						2	Upper Reservoir	Resei	voir						 		2	wer R	Lower Reservoir	4		All F	All Reservoirs
Villages	NK	ЧТН	VXV N	XZ	HIN	Нd	Нd	Å	ТНЧ	ş	soc.	1	¥	4	8	a.	Has	Хď	XWN	Su	%	VTH NXX NX NH PH PH PO PHT HA POUNT NK SUD % HP SPH SPH NXY NWY SU % OT %	%
YES	9	, Q	ю	15	10	2	7	4	6	R	2	2	2	89	67.	4	s. S	μ	5 3 15 10 7 7 14 9 2 7 2 2 89 67 4 5 15 13 37 80 126	37	80	128	8
ON	2	5	5 2 1 5 6 5 2 1 4 5 3 3 44 33 0 1	F	S	9	S	2	-	4	Ś	m	m	44	33	0	-	-	~	6	20	9 20 53	8
Total	εQ	ę	5	16	15	ų	2	1 6	ç	φ	ě	ŵ	<u>ு</u> ம	[33	100	4	ω	16	R	46	100	TO 5 T6 T5 T3 T2 T6 T0 6 T2 5 5 133 100 4 6 T6 20 46 100 179	ģ

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

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Villages XX VTH NXA NX NH PH POO NL NK ub. % HP SPH FV NMY Sub. % Total % 1 day 1 2 0 1 1 2 0 1 2 3 7 17 9 2 days 0 0 0 4 2 4 2 1 2 0 14 11 0 1 2 3 7 17 9 2 days 0 0 0 1 2 3 1 1 2 3 1 7 17 9 37 17 9 2 days 4 0 0 1 2 3 2 4 2 30 5 31 17 9 31 17 9 31 17 9 5 31 17 9 5 31							5	Upper Reservoir	Resor	voir								Lower	Lower Reservoir	ei.		All F	All Reservoirs	oirs
$ \begin{array}{ cccccccccccccccccccccccccccccccccccc$		ž	ЧТН	NX.N)HT]		10	L Z					Y dis E		Sub.		Total	%	
$ \begin{array}{ cccccccccccccccccccccccccccccccccccc$	ay	-	2	5	0		۴^	-	N	r -	0	-					┣──	┠	ļ	ო	~	17	ரை	
4 4 0 5 5 1 5 3 2 4 2 2 40 30 0 6 8 74 30 56 31	ays	0	0	0	4	~	4	2	m	<u>ب</u>	.	~~~~			1	I			4	ω	17	28	16	
2 0 0 4 2 1 2 0 1 21 16 1 2 2 31	3 days	4	4	0	S	Ś	0	-	ŵ	m	~	4	 						o) 	4	ŝ	54	g	
1 1 0 2 1 0 0 1 0 2 1 0 2 1 1 16 ays 0 0 0 1 0 0 0 0 1 1 2 2 5 11 16 ays 0 1 1 0 0 0 0 0 1 1 2 4 9 6 ays 0 1 1 0 0 0 0 0 1 1 2 2 3 4 9 6 y 0 2 2 1 1 2 2 1 1 2 3 3 y 0 2 2 1 1 2 2 1 2 3	4 days	64	0	0	4	N	N	-	4	N		~		<u> </u>	L	16	N 		N	<u>9</u>	8	31	17	
0 0 0 1 0 0 1 0 0 1 1 2 4 9 6 avs 0 1 1 0 0 0 0 0 0 0 1 1 2 4 9 6 v 0 1 1 0 0 0 0 0 0 1 1 2 3 5 v 0 2 2 0 2 2 0 1 2 3 5 3	ays	-	-	0	2	-	0	2		2	0							2	~	S	F	16	0	
/days 0 1 1 0 0 0 0 0 0 0 1 2 3 3 iply 0 2 2 0 4 1 1 2 2 1 1 2 3 4 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2	ays	0	0	0	-	0	0	-	0	0	0	<u> </u>		0	N			-	N	4	0	ω	6	
piy 0 2 2 0 4 1 1 2 2 1 1 23 17 0 1 0 1 2 24 8 10 5 16 15 13 12 16 10 6 12 5 5 133 100 4 6 16 100 179 1	ry days	0	٣	-	0	0	0	0	0	0	0			0	N			0	0		N	e	R	
8 10 5 16 15 13 12 16 10 5 12 5 5 133 100 4 6 16 20 46 100 179	reply	0	8	5	0	4	ო	4	-	-	~	N		<u>·</u> _				0	0	-	N	24	13	
	16	8	10	5	16	15	<u>υ</u>	<u> </u>	 	ę		<u> </u>						9-	8	46	ģ	179	8	

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

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Lower Reservoir All Reservoirs	HAT POU NLO NKA UD: % HPM SPH SPY NKY UD. % Total %	3 1 2 32 24 0 1 3 4 8 17 40 22	1 1 31 23 1 2 7 4 14 30 45 25	1 2 1 25 19 2 1 5 8 16 35 41 23	2 1 1 14 11 0 2 1 0 3 7 17 9	2 0 0 10 8 1 0 0 2 3 7 13 7	1 0 0 5 4 0 0 0 0 5 3	0 0 2 2 0 0 0 0 2 1	2 0 0 14 11 0 0 0 2 2 4 16 9	
Upper Reservoir	THY DON PHT	2 4 4	2 6 2	פ פ ע ג	- -	-	0 F	0 0 0	0 0 7	
Upper Reservoir	VHO PHO PHO OXN	3 2 4	6 3 2	7 2 2	- 7 0		0 7 0	0	0 4 2	
	VTH NXA	2 2	5	•	-		0	0	+	
	Nos of days XK	1 day 1	2 days 4	3 days 0	4 days 0	5 days 1	6 days 0	Every days 0	No reply 2	

Table 1.5: When do you fish preforablo?

						 	Upper Reservoir	Rese	voir								ٽ	ower F	Lower Roservoir	oir		AU I	All Reservoirs
Villages	¥	VTH NXA NXO NHO PHO PHY DON PHT HAT POU NLO NKA U.S. % HPM SPH SPY	∀ XN	0XN N	O H Z	Она	γ	NOO	гна	HAT	So	NLO NLO	S N N	ų. L	%	Mdr	НdS		λMN	ub. % Total	%	Total	%
Early morning	2	2	0 0	0	ო	1 5	S	3 1 4	-	4	3	-	ы	28 21 0	5	0	6	о 8	n		6 13	34	19
Late afternoon	~	s	0	Q	6 7	3	ო	8	4	-	1 1		1		26	-	۳.	35 26 1 1 4	2	13 28	28	48	27
Any time	4	2	4	4 10 5	S	~	7 4 10	6	S	۴-	9	m	-	62	47	62 47 3	N	5	12 10	27	ŝ	88	8
No answer	0	-	0	0	0	ო	0	-	0	0	3 0 1 0 0 2 0	0	0		ю ·	0 9 8	0	0	0	0	0	α)	4
Total	8	0	Ŷ	16	15	Ω	얻	16	ő	G	ង	ი	S	10 5 16 15 13 12 16 10 6 12 5 5 133 100 4 6	ş	4	ი	16	8	16 20 46 100 179	ģ	179	1

Table 1.6: Do you sell part of your catches?

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-						כ	poor f	Upper Reservoir	voir								Ľ Ĺ	wer R	Lower Reservoir	<u>ب</u> .		All F	All Reservoirs
Villages	×x	ЧH	S×0	0XV	OHN	OHa	РНΥ	NOO	H	HAT	DO PO C	0 V Z	- NK⊳	'n.	%	N G	Has	sΡγ	ΥMΥ	'n,	%	TH NXA NXO NHO PHO PHY DON PHT HAT POU NLO NKA UD. % HPM SPH SPY NMY UD. % Total	%
YES .	2	2	-	1 12 3 1	ŝ	-	-	7 4 4 7 1	4	4	~	-	~	22	8	N	4	2 52 39 2 4 6	5 17 37	17	3	69	8
ON	~	8	4	4 4 12 12 11 9	33	4	 	თ	9	Ň	S	4	ო	81	61	2	~	è	15	8	8	2 5 4 3 81 61 2 2 10 15 29 63 110	61
Total	က	10	5 16 15 13 12 16 10 6 12 5 5 133 100 4 6	9	15	6 Ω	4	16	õ	9	<u>1</u> 2	s	s.	133	<u>6</u>	4	ω	16	16 20		ğ	46 100 179	10

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Page 3

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Table 1.7: If yes, how often?

						2	Upper Reservoir	Rosei	Zoir							•	Ŋ	Ч Ч	Lower Reservoir	. L =		A IIA	All Reservoirs
Villages	×	£	₹X N	OXN XN	0 H Z	0 H d	ЧЧ	Ň	РНТ	нат	nod	NLO	s X	ub.	%	Mdt	HdS	۶P۷	λWN	TH NXA NXO NHO PHO PHY DON PHT HAT POU NLO NKA UD. % HPM SPH SPY NMY UD. % TOI3	<u>ر</u> %	l'otal	%
Every time	۲	0	0	2	0	0	0 2 0 0	1	٢	0	1 0 1 0 0	0	0	6 12 0 1	12	0	-	0	0		Θ	7	10
Often	-	0	0	0	0	0	0	0	0	0	0 0 0 0 0 0 0 0 0 0	0	0	-	2 1	-		e		9	35	2	10
Sometime	· 2 ·	8	1 10 3 1 1 6	õ	ю	-	-	ဖ	3 4	4	9	٢	2	45 87 1	87		2	е С	4	10 59	59	55	80
Total	7	2	1 12 3	12	ю	-	-	7	4	4	1 1 7 4 4 7 1	-	3	2 52 100 2 4	8	3	4	9	5	17 100	8	69	100
					Í	Í	Í																

Table 1.8: Do ýou prepare Padek ?

voirs				
All Reservoirs	%	8	5	100
AllF	VTH NXA NX NH PH PHYDO PHTHATPOUNL NKAUD. % HP SPH SPY NMY UD. % Total	65	114	179
	%	24	76	100
<u>ج</u>	ub.	0 15 8 1 2 9 4 2 3 2 0 54 41 0 1 4 6 11 24 65	5 1 7 12 10 7 6 4 9 3 5 79 59 4 5 12 14 35 76 114	10 5 16 15 13 12 16 10 6 12 5 5 133 100 4 6 16 20 46 100 179
Lower Reservoir	νMΥ	ω	4	20
ower F	sΡΥ	4	12	16
	H d S	~	ŝ	9
	e T	0	v	4
	%	4	ß	10
	ub.	54	52	133
	A N N	0	ŝ	с С
	ź	2	ო	5
	Pou	ო	თ	12
	HAT	N	4	ю
Upper Reservoir	РНТ	4	w	10
Rese	8	თ	2	16
pper	λнd	3	10	12
	H	Ψ.	12	13
	ΗŽ	ø	7	15
	ž	15	٢	16
	NXA	0	5	S
	Ŧ	Э	7	10
	¥	S	e	ß
	Villages	YES	ON	Total

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

Į

'oirs				-
All Reservoirs	%	53	47	20 46 100 179 100
All F	Total	16 35 95	30 65 84	179
	%	35	65	5
Ŀ.	VTH NXA NX NH PH PHYDO PHTHAT POUNL NKAUD. % HP SPH SPY NMY UD. % Total	16	30	46
Lower Reservoir	νwν	2	13	20
ower F	YqS	G	3 2 54 41 3 4 10 13	16
	L a S	2	4	6
	a I	-	ო	4
	%	ß	41	100
	ub.	2 3 79 59 1 2	54	5 16 15 13 12 16 10 6 12 5 5 133 100 4 6
	AXN	ო	5	5
	Z Z	2	ε	5
	Pod	w.	7	12
	HAT	2	4	9
zoi:	ЪНЧ	7	3	10
Reso	g	13	2 3	16
Upper Reservoir	Х Н d	8 10 13 7 2	2	12
5	I	လ	5	13
	ТŻ	a)	4 7	15
	xz	2 12 8	4	16
	NXA	ы	в	S
	Ţ	4	9	10
	×	0	5	8
	Villages	YES	ON N	Total

Table 1.10: If Yes, how often?

oirs				
All Reservoirs	%	15	85	10
All F	VTH NXA NX NH PH PHYDO PHTHAT POUNL NKAUD. % HP SPH SPY NMY UD. % Total	5 31 14	81	96
	%	6	89	16 100
oi.	ub.	ъ	11	16
Reserve	νMΥ	2	2 11 69	7
Lower Reservoir	SPΥ	0	9	9
-	HdS	0	2	2
	<u>₽</u>	0	-	۳-
	%	-	68	8
	ub.	0 2 0 0 9 11 0 0	2 12 8 5 8 12 6 2 3 2 3 70 89 1 2 6	4 2 12 8 8 10 13 7 2 5 2 3 79 100 1 2 6
	NKA	0	Э	Э
	ī	0	3	2
	Pou	2	e	S
	HAT	0	3	2
Upper Resorvoir	РНТ	0 0 3 2 1 1	9	7
Resc	g	-	12	13
Jpper	ЪНЧ	Ń	60	6
2	н	n	S	Ø
	IZ	0	ω	တ
	ž	0	12	4
	NXA	0	N	2
·	Ŧ	0	4	4
	¥	0	ю	ń
	Villages	Frequently	Sometime	Total

Table 1.11: For what reason?

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oirs						
All Reservoirs	%	n	46	4	9	100
All J	Total	m	7 44 44	42	ω	16 100 95
	%	0	4	56	0	100
2i	ub.	0 0	2	6	0	16.
Lower Reservoir	VTH NXA NX NH PH PHYDO PHTHATPOUNL NKA UD. % HP SPH SPY NMY UD. % Total	0	٢	9	0	7
ower F	γqS	0	ŝ	Ļ	0	ဖ
	Has	0	0	2	0	2
	e T	0	*-	0	0	1
	%	4	47	\$	ŝ	100
	ub.	m	37 47 1 0	33 42 0	9	79 100 1
	A N	0		۳	۴	n
	ź	-	0	۲ ۲	0	8
	D O O O	0 0	7 4 1 3 0 1	2	0	5
	HAT HAT		-	-	0	3
voir	PHT	N	4	1	0	7
Upper Reservoir	8	0	2	5	1 0 0	13
ppor	Ънγ	0	4	5	٦	10 13
1	Hd	0	4	4	0	ø
	HN	0	5	ε	2 0	ε
	X	0	S	5	2	12
	NXA	0 0 0	٣	-	0	2 12 8
	νтн	0	0	4	0	4
	×	0	5	0	1	ო
	Villages	with crop cultiv 0	usy with other j	on't know fishin 0	Difficult to fish	Total

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

voirs			
All Reservoirs	Average	2306	
oir	Y NMY Average Av	2500 3000 2083 2000 2396	
seerv	λWN	2000	
ower Reservoir	SPY	2083	
ĭ	HdS	3000	
	ά Ι	25.00	
	VKA Average HP SPH SPY	2166 2500 2269 2312 2125 2444 2500 2142 2500 2204 1500 1666 2217	
	NKA	1696	
	ž	:500	
	nod Lod	2200	
	НАТ	2500	
ovoir	TH4	2142	
Jpper Reservoir	8	2500	
Jppor	РНЧ	2444	
2	H	2125	
:	I Z	2312	
	ž	2269	
	NXA	2200 52	
	VTH NXA NX NH PH PHYDO PHT HAT POUNL N	2166	
	¥	2500	
	Villages ·	Kips/kg	

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

		•			Upper Reservoir	, Res	eroir								2	Wer F	Lower Reservoir	ġ.		AllF	All Reservoirs
 È	NX T	X X X	ĬZ	H	ЧЧ	8	PHT	HAT	Pou	ر ۲	AMN	ď.	%	ę.	HdS	γqs	MM	ub.	%	VTH NXANX NH PH PHYDO PHTHATPOUNL NKA UD. % HP SPH SPY NMY UD. % Total	%
8	-	4	13	7	1 4 13 11 9 7 1 2	~	-	2	6	4	ы	80 60 2 4	ĝ	Ν.	4	Ξ	11 17		2	34 74 114	8
Ń		12	2	4 12 2 2	0	σ	6	4		-	3 1 2 53 40 2 2	33	\$	N	N	Ś	ო	<u>5</u>	8	<u>85</u>	×
10	s.	19	15	<u>ب</u>	2	9	2	ø	5 15 15 13 12 16 10 6 12 5 5 133 100 4 6 16 20	5	Ω	133	ğ	4	G	9	ຊ		ş	46 100 179	<u>6</u>

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

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						ر	Upper Reservoir	Rese	Voir								٦ آ	ver D	Lower Reservoir	÷		AIL F	All Reservoirs
Months	ХК		NXA	X	ц	I	Ънч	8	P H d	HAT	Pou	ž	KAJ	nb.	8	ų.	HdS	λag	YMY	VTH NXA NX NH PH PHYDO PHTHATPOUNL NKA UD. % HP SPH SPY NMY UD. % Total	%	Total	%
1,2,3,	0	0	۴.	0	4	۲	0	0	r	0	0	0 4 1 0 0 1 0 0 0 0	0	~	0	0	2	0		~	é	6	80
4,5,6,	0	0	0 0 2 7 5	N	~	G	0	0	0	2	0	0	-	18 23 0 0	8	0	0	0	~	10	ø	R	18
7,8,9	ø	9	0	N	2	4	0	~	0 0	0	0	m,	0	41 51 2	2	~	2	6	5	8	8	2	61
10,11,12	0	~	0	0	0 0 0	0	σ	0	0	0	- 0 0		N	14 18 0	18	0	0	╞╌	0	-	6	15	Ę
Total	ω	ω	1 4 13 11	4	13	÷	თ	~	٣	~	თ	4	m	8	ğ	2	80 100 2 4 11 17	12	17	8	ĝ	34 100 114	8

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

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TOOL AND EQUIPMENT(FISHING GEAR)

servoir All Reservoirs	NMY Sub.T Total	41 106 375		24 49 166	49 -	64 - 0	0 ⁴ - 0 0	0 ⁴ ~ 0 0 0	49 1033 0 0 0 1 4	49 1033 1033 4	49 233 0 0 0 1 A	40 0 0 40 1 1 1 1 1 1 1 1	49 23 u u b . T
Lower Roservoir	SPY	43 4	6		0	0 0	000	0000		╊ ╺╾╋━╍╂╸╶╏╶╶╏ ╌╌┨	╞╼╉━╍╂╸╶╎╴┠╌╌┥ ┃╓╴	378 3 SPY N	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2	SPH	13	3		0		╂──╂──╂──	╂━╉━╋╸╏	146 0 0 0	146 0 0 0 0	00004	SP 140000	22 29 1 46 0 0 0 0
	ЧН Ц	6	м П		0	00	000		4300 <u>0</u> 000	0000	0 0 0 0 0	┢╾┉┪╾┉╞╼╸┨══╏╶╌┨╴╞╓╍╁╝╼┥	┢╾┉┪╴┅╞╼╸┧╼╍╡╴╶┤ ┝┉╺┾╝╍┿╍╍
	NKA Sub.T	269	117		68	89	⁸ ² ⁴	8 6	89 1 49 3752	89 1 1 3752 3752	89 49 3752 3752	3 89 0 1 1 49 0 3752 NKA Sub.T	89 1 1 3752 3752 3752 2.0
	Ϋ́N Ν	ა	<i>с</i> о		ო	m 0	m 0 0	- 0 0 m	┝──┼╍╶┼──┝╾┉┥				
	, z	ۍ ا	ო		4	4 0	4 0 0	╞━┢━╋┈╋┈	<u>u</u> ,	┝╼╾╆╼╼╉┈╷╉╴╴╂╼═┫	┝╼╍╆╍╍╂╍┈┼╌╴╂╍╍┥ ┃	┝━╋╼╋╸┽╴╂╍┥╶╽╴┝╩┥	┝━━╊━━╋╾╷╂╴╴╂╍╍┫ ┃ ┣╧═╉╾╍
	PHT HAT POUNL	37	:		~	r 0	~ 0 0	7000		7 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 238 village	4 5 7 4 10 0 0 0 10 0 10 0 112 238 50 240 112 238 50 112 238 50 112 238 50 112 238 50 11 238 50 11 238 50 11 238 50 11 238 50 11 238 50 11 238 50 11 20 10	7 0 0 0 0 0 110 110 110 110 110 110 110
_	гнат	8	ω		2	v o	0 0 2	ν ο ο _Ν		996h 112 0 0 5	990 2 2 2 0 0 2 2	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
orvoir	μ	1 <u>8</u>	ი		4	4 0	4 0 0	4 0 0 0		4 0 0 0 4 in 22 0 0 0 4	e d in 6 0 0 0 4 4 6 0 0 0 4 4	PH1	4 0 0 0 0 0 0 4 7 0 H 1 1 0 0 0 0 0 0 0 4 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Upper Reservoir	8	8	5	Ŀ	თ	» -	on - O	on o	2	sehol	6 9 4 0 1 0 1 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 2 1	Bethol	8eholc
Jpper	оо үнд	5	ω	<u>د</u>	> 	0	000		1 1 10			0 1 0 1 300 <i>mm</i> 1 househo	
2	ц	ç	ۍ ۱	12		<u> </u>	0 0	╶┨──┨──┥	335 0 0	ar b 33 3 3 0 0	~ <u>533</u> 3 3 0 0	PH 2335 3 0 0	0 BH 33 3 3 0 0
	I Ż	ដ	<u> </u>	~		<u> </u>	o <u>o</u>	0 0 N	0 0 0 1 0 0 7 20 3 595 405 335	0 0 0 0 0	19 56 50 0	NH 200 0	1 I I I 200 0 0
	X Z	47	8	ι Ω		•	0 -	0 - 1	1 265	1 fishir	595 7 7 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 295 595 2.9
	VTH NXA NX	4	4	0		0	0 0	000	- 0 0 -	viduai		NXA 0 0 0	0.8 NXA
	ΗH	ത	10	6		0	0 0	000	0 2 65	66 2 0 0	66 2 0 0	0 0 0 1 2 0 7 65 1 59 65 1 59 7 individual fishi	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	×	46	ä	~		0	0 0	000	0064	age 0 0 0	0 0 6 14 0 0	Ο Ο 0 14 XX XX	0 0 0 14 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0
-	Villages	Gill net	Cast net	Scoop net		Basket net	Basket net Basket trap	Basket net Basket trap Funnel trap	Basket net Basket trap Funnel trap Hook and line	Basket net 0	Basket net Basket trap Funnel trap Hook and line Table 1.16: Avei	Basket net Basket trap Funnel trap Hook and line Table 1.16: Aver Villages	Basket net Basket trap Funnel trap Hook and line Table 1.16: Aver Villages Cilt net

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												1								
						2	Upper Reservoir	Rosei	Voir							Ľ	wer F	Lower Reservoir		All Reservoirs
Villages	ž	Ŧ	VTH NXA NX NH	Xz		H	λHd	8	0 H H	HAT	POU	ч Л	4KA	Sub.T	e I	РЧ	SPΥ	λWN	PHYDO PHTHATPOUNL NKA SUB.T HP SPH SPY NWY SUB.T	Total
Gilt net	5.8	0.0	0.8	9. 2.9	1.4	2.9 1.4 0.8	6.0 0	53	со Т	<u>3</u> .3	<u>3.</u> 1	1.0 1.0		2.0	2.3	2.3 2.2	2.7	2.1	2.3	2.1
Cast net	1.5	1.0	0.8	4	0.7	0.4	0.8 1.4 0.7 0.4 0.5 0.8	0.8	0.9	1.3	6.0	0.6	0.6	0.9	0.8	0.5	1,2	1.2	0.9	0.9
Scoop net	ю. О	0.9	0.6	0.3	0.5	1.3	0.8 0.5 1.3 0.5	0.6	0 7	0.8	0.6	C.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	0.0 0.0 0.0 0.0 0.1	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	00	0.0	0.1	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	0	0	0	0	0.0	0.0
Funnel trap	0.4	0.2	0.0 0	0.4	0	0.2	0.0 0.4 1.3 0.2 0.0 0.1 0.0 0.3 0.8	¢.1	0.0	0.3	0.8	0.0 0.2		0,3	0	0	0	0	0.0	. 2.0
Hook and line	17.6	6.5	0.2	37.2	27.0	25.8	0.2 37.2 27.0 25.8 25.0 79.4 24.0 18.7 19.8 10.0 0.0 22.4	79.4	24.0	18.7	19.8	10.0	0.0	22,4	30	24	23.6	19.5	24.4	23.4

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Table1.17: Number of household having boats

•						[Upper Resorvoir	Reso	roir.								۲	wer R	Lower Reservoir	ř.		All F	All Reservoirs
Villages	¥	ΗL	NXA	x	HN	H	РНΥ	8	РНТ	НАТ	POU!	- N N	NKA	.di	1%	4 H	нчз	SPY	NMΥ	ub.	%	VTH NXA NX NH PH PHYDO PHTHATPOUNL NKA UD. % HP SPH SPY NMY UD. % Total	%
Have	7	ю	200029	0	0	0	3	6	Q	4	6 4 9 0 0 42 32 2 1 8	0	0	42	32	2	-	ω	0	11	24	0 11 24 53	30
No have	•	7	ო	16	15	13	10	7	4	2	ę	S	5	91	68	2	5	జ	8	35	76	3 16 15 13 10 7 4 2 3 5 5 91 68 2 5 8 2 2 76 76 726	70
Total	8	ģ	10 5 16 12 16 10 6 12 5 5 5 133 100 4 6 16 20	16	15	13	12	16	10	9	12	S	ç	133	100	4	9	16	20	46	1 0	46 100 179	100

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

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						ö	Upper Reservoir	Reser	voir	•		,					Lower	Lower Reservoir	òir		All F	All Reservoirs
Villages	X	ЧТН	VXN	X	Ţ	F	H ZHZ	8	РНТ	1AT 5	00	ج ج	VTH NXA NX NH PH PHYDO PHTHAT POUNL NKA UD. % HP SPH SPY NMY UD. % Total %		5H %	ŝ	H SPY	λwN	ŗ.	%	Total	%
With motor	°.	0	0 8 0 0 0	ò	0	0	0	ო	0	0	ო	0	3 0 0 6 14 0 7	9	14 0		0	0	-	ົ	~	13
With out motor	~	ო	2 0 0 2 6	ò	0	0	2	G	6 4	4	G	0	6 0 0 36 86 2 0 8 0 10 91 45	36	86	0	8	0	5	91	46	87
Total	~	n	~	0	0	0	2	σ	v	4	თ	0	2 0 0 0 2 9 6 4 9 0 0 42 100 2 1 8 0	12	8	-	80	0	11 100	9 0	53	100

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

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

]	Upper Reservoir	Reser	Ś						┝		Lower	Lower Reservoir	-ja		AII R	All Reservoirs
Fishing areas	¥	HT Z	Υ× Ν	¥	TZ	Ч	Рнγ	õ	Ηd	HAT	100	N L	VTH NXA NX NH PH PHYDO PHTHATPOUNL NKAUD. % HP SPH SPY NMY UD. % Total	<u>ې د</u>	ч Ч Ч	d S O	н SPY	λWN	ub.	%	Total	%
Nam Ngiep	4	S	~	:-	ŝ	۲.	11 5 1 4 11 7	11	7	4	5	0	0 2	59 4	44 4	4 3	16	13	98	73	<u>9</u> 5	23
Tributaries	~	n	2	S	ω	ဖ	-	S	4	0	<u>ب</u>	5	5 4	47	35 0	0	ო	~	10	8	57	١E
Ponds	•	0	0	0	0	0	1 -	0	0	~	2	0	0	5	4 0	0	0	0	ò	0	5	8
Others	2	2	-	0	4	φ	S	0	0	0 4	4	0	0	24 18 0	18 (0	0	0	0	0	24	Ω
Total	æ	ę	5 16 17 13 11 16 11	16	17	5	÷	16	11	9	12	 ۲	5 13	135 100 4	2	4	19	20	46	46 100	181	8
			1.											•								

Table 1.19: Wet season (August- October)

· · ·				1	1	>	Upper Reservoir	Reser	ś								٦ د	Lower Reservoir	servo	. <u>.</u>	È	AII R	All Reservoirs
Fishing areas XK V	×	<u>TH</u>	NXA	ž	Į	Ha	УНЧ	8	PHT	Į	⁰	<u>Z</u> 	<u>₹</u>	q.	8	4 S	НЦ	γq	νwγ	TH NXA NX NH PH PHY DO PHT HAT POUNL NKAUD. % HP SPH SPY NMY UD. % Tota	%	Total	%
Nam Ngiep	m	4	2 76 5 7 4 10 7 4 4 0 0	16	5	۴-	4	ę	2	4	4	0	0	60 57 2	57	2		1 0	12	27 50	50	37	SS
Tributaries	~	ю	2	S	ø	~	۲	4	ю	3 1	-	2	++	42 40 2	40	2	ß	9	16	27 50	ŝ	69	43
Ponds	0	0	۲ 0 0	0	0	0	5	0	0	LLL	-	0	0	3	9	0 6	0	0	0	0	ò	3	8
Others	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
Total	S	2	4	й	4 21 13	0)		6 14 10 E	õ	ၿ	9	2		1 105 100 4	ğ		e	16	28		54 100	159	8

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

							Upper Resorvoir	Resor	voir								Low	Lower Reservoir	ervoir		È	AII R	All Reservoirs
Fishing areas	×		NXA	x	н	Т	λHd	8	РНЧ	HAH	Do 2	ڪر تر	KAL	ف	<u>н</u> %		VTH NXA NX NH PH PHYDO PHTHATPOUNL NKAUD. % HP SPH SPY NMY UD. % Total	Ž X	<mark>며</mark> 논	و	8	Total	%
Nam Ngiep	ω	~	7 4	16	с ъ	ς,	9 5 :7 15 8	15	⁸⁰	S	8	0	2	94	56 3		г Ю	16 15		37 48	\$	131	ន
Tributaries	4	60	N		1 01 01 6	ç;	-	<u></u> б	4	m	4	m	~	69	69 41 2		с Г	15 20	0	40 52	8	109	4
Ponds	0	0	0 0 1 2	0	0	0		2	0		N	0	0	ω	4	0	0	0	0	0	0	ŵ	8
Others	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
Total	5	15	9	25	25 19 15	15	თ	8	12 G	ற	14 3	m	4	69	169 100 5	5	6 31	1 35		77 1	8	77 100 246	8
Table 1.21: Dry season	seasc		(January- April)	Apr]]	1	1	1	1	1	1	ł	1	ł	{	{		{		1]

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-						ວັ	Upper Reservoir	Reser	voir								Lower Reservoir	Soserv	Ŀŗ.		All R	All Reservoirs
Fishing areas XK	×		NXA	XN	Ţ	Ţ	үнү	Ì	Ē	1AT P	50	ž L	A ub	<u>ه</u>	Ч Н Ф	4 S P	VTH NXA NX NH PH PHYDO PHTHAT POUNL NKA UD. % HP SPH SPY NMY UD. % Total	νMY	ub.	%	Total	%
Nam Ngiep	9	თ	4 16 10 5 7 15 9	16	6	5	2	15		S	0)	0	5	φ φ	96 57 4	3	16	15	38 50		134	55
Tributaries	5	89	2	5	10 8 10 1	10		5	4	3	4	4	2 7	0	70 41 2	8	14	19	36	22	108	44
- spuod	0	0	0	0 0 0	0	0		0	0	1 0 0 1	-	0		ė	2 0 0	0	0	0	0	0	e	۲
Others	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	ò	0	0	0	0
Total	11	17	ę	26	38	15	თ	24	ຍິ	თ		4	6 26 18 15 9 24 13 9 13 ⁷ 4 4 169 100 6	9 10	9 0	.9	90		34 76 100 245	8	245	ğ

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

						ر ا	Upper Reservoir	Rese	Zoir								2	Wer F	Lower Reservoir	ż		All Reservoirs
Fishing areas	×		NXA N	×z	Ŧ	Ч	ЬΗ	8	Hd	HAT	Dod	ير z	A Y N	np-	8	<u>4</u>	НЧС	SPΥ	YMN	VTH NXA NX NH PH PHYDO PHTHATPOUNL NKAUD. % HP SPH SPY NMY UD. % Total	%	Total
Nam Ngiep	ß	~	5 76 10 5	16	ç	S	7	15	7 15 9	S	σ	0	N	0 2 97 42 4	4	4	m	16	15	38 46 135	46	135
Upstream	ω	s	ŝ	υ. Έ	N	2	2	+	-	0	0	0	0	5 13 2 2 2 1 1 0 0 0 37 16 4	ų P	4	~	0	4	10 12	4	47
Downstream	2	2	2 0 3 8	ო	ω	e	S	14	ω	5	ω	0	2	5 14 8 5 8 0 2 60 26 0 1	26	0	•	16	Ξ	11 28 34	8	88
Tributaries	ŝ	2	ო	ຄູ	5	ç	-	ω	4	m	4	~	2	22	સ	2	e	· 16	17	3 13 10 10 1 8 4 3 4 2 2 72 31 2 3 16 17 38 46 110	46	110

							oirs																	
							Reservoirs	%		24	ដ	\$; 5		ន	4	24	7		ŝ	8	14	£	
46	64	8	24	æ	۳		All F	Total		8	8	4	26		35	<u>.</u> 8	8	26		ო	S	σ	47	2
16	8	~	N	S.	0			%		35	ñ	8	3		25	8	8	8		0	0	R	67	0
13	25	9	N	4	0			ub.		5	19	18	; ;		5	17	9	F		0	0	6)	ŵ	o
7	6	4	2	2	0		Lower Reservoir	λWN		9	:	2	æ		ø	σ	G	9		0	0	e	4	0
2	14	N	0	2	0		ver R	SPY 1		4	9	~	÷		Ś	S	4	0		0	ō	0	N	0
N		0	0	0	0		Č L	S HdS		0	0	-	т п		0	ო		· **		0	0	0	0	0
N	0	0	0	0	0			다. 아		-	2	ო	-		0	0	N	0		0	0	0	0	0
4	17	23	10	14	e			1%		27	46	17	6		3	44	3	4		S	6	11	75	
8	- 39	54	8	32	8					37	63	23	ΰ		22	46	22	15		6	5	6	4	~
0	2	ر	0	-	0			NKA UD.		2	۴.	0	0		.2	0	۲-	-		٦	0	0	۲.	0
0	2	0	0	0	+-			ź		0	0	0	0			2	-	ب		0	0	0	0	-
0	4	4	0	4	ņ			POUNL		2	4	-	-		0	e	<u>ب</u>	0		0	0	0	2	~
0	ы	-	0	-	~			HAT		-	2	-	-		0	n	0	0			0	0	0	8
0	4	2	0	2	0		2 oir	РНТ		ю	4	ო	4		-	4	2	0		<u>o</u>	0 -	0	N	0
0	ω	47	+		2		Res	8		2	ğ	сı	0		ო	ဆ		0		0	-	۳.	<u>л</u>	~
0	-	4	R	N	0		Upper Reservoir	РНҮ		ო	Ś	4	ო		2	~	-	-		0	m	-	0	0
~	m	4	ო	4	<u> </u>		[H		ო	2	+	0		4	ۍ ا	4	<u>_</u>		0	0	m	4	0
m	~	ę	4	ø	0			ΗZ		-	4	N	2			ۍ ا		4		0	0		σ	0
=	N	<u></u>	00	N	0	53		ž		8	7	4	0		2	ъ Г	4	2		0 	0	0	8	<u> </u>
m	•	-	-	0	0	catch is best?		NXA	Ì	2	ო	-			-	~	2	0		0	•	0	"	0
S	N	0	•	0	0	catch		E		ო	ω	~	-		4	2	4	-		0	0	0	•	0
4	-	S	e	8	•	a 15		¥		4	9	N	0		-	m	0	٩		-	-	0	S	0
Upstream	Downstream	Ponds	Upstream	Downstream	Others	Table 1.23: When fish		Fishing areas	Nam Ngiep	Early dry seaso	Dry season	Early wet seas	Wet season	Tributaries	Early dry seaso	Dry season	Early wet seas	Wet season	Ponds	Early dry seaso	Dry season	Early wet seas	Wet season	Others

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FISH MIGRATION OBSERVATION

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

						_	Upper Resorvoir	Resc	rvoir								۲ :	WOL F	Lowor Reservoir			(IIV	All Reservoirs
Villages	ХK	>	NXA	Xz	IZ	Η	λHd	8	РНТ	НАТ	Pod	NL	NKA	ub.	%	4	HdS	SPΥ	λWN	ub.	%	TH NXA NX NH PH PHYDO PHTHATPOUNL NKAUD. % HP SPH SPY NMY UD. % Total	%
YES	ø	4	5	12	5 12 5 7	2	9	2	6 5		9	ო	3	3 2 76 57 4 2	57	4	2	14	16	36	78	14 16 36 78 112	8
ON	0	9	0	4	0 4 10 6	v	Q	თ	9 4 1	۳	9	3 7	т	57 43 0 4	4	0	4	Ń	4	10 20	ผ	67	37
Total	ω	ç	G	9	15	5	ä	16	ç	9	5 16 15 13 12 16 10 6 12 5 5 133 100 4	S	S	133	ğ	4	9	16	8	46	å	20 46 100 179	8

Table 1.26: Migration going upstream or downstream?

						2	Upper Reservoir	Rese	voir								2	wer F	Lower Reservoir	2ir		All I	All Reservoirs
Villages	×	ЧH	NXA	Xz	Ŧ	Н	μ	8	ЧЧ	HAT	POU	z	TXX X	-q	8	<u>e</u>	HdS	SPΥ	λWN	ub.	%	TH NXA NX NH PH PHY DO PHT HAT POUNL NKA UD. % HP SPH SPY NMY UD. % Total	%
Upstream	8	4	S	12	S	12 5 7	G	~	G	ഹ	9	m	2 76 55 4 2	76	55	4	2	14	14 16		36 59	112	56
ownstream	2	4	2 12 5	32	'n	9	و	ø	S	4	5 4 4		N	62 45 2	\$	N		υ. Ε	13 9		25 41	37	44

AQUACULTURE PRACTICE.

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

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

voirs				
All Reservoirs				
ΠV	Total	0 0 16	0 17	0 1.13
	%	0	0	°
Ŀ,	ub.	0	0	°
keserv	λWN	0	0	0
Lower Reservoir	SPH SPY NMY Ub. % Total	0	0	0
Ľ	HdS	0	0 0	0
	a. T	0	0	0
	H NXA NX NH PH PHY DO PHTHAT POUNL NKAUD.T	0 0 16	17	0.05 0.1 0.2 0.3 0.1 0.2 0 0.1 0 0 0 1.1
	A Y Z	0	0 0	0
	z z	0	0	0
	DO.	<u>°</u> .	0	0
	HAT		÷	г. О
Upper Reservoir	рнт	-	-	0
Res	8	ო	ო	0.2 0
pper	ЪНΥ	2	2	- -
	Hd	m	4	0.3
	I	<u>م</u>	0 4	0.2
	X	2	~	0.1
	AXA	-	-	0.05
	5	0	0	0
	×	0	0	0
	Villages	ND.Of HH	Nb.of ponds	Area (ha)

Table 1.27.1. The production fromaquaculture estimated

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	-	-					ddN	Upper Reservoir	servo	į.					
	×	ŦĘ	NXA	x	IZ	Нd	ΡНΥ	8	РНТ	HAT	Pou	ړ. z	AXA	XK VTH NXA NX NH PH PHY DO PHT HAT POUNL NKA OTAL	
kg/year	Ö	Ö	0 15 30 75 120 40 105 15 25	ĝ	75	120	ş	105	15	25		0	0 0 425	425	
Kg/ha/year	0		0 300 300 313 375 333 583 375 313	300	313	375	333	583	375	313		0	0 0 376	376	

OPPORTUNITIES OF BECOMING FISHER, WHEN RESERVOIR IS CREATED

Table 1.28 Do you want to be a professional fisher ?

						C	Upper Reservoir	Reso	2 or								Ş	Lower Roservoir	servoi			AIIA	All Reservoirs
Villages	×	ΗĻ	XX	Xz	IZ	H	λH	8	PHT	HAT	202	=	NKA N	<u>.</u>	\$	<u>0</u>	N H C	2	λw	ų.	8	VTH NXANX NH PH PHYDO PHTHATPOUNL NKAUD. % HP SPH SPY NMY UD. % Total	%
YES	e	m	3 0 7 7 4 3 11 6 4 5 0 3 59 44 2 2	2	~	v	m	:	Q	4	ŝ	0	m	6g	4	2	~	N	ω	4	ĸ	6 12 26 71	9
OZ.	2	2	S	თ	თ დ თ	თ	o,	ъ	4	N	9 5 4 2 7	S	5 2 74 56 2 4	74	56	N	4	4	4	8	74	14 14 34 74 108	8
Total	80	9	10 5 16 15 13 12 16 10 6 12 5	16	Ń	ΰ	3	16	Ģ	ω	ќл Г	ŝ	5 133 100 4 6	33	8	4	9 9	16	ର	4	§	20 46 100 179	8

Table 1.29: What are the reason	hat are	o the re	ason																	•			
							Upper Reservoir	Reser	voir						┣──	ł	Low L	Lower Reservoir	voir		AILF	All Reservoirs	oirs
Reasons	×	<u> </u>	/TH NXA NX	•	Ч	Нd	рну ро		PHT HAT POUNL	tAT P	NO NO		NKA UD.	ف	чн %	[···	SPH SF	SPY NMY	du.	%	Total	8	
1 If no										<u>}</u>		<u> </u>		 	<u> </u>								
Don't know fis		5	ei.	N	ო	4	5	د	2		4	e	5	33	45	2	2	7 7	18	R	ۍ ت	28	
Agriculture bet	0	0	0	ო	•	0	-	0		 	۲-	0	0	ŝ	Ę	0	е О		4	თ	42	~	
Afraid large wa	0	0	0	2	2	в	2		0		0		0	÷	15	0	N 0	0	3	4	. б	^	
Don't like fishin	،	У	8	2	~	ŝ	4	- ო		0	N		0	8	8	0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<u>.</u>	10	8	8	18	
2. If yes											 				<u> </u>	┨───	<u> </u>						
Expect more in	4	1 2	0	Э	4	3	8	7	4		m	0	٣	33	20 20	Ň		× -	0)	67	4	83	
Like fising	2	1	0	4	9	2		4	2	m	N	۰.	0	56 4	44	0	- -	~	4	8	8	42	
Total	0 [.]	3	0	2	7	4	3	11	9	4	Ś	0	m	20-		N	2	S S	12		2	ę	
Note :	= YMN		Ban Namyouk	ock		ОНА	PHO = Ban Phonhom	Phor	mode		u	= \ \ \ \ \	PHY = Ban Phonyeng	Phony	Veng		Ż	NKA ≃ Ban Nakang	n Nakan	1	sPY =	SPY = Ban Sopyouak	youak
	= X X	XK= Ban Xiengkhong	iengkh	6uo		HAT	HAT = Ban Hat Samkhone	rat	Samkh	one	D.	= 20	POU = Ban Pou	Poc			X	NXO = Ban Naxong	Naxon	LD.			

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Page 13

NLO = 8an Nam long DON = Ban Dong

SPH = Ban Sophouanh PHT = 8an Phiangta

HPM = Ban Houaypamom

VTH≖ Ban Viengthong

NHO = Ban Nahong NXA = Ban Naxay

Summarized of Subsistence Fisheries Survey Downstream Table 2.1. Average of person fishing per household.

401 9<u>9</u>2 Av. % 883 2 ٦. Total Total 404 4 ပ္တ ပ္တ 1.50 3 NN ZZ 1.5 NO SK PS TKK NT TKK NT Ś 3 <u>..</u> 4 5 ~~ Sd 1.3 4 7 5 TG SK ر، ហ 40 မ ၂၀ 1.3 4 2 Villages HK TH SS NP HKN ND TN Z 3 NO Villages HK TH SS NP HKN ND 6 9. 0 <u>19</u> 19 19 4 2 3 12 1 1.2 S 5 Table 2.2. Do you fish all year long? e লতল **9** . 1 4 -Nb.of pers.fishing by villa Average per HH Total Yes g

How many days/week do yo fish?

0 1 0 1	Nb.of days	Ϋ́	F	SS	ЧN	HKN	OZ	L N	۱ ۲	УX	PS Sd	Ĭ	μZ	Z	C V	Total	10	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		0			-	4	-	0	1						_	7		47.5
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$					0	0		o	0		Ö	ò	0	1				7.8
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$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		-	ိ		0	0	ō	0	0	۳	0	0	0	°				6.3
0 0 2 1 7 0 0 0 0 0 1 1 0 11 1 0 11 1 0 11 1 0 11 1 0 11 1 0 11 1 0 11 1 0 11 1 1 0 11 1 1 0 11 1 1 0 11 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 0 1 </td <td>very day</td> <td>-</td> <td></td> <td>0</td> <td>0</td> <td>ō</td> <td>0</td> <td>0</td> <td>0</td> <td>-</td> <td>0</td> <td>0</td> <td>0</td> <td>°</td> <td></td> <td></td> <td></td> <td>6.3</td>	very day	-		0	0	ō	0	0	0	-	0	0	0	°				6.3
5 3 10 4 14 1 3 4 3 3 3 3 3 4 4 64 10 HK TH SS NP HKN ND TN TG SK PS TKK NT NN SO Total % 64 10 1 1 1 0 2 0 1 0 0 1 10 1 0 2 0 1 0 2 1 0 0 1 10 2 0 1 0 0 1 0 0 1 10 1 0 1 1 0 0 1 0 0 1 1 10 1 0 1 1 0 0 1 0 0 1 1 0 1 1 0 0 1 0 0 1 1 1 0 1 1 0 0 0 1 1 1 1 1 1 0 1 0 0 0 0 1 1 1 1 1 1 0 1 0 0 0 0 1 1 1	lo reply	0 	0		٣	2	0	0	0	0	0	0	0	-				17.2
ison HK TH SS NP HKN ND TN TG SK FS TKK NT NN SO Total % 1 1 1 0 2 0 1 0	otal HH interviewed	5	3		4	4	-	e	4	<i>с</i> о	сл	ι.	(°	4				
HK TH SS NP HKN ND TN TG SK FS TKK NN SO Total % 1 1 1 0 2 0 1 0 0 0 0 0 0 0 1 10 1 10 1 10 1 10 0 0 1 10 0 0 1 10 0 0 1 10 10 1 10 1 10 1 10 1 1 1 1 1 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 1 1 1 <t< th=""><th>able 2.4 In wet season</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	able 2.4 In wet season																	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	b.of days	НK	H		[ပျ	Γ	Γ	TKK	ŁZ	NN	C V	Total	6	
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0 0 0 1 0 0 1 0 1 0 1 0 1 2 1 0 1 0 1 2 4 1 0 2 0 0 1 1 1 0 2 0 0 1 1 2 3 10 2 0 1 2 3 3 3 3 3 3 4				=	ন	0	ō	0	e	1	0	0	0	N				15.6
0 1 0 1 2 0 0 1 0 1 8 1 0 2 0 8 0 0 0 1 1 0 1 8 5 3 10 4 14 1 3 4 3 3 3 3 4 4 64 1		9	°	0	7	ō	0	0	0	ō	0	0	0	1				ۍ 9
1 0 2 0 8 0 0 0 0 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1	very day	0		0		2	õ	ō	0	L	0	F		ō				12.5
	o reply	-	0	2	0	ø	0	0	0	o	0	F	-	0				20.3
	otal HH interviewed	2	ო	<u></u>	4	14	1	3	4	ო	n	e	e	4	4		*	100.0

Annex 1.2

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

Villages	lages HK	Ĩ	ပ္သ	å	UN NMH		1N	10	ЯK	PS	PS TKK NT	L1	NN	So	Av.
Dry season	4.8	4.7	2.9	2.3	0.7	4	2.3	2.3	2	1.7	1.7	1.7	2	4	
Wet season	1.8	4.3	5.3 5	5.8	1.5	4	2.7	4.3	2	1.7	3.3	3.3	4.8	5.3	3.6
Table 2.6. Average of fish	f fishing hour in each time	Ir in e	ach tìr	he					Į						
Villages HK	HK -	H	S		UN NMH	Q	ZF	10 1	УS	S	TKK INT	Γ	NN	so	Av.
Dry season	2	9	4	9	2	4	S	4	4	4	4	5	2	4	3.8
Wet season	2	e	4	4	1	4	4	4	с С	-	ຕ	5	8	4	3.1
													1		

Table 2.7. When do you prefer to fish?

1 0 2 0 3 3 0 2 2 2 1 1 0 0 0 2 2 2 6 3 5 2 0 1 1 0 0 1 0 6 0 0 0 1 0 1
2 1 1 0 0 0 2 0 1 1 0 1 0 1 0 0 0 1 1 0 0 0 0
6 3 5 2 0 1 1 0 1 0 6 0 0 0 1 0 1 0
1 0 6 0 0 0 1

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

Villages HK	ЧY	H	SS.	ЧN	HKN ND		Z	ს F	УŚ	Sd	TKK NT	ΝΤ	ZZ	ŝ	Total	%	Γ
Yes	3	0	9	3	0	2	-	m m	N	٣	~	F		0	31		1
ÓZ	-	е Г	4	1	8	0	2		-	2	-	-			26		4
No-reply	-	0	0	0	9	0	0	0	0	0	0	0	0				-
: : : : : : : : : : : : : : : : : : :	i			-				-							64		100

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

	Villages	Ŧ	S H	SS:	ЧN	HKN	Ŋ	Z	Ч	ХS	S S S	ТKK	Ł	NN	ŝ	Total	%
Frequently		0	0	0	1	o	o		-	2		°	0		2	00	26
Somtime		3	0	9	2	0	2	0	2	0		2	-	3		23	
		9	o	9	3	C	6	5	¢.		T	ſ	r			6	
	-				ľ]	1		<u>'</u>	1		4	-	*	5	2	201

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

Villages	¥	Ĩ	ss	å	L Z Z Z Z T	g	<u>F</u>	ტ ლ	Š	Sa	TKK NT	NT	NN	So	Total	%
Busy with crop cultivation	2	o	2	F	0	-		Ĺ						5	15	
Bust with other job	Ō	0	2	-	0	P	ľ								~	
Don't know fishing	0	0	ō	ō	0	°			1		0		C	C		
Difficult to fish	0	0	~	-	o	-		Ĺ								
other	-	0	0	ō	0	Ō								2	r c	

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

Villa	llages HK	TH SS NP	SS	٩N	HKN ND	0 Z	N	TG	SK	PS TKK NT	L K K	E Z	ZZ	ŝ	Α<.
Price in kips/kg	376	3767 7000 6667 6500 9250 7000 6667 11000	6667	6500	9250	2000	6667 11	11000	7000	6000	6500	7000 6000 6500 7000 10500	10500	5000	7,132

Table 2.12. Do vou sell nart of vour catches?

	Villages HK	Ŧ	HL	TH ISS INP	dN	NXH	QN	LN L	Ю Н	УS	Sd	TKK	ΝT	ZZ	so	Total	%
Yes		n N			<u>с</u>	Ö	0	-	6	3	-	2	2	4		3 31	
No		2	м М	4	-	6	2	5	-	0	2	F	0	0		1 28	44
No reply	•	0	0	0	0	9	0	0	0	0	0	0	0	0		0 5	8
Total		÷	ເ ນ	10	4	14	7	Э	4	1 3	3	3	2	4		4 64	100
Table 2.13: How often do you	often do	Vou	sell	part of	your	part of your caught?		llow t	the tat	follow the table 2.12	2)						
	Villages HK	Ŧ	돈	ss	і Z	NXI	ON	1N	10	УŚ	Sd	TKK	FZ	NN	so	Total	%
Every time		0	°	0	0	0	0	1	0	2	0	0	0	0		2 5	16
Frequently		0		0	. 1	0	0	0	-	0	0	0	2	1		0 5	16
Sometime		ê	0	9	2	0	0	0	2	1 1	1	2	0	3		1 21	68
Total		Ś	0	9	с С	0	0	۳.	e,	3	1	2	2	4		3 31	100
Table 2.14. Do you process yo	ou proce	ss y(our fish?	sh?													
	Villages HK	Ŧ	Ŧ	SS	ЧN	HKN	QN	TN	ТG	sk	PS	TKK	NT NT	NN	so	Total	% of 64hh
Padek	-	4	2	2	. 3	10	0	2	3	3 3	1	2	. 1	4		4 46	72
Dry fish		4	2	6	2	9	0	1	2	2	1	3	0	3		3 38	59
No		-		-	1	1	2	0	1	0	•••	0	1	0		10	16
Table 2.15: How often do you	often do	you	-	ish în	your f	eat fish in your family?											
	Villages HK	Ŧ	HL	SS	NP	NYH	OZ	Z	U L	sk	PS	TKK	ЪТ	NN	so	Total	%
Every day		4	1	15	3	3	0	0	2	2	0	-		ຕ		2 27	42
Time to time		0	2	2 5	1	6	2	2	2	2	2	2	1			2 32	50
Not often		**	0	0	0	2	0	4	0	0	-	0	0	0		0 5	8
Total		5	e	3 10	4	17L	2	e	4	3	3	e	2	4		4) 64	100

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

>	fillages	Ŧ	TH	ss I	dN	NXH	ΩN	TN TG	1G	sk	PS	TKK NT NN	NT	NN	so	Av.
(g/year/HH		168	133	201	140	111	55	88 83	133	33 127	53	63	275	140	205	137
			Í													

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Villages	л. Т.	H	SS	٩Z	ON NYH		Z	U Ч	х Х	S S	TKK NT	NN F	So	D Total	1 %	. 0
November-December	0			P	0	0	°		0	0	0	0	0	0	0	
January-April		2	-	~	Ø	5	en en	4	7	n N	7	2	4	4	36	56.3
Mav-July			٣	-	2	°	°	0	0		۳-	0	0	0	5	7.8
August -October	2 			~	5	-	°		[0	0	0	0	ō	й	32.8
No reply			-	°	F	P	ľ	ľ		0	0	0	0	õ	2	3.1
															64	100.0

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	Villaces	ι.,	ΗL	SS	٩N	NYH	ΩZ	Z	ပု	ž	ი ს	ł Ż Ż	Ż	ZZ	ŝ	Total	%	
No time		1-		N	5	3	5	٢	0			0	-	1	0	13		0.3
No fish		Þ	F	ų	2	9	F		r) L	101	2	n	2	e S	3	32		50.0
Other		-		4	-	S	0	-	-	-	0	0		1	1	17		26.6
No reply			0	-	0	0	Ő	°	0	0	0	0	0	0	0	2		3.1
		1	1													, c		

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TOOLS. AND EQUIPMENT (FISHING GEAR) Table 2.19 : Number of particular fishing gear

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

Villages HK		H	ŝ	٩	HKN ND		Z	ЪС	х Х	PS	TKK NT		ZZ	ŝ	Total	
	24	S	28	31	9	co	9	24	17	4	12	13	29	31	233	
ſ	4	ო	en	4	9	-	S	7	4	4	3	3	6	9	62	
	m	0	2	2	-	۲-	ę	-	2	-	2	0	0	1	19	
-	P	0	0	-	0	σ	10	2	1	1	0	0	0	0	24	-
 	ö	en	σ	30	0	o	20	4	0	S	0	0	0	50	121	-
	2	ò	**		0	0	0	0	10	0	0	1	0	5	20	
	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

	illages	¥	TH	SS	٩Z	NYI	0 N	TN	16	ЯŚ	S L	Ь Х	Fz	NZ	so	Av.
Gill net		4.8	1.7	2.8	7.8	0.4	1.5	2	9	5.7	1.3	4	6.5	7.3		4.3
Cast net		0 8	F	0.3	-	0.4	0,5	1.7	1.8	1.3	1.3	1	1.5	2.3	1.5	
Scoop net		0.6	ō	0.2	0.5	0.1	0.5	F	0.3	0.7	0.3	0.7	0	0	0.3	0.4
Basket net		0	õ	0	0.3	0	4.5	3.3	0.5	0.3	0.3	0	0	0	0	
Basket trap		0	F	ი 0	7.5	0	0	6.7	-	0	1.7	0	¢	0	12.5	2.2
Funnel trap		0.4	Ō	5	<u>е</u> С	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

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Table 2 22 Number of househo	r of ho	nseho	spluc	havir		tor bo	ats a	od br	ehoulds having motor boats and boat with out motor	1 out n	notor							
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FISHING AREAS Table 2.23. Where do you fish sometime in the beginning of wet season (May-July

									_						
Total	21	25	18	4	14	5	28 28	ი	ю	58	-	S	63		0
so 1	0	3	1	2	2	o	4	0	0	2	1	1	S	1	ō
S NN	0	3	4	-	~	2	4	0	0	4	0	0	4	0	0
Z E	1	1	ò	0	2	0	2	0	0	2	0	0	2	ò	o
T X Z	2	1	0	2	1	0	3	0	0	ო	0	0	e	0	0
Sd		0	2	2	L	0	3	0	0	e,	0	0	m	0	0
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Villages HK	200800	-													
>	Nam Noien NO		C.	ributaries NO	0X	OS OS	Paddv-fields NO	S		C Z	20	OS OS	CN	2 S	so
	Nam No			Tributar			Paddv-f			stord Dodd			Start Start		

Note. NO : Not VO : Very often SO : Sometime

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	Villages	ages HK	ТН	SS	۵. Z	N N N N	2	Z	ТG	У Х	Sd	H X X	łz	ZZ	so	Total	tal
Fishing areas																	
Nam Ngiep				2	N	-	2		e.)	2	2		-	۲ -		N	1.6
Tributaries			2	2			o	0	0	-	0		e Second	1		2	1.1
Paddy fields		0	0	ю О	-		Ó	6	2	°		0	0		0	0	0.0
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Others		0	0	0	0	0	0	0	0	0	0	0	0		Ģ	0	000
			·														
Table 2.25. Where do	-	u fist	som:	time ii	n wet	seaso	in (Au	gust-C	you fish somtime in wet season (August-October)?	r)?							
	Villages	Ϋ́́	ΗT	SS	ЧN	NAT	QZ	N T	10 1	УS	Sq	TKK	μZ	ZZ	0s	Total	8
Nam Ngiep NO	•	2	2	9	õ	ŗ	0	ო	2	0	N	-	-	0		0	ဗ္ဂ
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os		e	0	2	2	2	-	0	2		1	۳.	0	2	0		18
Tributaries NO		3	0		L	11	2	ო	4	2	2	0	0	-		5	ဗ္ဗ
OV .				-	2	-	0		0	-	-	۲	2	-	L	5	4
SO		1	2	۴.	ļ L	2	0	0	0	0	0	_		~	~	0	1
Paddy-fields NO		5		6	2	14	N	¢	2	m	n	e		4		4	55
ON N		0	0	0	ō	0	Q	2		0		0	-	0		0	ۍ ا
SO		0	0	L	2	0	o	٢	0	0	0	0	0	0		0	4
Ponds NO		4	с М	10	4	12	2	2	4	3	n	e	N	4		N	58
0		0	0	0	0	0	ō	0	0	0	0	0	0	0			F
so		1	0	0	0	2	0	•	0	Ò	0	0	0	0		F ~	ማ በ
Others NO		S	ო	10	4	14	2	ო	4	ო	'n	e	N	4		<u>ო</u>	83
٥٨		0	0	Ö	0	0	¢	o	0	0	°	0	0	0		 	-
SO		0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
Table 2 26. Distance		valkir	by walking time to		do fishing in wet season (ni nui	wete	10269		t c	Aug-Oct) in bour						
		Ŧ	ΗĻ		ЧN	ΗKN	g	ΥL	τC	SK	Sd	TKK	μŢ	NN	ŝ	Total	Ĩ
Fishing areas																Ļ	
Nam Ngiep		[-	N	-	-	2	0	۲	en L	9	-	-				4.1

I and trans trans of a maining mine to go its wet seasout (Aug-Oct.) in 1001	A VAIN		בית ביום בכית			A LINA	200000	うって ーー	2		5				
Village	lages HK	ΗL	ss	ЧN	DN NMH	Ð	NF	1G	ЯX	Sd	TKK NT	Γ	NZ	ŝ	Total
Fishing areas															
Nam Ngiep			2	+	۳	2	0	1	n	Э	F	-	F	2	1.4
Tributaries			2	1	-	0	0	0	٣	ო	Ľ	2		2	1.2
Paddy fields			3	2	0	0	e	2	0	0	0	-	0	0	0.8
Ponds			0	0	t	ō	ტ	0	o	Õ	ò	õ	0	-	0.4
Others			0	0	0	0	0	0	0	0	0	õ	0	с О	0.2

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Table 2.28. Distance b	ance by v	valkin	gtiñ	e to g	o fish	ing in	begir	nring (<u>w walking time to go fishing in beginning of dry season (NovDec.) in hour</u>	seaso	NON) U	v-Deo		10 U		
	Villages	Ξ¥	井	SS	٩Z	UN NMH	DN	TN	тс	SK	Sd	TKK	⊦z	Z Z	ŝ	Total
Fishing areas																
Nam Noiep		1	3	2	÷	٢	2	2	e	2	7	1	2		3	1.8
Tributaries		7	2	2	-	F	0		1	-	3		-	0	2	1.3
Paddy fields		0	0	0	0	1	0	1	0	0	0	0	0	0	0	0.1
Ponds		Ē	0	0	0	ო	0	с С	L	0	0	0	0	0	4-	0.6
Others		0	0	0	0	0	0	0	0	0	0	0	0	0	ო 	0.2
Table 2.30. Distance		valkin	lg tim	e to g	o fish	ing in	dry's	eason	oy walking time to go fishing in dry season (JanApril) in hour	April)	in ho	ur				
		Ϊ	F	SS	đ	HKN	۵Z	TN	ТG	SK	Sq	Ϋ́	۲ Z	NN	ŝ	Av.
Fishing areas																
Nam Ngiep		-	3	2	1	1	2	2	ε	2	2	1			2	1.6
Tributaries		-	-	2	t	T	0	0	L	1	3	۲-	2	0	5	1.1
Paddy fields		Ö	0	0	Ö	0	0	0	0	0	0	0	0	°	0	0.0
Ponds		°	0	0	0	2	0	ς,	ю 1	0	0	0	0			0.6
Others			°	0	0	0	0	0	0	0	0	0	0	0	3	0.2

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Table 2.29. Where do you fish	re do you			time	in dry	seaso	ů, n	านลา	sometime in dry season (January-April)?	ć(I							
	Villages HK		Ч	SS	dNP	N	QN	NF	Ч Ч	У Х	S	TKK	LN LN	NN	so	Total	
Nam Ngiep NO		0	٢	-	۳-	11	o	f	0	0	0			2	0	19	
9		4	1	9	т Т	0	-	C	2	2			°	2	2	22	
So		٢	1	3	2	3	۰.	2	2	1	ო			0	2	23	
Tributaries NO		2	0	9	1	13	2	n	en En	2	2	-		4	2	4	
9 2			0	2	2	0	0	0	T	-	0		°	0	2		
so		2	3	2	1	۲	0	0	0	0		-	2	0	0	13]
Paddy-fields NO		5	3	10	4	14	2	ė	4	(f)	ŝ	6	R	4	4		
07		0	0	0	0	0	0	ō	0	0		0	0	0	0	0	
S		0	0	0	0	0	0	0	0	0	0	0	Ō	0	0	ö	
Ponds NO		4	3	10	4	13	2	2	-	m	ς,	3	2	4	2	56	
\$		0	0	0	0	0	0	ō	-	°	0	0	0	0	-	2	
So		٢	0	0	0	11	0	۳	2	0	o	0	ò	0	-	9	
Others NO		5	3	10	4	14	2	en	4	3	3	3	2	4	0	8	ſ
9		0	0	ō	0	0	0	0	0	0	0	0	ō	ō	0	0	
S		0	0	0	0	0	0	0	0	0	0	0	ō	ò	-		

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

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Villages HK	Ŧ	HH	ŝ	ДZ	IKN	Q	Z	ပ မ	sk	Sq	TKK	μ	NN	00 00	Total	%	Γ
Nam Ngiep Upstream	5	0	7		2	2	6		3	6					30		4
Downstream		5	3	-	n									2		4	2
Tributaries Upstream		1		*-	-						[7	Ę
Downstream				•	٦											2	œ
Paddy fields Upstream					0												1
Downstream					1												٦
Ponds Upstream																	1
Downstream					٣												(m
No reply					5											5	ν
Total of answers	Ϋ́	3	10	4	14	2	(U)	4	e e	٣ ٣	m N	N	4	4	64		8
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Table 2.32. (When is best?) Period of fish catches

lable 2.32. (When is best/) Pi	ī L	erioa	ទ		- 6	1				ſ	Ì	1				ĺ
Villages HK	Ţ	H	SS	٩Z	HKN	QN	LN N	Ч0 Ч	SK	ຽປ.	TKK	NT	ZZ	SO	Total	
Nam Ngiep																
November-December			9	۲.	2		2		5	1	•••		1		16	
Jan-April	3	2	2	۲	-										8	
May-June	3	1	1		1			2	1	2			1		12	
July-October					1	2	1						2	2	8	
Tributaries																
November-December				-	2						۲.				4	
January-April								L							Ļ	
May-June											۳.				1	
July-October				2					1			Ļ		L	5	
Paddy fields																
November-December																
January-April																
May-June																
July-October		_			1											
Ponds																
November-December																
January-April					-										1	
May-June																
July-October								-						1	1	
No reply			1		5										9	

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

THE PARTY AND A THE PARTY AND A	main carries has measuring by vinage			2	A 1116	ゴーノア									
Villages	lages HK	ТН	SS	dN	ON NMH	0 Z	N L		ЯK	Sd	PS TKK NT		NN	SO	Av.
Nam Ngiep															
Dry season Per time	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 per time	1	0.7	0.9	5.3	0.9	0.4	0.6	4	5.8	*-	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 Per time	0.3	1.5	0.4	1.6	0.7	ō	0.3	0.6	0.8	0.5	1.4	4 6.4	0	4.0	0.9

Average fish catch per household per year is 338 kg

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During all dry season	12	136	9.7	45	30.7	ō	5.8	43.2	25	12	48	128	0	6	36.1
Wet season per time	0.5	1.2	0.3	5.8	0. 4	0	Ó	0	2.5	0.5	0.8	4.3	1.3	2.5	1.4
During all wet season	12	103	12.6	138	62	õ	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	ō	0	0	0	ò	0	0.04
During all dry season	0	0	0	0	26.7	o	0	0	0	0	0	0	ö	0	1.9
Wet season per time	0	0	0.1	0.3	0.2	0	0.8	0.6	0	0	0	0 0	ō	0	0.2
During all wet season	0	0	1.8	12.5	37.3	0	11.8	72	0	0	0	56	0	o	13.7
Other places			-			-									
Dry season Per time	0	0	0	0	0.4	0	0	0.2	0	0	ō	ō	0	0.1	0.05
During all dry season	õ	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	1.0	0.1
During all wet season	0	o	0	0	0	0	0	4	ō	0	0	0	ō	8	6.3
	ĺ														

Table 2.34. The most common fish species caught.

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	Villages HK	¥	H	SS	ЧN	ZYI	Q Z	ЧN	Ч С	s K	Sd	TKK NT	μZ	NN	ပ္ပ	Total
1 2 4 3 2 2 1 2 3 2 1 1 1 1 1 2 3 2 1 1 1 1 1 1 0 1 1 8 3 2 1 2 1 1	Name of fish spcies															
rg) 2 3 1 1 1 1 r) 1 1 8 3 2 1 2 1 r) 1 1 8 3 2 1 2 1 r) 1 1 8 3 2 1 2 1 r) 1 8 3 3 1 1 1 Laykai) 8 3 1 1 1 1 teurog) 9 1 1 1 1 teurogi 9 1 1 1 1 offsaty 2 1 1 1 1 offsaty 3 1 1 1	Puntuis sp.(Papak)	1	2		4			8	(1					(L)		2 26
1 1 1 1 2 3 1 1 1 1 1 1 1 1 8 3 2 1 2 1 1 1 1 1 1 1 Laykai) 3 1 1 1 1 1 Laykai) 5 3 1 1 1 1 Creung) 6 1 1 1 1 1 0 1 1 1 1 1 1 0 3 1 1 1 1 1 0 3 1 1 1 1 1 0 3 1 1 1 1 1	Cirrhinus molitorella (Pakeng)			2		۲		1		_	÷	_		4		2 13
() 1 1 8 3 2 1 2 ai) 1 1 8 3 2 1 2 Laykai) 1 1 1 1 1 1 Laykai) 1 1 1 1 1 Casubi 1 1 1 1 1 Cocario 2 1 1 1 1 of Saily 2 1 1 1 1	Bangana sp.(Pa Va)	5		3											 	1
() 1 1 8 3 2 1 2 (i) 1 1 1 3 1 1 1 (i) 3 1 1 1 1 1 (i) 3 1 1 1 1 (i) 1 1 1 1 1 (i) 1 1 1 1 1 (i) 2 1 1 1 1 (i) 2 1 1 1 1 (i) 2 1 1 1 1 (i) 3 1 1 1 1	Rasbora (Pasiew)					2										
ai) [aykai) [aykai] [a	Sikukia gudgeri (Pakhaoxay)	5	1	8			1	2		2	-					2 25
Saly 3 1 1 1 Laykai) 1 1 1 1 Cteung) 1 1 1 1 Cteung) 1 1 1 1 Cteung) 1 1 1 1 Sal) 2 1 1 1 Sal) 3 1 1 1	Kryptopterus sp.(Papeek kai)															1
Laykai) [[] [] [] [] [] [] [] [] []	Channa striatus (PaKho)					3	5				-					
cteung) ctaung) ct	Osteochilus waandersii(PaLaykai)							L	1							
V(Sat) V(Sat) 2 1 1 1 1 1 1 1 1 1 1 1 1 1	Hemibagrus wyckoides(Pakheung)									-			ţ-			
V(Sa I) 2 3 1 1 1 1 1 1 1	Clarias batrachus (Padouk)	_				1	1	1								
V(Sa I) 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-															
(Sat) 2 3 3 4	Chitala sp. (PaTong)															
o/Sa I) 2 1 1 1 1		_														
	Labeo erythopterus(PaPhao/Sa I)	2							1					· ·		
	Poropuntius sp. (PaChart)	ŝ	۳-						-	1						
	Bagarius sp.(PaKhea)	~											-			
	Onychostoma elonata(Paking)	~		-												

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or 0.7 kg/day

.

lystus nemurus (Pakot)	 2	 		2	2			•	-	თ
Osteochilus hasselti(Pa Ithai)	F		٣					-		e
									-	
Trichogaster trichopterus(P.Kadeut							1		 	 -
Morulius chrysophikadion(P. Phia)							1			 ¥-

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

								~										
	Villages I	¥		SS	۵ Z	NXN	Q	N	1C	ЯK	Sd	TKK	LL	NN	so	Total	%	
Yes		4	2	6	3	80	0	2	4	3	2	с С	2	2	2	46		72
No		1	1	1	1	6	2	-	0	0	1	0	0	2	2	18	3	28
Total		5	3	10	4	14	7	ы	4	с С	ς Υ	с М	2	4	4	64	•	00

Table 2.36. Which period migration taken place

Villages	¥	F	SS NP			g	N N	Ю Н	ž	PS TKK NT	<u>Ұ</u>	Ę	NN SO		Total	%	
Going upstream																	100
Jan-April			4						2						~		15.2
May-Aug.	3		5	ო	ώ		~	4	-	2	т П		_	~	37		80.4
SeptDec.														 	2		4.3
Going downstream										_							100
Jan-April						Í									T -1		2.2
May-Aug.	0		0	0	0	P	0	0	0	0	0				0		0.0
SeptDec.	9	2	6	3	ω		2	4	ю	2	(1) 		5	2	45		97.8

Table.2.37. The species observed during the migration

)		h										
Species / /	Villages HK	Ŧ	HL	SS	ЧN	HKN ND		1N	10	SK	SK PS TKK NT	ТКК	F Z	NN	so	Total
Going upstream																
			-													
Mystus nemurus (Pakot)			-	3		5		**	-		*	~				16
Poropuntius sp. (PaChart)	Ê	2	2	3		*			1	2						11
Osteochilus waandersii(PaLa)	PaLaykai)							۴.	L		1					4
Puntuis sp.(Papak)		ო	*-	9	1	4				-	-			5		20
Osteochilus hasselti(Pa Ithai)	lthai)			3			-	۲-				-	2			8

Page 11 of 14

Labeo erythopterus(PaPhao/Sa I)	2															
Cirrhinus molitorella (Pakeng)	•		2					_							5	
Sikukia gudgeri (Pakhaoxay)	۲-	-	ю	٢	-	-	1			N						
Macrognathus siamensis(Palot)		Ŧ						-		_				~	<u>out</u>	
Clarias batrachus (Padouk)		-	e	-	4		• •	2		-					<u></u>	
Channa striatus (PaKho)			4	2	4		1	2						4		
-																
Anabus testudineus (Pa Kheng)							v -									
Channa gacua(Pakang)			٢												άĪ.	
Cyprinus carpio(Panai)				-								-			ิงไ	
Macrognathus armatus(Palat)					1							_				
Going downstream	·			Table	(Table.2.37 continue)	ntinue)										
		Γ														
			Γ													- 1
Mystus nemurus (Pakot)			2	2	2					1	1	• •	N	5	_	
Bancana sp.(Pa Va)	-	Γ														. 1
Poropuntius so. (PaChart)		+					 	ĩ							2	- 1
Osteochilus waandersii(PaLaykai)										1					-	
Puntuis sp.(Papak)	~	F	9		m		1 1	1		1			7		_	
Osteochilus hassetti(Pa Ithai)				4											9	
Labeo enthopterus(PaPhao/Sa I)	,						• -						_		2	- E
Cirrhinus molitorella (Pakeng)	-		ŀ				1								4	
Sikukia gudgeri (Pakhaoxav)	-		4		-			2		2				12	2	
			ſ													- 1
Clarias batrachus (Padouk)		F	m	-				3						1	0	
Channa striatus (PaKho)		F	4	2	2		r.	3	1		1			16	6	- F
Anabus testudineus (Pa Kheng)		-					1								4.	

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5 17

9

Cyprinus carpio(Panal) Total

<u>_(+</u>)

AQUACULTURE (These information was re-checked with the village authorities during the wet season fish survey Table 2.38. Number of household doding fish culture

Villages	¥	Т	SS	à Z	NMH	g	Z	цС	SK SK	PS S	TKK .	NT	lages HK TH SS NP HKN ND TN TG SK PS TKK NT NN SO Total	so	Total
Nos. of HH. Having ponds	0	0	ς Υ	ö	2	0	7	1	0	3	Ó	2	3	3	18
Number of ponds	0	0	ς Γ		N	0	٢	1	0	4	0	2	3	4	20
Area (ha)	0	0	0.32	0	0.24	0	0.08	0.08 0.04	0	0.38	0	0.16	0.16 0.32	0.36	1.9
Table 2.39. Fish species cu	cies cultured	-													
Villages	llages HK TH SS NP	F	SS	٩Z	N N N N	۵z	HKN ND TN	TG	SK PS TKK NT	Sd	TKK	FN	NN	so	
Tilapia (Panin)					*		*	¥		*		*	*	3	
Cvorinus camio (Panai)			*		*		*	\$		*		*	*	*	

Table 2.40. Aquaculture production

Chinese Carp(Pachin)

Wild fishes

Villages HK	_	Ĩ	ŝ	۵ Z	NYI	<u>o</u> z	Z	ц Ц	Х	с С	TXX	Z	ZZ	ŝ	Total
Average production (kg)			150		180		50	30		160		80	150	180	980
Kg/year/ha			200		750		625	_		421		500	469		51

OPPORTUNITIES OF BECOMING FISHER IN WHEN RESERVOIR IS CREATED

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

			_														
	Villages		ТΗ	SS	ЧN	HKN	QZ	ЧN	TG	SK	PS	ТКК	NT	NN	SO	Total	%
Yes		2	2	5	e	-	**	۲.	3	3	2	0	2	2	3	30	46.875
No		3	-	5	1	13	7	2	1	0	1	3	0	2	1	34	53.125
Total		5	3	10	4	14	2	S	4	ო	c	3	2	4	4	64	100

Table 2.42. Reason for being fisher

Villages HK	ss HK	ТН	SS	٩N	HKN	g	Ż	τc	SK	ЪS	TKK	FZ	NN	ŝ	Total	%
Good income	2	2	4	£	5	1	0	2	ς Γ	٦	0	۲.	2	2	24	80
Like fishing	0	0	0	0	ò	0	-	0	0	0	0	1	0	1	3	10
Fishing is better than cropping	0	0	1	0	0	0	0	0	Ó	o	Ó	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	e	1	Ļ	+	3	θ	2	0	2	8	с) ()	30	100

fisher
becoming
for not
Reason
2.43.
Table.

Villages HK TH	Ĩ	ss	å		NF 0	F	Ц Ц	- Xs	ഗപ്പ	Ч Х Х Х	۲ Z	ZZ	so	Total	%
0	-		0	5	0	0	0	ō	0	-	0	0		2	21
0 0	0			0	0	0	o	0	õ	-	Ō	-		4	12
0 1	1		0	ò	0	0	0	0	0	0	0	0	0	-	3
0 0	0		0	9	1	0	0	0	٦	4	0	0	*	10	29
1 2	2		0	0	0	t -	0	0	0	0	0	0	0	9	18
0 1	1		õ	2	0	4	1	0	0	o	0	۳-	0	9	18
1 5	5		-	13		2	1	0	1	3	0	2	-	34	100

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DEMOGRAPHY OF THE SERVEY VILLAGES

Table 1. The detail							
Village's name	Total			of HH by	Ethnicity	Nos. of HH	% of HH
	Population	household	LS*	LTH*	LL*	surveyed	surveyed
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
Halsamkhone	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
	tio i à		÷				

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

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.

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Annex1.4.

(For household)
<u>General information</u>
Village name:
H.H name
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

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FISHERIES SURVEY (For household)

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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 : • Number - Gill net - Cast net - Scoop net -Basket net -Basket trap -Funnel trap -Hook and line Do you have a canoe? Yes ٠ 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	Wet	inning season y-July)	1	season g-Oct)	Dry	ginning v season ov-Dec)		season a-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)		1						
Paddy fields							· · ·	
Ponds		·		-				
Others (describe	<u> </u>							

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)

4.4.1. Where ?

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

4.1.2. When?

		· when		
Sources	Early dry Season (11-12)	dry Season (1-4)	Early wet S. (5-6)	Wet season
Nam	(((-12)	(1-4)	(3-0)	(7-10)
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 Nol
 - 5.1.1. If yes, (please indicate in the table below)

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

No

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 If Yes, why please explain the reason :

- 1.
- 2..... 3.....
- or if NO, why please explain the reason :
- 1. Don't know fishing 図 2. Agriculture better than fishing 図 3. Afraid large water X
- 4. Don't like fishing 図 \mathbf{X}
- 5. Not reply

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LIST OF ANNEXES FOR DOWN
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 Table 1a: Summarised of the boat Census in Dry season: (April,99)

 1a.1.Fishing boats

	Ali	3 336	3 155	6 491
boats	Cargo			
Other boats	not in use In use Not in use Passenger Cargo	Û	11	10 1 1 1 4
Motor boats	Not in use	102	22	19 17 12 (2003) (2013)
Moto	in use	9	15	17. J. 21.
With out motor	not in use	213	43	×********
Vith o	ln use	6	11	≥0
River	Section	 No.1	No.2	Total

No 1 No 2 No 2

Splitted at Muang mai : 1=Downstream 2=Upstream

1a.2. Fishing gear and fishing practice

							NUL	Number of fishing observed	ng observe	, c					
		Setting	Flooting	Flooting Rounded	Cast-net	Scoopnet	Setpole	Setpole and line	Bottom	Drop-door	Fish-attrac	Horizontal	Upright	Pole and	Branch-
		gill-net	gill-net	gill-net gill-net			In use	not in use	longline	Basket trap	basket	Cylinder	Basket	line fishing	bundle
River s	River sections											trap	Trap		Fish-attact
	Left bank	ß	0	1	7	0	9	16	5	e	ю	0	2	11	s
No.1	Right bank	13	0	0	-	•	4	3	18	2	4	ы	0	-	0
	sub-total=	21	e	"	8	۰	10	19	20	10	7	7	2	12	s
	Left bank	12	4	ţ	6	0	24	42	2	1	0	0	0		0
No.2	Right bank	18	0	0	4	1	45	21	0	9	0	0	0	0	0
	.sub-total=	30	4.	٢	13 .	1	69	: 63	5	17	0	0	۳. ۳	۲	•
	Grand T.T	1 S & 24 S 30	1.00 4 3 4 5 1		1986 (J. 19 24) 1987 (J. 1987)		64	82		22			04	13	2

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

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River	Fish con	Fish conservt, pool	Fishir	Fishing Camp	Water collection	ollection
section	left bank	Right bank	L. Ban	R. Bank	L.Bank	iR.bank
No.1	ļ.	0	0	0	4	ო
No.2	+	0	1	•	0	0
Sub-T.t	2	0	-	-	4	м
Grand T	200 C		80 (2 8) ()	网络拉马马马马马马马马马马马马马马马马马马马马马马马马马马马马马马马马马马马马		ANNAL DE

Annex 2.1

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

	AII	336	160	496
oats	Cargo	9	5	
Other boats	Not in use Passenger Cargo	8	7	SU 333333
Motor boats		86	64	121 V 18 18 18
Moto	In use	20	13	SE
With out motor	not in use	198	45	243
With o	In use	9	11	11.000
River	Section	No.1	No.2	Total

Annex 2.1 (Cont..)

Splitted at Muang mai: 1=Downstream 2=Upstream

No 2 No 2

1b.2. Fishing gear and fishing practice

Setting River sectionsFlooting Buil-netRounded DimetCast-netScopnetSetting In useBottomDrop-doorFish-attrac Fish-attracHorizontal HorizontalUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapUprightPole and Fish-attracBasket trapDended trapBasket trapPole trapPole trapDended trapBasket trapDended trapBasket trapDended trapBasket trapDended trapBasket trapDended trapBasket trapDended trap </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>NUN</th> <th>Number of fishing observed</th> <th>ng observe</th> <th>ų</th> <th></th> <th></th> <th></th> <th></th> <th></th>								NUN	Number of fishing observed	ng observe	ų					
Perform gill-net gill-net gill-net in use not in use longine Basket trap basket Cylinder Basket ine fishing restions Left bank 22 3 0 0 35 17 48 0 0 10 21 Kight bank 3 1 0 0 0 21 13 37 0 0 10 12 21 Kight bank 3 1 0 0 0 0 12 21 23 26 26 Sub-total= 25 4 0 0 13 37 0 0 12 22 26 Kight bank 19 11 0 0 35 37 0 0 0 22 47 Kight bank 19 11 0 23 35 37 0 0 0 23 47 Kight bank 19 19			Setting	Flooting	Rounded	Cast-net	Scoopnet	Setpole			Drop-door	Fish-atrac	Horizontal		Pole and	Branch-
Instructions Instruction Instruction <thinstruction< th=""> <thinstruction< th=""></thinstruction<></thinstruction<>			gill-net	gill-net	gil-net	···· ·			not in use		Basket trap	basket	Cylinder	Basket	line fishing	bundle
Left bank 22 3 0 0 35 17 48 0 0 0 10 10 Right bank 3 1 0 0 0 0 0 0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 12 13<	River:	sections	_										trap	Trap		Fish-attact
Right bank 3 1 0 0 21 13 37 0 0 0 12 sub-total= 25 4 0 0 0 56 30 85 0 0 0 0 22 Left bank 21 7 0 1 0 32 35 37 0 0 0 23 Right bank 19 11 0 2 0 31 0 0 0 13 Sub-total= 40 13 0 2 0 21 31 0 0 0 13 Sub-total= 40 13 0 5 56 68 0 0 0 13 13		Left bank	8	ო	0	0	0	35	17	84	0	0	0	0	2	0
sub-total= 25 4 0 0 0 56 30 85 0 0 0 0 22 Left bank 21 7 0 1 0 32 35 37 0 0 0 2 8 Right bank 19 11 0 2 0 31 0 0 13 13 sub-total= 40 13 0 3 56 68 0 0 0 21 13 Grand Tit 66 22 0 62 56 68 0 0 0 21 31 0 21 31 31 32 31 3	No.1	Right bank	3	-	0	0	0	21	13	37	0	0	0	12	26	0
Left back 21 7 0 1 0 32 35 37 0 0 0 8 Right back 19 11 0 2 0 31 0 0 0 13 Sub-total [™] 40 13 0 3 56 68 0 0 21 31 0 21 31 0 13 14 <td< th=""><th></th><td>sub-total=</td><td></td><td>4</td><td>0</td><td>0</td><td>0</td><td>56</td><td>30</td><td>85</td><td>0</td><td>0</td><td>0</td><td>22</td><td>47</td><td>0</td></td<>		sub-total=		4	0	0	0	56	30	85	0	0	0	22	47	0
Right bank 19 11 0 2 0 30 21 31 0 0 0 13 Sub-total# 40 13 0 3 0 62 56 68 0 0 0 21 21 Grand T.t. 66 22 56 13 0 6 21 21 0 0 0 0 21 21		Left bank	5	2	0	+	0	32	35	37	0	0	0	ω	15	0
40 13 0 3 0 62 56 68 0 0 21 21 21 22 26 28 0 0 0 21 21 22 22 22 22 22 22 22 22 22 22 22	No.2	Right bank		11	0	7	0	8	21	31	0	0	0	13	G	0
<u>188866888 1898 1828 1888 006 18468 13</u> 18 1880 000 188 184 1888 1800 000 1880 000 1880 0000 1880		sub-total≍		18	0	3	0	62	56	68	0	0	0	21	21	0
	-	Grand T.T.		22				S. 811 S.	8. 2. 86 A. W.	163	1 1 0 1	Sec. 0.	1 () (0 () ()	1. 242 V.S.		(* * * 0 * * *

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

River	Fish con:	Fish conservt. pool	Fishir	Fishing Camp	Water collection	llection
section	left bank	bank Right bank	L. Ban	R. Bank	L.Bank	R.bank
No.1	0	0	0	0	e	m
No.2	1	0	0	0	0	0
Sub-T.1	-	0	0	0	£	ო
Grand T	ar ar an ar			0.0000000	9(?) XXX ??/	in koji se na j

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Surveyed	Totat	Total	Nos.of HH	Ave.pers/	Tt. A	Tt. Aqua.produced in the day	iced in th	he day	Aquatic	Aquatic products distribution	distribu	ıtion	preserved forms Cother Av. Nos of	1 forms	Other	Av. Nos of
villages	HH	population	surveyed	HH'ssurvey	Catch	:bought	As gift	Catch bought As gift Total	େ ସେ	sold	Bive	pre-	- Padek	dry.	Aquant	pers/meal
											away	served				
Hatkham	88	533	9	7.50	18,063	•	200	18,263	5,200	5.000	800	7,280	12,850	320	•	6.4
Xomseun	185	1136	9	7.60	16,840	•		16.840	5,480	3,800	550	2,010	000.68	3,880	-	7.15
Songkhone	42	343	4	8.00	11.460	•		11,460	3,610	4,000	§	3,450	55,140	•		7.05
Namtek	39	203	4	6.50	18,920	•		18,920	2,970	13,500	650	1,800	46,350	•	•	6.08
Thakokkhen	8	349	S	7.30	3.470	•	,	3,470	3.210	•	•	260	4,060	510		7.4
Nampa	71	427	9	8.00	13,680	•		13,680	2,260	10.900	200	320	33,100			7.4
Trotal	28 - 483	Sec. 2391 20	\$\$\$\$ 31 3.	222 S	82,433		200		22,730	32,633 22,730 42,200 2600	2.600	15,120	::240,500	4,710		

4.2. Second survey (July, 99)

Surveyed	Total	Total	Nos.of HH	Ave.pers./	TLA	Tt. Aqua.produced in the day	iced in th	e day	Aqua	Aquatic products distribution •	ts distrib	ution •	preserved forms	torms	Other	Other Av. Nos of
vilages	H	population	surveyed	HH'ssurvey	Catch	bought	As gift Total	Total	िeat ः	Sold	avub	-oud	Padek	đ۲	Aquant	tipers./meat
											away	served				
Hatkham	8	533	6	7.50	17.630			17,630	4,180	11,000	200	1,370	22,150	3,100	•	6.4
Xomseun	185	1136	9	7.60	20,830	•	•	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	9,400	3,410	2,500	450	3,490	61,750	950	•	7.05
Namtek	8	203	4	6.50	16,690	•	•	16,690	3,390	12,700	88	200	51,300	4,250	•	6.08
Thakokkhen	58	349	S	7.80	3,930	1.100	200	5,230	4,380	•	•	850	3,900	•	450	7.4
Nampa	71	427	9	3.00	18,610	•	250	18,860	4,920	9,700	1,000	1440	40350	2.650	150	7.4
Total	483	2991		0 : 27.57 % S	86,890	**100:	:: 650	88,640	25,410	49.700	2,600	097.7.33	49.700 2.600 2.700 227,650	13,850	014	

Note : -The species composition observed during the survey -Source of the village profile was based on socio-economic survey team

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ub)us	_	,	•	120	200	•	,		320
eserved form(gr	Dry fish								1944 - A. M. A.
quatic prod pr	Padek	2,500	10,200	1	150	4000*	100		800 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
	givenawayi	L	250	100	200	250	•	_	
 Distibution the product (gr) 	preserved	1,450	370	320	1,040	4,000	100		7,280
Distibution 1	sold		500	1,500	2.000	1	•		S.000
	eate	1,200	600	1,400	850	750	400		\$,200
CD	total	3,650	1.720	3,300	4,090	5,000	500		200 3.48,260 5,200 5,000
ction in a day (cc)	Gift	•	1	•	•		200	-	
Activatic productic	-		1	I	,	1	•		
AGUE	Catch	3.650	1,720	3.300	4,090	5.000	300		18,060
Average Nos	of persimeal	80	6.3	80	6.5	ę	5.6		AV: 623
Hat No IAverao		No.1	No.2	No.3	No.4	No.5	No.6		Total

5.2.Ban Xom Seun(B.Muangmai)

eserved form(or	Dry fish	1,250	1,100	1,530	1	•	•	1 No. 1 3 850
quatic prod.p	Padek	8,500	3,200	4,800	12,000	12,500	48,000	 000 88
(gr)	preserved givenaway	-	•	350	200	•	•	🔬 🖉 550 🕞
Distibution the product (gr)	pavieseid	200	•	250	1,560		-	 .ss 2.010s] ⊛∴
Distibution	sold	4,000	2,300	2,500	•	•	•	⇒_16,840 5,480 ≥ 8,800
	eaten	1,000	1,100	550	1,000	1,100	730	5,480
(dt)	insi total 🕬	5,200	3,400	3,650	2.760	1,100	730	 16,840
ion in a day (gr)			1	J	•	•	•	
tic productic	bought		1				E.	
Aqua	Catch	5,200	3,400	3,650	2.760	1.100	730	16,840
Average Nos	of pers/meal	5.6	10	9	12	5.3	5.3	AV:736
HH No		No.1	No.2	No.3	No.4	No.5	No.6	Total

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ANNEX 2.3

(by village)
y survey
ce fisher
d of subsistenc
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Table 4. Su

4.1. First survey (April 99)

	10101	Total	Nos.of HH Ave.pers.	Ave.pers/	T1, A.	Tt. Aqua produced in the day	seed in th	ie day	Aquatic	Aquatic products distribution	distribu	tion	preserved forms Other AV.Nos of	forms	Other	Av. Nos of
villages	F	population	surveyed	surveyed HH'ssurvey	Catch	bought As gift Total	As gift	Total	cat	sold	give	pre-	Padek .	dry	Aquani pers/mea	pers/meal
											eway	served				
Hatkham	83	533	9	7.50	18,063	•	200	18,263	5.200	5,000	003	7,280	12,850	320		6.4
Xomseun	135	1136	9	7.60	16.840			16,8-0	5,480	8,800	550	2.010	89,000	3,830	 .	7.15
Songkhone	42	343	4	8.00	11 460		•	11 460	3,610	4 000	64 0	3,450	55.140		.	7 05
Namtek	စ္တ	203	4	650	18,920		•	18,920	2.970	13,500	650	1,800	46,350	•		6.08
Thakokkhen	58	349	ŝ	7.80	3,470	•	•	3,470	3,210			260	4 060	510	•	4.7
Nampa	71	427	9	8.00	13,680	•	•	13,680	2.260	10,500	200	320	33,100	•	•	4
Total	587	2391 : 1	3	7:57	82,433	•	8 2 2	82,633	22,730	42,200	2,600	15,120	240,500	4,710	· · ·	

4.2. Second survey (July,99)

Surveyed	Total	Total	Nos. of HH	Ave.persi/	Tt. A	Tt. Agua.produced in the day	rced in th	le day	Aqua	Aquatic products distribution	ts distrib	ution	preserved forms	r	Othor	Other Av Nos of
valages	HH	population	surveyed	HH'ssurvey	Catch	bought	bought As gift Total	Total	eat	sold	evi2	-oud	Padok	dry	Actu ani	Actu ant pers /meal
									-		away :	served				
Hatkham	88	533	6	7.50	17,630			17,630	4,180	11,000	200	1,370	22,150	3,100		6.4
Xomseun	185	1136	9	7.60	20,830	,	•	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	9,400	3,410	2,500	450	3,490	61,750	950	,	7.05
Namtek	39	203	4	6.50	16,690		•	16,690	3,390	12,700	30	200	51,300	4,250		6.08
Thakokkhen	58	349	ۍ	7.80	3,930	1.100	200	5.230	4,380	•		850	3,900	•	450	7.4
Nampa	71	427	9	8.00	18,610		250	18,860	4,920	9,700	1.000	1440	40350	2,650	150	7.4
Total :: 1	1.1 A83 1.	1 2391	31.	: : 7.57. : [86,890.	1,100	650	83,640	25,410	007.64	2,600	7,760	227.850	13.550	710	

Note : -The species composition observed during the survey -Source of the village profile was based on socio-economic survey team

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	JC NON SI		- 1	THE WORK)	1000000		121		
iof pers	tinee!	Catch	bought	Oïit Oiit	total	eaten	sold	preserved	givenaway	Padek	Dry fish
No.1	8	3,650	•		3,650	1,200	1,000	1,450	1	2,500	•
	6.3	1.720	•	,	1,720	600	500	370	250	10,200	,
	ω	3,300	,	ı	3,300	1,400	1,500	320	100		120
-	6.5	4.090	,		4,090	850	2,000	1,040	200	150	200
	m	5.000	1	•	5,000	750		4 000	250	+000+	•
	5.6	300	1	200	500	400	1	100	-	100	•
Total 1 Av	F AV 6.23	18.060	1	200	18 260	5,200	. 000'S	7,280	003	12,950	320

5.2.Ban Xom Seun(B.Muangmai)

quatic prod preserved form(nr	Dry fish	1,250	1,100	1,530	•	·	•	3,830
quatic prod.pre	Padek	8,500	3,200	4,800	12,000	12,500	48,000	 89,000.
	givenaway	•	•	350	200	•	•	550
Distibution the product (gr)	eaten [>> sold >> preserved [givenaway]	200	-	250	1.560	-	-	2.010
Distibution	🗠 Sold 🖂	4,000	2,300	2,500	4	•	•	3,800
	eaten	1,000	1,100	550	1,000	1.100	730	5,480
gt) () & & &	total	5.200	3,400	3,650	2,760	1 100	130	16,840
ction in aidayi (igi) (pai a	0it U		•	•	•	,		•
ic productio	pought	-	1			•	•	-
(WAR RADIE	Catch	5,200	3,400	3,650	2.760	1.100	730	: 16,840
Average Nos:	or pers/meat	5.6	10	9	12	5.3	5.3	Av. 7.36
SON HH		No.1	No.2	No.3	No.4	No.5	No.6	Total

ANNEX 2.3

No.1 No.2 No.3 No.5 No.5		Aque	Aquatic productio	iction in a day (gc)	(JS)		Vistibution 1	Distibution the product (gr)	(gr)	Quetic prod.p	quatic prod.preserved form(g
No.1 No.2 No.3 No.5 No.5	of pers/meal	Catch	se bought 🛛	Citter Site	and total similar	eaten	sold	preserved	preserved giveneway		Dry fish
No.2 No.3 No.5 No.5	8	2,620	ŀ	1	2,620	620	2,000	•	,		•
No.3 No.4 No.5	6	3,900	1	•	3,900	300	3,400	1	200	4,350	
No.4 No.5 No.5	2	3,200	ı	1	3,200	200	3,000		1	1	
No.5	8.3	2,750	1	1	2,750	250	2,500	•	1	200	1
No 6	7.3	930		•	930	610	E	320	•	550	•
	7	280	1	1	280	280	•	-	•	•	•
Total	AV. 7.7	13.680			13.680	2.260	10.900	320- 320-	200×	100 C 33 400	
HH.No.	Average Nos.	Aque	Aquatic productio	iction in a day (gr)	00		istibution t	Distibution the product (gr)	(dr)	auatic prodipi	quatic prod preserved form(gr
H No	Average Nos	Actis		a in a davit	00	0	istibution	he product.	(ar) (here is	Ministic mod n	termine the second
	of persymeal	Catch		©it ~	total	eaten	sold	preserved	vewened givenaway		Dry fish
No.1	5.3	2,400		1	2.400	1,000	-	1,200	200		•
No.2	9.6	2,750	•	1	2,750	1,050	•	1,500	200	48,000	
No.3	5.6	650	•	۱	650	650	•	•	•	190	•
No.4	6.3	5,660	1	E	5,660	910	4,000	750	•	4,800	ŀ
Totat	AV. 6.7	11,460		the structure of the State	11,460	3.610		3.450	1000	<u>⊳∜:</u> 55,140	
i.s. Ban Tl	5.5. Ban Thakokkhene	-	•		•	-		•			
HH:No.	Average Nos	Aqua	Aquatic productio	ction in a day (gr)	00)		istibution t	Distibution the product (gr)-	(ar)	quetic prod.pr	quetic prodipreserved torm(dr
	of pers/meal	Catch	Dought	Gift	s stotal 🦇	eateo	sold	paviesard	preserved igivenaway		Dry fish
No.1	4	750	•	-	750	750		•			
No.2	8.3	370		,	370	370	,	1	•	1,850	
No.3	5	770		ı	770	270		1	3	,	J
No.4	8.3	870	,	-	870	610	•	260	•	1,500	510
No.5	9.5	710	-	-	710	710	•	•	1	•	•
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SS:3,470 S3,210N

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Total 🔅 🔆

5.6. Ban Nam Tek

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quatic prod.preserved for	Dry fish								20 M
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Dit.		5		-	-				
8	х	1,800	24,000	550	20,000				ų V
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	preserved givenaway	300	200		150				850 850 850 850 850 850 85 850 850 850 8
	ter.	ന			-				8
E	HVE								
5	0 D			0	-	-			
2du	20	200	450	400	250				Ю¥
a	ese								5
the	ud				i				e er
Distibution the product (gr)	sold	8	8	8	8				13 500 2 970 1 3 500
but	20 C	2.700	5,500	3,300	2,000				С. С
isti									۲. X
ρ	eaten	õ	õ	620	700				ģ
	916	600	1,050	õ	К				ğ
	Θ							L	Ň
	3	8	7,200	4,320	8				lç
	otal	4,300	7.2	43	3,100				å
96	 total 								
uction in a day (gr)			-						30
<u>G</u>	H,	•	ŀ	•	•				
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HH.No.	Average Nos	anbe 💠 👔 🚦	Aquatic productio	uction in a day ((30)	Ω	istibution	Distibution the product (gr)	t (gr)	l quatic prod.pr	quatic prodipreserved form(gr
	fot pers/meal	Catch	bought	т Ю	total	eaten .	sold	preserved	preserved givenaway	Padek	Dry fish
No.1	ω	2.620	•	•	2,620	620	2,000	-	-	28,000	•
No.2	σ	3,900	•	,	3,900	300	3,400	1	200	4,350 {	•
No.3	7	3,200	•	•	3,200	200	3,000		1	•	
No.4	8.3	2,750	•	,	2.750	250	2,500	•	•	200	•
No.5	7.3	930	1	•	930	610	,	320	•	550	
No.6	2	280	1		280	280		-			F
Total	: : Av. 7.7	13,680	ł	•	13,630	2,260	10.900	320	200	33,100	
HH No.	Average Nos.	Aque Aque	Aquetic production	in a day (00) X 44 (10	Õ	istibution 1	Distibution the product	(JC)	l quatic prod.pn	eserved form(gr
, oN H	Average Nos	Aque	atic productio	in a day (00) X 14 (16	Õ	istibution 1	the product		i quatic prod pn	quatic prod preserved form(gr
	of persimeal	Catch	bought	0 It	total	eaten	Sold <	preserved	Preserved givenaway	L	Dry fish
No.1	5.3	2,400		•	2,400	1,000		1,200	200		•
No.2	9.6	2,750		1	2,750	1,050		1,500	200	48,000	•
No.3	5.6	650	,		650	650		•		190	
No.4	6.3	5,660	1	•	5,660	910	4,000	750	,	4,800	
Total	F AV: 6.7	11,460	3		11 460	3,610	4,000	3,450	400	55,140	
5. Ban	5.5. Ban Thakokkhene										
HH.NO	Average Nos	Pupper states	Aquatic productio	uction in a day (gd)	gr):(1) < 4	Ö	stibution t	Distibution the product (gr)	(ar)	cuatic prod on	quatic prod. preserved form(or
	of pers/meal	Catch	bought	Gift	total	eaten	sold	preserved	preserved givenaway	Padek	Drv fish
No.1	4	750	,	1	750	750		-	•	200	-
No.2	8.3	370	•	•	370	370		ŧ	•	1,850	
No.3	5	770	r		220	770		r	•	•	
No.4	8.3	870	-	•	870	610		260	•	1,500	510
No.5	9.5	710	-	•	710	210	,	•	•	•	
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Total Av. 7

(cont.)
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ANNEX

5.6. Ban Nam Tek

quatic prod.preserved form(gr.	Dry fish			•	•		ľ
quetic prod.pr	Padek	1.800	24,000	550	20,000		46,350
(ar)	givenaway	300	200	ı	150		650
Distibution the product (gr)	eaten sold preserved givenaway	1 002	450	400	250		18,920: 2,970 13,500 1,800
Distibution t	Sold	2,700	5,500	3,300	2,000		13,500
	eaten	600	1.050	620	200		2,970:
90) * 8 % (1	total	4,300	7,200	4,320	3,100		18.920
luction in a day (gr): 200	Gift	•	•	ŀ	•		 .)
ic productio	bought	•	-	•	-		•
≪it ≪i %Aquat	Catch bough	4.300	7,200	4,320	3,100		18,920
Average Nos	of pers/meal	S	8	7	2		
HHNO		No.1	No.2	No.3	No.4		Total

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 Table 6:Summarised of Aquatic producttion and its distribution and consumption, by village. Second Survey, July 99)

 6.1. Ban Hatkham

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1								F	
ved for	Dry fish	•	2,400		500	•	200		3,100
ð								L.	
a prod pres	Padek	3,400	10,200	2,100	200	5,900	350		22,150
jr) : : : :	givenaway	300		1	200	•	200		002
 Distibution the product (gr) 	preserved	300	450		270	-	350		\1;370:∮
stibution th	sold	1,500	3,200		2,700	3,600	1		017,630; [*1, 4, 180] 014,000 [*1,370]
Ō	eaten	026	890	780	820	200	520		4 180
(BO)	🏹 total 🔅	3,070	4,540	780	3.740	3,800	1,700		17,630
on in a day	Gift	•		1	-	•	-		
titic producti	⊠bought ∷	•			•		-		att of the other
Aque	Catch	3,070	4,540	780	3.740	3,800	1,700		17,630
Average No	of pers/meat	10.3	7	9	6.3	e	9	38.6	6.4
H.NO.		No.1	No.2	No.3	No.4	No.5	No.6		Totat

6.2.Ban Xom Seun(B.Muangmai)

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									_
served for	Dry fish	•	700	2,200	3		•		88,750 2,900
tic prod. preserved for	Padek	9,550	4,600	4,600	12.500	11,500	46,000		88,750
3r):	givenaway	150	•	•	-		•		1051
Distibution the product (gr)	preserved	1,000	150	•	200	500	ł		SS 1,850
stibution th	sold	3,000	2,000	1.500	6,000	•	1,300		5,130 13,800
Di	oaten	720	800	710	1,300	1,150	450		5,130
(gr) 🔅 👘	total	4,870	2.850	2,210	7,500	1,650	1,750		20,830
itic production in a day (gr)	Gift		•	•	•	-	1		
tic producti	bought	•	• •	1	,	1	•		
Aqua	Catch	4,870	2,850	2,210	7,500	1.650	1,750		20,830
Average No	of pers/meal	9	7.6	9	10	7.3	9	42.9	7.15
EF.No.		No.1	No.2	No.3	No.4	No.5	No.6		[Total]

ANNEX 2.4

6.5. Ban Thakokkhene

ANNEX 2. 4 (Cont..)

		~ _						_	- 20. B
served for	Dry fish	L	•	•	1	1			
tic prod.pre	Padek	500	1,200	•	1.000	1,200			3,900
	Jivenaway	•	-	•	-	1			
Distibution the product (gr)	preserved	•	•	220	•	630			850
stibution the	sold pie	-	•		-	-			
ŏ	eaten	400	1,100	600	1,130	1,150			4,380
00	total	400	1,100	820	1,130	1,780	-		5,230
in in a day	Gift	200	1			•			00 200 200
ic productio	tubnod 1	4	500	300	300	•			1 100
Aquat	Catch		600	520	830	1,780			3,930
Average No	of pers/meal	5		2	8	10	37		7.40
HH NO.		No.1	No.2	No.3	N0.4	No.5			Total

6.6. Ban Nam Tek

THE NO.	Average No	Agual	ic producti	ion in a day (gi	(CD)	SIQ.	stibution: th	Distibution the product (gr)	(JD) (JD	tic prod. pres-	served for
	of pers/meal	Catch	bought	Cift.	in total	eaten	sold preser	preserved g	Givenaway	Padek	Dry fish
No.1	5	4,750	, •	1	4,750	650	4,000	•		1,800	1,500
No.2	8.3	3,970	•	t	3,970	1,470	2,500	1	•	26,500	2,500
No.3	4	1,820		1	1,820	420	1,200	200	1	500	250
No.4		6,150	•	1	6,150	850	5,000	•	300	22,500	•
	24.3										
Total	608	6.08 16,690			06900	r≠:>> [\ 16,690 \\ 33390 \ 12.700 \ 3 \ 200	12,700	∭ (S = 200)	‡		4,250

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

erved for	Dry fish	•	2,400		500	•	200		3,100
a prod prese	Padek	3,400	10,200	2,100	200	5,900	350		×700 22,150 3,400
gr) (16	givenaway	300	•	-	200	,	200		C est
Distibution the product (gr)	preserved	300	450	-	270	-	350		1.370
istibution th	soid	1,500	3,200	-	2.700	3,600	•		<u>☆17.630 ♡☆4,180 √14,000 ♡☆</u>
Q.	eaten	026	890	780	820	200	520		
(en)	i ∂tota li≊i	3,070	4,540	780	3,740	3,800	1,700		029771
ion in a day	Gift	-	-	-	-	•	-		
atic product	🖉 bought	•	-		•	•	•		
Aque	Catch	3,070	4,540	780	3,740	3,800	1,700		17,630
Average No	of pers/meat	10.3	7	9	6.3	3	9	38.6	6.4
HH.No.		No.1	No.2	No.3	No.4	No.5	No.6		Total

6.2.Ban Xom Seun(B.Muangmai)

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10C	Ę		8	2,200		Γ		[ę
served	Dry fish	•	1	2,2	1	'	•		000
tic prod.pre	Padek	9,550	4,600	4,600	12,500	11,500	46,000		150 88.750
gr)	g:venaway	150	1	•	1	1	•		0 51 000
Distibution the product (gr)	preserved g	1,000	150	,	200	500	•		1850 S
stibution th	sold	3,000	2,000	1,500	6,000	•	1,300		13 800
Ō	eaten	720	008	710	1,300	1,150	450		20,830.1 5 130 1 13 800
(90)	<pre>total:</pre>	4,870	2,850	2,210	7,500	1,650	1,750		20.830
iction in a day	💮 Gift 💿	•	-	•	-	-	,	_	
atic producti	bought	•		•		3	•		
Aque	Catch	4,870	2,850	2,210	7,500	1,650	1,750		20.830
Average No	of pers/meal	9	7.6	9	10	2:3	9	42.9	
E.Ko.		No.1	No.2	No.3	No.4	No.5	No.6		Total

ANNEX 2.4

ANNEX 2.4 (Cont..)

6.3. Ban Nampa

served for	Padek Drv fish	1.500	1.000		.		150		2,650
tic produpte	Padek	27.500	6,700	3.700	1.700	750			40(350
gr)	yawanaway	1	150	•	400	,	450		000.1
Distibution the product (gr)	preserved	1	1	120	1,000	•	320		₿ ₩
istibution th	sold	4,000		1,500	3,000	 	1 000	L	4,920 9,700
Q	eaten	720	1.250	650	800	600	006		$\sim 10^{-1}$
(8)	📔 😢 total)	4,870	3,350	2,270	5,200	600	2,570		250 18,860
ion in a day	Gift	•		1	•	250	8		250
alic product	bought		1	1		•	•	E	
Aqui	Catch	4,870	3,350	2,270	5,200	350	2,570		18,610
Average No	of persimeal	7.5	7.6	7	6	7	6.3	44.4	7.40
EH.K.		No.1	No.2	No.3	No.4	No.5	No.6		Total

6.4. Ban Songkhone(Nam Ngiep)

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HI.NO.	Average No	Aqua	tatic production in a day	IOR IT a Cay	CB)	ð	stibution th	Distibution the product (ar)	ar):	tic orod ner	Served for
	of pers/meal	Catch	bought	Star Ciff.	total	eaten	Sold	oreserved	DIVENTIMEN		Padek Dov fich
40.1	8	1,550		•	1,550	800		750			950
10.2	7	2,100	•	•	2,100	760		1.140	200	49 700	8
Vo.3	6.6	2,000	•	200	2.200	1002	.	1 250	250	4 250	
lo.4	6.6	3,550		•	3.550	1.150	2 500	350			•
	28.2										•
otati 🛛 🔬	202 S	9,200		14 M 1200	200 2 3 400		3:410:1	007 2000	A CONTRACTOR	V. 2004 750 4 2000	0000

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

H.	JURITIC DEODUCTION	te production in	cj (a day	(:C1):-(:><	Dis	stibution th	Distibution the product (gr)		άġ –	erved for
	instructures:	1. 10190.	<u>vugiri </u>	ź	10101	נקונוו	ゴラク	preserved juveliaway	Arvenavay	LAUCH	
	10.3	3,070	-	1	3,070	970	1,500		300	3,400	•
40.2	2	4,540	•	1	4 540	068	3,200	450	•	10,200	2,400
40.3	9	780	•		780	780		3		2,100	
	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	
	9	1,700	-	-	1,700	520	•	350	200	350	200
	38.6										
. 	6.4	17,630			17,630	4,180	11,000	1.370	1002	22,150	3,100

6.2.Ban Xom Seun(B.Muangmai)

•

LIH.NO.	Average No	supA. Ngus	ttic producti	on in a day	latic production in a day (-gr)	Ĭ	stibution th	Distibution the product (gr)	gr)	tic product	tic produpteserved for
	tof pers/meal	Catch	bought	Gift	total	- searen :	: sold :	estenent sold preserved givenaway	Givenaway	Padek	Dry fish
No.1	9	4,870	•	•	4,870	720	3,000	1,000	150		•
No.2	7.6	2,850	••	•	2,850	800	2,000	150	1	4,600	200
No.3	9	2,210	•	•	2,210	710	1,500	1	•	4,600	2,200
No.4	10	7,500	•	-	7,500	1,300	6,000	200	1	12,500	1
No.5	7.3	1,650	-	•	1,650	1,150		500	•	11,500	•
No.6	9	1,750	,	,	1,750	450	1,300	1	•	46,000	1
	42.9										
Totat	1 : 7.15	20.830		r :	20.830	5,130	13,800	1.850	150	88,750	2,900

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1	Pone	Itc: broadch	atte production in a day (gr)	(GC) (S)	ň	stibution th	Distibution the product (gr)	() t	Itic produpreserved for	Served tor
neel	Catch	bought	UIF C	total	eaten	sold	Deviasard	preserved givenawav		Drv fish
	4,870	-	•	4,870	720	i 1		•		1 500
	3,350		•	3,350	1,250	200		150	6 700	0001
	2,270	•		2,270	650	1 500	120		2,700))
	5,200	1		5,200	800	3 000	1 000	400	1 700	
	350	•	250	600	600				750	
6.3	2,570	•		2,570	005	1 000	320	450	}	7
44.4		•								3
7.40	18,610	1	250	13,860	4,920	002 6	1 440	1 000	250 250	0 840

6.4. Ban Songkhone(Nam Ngiep)

ON THE	Average No	enby: Soles	iatic production in a day (gr) ** :	Dinin a day.		<u></u>	stibution ti	Distibution the product (gr)		the order ore	ireserverting
	of pers/meal	Catch	: bought :	Gitt	total	seaten is it	sold	Ereserved of ventryev	Ventrvav	Dadek	
No.1	80	1,550		{ 	1,550	800	-	750	-		040
No.2	2	2,100	•	,	2.100	760	•	1 140	200	700 49 700	3
No.3	6.6	2,000	,	200	2.200	200		1 250	040		
No.4	6.6	3.550			3 550	1 1 5 0	2 500	022	2		•
	28.2))))		2007	2020	•	0.100	•
Total	7:05	9 200	- - - -	200	200 9,400	3,410	2.500	3.490	450	61 750	950

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6.5. Ban Thakokkhene

0 400 400 - - - 500 1,100 1,100 - - - - 1,200 820 600 - 220 - - 1,200 1,130 1,130 - - 220 - 1,200 1,780 1,150 - - - 1,000 - 1,200 0 5,230 4,380 - 630 - 1,200 - 1,200		Aquatic producti	on in a cay	(gr) total	Dis Dis	stibution th	Distibution the product (gr)	gr) Givenawav	Dic prod. preserved for anaway Padek Dry fish	sserved for Drv fish
1,100 - - - 600 - 220 - 1,130 - - - 1,150 - 630 - 1,150 - 630 - 4,380 - 850			200	400	400		-		500	
600 - 220 - 1,130 - - - 1,150 - 630 - 4,380 - 850 -	<u>50</u> 600 50	lo		1,100	1,100		•	•	1,200	1
1,130		6		820	600		220	1	1	1
1,150 - 630 - 1	830 300		•	1,130	1,130	•	•	•	1,000	1
4,380	1,780 -		•	1.780	1,150		630	•	1.200	۰
4.380										
4,380		_				-				
	3 930 1 100		200	5 230	- CO. O		850		3,900	

6.6. Ban Nam Tek

ğ	Ę	g	g	250				ß
served	Dry fis	1,500	2.5(ö	•			4,250
tic prod.preserved for	Padek		26,500	500	22,500			300.]51,300 [
	enaway	ı	-	1	300			
Distibution the product (gr)	preserved givenaway	-		200	1			16.690 3390 12.700 200 200
stibution the	sold	4,000	2,500	1,200	5,000	_		12,700
ä	eaten	650	1,470	420	850			062 200
(JU)	total **	4,750	3,970	1,820	6,150			16,690
on in a dav	⊂ Gift		•	F	ſ			
tic producti	l bought			1				
Actua	Catch		3,970	1.820	6,150			16.690
Average No	of ners/meal	5	8.3	4	<u> </u>		24.3	5 08 C
HH NO		No.1	No.2	No 3	No.4			Total

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ANNEX 2. 4 (Cont..)

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

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

6.5. Ban Thakokkhene

IAverace No	of the local we don't	ualic production in a day (gr)	on in a day	(00) = (00)	Dis	stibution th	Distibution the product (gr)	gr)	tic prod. preserved for	served for
mea	Catch	bought	Cit	total	s: eaten: :	s sold s	preserved	preserved givenaway	Padek	Dry fish
			200	400	400	•	•	•	500	•
	600	500		1.100	1,100		-	-	1,200	I
~	520	300	•	820	600		220	•	I	•
0	830	300		1,130	1,130		•	•	1,000	•
	1.780		 	1.780	1,150	1	630	-	1,200	1
37										
740	3.930	1 100	200	5,230	5,230 4,380	1. -	850		3,900 [•

6.6. Ban Nam Tek

HH NN S	AVACAGE NO		atic production in a day ("or)" with	on in a dav	(Cor): North	<u>й</u>	stibution th	Distibution the product (gr)	ar)	tic prod. preserved for	served for
	of pers/meal	Catch	bouaht	Gift	total	eaten A sold 5	Sold (preserved givenaway	givenavay	Padek	Dry fish
No 1	5	4.750		ſ	4,750	650	4,000	-	E	1,800	1.500
No.2	0 0 0	3,970	•		3,970	1,470	2,500	•	•	26,500	2,500
E C Z	4	1.820		1	1.820	420	1.200	200	1	500	250
N0 4	~	6,150	•		6,150	850	5,000		300	22,500	•
	24.3										
Totat	6.08	16,690	. I 	1	16 690	3,390	12,700	200	. 300:	51 300	. 4,250

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ANNEX 2. 4 (Cont..)

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

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

Form No.1. BOAT CENSUS OF FISHING ACTIVITY

Section No. From: to: Distance : Km.			Date : Starting time : Finishing time :	
			Nui	nbers
			· Left bank	Right bank
Fishing boats	With out motor	In use		
		Not in use		
-	With motor	In use		· ·
		Not in use		
Transportation boats	Passenger boa	at		
	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	·			
	L		1	1

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Nam Ngiep Hydropower project, Downstream fisheries monitoring

ANNEX 2.7.

Form No.2. SUBSISTANCE FISHERY MONITORING(FISH PRODUCTION AND CONSUMPTION) Date: Village Name : House hold name: Total House hold member

Catch bought rom other to be to be to be best at a kind to be to be best at a kind to be to be best at a kind to be be best at a kind to be be best at a kind to be best at a kind to be best at a kin	Morming Duning Duning breakfirst At noon Lunch Time Lunch Time Evening Befor dinner	ponght	rom other				-			
	Morning During breakfirst At noon Lunch Time Lunch Time Evening Befor dinner			to be eaten	to be sold	to be	to be	pers.eat	kg sio//cio	from
It noon It noon Unch Time It noon Unch Time It noon Unch Time It noon Evening It noon Evening It noon Evening It noon Sefor dinner It noon It noon It noon It noon It noon Sefor dinner It noon It noon <	At noon Lunch Time Evening Befor dinner								52 22 8	
Evening Evening Befor dinner ish reservation reservation adek (gr) Dry fish (gr) Dry fis	Evening Befor dinner									
ish reservation Padek (gr) Dry fish (gr) Shing gear sed Vhere fishing Ios.of person do fishing	-									
shing gear sed Vhere fishing los.of person do fishing	Fish preservation Padek (gr) Dry fish (gr)			_						
Vhere fishing los.of person do fishing	fishing gear used									
los.of person do fishing	Where fishing									
	Nos.of person do fishing									

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