CHAPTER - 3

GENERAL APPROACH FOR RESETTLEMENT SURVEY & PLANNING

3. GENERAL APPROACH FOR RESETTLEMENT SURVEYS & PLANNING

3.1. RESETTLEMENT IMPACTS

As discussed above in the section on Areas Affected and Served by the Project, a reconnaissance field visit August 25-28, 1998 for the IEE found the reservoir area population to be more built up than anticipated. Instead of around an expected 2,000 people, it found the overall reservoir area population to be more than double this figure, at somewhat less than 5,500. While some highland *Lao Soung* in the lower reaches of the reservoir would be impacted by inundation, in the Upper Reservoir far more lowland Lao majority population categorized by the Government as *Lao Loum*, would be affected, as well as *Lao Theung*, a middle hills peoples.[1]

Based on the reconnaissance visit, it was possible so far as socioeconomic aspect are concerned to see the Nam Ngiep as having three Impact Zones: the Upper Reservoir; the Lower Reservoir; and the Downstream Villages.

The reconnaissance team also found considerable government-supported irrigation development in the reservoir. The extent of this was confirmed by a socioeconomic survey, carried out December 1998-January 1999. This survey found about 650ha of irrigated rice paddy, with 150ha more planned by GOL instead of, as was originally assumed, only dry evergreen tropical forest, temporary or permanent agricultural areas, degraded forest, old re-growth and fallow resulting from shifting cultivation in the reservoir area. In addition, the Upper Reservoir Area is a national Focal Area for Rural Development (FARD), making it a resettlement receiving area for highland populations, and the Lower Reservoir Area has been under a UNDP development project for a couple of decades.

The socioeconomic survey was extended to the downstream area in March 1999. According to the socioeconomic survey of the Project Area, overall, including both Upstream and Downstream Affected Areas, nearly 2,000 households and 12,000 persons may be affected to one degree or another by the NNHP. About 660 households and 5,000 persons in 14 villages are in the Upper Reservoir and another 200 households and 1,200 persons in 4 villages the Lower Reservoir could potentially be affected by involuntary resettlement. For Downstream Villages, about 1,000 households and 6,500 people in 14 villages would be affected through changes in the Nam Ngiep river flow and water.

At FSL.360m, the reservoir will flood 17 villages consisting of some 853 households

[1] The Lao PDR is officially a multiethnic nation with more than forty ethnic groups, classified into three general families: *Lao Soung* (upland Lao) 10 percent of population in 1993; *Lao Theung* (midland Lao) 24 percent; and *Lao Loum* (lowland Lao), 66 percent. The term Laotian is used for the national population; Lao for the ethnic group. Andrea Matles Savada, ed. 1994. *Laos: A Country Study*. Washington, DC: Federal Research Division, Library of Congress.

with a population of 5,204. More than 800ha of irrigated paddy land built through GOL or UNDP aid schemes would be inundated. Mitigation includes resettlement and compensation for the displaced population.

The following table illustrates which villages will be affected at the FSL.360m and FSL.320m level. While not all villages would be submerged even by the 360 alternative, their rice lands are all situated along the Nam Ngiep River and its territories at low levels. So we can assume that virtually all the villages would require resettlement if the 360 MASL dam is chosen for implementation.

The recommended mitigation at this time is to consider the lower design alternative. The initial thinking was that lowering FSL to EL.320m would reduce the number of affected villages down to 5 villages. There is not enough information at this time, however, to determine what the amount of backwater effect, i.e., the how much higher the water at the back of the reservoir will be. We would assume about 2m, including a safety margin. Therefore, consideration of back water effect indicates that EL.318m might be necessary to protect the majority of irrigated paddy land in belonging to the Upper Reservoir villages, nearly 300ha of the total reservoir paddy land. A 318m dam would reduce the affected population down to 260 households and about 1,600 people.

Besides the backwater effect, at the end of ten years from now, when one might assume resettlement to be completed, the current population will have been increased by natural increase (nationally at 2.6% and in Xaysomboon at 3%) and by in-migration, since the Upper Reservoir Area is a Focal Area for Rural Development (FARD), located within a river valley and along a national highway. Although this Preliminary Resettlement Plan (PRP) will use the above figures, for planning sake all quantities and financial evaluations will be increased by 30% to account for natural population increase and for in-migration over a ten year period ending in 2010.

Table 3.1 indicates GPS elevations of the reservoir and how, though not taking into account backwater effects, the two dam heights of FSL.360 and FSL.320m would effect villages agricultural fields. Further studies will profile the backwater effects.

Table 3.1 Numbers Of Households And Population In Reservoir Area Villages And Elevation (Yellow FSL.360m Dam Option And Blue FSL.320m Dam Option)

	Area	Households	Population	Elev.(m)
Upper Reservoir:		*659*	*3,997*	
1.	B. Phonehom	67	375	368
2.	B. Namlong	17	107	364
3.	B. Xiangkhong	39	247	362
4.	B. Nakang	25	132	355
5.	B. Nahong	75	446	342
6.	B. Viengthong	46	273	339
7.	B. Naxay	22	125	332
8.	B. Naxong	81	522	330
9.	B. Phonyeng	63	349	328
10	B. Dong	82	509	327
11	B. Hatsamkhone	27	174	326
12	B. Phiangta	49	322	323
	B. Pou	56	416	319
Lower Reservoir:		*194*	*1,207*	
	B. Houaypamon	18	127	275
	B. Namyouk	86	540	271
	B. Sopphouh	23	132	261
	B. Sopyouk	67	408	245
TOTAL:		853	5,204	

The following tables indicate the estimated economic loss through inundation at the two dam heights of FSL.360m and FSL.320m. These rough calculations indicate an economic loss to the Reservoir Area in round figures of US$21,755,000 for the FsL.360m and US$6,800,000 for the FSL.318-320m dam. These figures are based on the socioeconomic survey carried out in December 1998 and January 1999. They are indicative only, and a more accurate population, assets and natural resources census will be part of further resettlement planning in the next study phase.

Table 3.2 Estimated Village Resource Losses (Assuming 360m Dam and 853 HH Affected through Loss of Paddy and Other Agricultural Lands)

DESCRIPTION	UNIT COST	NUMBER	COST
INFRASTRUCTURE			
Houses (*Tile Roof Houses* $6,500 and 104 M² per house, 10 HH, at cost of $63/M²; *Corrugated Sheet Roof Houses* $5,500 and 130 M² per house, 61 HH, at cost of $42/ M²; *Wooden Roof Houses* $3,500 and 96 M² per house, 91 HH, at cost of $36/ M²; *Bamboo/Thatch Roof Houses* $500 and 60 M² per house, 691 HH, at cost of $8/ M²)	US$25/M²	41,460 M²	US$1,064,500
Shops ($5,500 and 130 M² per shop, 25 shops, at cost of $42/ M²)	US$42/ M²	3,250 M²	US$136,500
Village Land (.04 Ha per HH, including for houses, infrastructure and graveyards)	US$1000/Ha	35 Ha	US$35,000
Administration Buildings	US92/ M² (.39 million kip/M²)	304 M²	US$30,000 (118.56 m kip @ US$4,210.Figure Rounded upward)
Schools			
Village Primary Schools (14 primary schools in the reservoir area, not counting the 2 Japanese donated schools)	US$25/ M²	1,352 M²	US$33,800
Japanese donated Primary Schools in B. Sopyouk and B. Namyouk	$214/M²	588 M²	US$125,832
Secondary School in B. Dong	US92/ M²	300 M²	US$27,600
Total Schools:		US$187,232	
Hospitals & Clinics (Taviang Hospital at 128 M² and Viengthong and B. Piangta dispensaries at 48M² each)	US92/ M²	224 M²	US$20,608
Highway (Upgraded *National Road 1*, at 30 km of 7m wide bituminous highway with 1m shoulders. Part of the 1,062 'backbone' highway from Yot Ou at China Border to Cambodia Border. Other is one of the planned 'Transverse Roads' *National Road No. 5*, 110 km from Houaymo at Junction NR 13 to Vietnam border. Lao PDR. Ministry of Communication Transport Post and Construction. *Decision on Numbering and Referencing System of the Road Network and the Numbering of National Roads.* No. 1311. June 2, 1997.)	$225,000/Km	50 km	US$11,250,000
Other Roads (Provincial, District). (*North to South Road* through B. Nakong to Junction National Road No. 5, 40 km along reservoir, from B. Sopyouk. Transverse *Road 94*, from Muang Hom to Junction with National Road No. 1, 20 km. Assuming no bridge over Nam Ngiep. ADB TA 2889-LAO, Rural Access Roads Project)	US$85,000/Km	60 km	US$5,100,000
Total Roads:		US16,350,000	
Transmission Lines (ADB Transmission Line from N. Leuk HEP through Taviang to B. Thathom and through B. Sopyouk. $50,000 per kilometer. 60 km to be re-routed. ADB-financed *Power Transmission and Distribution Project* (Loan No. 1558-LAO (SF). 158 KM of 115 KV Transmission Line from Nam Leuk Hydropower Station to Xieng Khuang Municipality (Phonsavan), extension of Nam Leuk Hydropower Station Switchyard, 115/22 KV Substation at Phonsavan, Shieldwire Distribution along the Transmission Line and conventional Distribution in Phonsavane and surrounding areas. The 115 KV Transmission Line pass by Longsane, *Hom*, Xaysomboon, *Thathom* and Khun Districts)	US$50,000/Km	5 km	US$250,000

DESCRIPTION		UNIT COST	NUMBER	COST
AGRICULTURAL ASSETS				
Paddy Land (Wet and Dry Season Irrigated) (*.18 Ha/HH.* *For Headworks*, 2.7 million kip per ha, reported by local government as actual costs. US$550/Ha rounded off @ 4,210 k/US$. Compared with $300/Ha reported for B.Kengsan, N. Leuk HEP. *For Preparation Of Land*, (bunds, fences, canals, etc). $35,000/20 Ha at B. Kengsan Terrace, Nam Leuk HEP. *Production.* (Yield at 3 ton/ha paddy. Average cost per paddy US$200/ton = US$600 per Ha x 3 years = US$1,800 plus 20% or for dry season irrigation = $2,160. .05 Ha/HH dry season irrigation.)	Construction Costs			
	Headworks	US$550/Ha	150 ha	US$82,500
	Villagers Preparation Of Land	US$1,750/Ha	150 ha	US$262,500
	Sub Total Construction Costs (Average $2,300 per ha): US$345,000			
	Compensation Costs			
	Production	$2,160 per Ha	150 Ha	US$324,000
	Sub Total Compensation Costs:			**US$324,000**
Total Paddy Acquisition:			**US$669,000**	
Rainfed Paddy (Wet Season) (*.65 Ha per HH* (2.5 ton/ha/yr at 3 years, $200 per ton paddy)	Preparing Fields (bunding, fences, etc)	US$1,750/Ha	559 Ha	US$978,250
	Loss of Production	US$1,500/Ha	559 Ha	US$838,500
Total Rainfed Paddy:			US$1,816,750	
Upland Rice (.37 Ha per HH *Loss of Production.* 1.5 ton/ha/yr for 3 years. Cost of paddy $200/ton. US$1,335,600)	Preparing Fields (Three Seasons)	US$600/Ha	312 Ha	US$187,200
	Loss of Production	US$900/Ha	312 Ha	US$280,800
Total Upland Rice:			**US$468,000**	
Gardens **(.12 Ha per HH, so 512 Ha Total Gardens.** **Compensation at $50-200 per HH per year.** **Cost of site preparation work: $50 HH.** Cost of fruit tree nurseries for 5 years: $ 20/HH. Approximately $100 per HH for loss of fruit/vegetables)		US$100 per HH	853 HH	US$85,300
Forest and Pasture Lands **(5 Ha per HH. Itemized (Assuming 3 years to re-establish economy in resettlement or other area):** *Loss of Timber Resource*, 1.5m³/ha/yr @ US$ 100/m³ for 3 years. 0.8 ha/HH. Total 695.2 ha Private and Village Management Forest. $104,280 potential value for 3 years. Judging by size of sawmill in B. Sopyouk, actual production, maybe 1/3rd of this, $34,760. *Loss of Non-Timber Resource.* $100 per Ha, given $75-125 in NT2. 0.82 ha/HH for Private, Village Management and Conservation Forest, Total of 709.7 Ha. Potential of $70,970 times 3 years = $212,910. Actual probably 1/3rd of this, or $70,970. *Loss of Bamboo Resource.* Re-growth 10m³/ha/yr @ US$ 25/m³. 4ha/HH for Private, Village Management and Conservation Forest. Total 709.7 Ha. $250/Ha = *$177,425* for 1 year, or 1/3rd actual of the potential for 3 years.) **Loss of Pasture Resource.** Number of livestock & cattle to move reflects grazing area. 2 buffalo per HH, 1 cattle per HH. Standing crop: 60 kg livestock biomass/Ha. Annual take off 10%/Year @ US$1/kg meat. Total 1,706 buffalo and 853 cattle. 300kg per buffalo 200kg per cattle. Total 511,800 kg buffalo and 170,600 kg cattle, equals 682,400 kg meat, or $642,400 for 1 year at 10% take off = $68,240. For 3 years production, during which community re-establishing, $204,720.)		US$150/Ha	4,265 Ha	US$639,750
TOTAL:			**US$21,752,640[2]**	

[2] NOTE: Minus Road and Transmission Line Relocation = Approximately $5,152,640

Table 3.3 Estimated Village Resource Losses (Assuming 318-320m Dam and 260 HH Affected Through Loss of Paddy And Other Agricultural Lands)

DESCRIPTION			UNIT COST	NUMBER	COST
INFRASTRUCTURE					
Houses (*Tile Roof Houses* $6,500 and 104 M² per house, 8 HH, at cost of $63/M²; *Corrugated Sheet Roof Houses* $5,500 and 130 M² per house, 19 HH, at cost of $42/ M²; *Wooden Roof Houses* $3,500 and 96 M² per house, 33 HH, at cost of $36/ M²; *Bamboo/Thatch Roof Houses* $500 and 60 M² per house, 200 HH, at cost of $8/ M²)			US$20/M²	18,470 M²	US$372,000
Shops ($5,500 and 130 M² per shop, 2 shops, at cost of $42/ M²)			US$42/ M²	260 M²	US$10,920
Village Land (.04 Ha per HH, including for houses, infrastructure and graveyards)			US$1000/Ha	10 Ha	US$10,000
Administration Buildings			US92/ M²	0 M²	US$00,000
Schools					
	Village Primary Schools (3 primary schools, not counting the 2 Japanese donated schools)		US$25/ M²	152 M²)	US$3,800
	Japanese donated Primary Schools in B. Sopyouk and B. Namyouk		$214/M²	588 M²	US$125,832
	Secondary School		US92/ M²	0 M²	US$0.00
Total Schools:			US$129,632		
Hospitals & Clinics			US92/ M²	0 M²	US$0.00
Highway			$225,000/Km	00 km	US$0.00
Other Roads (Provincial, District). (North to South Road through B. Nakong to Junction National Road No. 5, 40 km along reservoir, from B. Sopyouk. Transverse Road 94, from Muang Hom to Junction with National Road No. 1, 20 km. Assuming no bridge over Nam Ngiep. ADB TA 2889-LAO, Rural Access Roads Project)			US$85,000/Km	60 km	US$5,100,000
Total Roads:			US5,100,000		
Transmission Lines			US$50,000/Km	0 km	US$000,000
AGRICULTURAL ASSETS					
Paddy Land (Wet and Dry Season Irrigated) (*.18 Ha/HH.* *For Headworks*, 2.7 million kip per ha, reported by local government as actual costs. US$550/Ha rounded off @ 4,210 k/US$. Compared with $300/Ha reported for B.Kengsan, N. Leuk HEP. *For Preparation Of Land*, (bunds, fences, canals, etc). $35,000/20 Ha at B. Kengsan Terrace, Nam Leuk HEP. *Production.* (Yield at 3 ton/ha paddy. Average cost per paddy US$200/ton = US$600 per Ha x 3 years = US$1,800 plus 20% or for dry season irrigation = $2,160. .05 Ha/HH dry season irrigation.)	Construction Costs				
	Headworks		US$550/Ha	47 ha	US$25,850
	Villagers Preparation Of Land		US$1,750/Ha	47 ha	US$82,250
	Sub Total Construction Costs:		US$108,100		
	Compensation Costs				
	Production		$2,160 per Ha	47 Ha	US$101,520
	Sub Total Compensation Costs:		US$101,520		
Total Paddy Acquisition:			US$209,620		

Rainfed Paddy (Wet Season) *(.65 Ha per HH* (2.5 ton/ha/yr at 3 years, $200 per ton paddy)	Preparing Fields (bunding, fences, etc)	US$1,750/Ha	169 Ha	US$295,750
	Loss of Production	US$1,500/Ha	168 Ha	US$253,500
Total Rainfed Paddy:			US$549,250	
Upland Rice (.37 Ha per HH *Loss of Production.* 1.5 ton/ha/yr for 3 years. Cost of paddy $200/ton)	Preparing Fields (Three Seasons)	US$600/Ha	96 Ha	US$57,600
	Loss of Production	US$900/Ha	96 Ha	US$86,400
Total Upland Rice:			US$144,000	
Gardens (.12 Ha per HH, so 612 Ha Total Gardens. Compensation at $50-200 per HH per year. Cost of site preparation work: $50 HH. Cost of fruit tree nurseries for 5 years: $ 20/HH. Approximately $100 per HH for loss of fruit/vegetables)		US$100 per HH	260 HH	US$26,000
TOTAL:			US$6,766,422[3]	

3.2. MEASURES TAKEN TO MINIMIZE RESETTLEMENT

The NNHP's environmental and social impacts study is being carried out at an earlier stage in the project design cycle than is usually the case. As a result, and perhaps for the first time in the Lao PDR, environmental and social considerations will directly influence the conceptual design of the project and allow for, as much as possible, the reduction of impacts by design adaptation.

The identified magnitude of impacts from the initial design, moving resettlement requirements from an expected1,400 people up to more than 5,000 people should lead the JICA Study Team to consider alternative options having less impacts. This increase in the population affected by inundation is the primary and major direct environmental and social effect resulting from the project as currently conceived.

The objectives of the ADB's policy on involuntary resettlement are to (i) avoid involuntary resettlement wherever feasible; and (ii) minimize resettlement where population displacement is unavoidable, and ensure that displaced people receive assistance, preferably under the project, so that they would be at least as well-off as they would have been in the absence of the project, as contemplated in the following paragraphs (ADB 1995).

In the absence of its own policy, the Lao PDR currently follows the World Bank's OD4.30 on involuntary resettlement matters. The first objective of the World Bank's OD4.30 on Involuntary Resettlement reads, "Involuntary resettlement should be

[3] NOTE: Minus Road Relocation = Approximately $1,646,422.

avoided or minimized where feasible, exploring all viable alternative project designs. For example, realignment of roads or reductions in dam height may significantly reduce resettlement needs" (World Bank, 1990). The draft "Resettlement Policy for all Projects in Lao PDR" also states as one of its objectives that "The project design must endeavor to avoid or minimize resettlement or negative effects to the environment, social and economic condition of people" (Lao PDR, 1997).

From the above, it is self evident that a first consideration will be given to alternative Project designs to minimize resettlement, hopefully to avoid altogether resettlement in the built up Upper Reservoir Impact Zone. The *Feasibility Study* is taking place early enough in the Project's design to assess the impacts of more than just the currently proposed high dam.

The Feasibility Study will, nevertheless, prepare a draft resettlement plan based on a worse case scenario of full resettlement impacts being recognized. The currently proposed high dam would affect a total present population of around 5,500 people in just less than 850 households, with not quite 450ha of paddy riceland and more than 800ha hof land overall.

Whether resettlement is minimized or the NNHP's impacts are those of the currently proposed high dam of FSL360m, the World Bank's OD4.30, provides a standard for preparing a draft resettlement plan. This guideline has been adhered to by the ADB's policies as well as in the current draft Lao PDR policy on involuntary resettlement.

Where displacement is unavoidable, resettlement plans should be developed. All involuntary resettlement should be conceived and executed as development programs, with resettlers provided sufficient investment resources and opportunities to share in project benefits. Displaced persons should be (i) compensated for their losses at full replacement cost prior to the actual move; (ii) assisted with the move and supported during the transition period in the resettlement site; and (iii) assisted in their efforts to improve their former living standards, income earning capacity, and production levels, or at least to restore them. Particular attention should be paid to the needs of the poorest groups to be resettled.

The *Feasibility Study* surveys will provide a means of assessing the resettlement impacts of alternative Project designs. They will also establish baseline data for incomes and expenditures, occupational and livelihood patterns, use of resources, arrangements for use of common property, arrangements for systems of production and local resource use, social organization, leadership patterns, community organizations, and cultural parameters. This data will provide a basis for eventual evaluation and monitoring of the project impacts, should the project be implemented.

The recommended mitigation at this time is to consider a lower design alternative. The initial thinking was that lowering FSL to EL.320m would reduce the number of affected villages down to 5 villages. However, consideration of back water effect indicates that FSL.318m might be necessary to protect the majority of irrigated paddy land in belonging to the Upper Reservoir villages, nearly 300ha of the total reservoir paddy land. The 318m dam would reduce the affected population down to 260 households and about 1,600 people.

The catchment area is presently almost devoid of all-weather roads. Creation of the reservoir will provide 90km long transportation axis for boats linking the dam site to the upper reservoir area. However, the positive effects may be partly cancelled if the Upper Reservoir population is resettled far away. If the lower dam alternative is chosen, the impact may be very positive, linking the Upper Reservoir villages to dam site by boat and Pakxan by road. Berthing facilities will need to be implemented according to the seasonal drawdown of the reservoir.

The Upper Reservoir communities will also become strategically placed at a national level, as plans go forward to upgrade National Road 1 from Boten on the Chinese border southward through the middle of the Lao PDR to the Cambodian border. This new highway will run parallel to the North South National Road 13 along the Mekong River.[4] In the Upper Reservoir Area the new highway will be along the alignment of the old National Route 4, which runs through the communities that would be inundated by the 360m dam. With the building of National Road 5, which will be an East-West highway connecting Vientiane with Vietnam,[5] the Upper Reservoir communities will be literally at a cross roads for national development. The ADB-financed Power Transmission and Distribution Project is bringing rural electrification to the Upper Reservoir Area as well.

3.3. RESETTLEMENT ACTION PLAN (RAP) SCHEDULE

3.3.1. DEVELOPMENT OF DRAFT RAP AND FINAL RAP

This document, the Preliminary Resettlement Plan (PRP), is prepared without the final design of the NNHP having been decided. In particular, the dam height will determine the resettlement task. In January 2000, the decision whether to go ahead with a Second Phase of the Feasibility Studies – focusing more on technical, financial, and economic factors – will be made as well as the decision to build the dam at FSL.360m or at a lower height. This lower height has been till now thought to be FSL.320m. However, taking a safety margin for sedimentation and backwater effects, given the low altitude of agricultural land in the Upper Reservoir, the lower dam could be FSL.318m.

In either case, the difference in populations to be resettled would be around 5,000 plus 30% for natural increase and in-migration over 10 years (6,500) for the higher option and around 1,600 also plus 30% for the lower option (2,100). Although the focus of the second phase feasibility will be on other aspects of the project, nevertheless once the dam height is arrived at, a full Environmental Impact Assessment (EIA) will be required by internationally accepted guidelines, as well as preparation of a full Resettlement Action Plan (RAP) and a Social Action Plan (SAP) for mitigating other social impacts. By law, a further effort will go into designing a Watershed Management Plan *cum* Regional Development Plan, to be financed through electricity generation.

[4] From Lao PDR. 1997. Ministry of Communication Transport Post and Construction (MCTPC). *Decision on Numbering and Referencing System of the Road Network and the Numbering of National Roads.* No. 1311. June 2.
[5] Lao PDR, MCTPC. Ibid. 1997.

Following current international resettlement policies of the WB and ADB, project construction or civil works can not begin without an approved RAP. Thus, while the Project Engineering Design is being prepared, the RAP must also be simultaneously prepared. There must be a close coordination between the engineers and social scientists in this process.

A draft RAP will need to be completed and approved by GOL and the financial institution and then finalized in a process that can take as much as 2-3 years to do it properly. Only then can implementation begin, in Year 3 or 4. This does not mean that people will be moved at this time. It only means that the RAP, which includes pre-relocation activities, will begin.

This PRP assumes a year's feasibility study, which would include a full EIA for the design decided upon. As part of the EIA, a Social Impact Assessment (SIA) will build upon the socioeconomic study already carried out in December 1998-January 1999, and a draft Resettlement Action Plan (RAP) for the dam height arrived at will need to be prepared. The SIA and other studies required during the Phase Two Feasibility are outlined in the table below, which indicates a 12 year framework for resettlement, beginning with the next stage of feasibility studies and including:

(i) A 10-Year Period To Prepare For and Construct The Project, and

(ii) An 8-Year Period of Resettlement Detailed Planning, Implementation, and Follow Up.

During preparation of a draft RAP, the following studies will take place:

(i) Socio-Cultural Assessment of Resettlement and Host Communities (Part of SIA),

(ii) Preparation of a Public Consultation Framework,

(iii) Capacity Assessment of Resettlement Sites,

(iv) Backwater and Sedimentation Modeling,

(v) Archeological Review and Field Survey, and

(vi) Technical Resources explored and detailed TOR for development of Livelihood Packages prepared.

Upon completion of the draft RAP, the feasibility studies should also come to an end, and project preparation including detailed project engineering design and a final RAP should coincide with the process of securing finance and international guarantees for the project.

3.3.2. SOCIO-CULTURAL ASSESSMENT OF RESETTLEMENT AND HOST COMMUNITIES

In preparing the draft RAP, the SIA will need to include a Socio-Cultural assessment of the resettlement and host communities that takes into account aspects not covered in the formal socioeconomic survey already carried out. This latter survey determined the

ethnicity of the affected populations according to the official GOL classifications of *Lao Loum* (lowlander), *Lao Theung* (midlander) and *Lao Soung* (highlander).

However, as discussed below under ethnicity, there are numerous ethnic groups within each of these classifications, and the appropriate methodology for approaching their communities is a more qualitative, ethnographic study. This has been done for other hydropower and infrastructure projects in the Lao PDR, as cited below. Use of these existing studies is a part of the preparation of this PRP. They will also be useful for formulating terms of reference (TOR) for the sociocultural study to be carried out for the NNPP affected populations:

(i) Chamberlain, James R.; Charles Alton and Latsamay Silavong. 1996. *Socio-Economic and Cultural Survey Nam Theun 2 Project Area*. Part Two. Vientiane: Care International. July 30.

(ii) Ovesen (1993): Ovesen, Jan. 1993. *Anthropological Reconnaissance in Central Laos: A Survey of Local Communities in a Hydropower Project Area*. Uppsala Research Reports on Cultural Anthropology, No. 13. Uppsala University, Uppsala, Sweden.

(iii) Ovesen (1995) Ovesen, Jan. 1995. *A Minority Enters the Nation State: A Case Study of a Hmong Community in Vientiane Province, Laos*. Uppsala Research Reports on Cultural Anthropology, No. 14. Uppsala University, Uppsala, Sweden.

(iv) Ovesen, Jan. 1996. "*Anthropological Presentation of Hmong Communities in the Project Area*" Report for Sogreah Ingenierie. Environmental Impact Assessment for Nam Leuk Hydroelectric Project. Vientiane. Electricite du Laos.

(v) Sparkes, S. 1995. *Socio-Economic And Cultural Survey Of Selected Villages In The Nam Theun And Nam Hinboun Catchments*. Vientiane, Norplan 28 p.

(vi) Trankell, Ing-Britt. 1999. *On the Road in Laos. An Anthropological Study of Road Construction and Rural Communities*. Trankell (1993)

A short version of such a TOR would be: "Describe the groups in terms of their heritage of history, social customs and behavior. Determine whether there are ethnic minorities, as per World Bank and ADB policies on indigenous peoples. Determine the issues caused by forced resettlement, in and out migration to the project areas and losses of precious cultural heritage. Whether or not culturally or archaeologically significant places will be disrupted which could affect any of the group's heritage. Determine problems that may be mitigated."

Laurent Chazée's 1999 publication, *The Peoples of Laos*, is an important starting point for carrying out a sociocultural survey of the ethnic groups in the Project Area communities. His work contains case studies on each of the major groups represented, the Taï Family, the Austro-Asiatic Family, and the Miao-Yao Family, along with maps showing their population distribution in the Lao PDR.[6]

[6] Chazée, Laurent. 1999. *The Peoples of Laos: Rural and Ethnic Diversities*. Bangkok: White Lotus Press.

3.3.3. CAPACITY ASSESSMENT OF RESETTLEMENT SITES

Potential resettlement sites have been identified through a reconnaissance survey. However, the task during the next phase of the feasibility studies is to carry out detailed studies to determine their suitability for resettlement. This includes land and water surveys, public consultation with resettler and host populations, determination of present land tenure and usufruct rights, and detailed design of housing, infrastructure and adequacy of natural resources for development of livelihood packages and for livestock.

From the sociocultural studies done for other hydropower projects (above), we know that rice cultivation is the highest priority from the standpoint of most rural Lao communities. This will be especially the case for the NNPP, where most families already had irrigated paddy fields. The sites will need to be ranked on their carrying capacity for development of irrigation for rice cultivation, as a high priority. They will also need to be evaluated for their potential to support the other livelihood options being developed.

From the socioeconomic study carried out, we have a reasonable idea where people in the affected communities have come from and generally where they would choose to go if resettled. This will be correlated to the some 15 sites already identified through a reconnaissance survey and mapped according to their current land use. Some of these sites are large enough and close enough to the reservoir to resettle communities as a whole. Others are more widely disbursed and may allow a more diversified economic rehabilitation.

Some of the areas appear populated. However, some households may choose to move near relatives and may choose to resettle themselves, using compensation monies, and it appears very likely that these are areas where they have come from. Others are more conveniently located along National Roads, while others are more remote. Each site will have to be investigated on a case by case basis during the second phase feasibility studies.

Table 3.4: Land Use Summary (Hectares) of Potential Resettlement Sites

Site	Rice Paddy	Swidden (Ray)	Forest	Unstocked Forest*1	Grass*2	Village Area	Water*3	Total
D1	818.54	160.30	436.88	3182.98	0	80.08	64.00	4742.78
D2	94.42	91.70	3064.48	1638.13	0	51.55	0	4940.28
D3	0	14.70	94.66	759.55	0	0	0	868.91
D4	11.20	121.93	8688.61	4135.79	0	1.00	0	12958.53
D5	0	12.32	164.75	137.30	2.54	0	0	316.91
D6	229.70	296.60	1048.36	1866.74	0	80.77	0	3522.17
D7	352.79	37.95	2869.22	995.14	0	124.77	0	4379.87
XSB1	90.17	62.10	1032.90	1143.95	14.07	28.68	0.87	2372.74
XSB2	0	31.67	1484.27	79.60	1548.33	33.69	0	3177.56
XSB3	0	0	1158.45	1006.45	0	0	0	2164.9
XSB4	0	4.52	41.09	48.46	1114.84	0.10	2.57	1211.58
XSB5	0	0	542.31	2404.86	1582.50	0	0	4529.67

Site	Rice Paddy	Swidden (Ray)	Forest	Unstocked Forest*1	Grass*2	Village Area	Water*3	Total
XSB6	0	51.52	3668.40	1146.04	1190.34	58.97	0	6115.27
XK1	1153.72	134.88	158.80	5126.33	1114.84	87.13	13.04	7788.74
XK2	37.52	12.41	420.78	1177.14	689.93	4.03	0	2341.81
XK3	1986.42	1181.16	4003.14	8274.42	0	225.61	71.13	15741.88
Total	4774.48	2213.76	28877.1	33122.88	7257.39	776.38	151.61	77173.6

*1: Includes Bamboo, Scrub Forest *2: Savannah *3: Includes River, Swamp

Household preferences will be further confirmed through public consultation at the community and household levels and as resettlers are better informed about the livelihood options at each site. By the detailed design stage for finalizing a RAP, the most viable sites will be chosen according to villager preference, and a detailed relocation and rehabilitation plan will be in place for each site.

The NT2 used a 'dream village' approach to arrive at preferred house types and community layouts through a public consultation process where the communities examined and discussed sketches and layout plans of the houses and planned new villages. This will process will be undertaken through for NNHP as well.

3.3.4. TECHNICAL RESOURCES EXPLORED & DETAILED TOR FOR DEVELOPMENT OF LIVELIHOOD PACKAGES PREPARED

Resettlement impacts of hydroelectric and other reservoir projects (irrigation, drinking water) are much greater and more difficult to deal with than those of other infrastructure projects, because:

(i) Entire communities are inundated by reservoirs, so that neighbors and kinsmen cannot provide support as they would normally since they too are affected;

(ii) Resettlement sites are placed on land already used by others, often in a new political jurisdiction;

(iii) Income from all sources is threatened by the move to new locations;

(iv) Fertile bottom lands are lost;

(v) New cropping patterns must be mastered;

(vi) Land scarcity forces many people to look for non-agricultural employment; and

(vii) More of the planning and implementation is, of necessity, done for, rather than by, the resettlers

Reassembling lost production systems is a complex and difficult task that requires specialists from a diverse set of backgrounds and in order to work the full participation of the resettlers themselves not only in implementing schemes but in planning them as well.

The NNPP will provide a range of livelihood options. The option of irrigated rice paddy

would appear to be one that most resettlers from the reservoir area are familiar with, given the amount, thanks to government development programs, of irrigated land that already exists in the affected communities. Forestry management appears to be a concept that is also familiar, at least to those communities in the Lower Reservoir, though more needs to be known about this.

The livelihood options aquaculture, dairy and fruit orchards, and technical skills training will represent, however, relatively new technologies and require considerable advance planning and implementation. Fruit and nut trees, such as those already introduced by IFAD – macadamia, Japanese apricots, pears, grapes, and Japanese chestnuts – through planting of tree rootstocks in Xieng Khouang Province take a long time to grow, so must be planted well in advance of resettlement. Dairy cattle farms, using draw down grass on some 45km^2 of reservoir is also an option that Xieng Khouang International Farm Ltd., a private concern, has also been introduced in Xieng Khouang, where the company provides silage for cattle stock and is producing and selling milk.[7] This also represents a new technology that must be prepared for well in advance.[8]

Technical skills training will be offered through community public consultation, preferably through cooperation with international NGOs, such as World Vision's participation in the Huay Ho HEP resettlement. They will be based on a long-term assessment of skills required for the development of the region. Part of the RAP, too will be an assessment of skills needed to participate in NNPP construction activities and upgrade. This will be part of setting up a mechanism for project affected persons to obtain employment with construction contractors and to participate in business opportunities created by the project and in other project-related employment sectors such as the biodiversity clearance program, where skills in removing forest cover are important as will the ability to take advantage of opportunities to make and sell charcoal.

Finally, floating net aquaculture presents a potentially very valuable livelihood option. However, it has rarely been successful when introduced only as an afterthought. The option requires close advance coordination between fisheries experts and engineers in designing the reservoir management program, and the sociocultural problems of transforming rice farmers into fishermen are daunting. However, this has been successfully done elsewhere, using participatory planning, and may be successful for the NNPP as well if enough preparation is put into it.

The first efforts will be toward an economic and technical feasibility study, assessing the new markets that should be available through upgrade of the National Roads 1 and 5 through the Taviang area. The technical aspects will address among other things the reservoir management regime, the morphometric characteristics of the reservoir itself, the sociocultural adaptability of the resettlers to this technical innovation, and provision of fish food, transport, and other tertiary services that will be required. Because of this necessary advanced planning, more time and resources may be devoted to this livelihood package than the other ones, as reflected in the table below.

[7] BCEOM. 1999. pp. 170-171.

[8] A grass (*Panicum repens*) planted that was planted in the draw down of Lake Kariba, in Zambia and Zimbabwe, has the remarkable ability to remain alive even when submerged for many months. At reemergence, the grass recovers and flourishes, covering wide swaths of draw down zone in rich, green carpet and helping reduce wave erosion and producing tons of manure for the grass and the lakes productive littoral zone. This in turn has helped spur a capture fishing industry based on introduction of the herbivorous fish tilapia (*tilapia rendalli*) to utilize new feeding area.

Each of these Livelihood Packages will need to be treated as any multilateral or bilateral aid project would, put through a feasibility process, given an economic rate of return (IRR) and the technical and socioeconomic viability determined. Laying the groundwork for this is the task of the second phase of the NNPP. Replacing irrigated rice fields lost to inundation may be something that will be funded within the Project costs.

However, developing a full-fledged aquaculture for the reservoir, or dairy capability, or horticultural development for the region may require an international loan or grant. The purpose of this early exercise is to demonstrate that resettlement has been planned as an economic development exercise within the framework of the region's growth potentialities. If this is done convincingly, some of the more ambitious livelihood packages may attract international financing as economic development schemes in their own right.

A local development fund, within the context of watershed management will also need to be planned for. It should come from revenues from the NNPP itself. As a percentage of earnings it can be quite small and still have very significant effects for local development. While each of the above livelihood packages will be for project affected persons, resettlers primarily, the development opportunities the project will bring to the region will need to be availed the broader population within the Project Area as well.

3.3.5. OTHER ISSUES FOR RAP PREPARATION

(1) PREPARATION OF A PUBLIC CONSULTATION FRAMEWORK

For preparation of a public consultation framework, the experience of the NT2 will need to be reviewed as well as international policies and guidelines on this subject. Of particular importance for the Hmong ethnic group, but also for all affected populations, is the question of gender and of ethnic language. These will need to be addressed in developing a specific public consultation program, as part of the draft RAP and as a more general program for the project as a whole.

(2) BACKWATER AND SEDIMENTATION MODELING

Once the dam height is decided, it is essential for the preparation of the draft RAP to determine the amount of leeway that must be allowed for a safety margin in resettling communities around the reservoir. Flooding due to sedimentation and backwater effects as well as wind-caused waves must be modeled to determine the safety margin for resettlement of potentially endangered communities or households.

(3) ARCHEOLOGICAL REVIEW AND FIELD SURVEY

Because of the strategic importance of the old Highway 4 that runs though the Upper Reservoir Area, the proposed NNHP Reservoir Area did play a an historical part in the

Indo China War. However, the likelihood of their being any archeologically valuable sites in the area appears from site visits so far to be quite small. Nevertheless, an archeological review will be part of the SIA terms of reference, and a staff member of the Department of Museums and Archeology, Ministry of Information and Culture will visit the area to make an inventory of sites of possible national cultural-historic interest.

3.3.6. RAP IMPLEMENTATION

Table 3.5 below indicates actual relocation being completed in year 9 of the planning process, and resettlement activities continuing through year 12, another 3 years. In point of fact, from the time of actual resettlement occurring until complete recovery by the affected community will require a longer period of support, possibly from experience elsewhere in the world, of up to 10 years through a Local Development Fund derived from electricity generation sales. This is standard policy, legislated into law, in China, for instance, where the percentage of sales in infinitesimal but adds up to a sizable sum for local development.[9]

At this stage, the PRP, RAP implementation will not be dealt with in a more detailed way. The final RAP to be approved before the Project financing is finalized will provide a detailed implementation schedule.

3.3.7. ADDITIONAL STUDIES TO SUPPORT RESETTLEMENT ACTION PLAN DEVELOPMENT

During the Project detailed Engineering Design phase, following the feasibility studies, a number of studies and program design activities should be carried out to finalize the RAP. These will include, but not necessarily be limited to:

(i) Detailed Design of Livelihood Packages,

(ii) Detailed Census of Population and Inundation Loss of Assets and Natural Resources, including detailed Land Tenure Survey,

(iii) New Village Design, including access roads, electricity, water, infrastructure, housing and community layout of resettlers' choice, and other features determined through community consultation,

(iv) UXO Reconnaissance and, as Necessary, Clearance of Resettlement Sites,

(v) Livestock Transport And Health Program Design,

(vi) Pre Resettlement Health Program Design, with focus on maternal and child health, elderly, handicapped and otherwise vulnerable persons,

(vii) AIDS/HIV Awareness And Prevention Program, with focus on construction sites

[9] In 1981, the MEP defined a policy that 0.001 RMB yuan, included in the cost of power generation, be deducted from each kWh produced by hydropower stations under the Ministry for use as a *Fund For Reservoir Area Maintenance* (FRAW) in order to help resettlers solve difficulties of resuming agricultural production and to raise their living standard. The fund is for ten years or until livelihood has been judged to be on a sound and improved footing.

and surrounding areas,

(viii) Estimate of land and population affected by Transmission Line(s) and Access Roads and formulation of compensation plan for affected persons, and

(ix) Environmental Impact Assessment (EIA) of RAP.

Other studies and program design activities, with TORs and costs will be determined during preparation of the SAP and Watershed Management *cum* Regional Development Plan.

Some very rough figures for the preparatory RAP studies might be approximately US$1,100,000 for FSL.360m alternative and about US$600,000 for FSL.320m alternative as shown in Table 3.5 not including costs for studies included under the EIA.

Table 3.5 Cost Estimate of Preparatory PRP Studies

STUDIES FOR DRAFT RAP	Responsible Organization	Executing Organization	Duration of Activity (Years)	Unit Cost (US$) per Year (360 m)	Total Cost of Period (US$) FSL.360 m	Total Cost of Period (US$) FSL.320 m
Preparation of Draft RAP	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Study on Floating Net Aquaculture/Fisheries Intensification	JICA/HPO	Consulting	1	Incl.EIA	Incl.EIA [A3]	Incl.EIA [A3]
EIA for Resettlement Sites	JICA/HPO	JICA/HPO	1	Incl.EIA	Incl.EIA [A17]	Incl.EIA [A17]
Reconnaissance for UXO at Resettlement Sites	JICA/HPO	JICA/HPO	1	Incl.EIA	Incl.EIA	Incl EIA
Archeological Review & Field Survey	JICA/HPO	Archeological Department	1/4th	$20,000	$5,000	$5,000
Detailed (Participatory) Design of Floating Net Aquaculture Livelihood Program	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Agricultural Development Program Design Phase	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Forest Management Program Design Phase	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Livestock Improv. Program Design Phase	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Dairy Develop. Program Design Phase	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Horticulture Develop. Program Design Phase	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Technical Training Program Design Phase	JICA/HPO	Consulting	2	$60,000	$120,000	$60,000
Detailed Census of Inundation Losses	JICA/HPO	Consulting	1	$60,000	$60,000	$30,000
Preparation of Public Consultation Program	JICA/HPO	Consulting	1	$60,000	$60,000	$30,000
Capacity Assessment Resettlement Sites	JICA/HPO	Consulting	1	$60,000	Incl.EIA[A10]	Incl.EIA [A10]
Backwater & Sedimentation Modeling	JICA/HPO	Consulting	1	$100,000	Incl.EIA[A6]	Incl. EIA [A6]
Total (Rounded Upwards)					$1,100,000	$600,000

All budget figures relating to the RAP and to the Social Action Plan (SAP) will be phased according preparation, construction and operation phases during the next stage of the feasibility study.

3.4. REGIONAL AND LOCAL DEVELOPMENT PLANS

3.4.1. REGIONAL DEVELOPMENT AND INVOLUNTARY RESETTLEMENT

Article 25 of the Water Resources Law requires contribution of funds be devoted to the quality maintenance of water sources and water resources by those conducting water resource development activities. Requires preservation of water sources, forests and environment, including impacts on fisheries, flooding and irrigation resulting from hydroelectric power dam construction. This provides the legal basis for watershed management planning.

However, it may be important for Resettlement Planning in the Lao PDR to take advantage of potential development of regional resources to take advantage of the enormous market potential of surrounding countries. Watershed management focuses on protecting the valuable asset that a hydro dam is, through protection of the catchment basin and if done well the reduction of siltation that would shorten the useful life of the reservoir. A key feature in watershed management is changing land use patterns, taking the pressure of natural resources caused by primitive agricultural techniques such as slash and burn through provision of alternative sources of livelihood.

It is important in the Lao PDR to realize that conservation goals in a hydropower catchment basin are not incompatible with development goals. In fact, it is through a transformation of the rural economy, and hence land use practices, that conservation goals can be met. The Lao PDR is in an advantageous position in this regard, if planners recognize this and take advantage of it.

Although the Lao PDR is a landlocked country, some 236,800km^2 in area, about the size of Great Britain, the country realizes its strategic potential to be considered as the geographical keystone of the Southeast Asian sub-region with its transport routes forming land bridges to China, Vietnam, Thailand, Myanmar and Cambodia. Therefore, the road network of the Lao PDR may be seen both internally and externally from two viewpoints:[10]

(i) *Internally*, as a network of strategic importance for Lao's economic, cultural and social development, providing an all-weather accesses linking Vientiane to the provincial and district centers.

(ii) *Externally*, as a land bridge providing its contribution to the growth of the sub-regional network, thus looking to take its role in the evolution of the ASEAN group of countries.

GOL wishes to stress the Lao PDR as a 'land-linked' rather than 'land-locked' country. Located in the middle of a fast-growing region and with only 20% of land utilized, Laos has excellent potential, and a great deal of investment is currently underway in

[10] Economist Conferences, The. 1997. The First Roundtable with The Government of the Lao People's Democratic Republic, April 23-25, Vientiane, Lao PDR. pp. 52-56.

developing a nationwide, upgraded road system. This includes the new Mekong Bridge near Vientiane, Route 13 along the length of the Mekong, the planned North/ South Highway 1 from China to Cambodia, and development of roads from Thailand, across Laos, through Vietnam. Particularly notable is a major 208km ADB-financed route to link with the port of Danang that includes 85km in Vietnam, with upgrade of a container terminal at Danang port. As in the case of the Friendship Bridge, a railway option will be considered. A main transport link between the rich agricultural lands in the three countries will reduce transport time and costs and encourage development as well as transshipment through Danang.[11]

The transport sector has continued to receive the most Official Development Assistance (ODA) support, with 22.2% of total assistance from outside the country, receiving in 1998 $86,280,000 compared to the energy sector, which received $62,262. As a land-locked country, roads are the principal means of transportation to neighboring countries, apart from the Mekong River, and they provide the only access to seaports in Vietnam and Thailand. The construction of a modern road network is a crucial step in transforming the country's strategic location into an economic opportunity, and in fully developing Lao PDR's strategic potential as a link between Southern China, South Asia, and Southeast Asia.[12]

The following table underscores the possibilities of markets, given the much larger populations and population densities of the Lao PDR's neighbors:[13]

Table 3.6 Populations and Population Densities (Persons/Km^2)

Country	Population (Millions)	Persons/km2
Cambodia	8m	80
Thailand	68m	130
Vietnam	70m	200
Southern China	200m	200+
Laos	4.8m	19

Currently only agricultural product exported to Vietnam is maize and a small quantity of rattan. Yet, as pointed out by the recently published Watershed Management Study for the Nam Ngum Catchment Area, Vietnam presents an excellent potential as a future market.[14] This potential derives from its close proximity, historical political alignment, and high population density relative to cultivable land area. Another factor is in the Vietnamese consumer's culinary preference for a number of niche market items grown at high tropical elevations in addition to more common place products such as cattle and beef. These factors offer encouraging opportunities for upper watershed agriculture. China is also a huge potential market for Lao produce, including all of the items demanded in Vietnam. Presently, for instance, dry season transport costs from

[11] Economist Conferences, The. 1997. "Representatives of the Lao, Thai and Japanese governments on July 29 signed an agreement on the building of the second international bridge across the Mekong River from Laos to Thailand at Savannakhet. Japan was represented by the Japan International Cooperation Agency (JICA). The agreement provides for traffic rules along the bridge between Laos and Thailand. The bridge is to be 13m wide and 2,050m long, and there will be no railway in the middle of the bridge. The project will cost 8 billion yen, and is to be funded by JICA." *"Second International Bridge across Mekong Goes Ahead." Vientiane Times*, August 10-12, 1999. p. 1.

[12] UNDP. 1999. Development Co-Operation: Lao PDR, 1998 Report. Vientiane. March. P. 19.

[13] Economist Conferences,. 1997, p. 25

[14] BCEOM. 1999. *Final Nam Ngum Watershed Management and Development Strategic Framework*. April 15. For Ministry of Agriculture and Forestry, Center for Protected Areas and Watershed Management. Asian Development Bank TA 2734-Lao, Nam Ngum Watershed Management. In Association with SEATEC and SEMED. p 58

Phonsavan to the nearest point in Yunnan Province are less than to Vientiane.[15]

A number of efforts are underway, and more can be expected, that might tap the comparative advantage of the region, given an upgraded transportation system. The Lao PDR is one of the fastest growing tourism markets in Asia, with revenues increasing almost fourfold in three years. With such growth in demand, from both international and regional tourists (Thailand, Vietnam, and China), preservation and enhancement of existing attractions throughout the Lao PDR will only enrich this growth. The Nam Ngum reservoir itself provides a clear example of the potential utility of hydropower reservoirs to themselves become significant local and regional tourist attractions, centers for recreation and hence rural development centers. Developing such tourism potential ties in very well with efforts to promote the watershed management of hydro project catchment areas. The Nam Theun 2 shows the potential for the revenues of such projects to be used to enhance this potential.

Other areas of potential are capital investments in the regions around the reservoirs. Some of the seeds of such investment can already be seen in the catchment area of the NNHP. The Edukan Company, for instance, is developing commercial timber production in Thathom District of Xaysomboon Special Zone by developing new tree species through cross-fertilization.[16] IFAD is introducing fruit and nut trees – Macadamia, Japanese apricots, Pears, Grapes, Japanese chestnuts, planting of tree rootstocks in Xiengkhouang Province, and the Xieng Khouang International Farm Ltd., a private concern, has introduced a dairy cattle farm, where it provides silage for cattle stock and is producing and selling milk.[17]

Given the extensive draw down anticipated in the NNHP reservoir, for instance, a great deal of forage land, some 45km^2, would be available for this latter activity were this project to go ahead. A grass (*Panicum repens*) planted that was planted in the draw down of Lake Kariba, in Zambia and Zimbabwe, has the remarkable ability to remain alive even when submerged for many months. At reemergence, the grass recovers and flourishes, covering wide swaths of draw down zone in rich, green carpet and helping reduce wave erosion and producing tons of manure for the grass and the lakes productive littoral zone. This in turn has helped spur a capture fishing industry based on introduction of the herbivorous tilapia (*tilapia rendalli*) introduced to utilize new feeding area.[18]

This is probably an optimum use for reservoir draw down with hydro projects in the Lao PDR, since elsewhere it has been found that draw down agriculture is unsuitable where there is little predictability of the magnitude of draw down. In the Indonesian project of Saguling farmers attempted to grow rice and vegetables, but the crops were continually drowned, so at that point the draw down was converted to grazing land. On the other hand, land above draw down area has been intensively cultivated with multiple crops, since farmers report easy access to reservoir water ensures a crop even during drought. Many have indeed taken advantage of the highly fertile soil in the draw down

[15] BCEOM. 1999. p 58
[16] Handicap International. 1997. p. 17.
[17] BCEOM. 1999. pp. 170-171.
[18] Costa-Pierce, 1997. P. 32.

area, moving it to land when they cultivate above draw down area.[19]

There is much potential for the Lao PDR to find commodities to sell to its larger neighbors, taking advantage of its 'land-linked' position between these large markets and also of the comparative advantage of its hill regions. However, this potential is currently limited by the inevitable risks of agro-sector investment, the difficulty of securing and ensuring rights to land tenure, inadequacy of skilled labor, and lack of available finance.

What hydro development can do is bring the attention of multilateral lending agencies to these areas that were previously isolated and backward and bring in the investment required to transform the situation. As the country's transport network is developed further, much of this investment will take place spontaneously through private capital investment. In this case the challenge for resettlement planning associated with hydro reservoirs will be to recognize trends and to be flexible or forward looking enough to take advantage of them.

However, to rise to such challenges can take a good deal of advance planning. A case in point is the Indonesian experience with floating net cage reservoir fisheries. This was a project that the World Bank recognized and supported as a potential use for the resource represented by the hydro project's reservoir. From 1985-88 the Saguling and Cirata hydropower reservoirs in the densely populated highlands of West Java, Indonesia displaced over 40,000 families. As part of a comprehensive resettlement plan, the projects attempted to resettle 3,000 families in water-based, floating fish cage aquaculture. In addition, they attempted related land-based aquaculture (1,500 families in each reservoir). The projects carried out a four-year program of aquaculture research, demonstration, extension, and training programs with over 4,000 displaced farming families. This program included:

(i) Organization of traditional courses (adoption/diffusion methods);

(ii) Formation of fish farmers associations;

(iii) Hands on, participatory research with farmers;

(iv) Establishment of community schools in villages having the highest numbers of displaced residents;

(v) Farmer-to-farmer visits;

(vi) Publishing farmer workbooks in the local language; and

(vii) Arranging study tours to other Asian nations with relevant experiences.

By 1996, cage aquaculture in the Saguling and Cirata reservoirs produced 2,130 kg/ha/year (24,496/11,500ha), compared to a reported range of capture fisheries production in Southeast Asian reservoirs of just 5 to 675kg/ha/year. By 1997 there had been a proliferation of a new type of "condominium" cage aquaculture systems in the Bongas area of the Saguling reservoir that had a production potential of 10t per cage per year.

[19] Costa-Pierce, 1997. P. 32.

In a World Bank technical paper on introducing aquaculture to dam reservoirs, the author concluded: "Clearly, the cage aquaculture systems in the Saguling and Cirata reservoirs present a exciting new model of large scale protein food production for a protein-hungry Asia, that could, if sustainable, represent a new, globally-important food resource ecosystem.[20]"

The cage floats produced were low cost, low technology items, that utilized the bamboo forests above high water mark, which villagers were expanding to meet demand for bamboo created by the new cage aquaculture industry. These forests in turn helped control erosion and sedimentation in the watershed. Such bamboo forests are already a feature of the Lao landscape around potential reservoirs, as a by-product of years of swidden agriculture.

The success of the Indonesian experience was the result of a great deal of advance planning prior to and in conjunction with that of the hydro projects. Where aquaculture has been introduced as an afterthought 'add on,' it has tended to fail or not reach potential. This is because the dam engineers have to be introduced to the fisheries requirements in designing the reservoir management, and the process of turning rice farmers into fishermen is a long-term one that initially goes against the cultural preference for paddy rice.

The same would be true in the Lao PDR, but the country as an advantage in being placed between Thailand, China and Vietnam, where technical resources have long been in place to assist in promoting reservoir aquaculture.[21] While these countries have also had success in this area, it is also highly likely that Asia's increasing urbanization will continue to mean an expanding market, and development of floating net fisheries will require market studies at the front end.

In China, hydro projects and the resettlement they cause are recognized as development opportunities without parallel, and a regional development fund is created, by law, using a small portion of the revenues generated by the hydro electric project. While small from the standpoint of overall earnings, the revenue helps resettled people improve their lot beyond what they had prior to the project and promotes regional development as well. Thus the hydro power plants not only benefit urban areas far away but also are seen by local people as benefiting them as well.

[20] A video of this development is available through the World Bank: Larry L. Brown, Director, Photographer, Editor; Barry Costa-Pierce, Producer and Writer. 1994. *Farming the Waters, Java's Blue Revolution.* Washington, DC: The World Bank.

[21] A resource person in Thailand is Prof. Peter Edwards, SERD/AFE (Tel: 5245477), Asian Institute of Technology, P.O. Box 4, Klong Luang, Pathumthani 12120, Thailand Tel: (66)-2 516- 0110 (34 lines). Fax (66)-2 516-2126. For China see, Lieu, J., Y. Zhitang, and D. Zegui. 1992. *Present Status and Prospects for Reservoir Fisheries in China.* In De Silva, 1992. And Lin, F., Scott Guggenheim, and B.A. Costa-Pierce. 1998. *Experiences in Chinese Reservoir Fisheries and Some Aspects of Planning for Fisheries in the Shuikou Hydroelectric Project.* World Bank, Environmental Department, Washington, DC. Vietnam is said to have extensive experience with aquaculture in reservoirs as well, including as a livelihood option for resettlement.

3.4.2. NAM NGUM WATERSHED MANAGEMENT PLANNING

(1) Ngum Watershed Management Strategy

An ADB financed Watershed Management Planning study has recently been completed for the neighboring Nam Ngum Watershed. It has developed a strategy that would improve the lives of the population from the existing Nam Ngum 1 HEP and simultaneously protect the watershed for it the other hydro projects being planned for the watershed, primarily the Nam Ngum 3 and 4. While so far only the relatively small Nam Pot HEP is planned for the Nam Ngiep watershed, very little work has been done to develop it. Nevertheless, the Watershed Management Plan for the Nam Ngum is a model that may be applied to the Nam Ngiep as well.[22]

In summary the *Nam Ngum Watershed Management Strategy* is to promote:

(i) *Multipurpose Development* to exploit Lao PDR's comparative advantages in natural resources with emphasis on increasing resource mean and marginal values,

(ii) *Protection and Conservation* of natural resources and bio-diversity through improved spatial zoning, remedial measures (afforestation and erosion control) and strengthening community management systems,

(iii) *Rural Poverty Alleviation* to enhance life quality indicators and create a favorable socioeconomic environment conducive to sustainable natural resource management benefiting all major NNWS stakeholders, and

(iv) *Strengthening and Establishing Key Institutions* at particularly the provincial, district and village levels to enhance GOL service delivery and driven watershed management systems.

(2) Strategic Target of Upgrade Rural Living Standards

Upgrade Rural Living Standards by developing diversified, sedentary agricultural systems in upland and flat land areas that increase overall agricultural production, creating a range of income generating opportunities that significantly improve socioeconomic conditions of families and villages:

(i) Integrate the populated areas of watershed by rehabilitating feeder roads and trails to link presently isolated villages to intra and inter-regional and input factor and product markets; Link villages with villages and villages with local markets.

(ii) Set up agriculture, agro-forestry, fisheries/livestock demonstration centers and village sites;

(iii) Improve agricultural water use efficiency for subsistence and diversified cash cropping by expanding the watershed irrigated agricultural base;

(iv) Progressively introduce promising, permanent, sustainable and diversified

[22] BCEOM. 1999. *Final Nam Ngum Watershed Management and Development Strategic Framework.* April 15. For Ministry of Agriculture and Forestry, Center for Protected Areas and Watershed Management. Asian Development Bank TA 2734-Lao, Nam Ngum Watershed Management. In Association with SEATEC and SEMED.

production systems that gradually replace shifting systems of upland rice cultivation and low productivity flat land agricultural systems through widespread trials and demonstrations. this is to offer farmers a field tested menu of technology choices in livestock, aquaculture, highland crops and other products of marketable value; the range will include sources of incomes for families derived from agricultural, industrial and horticultural crops, forestry and livestock/fisheries activities, depending on local agro-ecological landscape conditions;

(v) Providing agricultural investment cash credit facilities through the provincial agricultural promotion banks for intermediate to long term investments and through in kind credit facilities to support rice and cattle banks at the village level;

(vi) Accelerated and replicate the issuance of land allocation documents to enhance tenure security and create incentives for technology investment.

(3) Preserve and Accelerate Forest Regeneration and Biodiversity Conservation and Improve Land Use Regimes

(i) Spatial zoning to conserve existing large forest fragments in the unpopulated areas of the watershed

(ii) Watershed classification zoning in populated areas of the watershed for improved land management according to erodability: zones for forest protection and conservation under local village management; a zone for upland agriculture and sloping agricultural land technology (SALT) interventions; and other zones for irrigated crop diversification;

(iii) Afforestation of high erosion areas;

(iv) Soil conservation measures such as contour bunding, contour planting, drop structures and other treatments;

(v) Establish tree nurseries; and

(vi) Surveillance and monitoring of forest protection and conservation areas.

(4) Improvement of Social and Economic Infrastructure and Services:

(i) Extend schools and dispensaries to all villages in the watershed,

(ii) Establish maternal-child health delivery systems,

(iii) Implement birth spacing programs,

(iv) Non-formal education,

(v) Install potable water systems in all villages, and

(vi) Set up and support feeder road maintenance.

(5) Institutional Strengthening

Institutional strengthening and development of key watershed management local agencies. Upgrade and strengthen the Deputy Governors' offices as the focal point of provincial level watershed management activities:

(i) Train, equip, provide logistical support and offer incentives to PAFS and DAFO. The former are to become Subject Matter Specialists; the latter will be Farming Systems Extension Workers. Their role is to provide problem solving extension and conduct technology trials and demonstrations;

(ii) Train, equip, provide logistical support and offer incentives to provincial Land Use Planning and Allocation Committees (LUPACs). LUPACs will be trained and equipped to conduct participatory land use planning and allocation in all watershed villages. Land allocation will be recorded by GPS readers and GIS systems will capture land holdings and land use and village desires for future land use and allocation. Land allocations will be incorporated into a basin-wide registry system and land use right documents will be issued to holders;

(iii) Train, equip, provide logistical support and offer incentives to Provincial Planning Committees (PPCs). PPC to be trained in watershed management and bio-physical regional planning systems;

(iv) Establish, train and equip a new Nam Ngiep Watershed Management Authority. The Watershed Management Authority will manage and coordinate all program planning, implementation, monitoring and evaluation and coordinate hydraulic management at the watershed level;

(v) Train Provincial Agricultural Promotion Bank and Village Administrative Committees in cattle and rice bank and general rural credit administration;

(6) Financial Assistance

Provide financial assistance to the poorest segment of the watershed population (those households practicing exclusive shifting cultivation) by hiring household members to perform essential conservation and environmental management services at the village level;

(i) Hiring villagers as fire wardens to monitor and control dry season burnings;

(ii) Hiring villagers for UXO training and supervised clearance of contaminated areas, common in Lao PDR. At UXO Lao's new training center Naysaythong District, Vientiane Municipality, a nine-week course conducted by US and Lao instructors. Trainees return to provinces having completed courses for de-mining technicians, medics, community awareness specialists, UXO team leaders, and instructors;

(iii) Hiring villagers for tree planting for badly eroded areas.

The proposed watershed management strategy also includes resettlement of villagers from the proposed hydropower projects. By international guidelines, this should be fully internalized in project costs and would not be considered as part of an externally funded watershed management program for the Nam Ngiep.

3.4.3. LOCAL DEVELOPMENT FUND

Funding for the 40 year Nam Ngum Watershed Management Project would come from 1-2% of hydropower royalties. The legal basis would be Article 24 of the Water and

Water Resources Law, which stipulates that benefits of resource use flow back to residents of the areas from which resources have been tapped. Development bank loan financing and donor agency grants would cover the high priority front-end program needs until the Nam Ngum Watershed Management Fund was activated.

From Chinese experience with local development funds, 1-2% of hydropower royalties may not be necessary to generate considerable finances to benefit the local region. However, this will need to be a matter of review for the second phase feasibility study and for the detailed design of the project. It is certain that multilateral or bilateral funding will be required to assist in setting up such a management plan and watershed or local development fund for the NNPP, as it would for most hydropower projects.

3.5. BASELINE SURVEYS & RECONNAISSANCE STUDY

3.5.1. GENARAL

The JICA Study Team Environmentalist-Ecologist and Social Development-Resettlement Experts made a reconnaissance fieldtrip to the Project Area August 25-28, 1998. They collected demographic, socioeconomic and environmental data from Bolikhamsay Provincial and Bolikhan District offices and visited by motor pirogue the several villages along the Nam Ngiep River that would be affected by downstream dam impacts. Since access to the reservoir area was difficult during the rainy season, the consultants made a reconnaissance of the upstream reservoir area by helicopter, spending two days at the Upper Reservoir area of Taviang and visiting the Lower Reservoir Area villages on both the incoming and outgoing trips.

The Social Development/Resettlement Expert made a second reconnaissance visit to Pakxan District and Bolikhamsay offices collecting data on the downstream villages September 9-10th.

3.5.2. UPSTREAM FIELD VISIT

Prior to this field reconnaissance, data on the reservoir area relied on 1981 census figures and on data extrapolated from 1:50,000 (1965) and 1:100,000 (1982) maps. These indicated about 1,400 people distributed in 10 villages located within the limits of the proposed reservoir. Although it was assumed that villages involved in shifting cultivation might have moved several times either inside or outside the reservoir area, a best guess estimate of the current situation was that the population might have increased by 50% since 1981. This estimate, based on the Lao PDR population growth rate of 2.9%, placed the current population at around 2,000, or about 400 households.

It was also assume that several of the concerned villages were of highland ethnic minorities categorized by the Government as *Lao Soung*, which include a number of

Hmong peoples. Any development dealing with such peoples would require review of JICA policies on indigenous peoples in planning for project impact mitigation. These are consonant with those of the Asian Development Bank (ADB), which are attached.

The reconnaissance field visit found the reservoir area population to be more built up than anticipated. Instead of around 2,000 people, it found the overall reservoir area population to be more than double this figure, at somewhat less than 5,500. While some highland *Lao Soung* in the lower reaches of the reservoir would be impacted by inundation, in the Upper Reservoir far more lowland Lao majority population categorized by the Government as *Lao Loum*, would be affected, as well as *Lao Theung*, a middle hills peoples.[23]

The reconnaissance team also found considerable government-supported irrigation development in the Upper Reservoir Area. There may be somewhere between 400-500ha of irrigated rice paddy instead of, as was originally assumed, only dry evergreen tropical forest, temporary or permanent agricultural areas, degraded forest, old re-growth and fallow resulting from shifting cultivation in the reservoir area.

Based on the reconnaissance visit, it is possible so far as socioeconomic aspect are concerned to see the Nam Ngiep as having three Impact Zones: the Upper Reservoir; the Lower Reservoir; and the Downstream Villages. A more complete preliminary questionnaire survey was also carried out in conjunction with a GIS point survey being done by the JICA Study Team's geologist, pinpointing village locations and providing the basis for a base map of the project area. The socioeconomic survey planned as part of the *Feasibility Study* would confirm and update the information gained.

3.5.3. DOWNSTREAM FIELD VISIT

The reconnaissance field trip started from B. Somseum by motor pirogue and traveled approximately one hour upstream on the Nam Ngiep to Hatieun, the village farthest upstream towards the damsite. On the 1982 1:100,000 map, this village, which has been established well over fifty years, was called 'Hatkkan'. B.Somseum is 'B. Namingiap.'

While Hatieun, like all the other villages downstream of the dam, is *Lao Loum*, a small settlement of *Lao Soung* has been established at B. Hatsaikom for about four years. This is half an hour upstream and around 9-10 km downstream from the dam site. According to villagers, there are not any settlements upstream of Hatsaikom, and the Hatsaikom villagers say they may be resettled by the Government to a better more accessible location as part of its policy to restrict slash and burn agriculture.

Nampa and Somseum (and possibly other villages in Bolikhan District) can be reached by dirt access roads leading off westward from Highway 4, linking Highway 13 to

[23] Laos is officially a multiethnic nation with more than forty ethnic groups, classified into three general families: *Lao Soung* (upland Lao) 10 percent of population in 1993; *Lao Theung* (midland Lao) 24 percent; and *Lao Loum* (lowland Lao), 66 percent. The term Laotian is used for the national population; Lao for the ethnic group. Andrea Matles Savada, ed. 1994. *Laos: A Country Study.* Washington, DC: Federal Research Division, Library of Congress.

Bolikhan District headquarters. Highway 13 runs about 100km parallel with the Mekong River from Vientiane through Pakxan. Highway 4, itself a dirt road for most of its distance to the district headquarters, leads off from Highway 13 northward just past the Nam Ngiep.

Highway 4 runs parallel to the Left Bank of the Nan Ngiep and between that river and the larger Nam Xan River, which is just to the east of the Nam Ngiep River. It then turns northeasterly towards Bolikhan, which is situated on the Right Bank of the Nam Xan River. Highway 4 appears to hence follow the Nam Xan northward to the Thathom District headquarters at B.Sibounhueng and may possibly provide road access during the dry season to the Upper Reservoir Area at Taviang.

Possibly because of the access provided by Highway 4 and because the forest on the Nam Ngiep's Right Bank is protected, all of the villages in Bolikhan District are situated on the Nam Ngiep's Left Bank. All are *Lao Loum*, although only B.Somseum appears to be exclusively *Lao Loum*. Four of the villages have *Lao Theung* populations and two have *Lao Soung* settlements associated with them.

The reconnaissance field trip found that there appears to be a district resettlement program encouraging *Lao Soung* and other settlements (such as Nampa) to shift away from the river and closer to Highway 4; and B. Nong Deng, on its own initiative, made this transition during the Spring of 1998. B.Nonpa will move as part of the District resettlement plan at the end of 1998, ostensibly to have access to electricity being provided along Highway 4 and also to access an irrigation project using Nam Xan River water and for which another village near the Nam Xan is also moving.

Despite this policy, the villages along the Nam Ngiep in Bolikhan District appear to maintain lifestyles in close association with the river. Most appear to take the larger part of their drinking water from the river, to rely on it for fishing and, very much in contrast to the villages within the reservoir area, all villages have large numbers of motor boats. These provide transport up and down the river and access to many fields observed by the team along both banks of the Nam Ngiep.

B.Houaykhoun was found to be the largest of the villages downstream from the dam. It has a lumber mill and the only water system reported among these villages, drawing water from the Nam Xan River. It is possible that this water system will eventually be extended to B. Nonpa after its move to Highway 4.

From what the JICA Study Team could learn, quite considerable irrigation has been, and is being, developed along the Nam Xan for some 7-8 areas, whereas so far very little has been developed along the Nam Ngiep River. B.Songkhon, however, has recently developed from its own resources a small 5ha irrigation project relying on Nam Ngiep water. A number of villages inland from the Nam Ngiep may also have access to land in a 200ha irrigation project completed in 1998, also purportedly using Nam Ngiep River water.

Overall, the material culture of these downstream villages appeared much richer than that of the reservoir area villages, with *luk luks* and television sets run by battery not found in these latter villages, and a larger number of small tractors, rice mills, and other assets.

3.6. SOCIOECONOMIC STUDY DESIGN

3.6.1. GENERAL

As a consequence of the identified magnitude of impacts from the initial design, resettlement requirements were moved from an expected 1,400 people up to more than 5,000 people. This increase in the population affected by inundation is the primary and major direct environmental and social effect resulting from the project as currently conceived. Therefore, it was decided that the socioeconomic investigations would require a longer period of time and more resources than was originally thought of and provided for in the initial Bill of Quantity prepared in the JICA proposal for the EIA and RAP preparation.

The main objective was to conduct a socio-economic survey as a basis for assessing social impacts upstream and downstream of the Nam Ngiep-1 Dam. *For upstream effects*, the socio-economic survey will, as per the ADB resettlement policy, provide a basis for proposing viable design changes to minimize resettlement. It will also provide initial data for a preliminary draft Resettlement Plan that sets out mitigation strategies to assist those affected by land acquisition and any other resettlement effects in recovering and surpassing their pre-project standard of living.

For downstream effects, such as damage to water quality during the first years of the dam's operation, loss of fishing, and any impacts on the use of the river for transportation, the survey was designed to provide a basis for mitigation strategies. For this reason, it will be conducted in close association with the other planned surveys, in particular the fishing survey.

The consultant chosen was STS Consultants, a Vientiane firm that under close supervision of the JICA Study Team's Social Development/Resettlement Expert, planned, implemented, analyzed and reported on a sample socio-economic survey consistent with good international practice. For both upstream and downstream impacts, the study was designed to establish baseline data for incomes and expenditures, occupational and livelihood patterns, use of resources, arrangements for use of common property, arrangements for systems of production and local resource use, social organization, leadership patterns, community organizations, and cultural parameters. This data will provide a basis for eventual evaluation and monitoring of the project impacts, should the project be implemented. The study will be consonant with JICA (ADB) policies on Involuntary Resettlement (1995) and on Indigenous Peoples (1998).

3.6.2. OBJECTIVES

The main objective was to conduct the socio-economic survey as a basis for assessing social impacts upstream and downstream of the Nam Ngiep-1 Dam. For upstream effects, the socio-economic survey will, as per WB and ADB resettlement policy, provide a basis for proposing viable design changes to minimize resettlement. It was

also provide initial data for the present preliminary draft Resettlement Action Plan (RAP) setting out mitigation strategies to assist those affected by land acquisition and any other resettlement effects in recovering and surpassing their pre-project standard of living.

For downstream effects, such as damage to water quality during the first years of the dam's operation, loss of fishing, and any impacts on the use of the river for transportation, the survey was designed to provide a basis for mitigation strategies. For this reason, it was conducted in close association with the other planned surveys, in particular the fishing survey.

3.6.3. TASKS

The following were suggested tasks for the consultant undertaking the socio-economic study. They provided a framework for designing the study.

(1) Review of Lao Social And Environmental Strategies And Policies

These policies were complied with in the survey design. The consultant had to assess village infrastructure and production systems in a quantifiable way that will provide a basis for both assessing resettlement impacts and for providing a basis for resettlement planning. The collective categories of Lao *Loum, Lao Theung*, and *Lao Soung* provided a useful way to describe the ethnic makeup of the affected communities. However, some ethnographic judgement was to be required to more particularly identify how ethnic groups (more than forty recognized in Laos) identify themselves and whether or not any of the groups impacted qualify as especially vulnerable peoples under the ADB's Indigenous Peoples policy. Therefore, familiarity with these policies was imperative.

(2) Reconnaissance Visit to Upper/Lower Reservoir & Downstream Villages

Because of the relative inaccessibility of much of the project area, even during the dry season, it was highly recommended that the consultant visit the survey areas to assess the logistics of fielding a survey team. This was also necessary for reconfirming the village names and locations presented in this TOR. This information is based on a limited reconnaissance fieldtrip and may not be fully accurate. It is also recommended that heads and secretaries of villages to be surveyed be contacted in advance and informed of the survey dates, so that they may be present during the administration of village-level questionnaires. The preliminary site visit will also useful in determining appropriate questions for inclusion in the survey questionnaires and sampling design.

(3) Preparation of Survey Questionnaires

The consultant, in close consultation with the JICA Study Team's Social Development/Resettlement Expert, prepared two questionnaires. The first one, a village-level questionnaire, was filled in with the assistance of village heads and

secretaries. The objective will be to understand the general social, economic, and land use situation of the village, as well as the community assets threatened by the project. These may be, for instance, bridges, tracks, schools, dispensaries, and communal forest or pasture lands.

The second questionnaire was the household-level questionnaire. It was filled out with representatives of those households directly threatened by the project activities. This covered aspects related to, *inter alia*, household ethnic identification, demography and family structure; health and education; income, expenditures and indebtedness; land and natural resource usage; household-level production systems and assets such as land and built-up properties; and knowledge and opinions about the project and possible resettlement.

The upstream and downstream questionnaires, at both village and household-levels were different, with more questions respecting water use and fishing and fewer respecting built-up assets requiring compensation for the downstream villages.

(4) Preparation of Survey Sample

The consultant, with the JICA Study Team's Social Development/Resettlement Expert, will need to prepared a sample design for covering 10 to 20% of the people affected by the project. It was also stratified. This was 20% of the reservoir households, 178 households of a total 800. Downstream or for other project components, the sample was 5%, perhaps 75 households out of a population of around 1,500.

The sample required advance planning to assure an appropriate proportion of questionnaires are administered within or near the reservoir, or for households likely to be impacted by other of the project's structures, such as the dam, camps, access roads, borrowing and quarrying areas, and transmission lines. Information on, for instance, the number of villages affected according to reservoir water levels, or according to alternative routes for access road or transmission lines, will provide a basis for the selection of design alternatives.

A well thought out sample design made optimum use of resources. In the future a sample frame can be obtained prior to follow surveys, for instance as village sketch maps, some form of random sampling may be possible. However, households within each surveyed village were surveyed according to stratification based on the ethnic makeup of the community.

(5) Testing the Questionnaires

The JICA Study Team's Social Development/Resettlement Expert prepared draft questionnaires, based on questionnaires already used in Laos, and STS Consultants, translated into Lao and tested in the field. According to the test results, the questionnaires were modified, adjusted and finalized for the detailed survey. All the enumerators who carried out the survey participated in testing the survey for training purpose.

3.6.4. SURVEY IMPLEMENTATION

The survey was organized and carried out taking into consideration the periods the farmers are the most available, i.e., periods of reduced agricultural activities. The likelihood of favorable weather conditions, i.e., during the dry season, was also a major consideration in scheduling the survey.

Village leaders were informed, in advance of the survey, of the intended dates the team will visit their locale. Villagers were also provided adequate information about the project and its feasibility study to insure they understand the purpose of the survey. Since the three identified impact zones were not easily accessible from one to the other, the survey was carried in three phases, in the upper reservoir, the lower reservoir, and in the downstream villages.

(1) Survey Analysis and Reporting

Results from the survey were tabulated and processed for reporting. As appropriate, the data will be disaggregated by ethnicity and gender to take ADB policies into account. The survey report establishes a baseline of incomes and expenditures, occupational and livelihood patterns, use of resources, arrangements for use of common property, arrangements for systems of production and local resource use, social organization, leadership patterns, community organizations, and cultural parameters.

(2) OUTPUTS

The socio-economic survey resulted in a survey report formally presented to stakeholders at a public workshop organized in Pakxan June 1999 and again revisited as part of the Environmental Impact Assessment (EIA) presentation in November of 1999. The consultant prepared a database of the survey results in Access 97 and provided this to JICA for future studies and as a baseline for possible monitoring and evaluation of the project, should it be implemented.

3.7. SOCIAL AND ECONOMIC SURVEY

Local consultants, STS, carried out a socioeconomic survey of the upstream and downstream villages affected by the NNPP. The Reservoir Area was surveyed December 28, 1998 to January 28, 1999. The downstream villages were surveyed March 5-18, 1999.

There were two questionnaires. A Village level questionnaire was asked the village chief or other responsible persons in the village such as the deputy chief and village secretary, and a Household level questionnaire was asked the head of household. The STS Consultants used Excel and Microsoft Access as well as social science analysis software (SPSS) to analyze the survey data.

The purpose of the survey was to understand at the village level the general social, economic and land use situation and the community assets in the Reservoir Area such as schools, dispensaries, bridges, communal forests and pasture lands. At the household level, the purpose was to understand ethnic identification (official classifications), health and education, income expenditures and indebtedness, land and natural resource usage, household-level production systems and assets such as land and built-up properties, as well as to learn something of the respondents' knowledge and opinions about the project and, in the Reservoir Area, their possible resettlement.

Survey objectives were to provide a basis for helping plan resettlement and to mitigate project impacts, for instance on water quality downstream for drinking water and fisheries.

As part of the survey process, field orientation meetings were held at, zonal, district, and village levels. The first field orientation meeting was held with administration personnel of the Xaysomboon Special Zone; the second meeting was held with Taviang Sub-District authorities of Thathom District; and a third meeting was with village heads and with the villagers themselves during the course of the survey to inform them of the purpose of the survey, as well as provide, with the help of an HPO staff member attached to the survey team, orientation information regarding the proposed NNPP.

The survey team carried out the survey using a stratified random sample covering 21% of the total households in the Reservoir Area. Stratification was based on the ethnic makeup of the community. The number of households surveyed was 179 of a total 853 households in the Upper and Lower Reservoir Area.

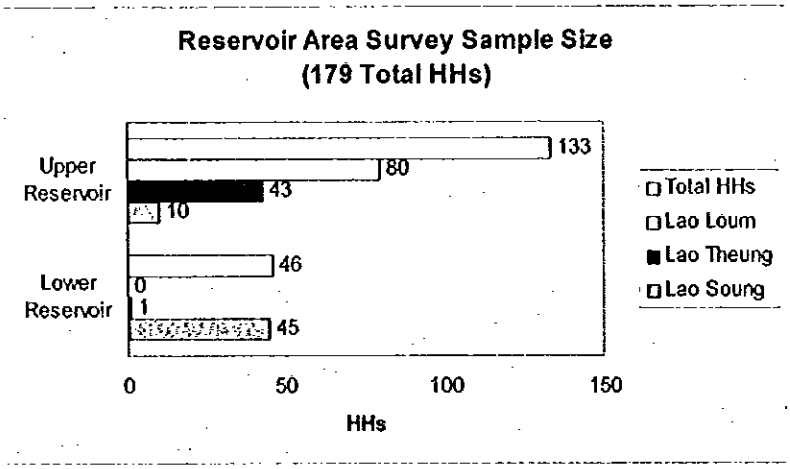


Figure 3.1 Sampled Households by Ethnic Group

Table 3.7 Stratified Random Sample Survey Design

VILLAGES	NUMBER HOUSEHOLDS BY ETHNIC GROUP						TOTAL	
	LAO LOUM		LAO THEUNG		LAO SOUNG			
	HH	%	HH	%	HH	%	HH	%
Upper Reservoir								
Xieng Khong	8	100.00	0	0.00	0	0.00	8	100
Viengthong	9	90.00	1	10.00	0	0.00	10	100
Phone Hom	0	0.00	13	100.00	0	0.00	13	100
Phonyeng	5	45.45	1	9.09	5	45.45	11	100
Naxay	0	0.00	5	100.00	0	0.00	5	100
Hatsamkhone	4	66.67	2	33.33	0	0.00	6	100
Pou	8	66.67	0	0.00	4	33.33	12	100
Nam Long	4	80.00	1	20.00	0	0.00	5	100
Na Kang	1	20.00	4	80.00	0	0.00	5	100
Naxong	14	87.50	2	12.50	0	0.00	16	100
Na Hong	4	26.67	11	73.33	0	0.00	15	100
Dong	14	87.50	2	12.50	0	0.00	16	100
Phiangta	9	81.82	1	9.09	1	9.09	11	100
Subtotal :	80		43		10		133	
Lower Reservoir								
Houay Pamom	0	0.00	0	0.00	4	100.00	4	100
Nam Youk	0	0.00	0	0.00	20	100.00	20	100
Sopphouh	0	0.00	0	0.00	3	100.00	3	100
Sop Youk	0	0.00	1	5.26	18	94.74	19	100
Subtotal :	0		1		45		46	
TOTAL	80		44		55		179	

In addition to the formal questionnaire survey, the JICA Study Team reviewed the existing sociocultural studies that have been conducted by ethnographers on behalf of other hydro projects in the Lao PDR and the ethnographic literature in general as a basis for planning a similar study for the second phase of the feasibility study. Whether or not or how this will take place will be according to the security situation in the Reservoir Area.[24]

[24] Chamberlain, James R.; Charles Alton and Latsamay Silavong. 1996. *Socio-Economic and Cultural Survey Nam Theun 2 Project Area.* Part Two. Vientiane: Care International. July 30.; Chamberlain, J.R. 1998. *A Socio-Economic Survey of Rural Resettlement Sites: Final Report.* Vientiane: United Nations High Commissioner of Refugees; Ovesen, Jan. 1993. *Anthropological Reconnaissance in Central Laos: A Survey of Local Communities in a Hydropower Project Area.* Uppsala Research Reports on Cultural Anthropology, No. 13. Uppsala University, Uppsala, Sweden; Ovesen, Jan. 1995. *A Minority Enters the Nation State: A Case Study of a Hmong Community in Vientiane Province, Laos.* Uppsala Research Reports on Cultural Anthropology, No. 14. Uppsala University, Uppsala, Sweden; Ovesen, Jan. 1996. "*Anthropological Presentation of Hmong Communities in the Project Area*" Report for Sogreah Ingenierie. *Environmental Impact Assessment for Nam Leuk Hydroelectric Project.* Vientiane. Electricite du Laos; Sparkes, S. 1995. *Socio-Economic And Cultural Survey Of Selected Villages In The Nam Theun And Nam Hinboun Catchments.* Vientiane, Norplan 28 p; Trankell, Ing-Britt. 1999. *On the Road in Laos. An Anthropological Study of Road Construction and Rural Communities.* Bangkok: White Lotus Press. (First Published 1993, as Uppsala Research Report on Cultural Anthropology, No. 12. Department of Cultural Anthropology. Uppsala University, Uppsala, Sweden.); Chazée, Laurent. 1999. *The Peoples of Laos: Rural and Ethnic Diversities.* Bangkok: White Lotus Press.

CHAPTER - 4

BASELINE SURVEY RESULTS

4. BASELINE SURVEY RESULTS

4.1 PEOPLE – UPPER AND LOWER RESERVOIR AREAS, INDIGENOUS PEOPLES

4.1.1 ETHNICITY IN NNHP RESERVOIR AREA

The following two tables present the ethnic distribution in the Reservoir Area according as determined by the socioeconomic survey of December 1998-January 1999, according to the official classification of *Lao Loum, Lao Theung,* and *Lao Soung.*

The Upper Reservoir consists of 14 mostly *Lao Loum* and Lao Theung villages in the Taviang Sub-District of Thathom District, Xaysomboon. All of the villages in Taviang Sub-District have *Lao Loum* households, seven also with *Lao Theung* and only two have *Lao Soung.*

Lao Theung households are about 22% of the Reservoir Area population and almost 30% of the Upper Reservoir communities. The *Lao Theung* (sometimes referred to as *Lao Khang*), or "Lao of the mountain slopes" are typically sedentary swidden cultivators, i.e., practicing rotational swidden farming from a permanent village. Lao Theung speak languages of the Austro-Asiatic family and consist of at least 37 different ethnic groups including the *Khamu (Khmu), Lamet* and *Sam Tao.*[1]

Lao Soung are 28% of households in Reservoir Area but only about 7% of those in the Upper Reservoir. *Lao Soung,* or "Lao of the Mountain Top," are semi-migratory pioneer swidden cultivators who move their villages when existing swidden plots decline in productivity. The *Lao Soung* speak languages of the Tibeto-Burman and Sino-Tibetan families and include groups such as the *Hmong, Yao* and *Akha.*[2]

The Lower Reservoir contains 4 *Lao Soung* villages, belonging to Hom District of the Xaysomboon. Although the *Lao Soung* are 28% of households in Reservoir Area and only about 7% of those in the Upper Reservoir, virtually all the households of the Lower Reservoir are *Lao Soung.* Although it will need to be confirmed by ethnographic fieldwork, it can be assumed that these are primarily Hmong communities.

Generally speaking, the villages in the table below are administrative villages, which in the Xaysomboon Special Zone tend to be multi-ethnic and clustered along the main roads. This is largely for security reasons but is also a result of GOL's rural

[1] English, 1998, p. 18.
[2] English, 1998. p. 18.

development policy and its concomitant resettlement of highland communities to river valleys or plains areas near lines of communication. The individual ethnic communities tend to be located, however, in hamlets within the administrative village boundaries, so that social structure and housing types described below in the village descriptions remain for the most part along ethnic lines.

Table 4.1 Households by Ethnicity, Upper Reservoir

UPPER RESERVOIR	LAO LOUM	LAO THEUNG	LAO SOUNG	TOTAL
Xiengkhong	34	5	0	39
Viengthong	45	1	0	46
Phonehom	0	67	0	67
Phonyeng	32	0	31	63
Naxay	1	21	0	22
Hatsamkhone	27	0	0	27
Pou	52	0	14	66
Namlong	13	4	0	17
Nakang	10	15	0	25
Naxong	68	13	0	81
Nahong	15	60	0	75
Dong	82	0	0	82
Phiangta	47	2	0	49
Sub Total Upper Reservoir:	*426*	*188*	*45*	*659*
LOWER RESERVOIR				
Houaypamon	0	0	18	18
Nam Youk	0	0	86	86
Sopphouh	0	0	23	23
Sop Youk	1	0	66	67
Sub Total Lower Reservoir:	*1*	*0*	*193*	*194*
TOTAL	427	188	238	853

4.1.1.1 LAO LOUM

The Lao Loum is stereotypically thought of as a lowland ethnic group who traditionally live on the plain and valley along rivers and practice paddy rice cultivation. They are thought to be not nomadic by nature. Where and once they settle they develop cultivable land in to paddy as much as possible and build their houses as permanently as possible with hard wood. Only the new and young families would first have bamboo houses with roofing made from grass. Their houses are always on stilts.

The Loa Loum are 50% of the total population in the Reservoir Area and about 66% of the Upper Reservoir, compared to 66% nationally. Lao Loum had settled in large groups in all of the villages surveyed in the Upper Reservoir and had always been regarded as the majority ethnic group in as the Upper Reservoir, well as in the whole country.

Thus the Lao Loum are what would be thought of as the mainstream ethnic group of the Lao PDR. They are the "Lao," i.e. the Thai/Lao speaking majority of the population who are generally known as 'Lao Loum' (lowlanders'). The 'Lao Loum' proper, or ethnic Lao, were the founders of the Lao kingdoms of Luang Prabang, Vientiane and Champassak.

The population distribution of the lowland Lao in the Lao PDR is shown in the following map from Chazée's 1999 *The Peoples of Laos*:

Figure 4.1 Ethnic Distribution of Lao[3]

Main and/or original distribution area of ethnic group
Population under or equal to 5 villages

The *Lao Loum* are also the majority group in the Taviang Sub-District area of the proposed NNHP Upper Reservoir Area. Their classification would be neat and simple except that there are also *'Lao Loum'* who in the earlier literature were usually classified as 'tribal' or 'upland Taï,' who are generally more recent settlers than the ethnic Lao.[4]

Goudineau points out that the Taï language populations in SE Asia, among them the so-called 'tribal' Lao, have had "an aptitude for progressively conquering the lowlands." Through irrigating rice fields, they have achieved the possibility of sedentarization, and thus they are known for the stability of their villages. Until now their expansion has been towards as yet unsaturated lowlands. These groups which have continuously migrated into the Lao PDR are the same as Taï groups in China (the *Leu*) or Vietnam (the *Taï Dam*).

Their mobility has allowed families to leave and rejoin, or to found new villages, and as documented in the Cambridge, Ovesen and Sparkes studies of the area around the NT2 HEP, this is still important. At the beginning of the 20th century, colonial administrators complained about elusive quality of these Lao villages, always ready to move in search of better lands or avoid taxes or the *corvees* (forced labor tasks). "Traditionally the settling process did not mean permanent settlement, and if the Lao-Taï populations give the closest representation of permanent settlement sites in Laos, they equally show a great flexibility throughout history."[5]

Thus, the *Lao Loum* or "Lao of the Valley," while typically sedentary irrigated rice

[3] Chazée 1999, p. 39
[4] Ovesen 1996.
[5] Goudineau 1997, pp. 9-10.

cultivators who speak languages of the Taï Kadai family, include a culturally diverse array of groups, such as those identified by English in the Nam Ngum Watershed, the *Phuan, Taï Daeng, Phu Taï* and *Lue*.[6] Ovesen identified in the Nam Theun And Nam Hinboun Catchments the *Taï Men, Taï Meuy* and *Taï Pao* as well as *Taï Khang, Taï Yuang, Taï Senkap* and *Taï Oh*.[7] On the Phoukhaokhouay Plateau, he identified the *Taï Phuan*, the *Phutai* and the *Taï Dam*.[8]

All these groups differed significantly from the Hmong in terms of language and cultural traditions. In particular, they share what has been called for such groups in Southeast Asia, a 'House-based society'.[9] That is to say, in their social organization, the village is focal social unit. Among the *Lao Loum*, kinship is cognatic, i.e., relations are traced through both parents. The implication of this is that the group of kinsmen that a person belongs to is not necessarily given, but that kin group are formed according to a number of practical concerns. Among these concerns, access to economic resources, primarily land, has a high priority. Rural Lao communities are examples of what has been called, as mentioned above, a 'house-based society', which means that the household and/or the village rather than any descent group is the focal social unit. In other words, practical kinship is a function of spatial proximity and territorial community rather than lineal descent.[10]

In contrast, the *Lao Soung* Hmong peoples have a more classic 'tribal' society based on kinship ties expressed in the idiom of patrilineal descent. This difference in social organization can have important implications for resettlement strategies. In other respects the Lao Loum have many basic similarities to the Hmong with respect to subsistence and general socio-economic conditions.

The *Lao Loum* tend to follow the rule of uxorilocal marriage, i.e. the husband moves into the house of the bride's family immediately after marriage, and the young married couple either stays there and takes are of the wife's parents in their old age, or sets up a separate household after a couple of years, typically when a younger daughter of the family gets married and brings in her husband. The youngest daughter usually stays in her natal home with her eventual husband.[11]

The village plays a very important role in *Lao Loum* society. In contrast to the Hmong, where the individual household and the descent group were the socially most important entities, among the *Lao Loum* there is a marked sense of village solidarity. Thus, in case migration becomes necessary, the decision to migrate is taken on village level, and the whole village moves as on body. T he unity of the village is symbolized by the *cai ban*, the 'heart of the village', a small pole which is erected and inaugurated by the elders or by a monk when settlement is completed. Village solidarity is also strengthened and/or maintained by marriages, which create ties of alliance between the families. Though there is no rule prescribing village endogamy (i.e. marrying within the village), or dissuade marrying out, there is a general preference among responsible

[6] English 1998, p.18.
[7] Ovesen, 1995.
[8] Ovesen, 1996.
[9] Ovesen, 1995.
[10] Ovesen, 1996.
[11] Ovesen, 1996.

adults, if nor necessarily among the young-for marrying the village. [12]

Most Lao groups are formally Theravada Buddhists, and this branch of Buddhism is traditionally also the official religion of the country, even though freedom of religion was decreed by law in 1994. In the rural areas, the practical religion consists of a localized amalgamation of theological Buddhism and indigenous spirit cults, so also in the project area. While the worship of the spirits is mainly a domestic affair-apart from the eventual annual offerings or sacrifice to the village spirit-the public religious activities are centered on the temple. The most significant way in which Lao women perform their duties towards the society is by being active in the life of the temple. By bringing food to the monks and by organizing a number of annual temple ceremonies and festivals, they create merits for themselves and the community, which will pay off in future incarnations.[13]

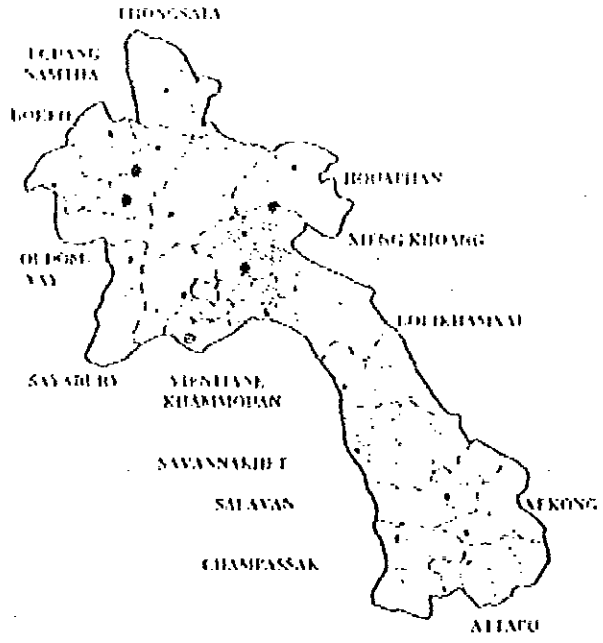
The data from the JICA Study Team's socioeconomic survey does not allow the study to distinguish which Lao Loum groups are in the Upper Reservoir Area. Nevertheless, the likelihood is very high that they are primarily of the *Phuan*, who were earlier the main population of an indigenous Taï state, the Phuan State. This kingdom on the Xieng Khouang plateau was demolished by the Thai (Siamese) in the early 19th century and the population dispersed over large parts of Laos and Thailand.[14] The forced migration (1876-78) of the *Phuan* was a consequence of the depopulation policy adopted by the Thai in their rivalry with the Vietnamese.

Traditionally, the area surrounding Phonsavan and the former capital of Xieng Khuang has been a center of Phuan language and culture. The Phuan, although classified as Lao Loum like the lowland Lao, have their own language of *'phuan'* and are part of the Taï-Kadai family, like Lao, Siamese and Taï tribals.[15] The lowland Lao, who speak a dialect peculiar to the region, dominate Bolikhamsay's population, followed by lesser numbers of tribal Taïs, Phuan, Ta-oy (Tahoy), Kri, Katang, Maling, Tri and Hmong.[16] The local population in Pakxan District of Bolikhamsay Province, however, is also predominantly Phuan, a tribal Taï group, many of whom are Christians. [17]

The likelihood that the Lao Loum of the Upper Reservoir are *Phuan* is high, because most of the villages in the Reservoir Area moved from Xiengkhouang Province, in particular, Pek, Khoun and Nonghet Districts. English records that the Phuan outnumber the mainstream Lao Loum in the Nam Ngum Watershed by two to one and are 68% of the population in the districts Paek and Phukud in Xieng Khuang, where they are concentrated.[18] Chazée's map showing their population distribution seems to confirm a high concentration of Phuan in the Upper Reservoir Area:

[12] Ovesen, 1996.
[13] Ovesen, 1996.
[14] Ovesen, 1993. Referencing Breazeale, Kennon and Snit Smuckarn. 1988. *A Culture in Search of Survival: The Phuan of Thailand and Laos.* New Haven: Yale University Press; Goudineau, 1997, P. 10.
[15] Cummings, Joe. *Laos.* 1998. p. 224.
[16] Cummings, 1998. p. 269.
[17] Cu Cummings, 1998. p. 269.
[18] English, 1999, p. 18.

Figure 4.2 Phuan Population Distribution in Lao PDR[19]



Main and/or original distribution area of ethnic group
Population under or equal to 5 villages

Another sub-group to the Lao Loum that may be represented in the Upper Reservoir, and have been documented in the downstream area, are the Lao Meuy, also referred to as Taï Deng, many of whom have migrated from Xieng Khouang and Khammoune after Second World War. Their communities in the Pakxan and Bolikhan Districts downstream of the NNPP damsite are not so strongly influenced by Buddhist ideology and contain a small number of Christian villages.

The Meuy in Bolikhamsay Province are "all coincidentally living at the foot of the hills on the left hand side of the road [Highway 13], paralleling the Mekong river downstream. The other groups, especially those who seem to have a long history of settlement in the area, are found mainly on the right hand side between the road and the Mekong river, though some Phuan villages are located also on the left hand side towards the hills and the forest.[20]

The Lao Meuy differ from other lowland groups with regard to social organization and religion. Residence rules emphasize virilocality, and the local spirit cults focus on the ancestors on the male side. As opposed to other lowlanders in the area, they do not cremate the dead but prefer burial. Though confessional Buddhists, the village temple is modes and in outlay resembles a village assembly hall of the kind found among the

[19] Chazée 1999, p. 45. Chazée spells them 'Phouane.'
[20] Trankell, Ing-Britt. 1999. *On the Road in Laos. An Anthropological Study of Road Construction and Rural Communities.* Bangkok: White Lotus Press. (First Published 1993, as Uppsala Research Report on Cultural Anthropology, No. 12. Department of Cultural Anthropology. Uppsala University, Uppsala, Sweden.). p. 67.

Taï Dam in the Vietnamese province of Son La. As in other non-Christian Meuy villages no monks or novices presently inhabit the buildings. By contrast, the primary school next to the temple is exceptionally crowded and has more than one hundred pupils.

The following map from Chazée indicates the likely presence of Lao Meuy not only in the Downstream Area but in the Reservoir Area as well:

Figure 4.3 Lao Meuy Population Distribution in Lao PDR[21]

Main and/or original distribution area of ethnic group
Population under or equal to 5 villages

While no village temples (*wat*) were observed in the Upper Reservoir communities, perhaps because they are still relatively new, English's description of typically Lao Loum villages in the Nam Ngum Watershed tends to summarize those of the Upper Reservoir area as well. Lao Loum traditionally live in stable villages situated near lowland rivers or streams. At higher elevations, villages are located in valleys that give as much access as possible to land suitable for irrigated rice cultivation. Lowland paddy yields average 2.0t/ha of rice per capita. The average area cultivated per household is estimated to be 1.5ha. Cattle, buffalo and sometimes horses range in surrounding forests and grasslands but are usually housed in the household compound overnight. Lao Loum farmers undertake swidden cultivation of surrounding hillsides only to the extent that the production of irrigated rice fields is insufficient to provide for the subsistence of the household. Farmers maintain permanent vegetable gardens near streams and springs.

[21] Chazée 199, p. 49.

The typical Lao Loum village in the watershed is made up of forty to fifty houses of timber construction. Rice is cultivated in irrigated, bunded, and often terraced fields. Villages are separated by rice fields or unused land. On the Xieng Khouang plateau, villages may be separated by as much as 10-20km or more but in more densely populated areas, such as near the [Nam Ngum 1] reservoir, 1km or less may separate settlements. Many villages maintain a Buddhist wat, typically a large raised wooden shelter that serves as a ceremonial center and a public meeting place. Lao Loum villages are generally homogenous although population expansion and land shortages have resulted in other ethnic groups settling in close proximity to established villages. Villages located near roads and towns that provide access to markets are well integrated into the cash economy. In the remoter areas of the watershed, such as Phukud, Phun and Xaysomboon districts, villagers are primarily subsistence oriented and virtually self-sufficient.[22]

Trankell's study along Highway 13, including the downstream villages of the NNPP, records that most *Phuan* were subsequently resettled on both sides of the Mekong, between Xiangkhan and Bolikhan. She notes that such historical factors are, however, generally submerged in the contemporary overall three fold classification of *Lao Loum*, *Lao Theung* and *Lao Soung*, which is based mainly on language, habitat and subsistence economy. The prevalence of *Phuan* in the downstream area may account for the first choice of many *Lao Loum* in the Upper Reservoir to be resettled in Pakxan District. Other such groups Trankell found in the downstream area comprised *Lao Isaan*, *Meuy*, and *Ngiaw*.[23] The actual prevalence of Phuan or other Lao Loum groups in the NNPP Project Area, each with its own distinctive history, will have to be confirmed by a further ethnographic study of the communities.

4.1.1.2 LAO THEUNG

These Austroasiatics in Northern Lao PDR (Khamu, Lamet) are descendants of the aboriginal Mon-Khmer speaking population of the county in the north. They have gradually been subjugated by the Thai/Lao speaking peoples who have immigrated from the north from the 13th to the 18th centuries and who now form the majority of the population of the country. The Khamu are still sometimes referred to as 'Kha' (slave) in the vernacular, but more officially they are classified as 'Lao Theung', or, sometimes, 'Lao Kang' ('midlanders').[24] English records the *Khamu* as the sole *Lao Theung* population in the Nam Ngum Watershed,[25] and it is likely that these are also the Lao Theung of the Upper Reservoir.

Khamu are divided into sub-groups that are difficult to identify as a minority, or as a group. The 1985 census included under the Khmu the Mon-Khmer Ou, Lu, Rok, Me, Keun, Khong, Kouene, Kongsat. The 1995 Census used a different sub-grouping. Chazée describes the Austro-Asiatic Family, of which the Khamu are a part:[26]

Of kind and respectful character towards authority, they are little concerned about their

[22] English, 1998, p. 26.
[23] Trankell,1993, p. 18.
[24] Austroasiatics (Mon Khmer) in South are the *Ta Oy, Katu, Pacoh, Talieng*. Ovesen, 1996.
[25] English 1998, p. 26.
[26] Chazée 1999, p. 52.

past and their future. In Laos, they generally have little sense of ethnic unity and very little ethnic or village socio-political organization. They are thus sensitive and vulnerable to the adversities of nature and do not rely on strong social barriers to protect themselves against acculturation and assimilation influences from the lowlanders. These influences have been facilitated by their relative geographic proximity, and by their continuous relationship supplying labor to Taï communities.

Since 1986, the modification of farming systems towards a market economy, the GOL sponsored 'voluntary' resettlement activities, the restriction of shifting cultivated areas, and the effects of the development focal site programs have accelerated the danger of linguistic and cultural extinction of several Austro-Asiatic minorities, particularly in the South.[27]

Cyclical swidden is the livelihood typically associated with the Khamu farmers, who have traditionally occupied the uplands of Xieng Khouang and Bokeo provinces, systematically rotate swidden plots within a defined village territory over a 7-15 year cycle. Rice is the principal crop and yields on cyclical swidden average 1.5-2.0t/ha. Maize and cassava are grown for animal feed – most commonly for pigs – but serve as food supplements at times of rice scarcity as well. Most households maintain vegetable gardens either in swidden plots or in small fenced plots located near streams to facilitate hand watering.

Khamu villages are semi-permanent. The typical village contains 20 to 30 elevated households of bamboo construction located near water sources. Wherever possible irrigated rice is cultivated to supplement swidden field crops. Khamu typically relocate their villages from time to time within the overall cultivated territory for spiritual reasons, disease or the general deterioration of housing. Many of the Khamu inhabitants of Xieng Khouang and Xaysomboon were dislocated during the Second Indochinese War and have come to settle in lower elevations near Highway 13 and 13-B both for security reasons and to take advantage of transportation, markets and social services. Because their farm production systems generate the lowest yields, compared to irrigated or pioneer swidden systems, the Khamu, and the Lao Theung in general, are often considered the poorest segment of the Lao population.[28]

As with the existence of the *Phuan*, the ethnographic study in the next phase of the NNHP RAP preparation will need to confirm more detailed information about the *Lao Theung* in the Upper Reservoir Area. These are most likely of the *Khamu* ethnic group and probably the most likely to be considered an 'indigenous people' requiring extra attention.

The Khamu, with a population of between 4-500,000, easily represent the dominant Mon-Khmer branch in Laos and appear to be the country's largest minority. Their territory extends from Phonsaly Province to Pakxan in Bolikhamsay Province. They are mainly grouped in the northern central areas of Laos, in the provinces of Luang Prabang and Oudomxay, in northern Xayaboury, south of Phonsaly, eastern Luang Namtha, in the center and west of Huaphan and of Xieng Khouang and in the north of Vientiane Province. Many Khamu live in Vietnam and Thailand as well as in the north

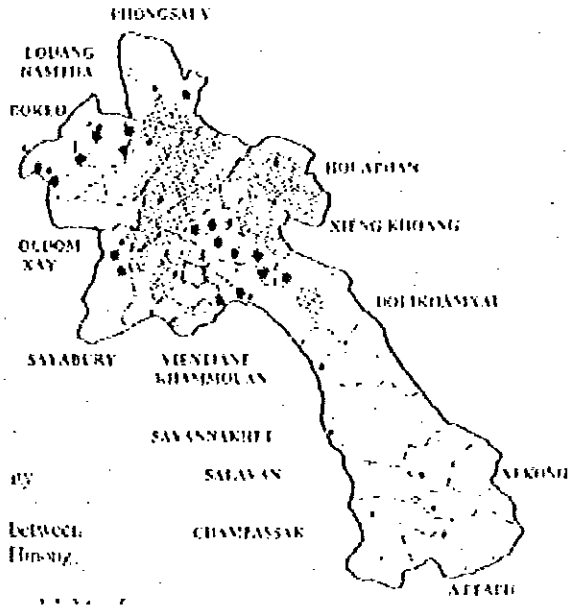
[27] Chazée 1999, p. 52.
[28] English, 1998, p. 27.

of Laos. Since 1975 many have become refugees in Thailand, France, Australia and America.

The Khamu are divided into sub-groups, which are difficult to identify as a minority, or as a group. The 1985 census included under the Khamu the Mon-Khmer Ou, Lu, Rok, Me, Keun, Khong, Kouene, and Kongsat. The Khamu Ou represent the largest Khamu group and are the only ones shown in Chazée's recent work with a distribution extending into the NNHP Reservoir Area.[29] Others are for the most part in more northerly parts of Laos.

The following map indicates the Khamu Ou population distribution in the Lao PDR:

Figure 4.4 Khamu Ou Population Distribution in Lao PDR[30]



Main and/or original distribution area of ethnic group
Population under or equal to 5 villages

4.1.1.3 LAO SOUNG (HMONG)

The Hmong and the Yao belong linguistically to the Hmong-Mien (or Miao-Yao) speaking group of the Sino-Tibetan languages. In the national Lao context, they are conventionally classified, together with such Tibeto-Burman speaking hill tribes as the Akha and the Lahu, as *'Lao Soung'* ('highlanders'). These groups have all been migrating into Laos from the north during the last couple of hundred years.[31]

The ancestors of the present-day Hmong ethnic group were aboriginal tribesmen of the

[29] Chazée 199, p. 58.
[30] Chazée 199, p. 72.
[31] Ovesen, 1996.

mountains of southern China. They were mentioned in Chinese chronicles as early as about 2500 BC There are about 230,000 *Hmong Khao* in the Lao PDR, about 5% of the population. They are part of larger migratory movement into Northern Vietnam, Laos, Thailand, and Burma during the last couple of centuries. The majority of the Hmong-an estimated 3 million – still live in Yunnan, in Southern China.

The Hmong started to migrate from their original homeland in the mid-19th century, as a result of conflicts with, and oppression by, the (Han) Chinese. In less than 50 years, groups of Hmong spread to those mountainous regions of northern Vietnam, northern Laos, and northern Thailand where they are presently found.[32] The Hmong were earlier referred to as *Meo* or *Miao* in the western literature. To the Hmong themselves, the term *Meo* is felt to be derogatory; it is still used by some Thai in Thailand, but it was never current in Laos, though it is occasionally found in some of the few Anglophone writings on that country.[33] Hmong speak the Hmong language among themselves, although most middle-aged and younger men and many younger women are bilingual in Lao. In contrast to Tai groups, the Hmong have received a fair amount of attention from anthropologists, so there is a considerable literature available describing them.[34] According to English, the Hmong make up more than two-thirds of the country's *Lao Soung* minorities and nearly all of the Lao Soung in the Nam Ngum Watershed. The *Lao Soung* of the Upper and Lower Reservoir Areas are also most likely for the most part Hmong, although this will need to be confirmed.

The Hmong traditionally subsist on swidden cultivation. Their comparatively rapid southward movement, into Vietnam, Laos and Thailand during the last 100 years serves to indicate the fact that they have never stayed long enough in one place to have had the opportunity to develop an environmentally sustainable system of shifting cultivation. One reason for this may be that they have always been late settlers in an area and therefore have been confined mainly to the high mountain slopes where nobody else has found it worthwhile to cultivate.[35]

Hmong villages in Laos, Vietnam and Thailand have traditionally been found on mountain or ridge tops. Villages comprise twenty to thirty houses of bamboo construction set directly on the ground. Hmong typically establish their villages in areas of primary growth forest. The areas surrounding the village are slashed, burned and farmed until the soil fertility is depleted, usually after two to three cropping seasons. At that point, farmers clear new plots further beyond the circumference of the village settlement, or move their village to a new location entirely.[36]

In a number of locations in Xieng Khouang and Xaysomboon, Hmong have settled on midland or lowland areas suitable for irrigated rice cultivation. Hmong farmers continue to practice upland swidden cultivation of cash crops but villages have become more permanent with the construction of timber-frame housing and the plantation of fruit trees.

[32] Ovesen, 1996.
[33] Ovesen, 1996.
[34] Ovesen, 1993. References are made to: Geddes (1976), Lemoine (1972), Yangdao (1975), Tapp (1989). For Homong material culture, clothing, ornamentation, Lewis and Lewis (1984).
[35] Ovesen, 1996.
[36] Ovesen, 1996. p. 27.

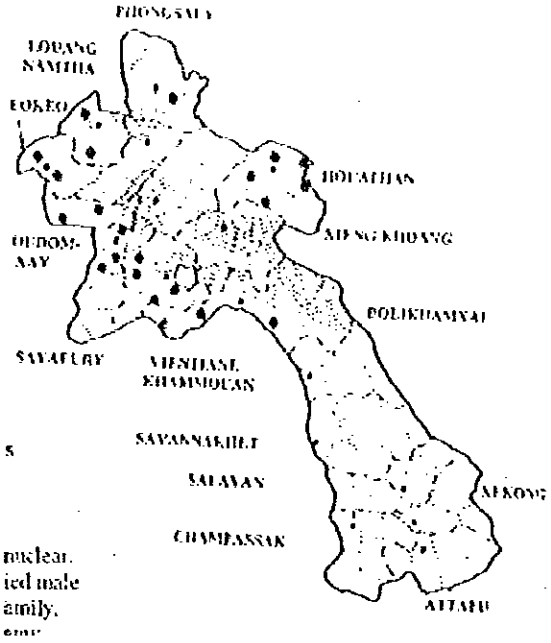
Hmong have traditionally cultivated opium poppy as a cash crop. Poppy is usually grown in succession to maize and cassava on swidden plots at high altitude. Maize and cassava are processed for feeding pigs, which are another important source of cash income. Subsistence rice is grown on swidden plots at lower altitudes. Rice yields from pioneer swidden plots can average 2.0 to 2.5t/ha in the first year of cropping but yields decline significantly in the second and third years of cultivation.[37]

Like in most other 'tribal' societies, the indigenous religion of the Hmong is intimately connected to the structure and organization of the society and the dominant mode of subsistence. Buddhism, the official religion of the country, is quite alien to the Hmong way of thinking. Christianity has proved to have greater appeal, not least in its messianic aspects, but about 80% of the Hmong in Laos still subscribe to the indigenous, 'animist' religion.[38]

The Hmong are divided into four or five major dialectical and cultural divisions, two of which are in the Lao PDR – the Green Hmong (Hmong Njua, *Hmoob Ntsaub*, earlier also called the Blue Hmong, or Blue *Meo* in English writings) and the White Hmong (*Hmong Khao, Hmong Doh, Hmoob Dawb*). Ovesen reported the latter to be the primary group in his study area on the Phoukhaokhouay Plateau, and it is very likely they are also among the Lao Soung in the Lower Reservoir.[39] However, both groups are distributed across the Lao PDR as shown in the following maps:

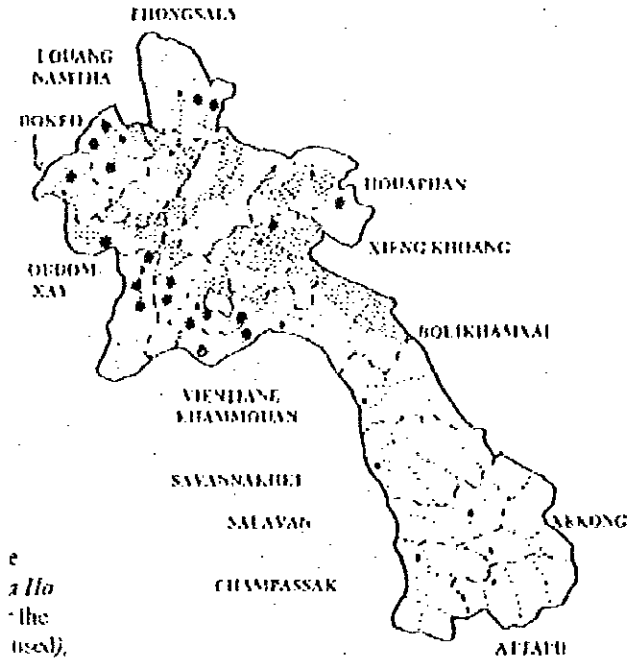
[37] Ovesen, 1996.
[38] Ovesen, 1996
[39] Ovesen, 1996.

Figure 4.5 Hmong Lay (Green, or Stripped Hmong) Population Distribution in Lao PDR



Main and/or original distribution area of ethnic group
Population under or equal to 5 villages

Figure 4.6: Hmong Khao (White Hmong) Population Distribution in Lao PDR



Main and/or original distribution area of ethnic group
Population under or equal to 5 villages

The color terms refer to certain particulars of the women's traditional dress. Although the dialects of the two divisions differ in some respects, they are mutually intelligible. There is evidence that earlier intermarriage between the two divisions was rare in Laos, but today the divisions do not have marriage regulating functions. Being primarily emblematic. On the whole, the divisions have very little social significance, their function being primarily emblematic. Of far greater social importance are the clans.

It is not easy to distinguish the Hmong in the Reservoir Area by their dress, however. An ethnographic observation made in a similar community in the proposed Nam Mang Hydropower Project affected area would also seem to apply to the NNHP Reservoir Area:

In contrast to Hmong in Thailand and northern provinces of Laos, [the Hmong of the Project Area] do not adhere strictly to the traditional ethnic dress, which makes them conspicuously different from other groups in the first-mentioned areas. For a visitor hoping to meet representatives of 'colorful hill tribes,' [the Project Area] is not the place to go. Only some older people retain elements of the traditional costume; all girls and practically all women below the age of about 40 have adopted the Lao style of dress, a blouse or T-shirt, and a pasin.40

Eighteen clans (*xeem*), eight of which -- the *Yang, Moua, Lee, Vue, Lor, Shonog, Her,* and *Vang* – Ovesen reported, for instance, on the Phoukhaokhouay Plateau. These are patrilineal lineages, i.e., children belong to same clan as their father. They are strictly exogamous, i.e., marriage must be with a person from another clan than one's own. Considering that clans are dispersed over vast region, the exogamous rule is followed with remarkable rigorousness, even to pre- or extramarital sexual relations.[41]

If a young man takes a fancy to a girl, all erotic attraction will immediately vanish if he learns that she belongs to his own clan. Primary loyalty is to ones own clan, irrespective of village or region of residence. A household wishing to move to some other area will always contact clan relatives in the settlement of their destination and negotiate with them about the proposed relocation, as the latter will act as sponsors for the new arrivals. A Hmong person who happens to pass through an unknown Hmong village may always call at the house of one of his fellow clan members and expect hospitality.[42]

At marriage, a woman leaves her natal household and becomes a member of that of her husband. She also leaves her natal clan and becomes attached to that of her husband. The normal age of marriage is quite low, usually about 18-20 years for men and 16-17 for girls, but it is not uncommon for a girl to marry at the age of 14. Pro-marital sexual relations are accepted and are the norm rather than the exception for both boys and girls. If pregnancy results from such a relation, marriage will most often ensue. The Hmong allow *polygyny*, though it is not a common practice. A man may take a second, or even a third wife in principle only with the consent of the first, and traditionally he would only do so if the first wife proved barren or had given birth to girls only. Among the Hmong in Laos, however, polygyny is somewhat more frequent for people born in the 1940 and 1950s because of the considerable number of casualties

[40] Ovesen 1995, p. 48.
[41] Ovesen 1995.

among men during the civil war.[43]

While the Hmong a more classic 'tribal' society based on kinship ties expressed in the idiom of patrilineal descent, the patrilineal clan system, coupled with traditional swidden subsistence economy has necessitated good deal of migration, resulting in comparative lack of village cohesion in favor of individual household mobility, but also in retention of penchant for living near close relatives. Most clans have own particular taboo. Some, for instance, are prohibited to eat the heart of any animal, others to eat sour or acid things with rice, or to kill buffalo, or to take cooked rice along to field. The rationales for these food prohibitions are found in myth and legends.

The pronounced socio-economic autonomy of the household is one reason why the concept of the village has traditionally a different meaning and much less importance for the Hmong than it has for the Lao majority of the population of the population of the country. The Hmong have not traditionally felt attached to any particular village as a spatial or social unit-in the same way as the Lao Loum. To the Hmong, the primary foci of social identification are the household, the group of close relatives (*kwv tij*), and the clan, irrespective of any temporary or even permanent settlement. Their social identity is thus fixed through the concepts of patrilineal descent groups ('lineages' and clans), the actual units of which are dispersed. This ideology of social organization, based on descent rather than on locality, is also the reason why Hmong villages do not have Hmong names, but are referred to by the Lao name that the district authorities or the local Lao population have decided upon.[44]

As comparative newcomers to Vietnam, Laos and Thailand, the Hmong have encountered numerous difficulties with the local majority populations. When the Viet Minh and the USA expanded their battlefield into Lao territory in the 1960s, the Hmong became divided between the two sides. This was to a large extent due to the rivalry that evolved between the two equally influential leaders. After the war, a large number of Hmong made their escape from Laos, first to neighboring Thailand, and for many eventually to the USA. By the late 1980s, about 120,000 Hmong had left Laos; about 80,000 are currently living overseas, most in the USA, but there are smaller communities also in Australia, Canada, France, Argentina, and even Suriname.[45]

Of the Hmong who fled to Thailand, a fair number have returned in recent years, but according to the estimates of the United Nations High Commission for Refugees (UNHCR), there were in 1993 still about 20,000 Hmong living in refugee villages in Thailand. The Lao and Thai governments agreed on a repatriation scheme, under UNHCR auspices and assisted by various NGOs, which was to have been substantially completed by 1995.[46]

[42] Ovesen 1995.
[43] Ovesen, 1995.
[44] Ovesen, 1996.
[45] Ovesen, 1995
[46] Ovesen, 1995