

Updated Social Development Plan

Project Number: 41924-014
October 2016

Nam Ngiep 1 Hydropower Project (Lao People's Democratic Republic)

Annexes C to F

Prepared by Nam Ngiep 1 Power Company Limited for the Asian Development Bank

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Annex C

Details of the Community Led Total Sanitation program

NAM NGIEP 1 POWER COMPANY LIMITED (NNP1)

and

RURAL DEVELOPMENT AGENCY (RDA)



IWASH&N PROGRAMME

ACTION PLAN

Prepared by: RDA

Dated: AUGUST 2015

Introduction

Nam Ngiep 1 Hydropower Company contracted Rural Development Agency (RDA) to implement an Integrated WASH (iWASH) programme. RDA developed a proposal that outlined the requirements identified by Nam Ngiep 1 for an integrated approach to behaviour change surrounding water, sanitation hygiene in villages scheduled for resettlement. The iWASH programme integrated nutrition activities to be undertaken by the Environment and Social Division's Health Team to deliver a holistic approach to improved health at a village and household level.

The contract was based on RDA being the only organisation in the Lao PDR that have implemented an integrated approach to Community-Led Total Sanitation and the GoL Village Health Model; along with the integration of WASH and nutrition activities in the context of resettled amalgamated villages, including several Hmong ethnic groups such as Daw, Leng and Ntsua, has an extensive experience in designing and implementing integrated WASH programmes as well as Community engagement and capacity building, The integration of Community-Led Total Sanitation and WASH in Schools, and School-Led Total Sanitation, Integrated WASH and nutrition, and Behaviour change strategies.

The Integrated WASH programme contract was inline with both NNP1 and GoL policies and objectives to assist in achieving village health outcomes and the contract had the following Components; Rural Water Safety Plans, Community-Led Total Sanitation / Village Health Model, WASH in Schools, Participatory Community Waste Management, Team building and communication training, Participatory community development training and Project (adaptive) management, monitoring and evaluation training.

The situational analysis was conducted to help in the Development of iWASH&N Programme outlining community needs, establish alignment with NNP1 concession agreement, identify additional activities (e.g. suitability and requirements for pre-resettlement activities) and SED staff capacity and resources, depth of iWASH&N activities to be undertaken, and level of incorporation of nutrition elements in collaboration with Health Team. Based on the situational analyses report, the following are recommended.

Program Action Plan for iWASH&N program of NNP1 2015-2019										
Activity					# of HH	Timel Line				
No.	Name	Zone	Village			2015	2016	2017	2018	2019
Phase I	Activity 1	Situation Analysis / Scoping Study, and Development of iWASH Programme Plan	2 - UR	3 Villages	328					
			2 - LR	4 Villages	384					
			3 - Construction	Hatsaykham	33					
			4 - Downstream	9 Villages	1592					
			5 - Downstream	2 Villages	117					
			5 - Resettlement	n/a	n/a					
Phase II	Activity 1	SED Team Building and Communication Training								
	Activity 2	Participatory Community Development Training								
Phase III	Activity 1	CLTS, Adapted (pre-resettlement) Triggering	3 - Construction	Hatsaykham	33					
	Activity 2	CLTS, Adapted (pre-resettlement) Triggering	2 - Lower Reservoir Area	Houaypamom	37					
				Sopphuane	58					
				Sopyouak	126					
Namyouak	163									
Phase IV	Activity 1	Village Water Safety Plan & CLTS Pre-Triggering (post-resettlement)	5 - Resettlement	Amalgamated (5 villages)	417					
Phase V	Activity 1	WSP/CLTS Post Triggering - Post-resettlement Committee Election, Project Management Training and Implementation	5 - Resettlement	Amalgamated	417					
	Activity 2	WSP/CLTS Post Triggering - Post-resettlement Sanitation / WSP Committee Mobilisation and Support for Community Engagement	5 - Resettlement	Amalgamated	417					
Phase VI	Activity 1	Village WSP and CLTS Pre-triggering (Post-resettlement of households)	2 - Upper Reservoir Area	Pou	172					
				Piengta	82					
				Hatsamkhone	74					
	Activity 2	Village WSP and CLTS Triggering		Pou	172					

	Activity 3	WSP & CLTS Post Triggering - Committee Election, Project Management Training and Implementation	2 - Upper Reservoir Area	Piengta	82				
				Hatsamkhone	74				
				Pou	172				
				Piengta	82				
				Hatsamkhone	74				
	Activity 4	WSP & CLTS Post Triggering - Sanitation / WSP Committee Mobilisation and Support for Community Engagement	2 - Upper Reservoir Area	Pou	172				
				Piengta	82				
				Hatsamkhone	74				
				Pou	172				
				Piengta	82				
				Hatsamkhone	74				
Phase VII	Activity 1	Village Water Safety Plan and CLTS Triggering	5 - Downstream	Hat Gniun	67				
				Thaheua	50				
	Activity 2	Village Water Safety Plan	4 - Downstream	Nampa	84				
				Somseun	221				
				Houykhoun	358				
				Thong Noi	165				
				Thong Yai	86				
				Sanaxay	274				
				Phonsy	137				
				Sanoudom	94				
Phase VIII	Activity 1	Youth Volunteers– School-Led Total Sanitation and WASH Training SLTS Triggering and Youth Volunteer Recruitment	8 Schools in Zone 2UR, 2LR, 3 and 5						
	Activity 2	Youth Volunteers Project Development / Management Training Post-triggering (TUD)							
M&E	Activity 1	Supporting follow up, monitoring and evaluation in field	2 - Upper Reservoir Area	Pou	172				
				Piengta	82				
				Hatsamkhone	74				
			5 - Resettlement	Amalgamated	417				
			4 - Downstream	Nampa	84				
				Somseun	221				
	Houykhoun	358							

		Thong Noi	165					
		Thong Yai	86					
		Sanaxay	274					
		Phonsy	137					
		Sanoudom	94					
		5 - Downstream	Hat Gniun	67				
	Thaheua		50					

Program Activity Breakdown:

Phase I. Activity 1: Situation Analysis / Scoping Study, and Development of iWASH'N Programme Plan
<p>Description: An in depth scoping study will be required to fully assess community needs, establish alignment with NNP1 concession agreement, identify additional activities (e.g. suitability and requirements for pre-resettlement activities) and SED staff capacity and resources, depth of iWASH activities to be undertaken, and level of incorporation of nutrition elements in collaboration with Health Team. Following a full situation analysis a draft iWASH Programme Plan will be developed for consultation with Nam Ngiep 1 SED, with a final Plan completed including a final agreed budget.</p>
<p>Objectives:</p> <ul style="list-style-type: none">- Situation analysis of Nam Ngiep 1 SED staff capacity and resources.- Review of relevant documents including Concession Agreement, Social Development Plan and relevant GoL policy / strategies.- Field based scoping study of communities to be resettled, resettlement location, proposed infrastructure, GoL capacity and liaison officers.- Development of a draft iWASH Programme Plan including full budget.- Consultation with SED staff over draft iWASH Programme Plan.- Produce a final iWASH Programme Plan including budget and time line.
<p>International Consultant:</p> <p>The international consultant will assist in establishing the methodology for the situation analysis, participating in the site visit for the scoping study, reviewing all data collected and preparing the final iWASH Programme Plan, including budget, in collaboration with the RDA team and SED staff.</p>

Phase II. Activity 1: SED Team Building and Communication Training (Pre-triggering for SED)
<p>Description: This is a key starting point for the implementation of an integrated work team. This component goes beyond the core deliverables of the iWASH programme, establishing the groundwork necessary to bring all staff of the Environmental and Social Division together as an <i>integrated</i> team. The training will be a “pre-triggering” for SED staff to prepare them for the resettlement of communities, how they will need to work together, challenges they may face, how their work is related to WASH, behaviour change and community health, and lay the groundwork for Activity 2 – Participatory Community Development Training.</p>
<p>The training workshop should be held away from the project office to create a more relaxed, informal environment, working to break down communication barriers that exist within individual work teams. A major component of the workshop will be to empower individuals, with staff realising their strengths</p>

and potential to bring about change through their work, identify their weaknesses and create a culture of team support.

During the workshop, core project training will be delivered in ‘team work’, ‘project management’, and ‘communication’; including aspects of participatory community development necessary to all aspects of SED project implementation. If one has not already been prepared, the workshop can provide the opportunity to develop the SED **long range strategic plan** as a key output, with an overriding theme of ‘*integration*’ that will be introduced during this time.

Objectives:

- Why do we need to be “integrated”?
- How does my work relate to WASH, behaviour change and community health? (Connection web activity).
- Self-awareness (inward reflection to achieve empowerment) of individual capacity and organisation capacity.
- Tolerance and respect of each other and communities in which they work.
- Identification of individual strengths and weaknesses; how to use strengths to their advantage, and how to develop weaknesses so they become strengths.

Phase II. Activity 2: Participatory Community Development Training

Description: Two (2) days of class based training, one (1) day of practical field based training, and one (1) day of wrap up discussion with staff members. During the wrap up session, staff will bring along their individual project work to discuss with the group, ensure integration with other relevant activities, and outline successive tasks they will undertake.

Objectives:

- Basic facilitation skills (listening, questioning, note taking, catching key points)
- How to analyse information effectively
- Effective management of community meetings/workshops/focus groups
- Communication with community focus groups (how to facilitate community groups to participate in village development – bottom up approach)

Phase III. Activity 1 & 2: CLTS Triggering Pre-Resettlement

Description: Initial sanitation “Triggering” *before* resettlement of village to raise community awareness of their current sanitation situation, why sanitation is important, sanitation options in Laos for toilets, expectations for new village and their toilet, what can they do *now* before resettlement to improve their sanitation situation.

Activities:

Day 1 – Meeting with village authority to discuss “triggering” activities and purpose

Day 2 – Community facilitated through the following activities:

- Personal hygiene (faecal – oral pathway)
- Diseases from faeces
- CLTS Sequence
 - Transect walk
 - Village mapping
 - Calculation of faeces
 - Medical calculation
 - Ignition moment (igniting awareness/realisation within community of

WASH → nutrition → diarrhoea → health/death)

- Household water storage and handling
- Sanitation examples in Laos & sanitation infrastructure in new village
- “What can you do now?” – facilitate community to find solutions for sanitation & hygiene daily practice prior to resettlement (e.g. HWWS, covering OD faeces, water storage etc.)

Phase IV. Activity 1: WSP/CLTS (Post-Resettlement)

Description: Adapted CLTS and WSP pre-triggering in the resettled village of Zone 5. As B. Hatsaykham is to be resettled in early 2016, and the remaining villages from Zone 2 are to be resettled in 2017, it is advised that WSP/CLTS activities commence in 2016.

Water Safety Plans are now a GoL requirement for any new water supply. The WSP focuses on preventive risk management, facilitating the community to identify risks to drinking-water safety, prioritise these and develop a locally relevant management plan that documents the practical process of protecting drinking-water quality before problems occur and providing safe water at the community level. This includes the issue of in-house contamination of drinking water before consumption. Water safety planning requires regular monitoring of control measures and periodic confirmation of water quality (verification / compliance monitoring).

Activities:

Day 1 – Village (amalgamated) authority meeting (including key community representatives)

Day 2 – Community discussion (in original village 5 groups) to identify general feeling post-resettlement and expectations within their new amalgamated community [2 groups]

Day 3 – As above [2 groups]

Day 4 – Morning, as above [1 group]; Afternoon, entire village discussion and sharing of information from previous days; Evening, presentation of “next steps” towards becoming an ODF / MHV status and having a community WSP.

Phase V. Activity 1: Post-Triggering / Committee Election, Project Management Training & Implementation

Description: Members of various village committees (water user group, village health committee, ‘positive defiance’ role models etc.) should undertake this training, along with others identified by project staff and/or nominated by the community.

Activities:

Day 1 - Community

- Community agreement on separate or combined WSP / Sanitation committee
- Community election of committee members
- Identify tasks, roles and responsibilities (of committee as a whole and individual members)
- Develop action plan, rules, regulations, reporting framework etc.

Day 2 – Committee

- Training on detail of tasks, roles, and responsibilities (leadership for development training)
- Training on designing and action plan, monitoring and reporting
- Practical implementation of training skills

Day 3 – Household Visits

- Committee individual household visits to assess sanitation and WSP situation (sanitation committee mapping CLTS/MHV, WSP committee mapping water safety for each household)
- Community sanitation / WSP report

Phase V. Activity 2: Post-Triggering / Sanitation, WSP Committee Mobilisation, & Community Engagement

Description: Follow up support to committee(s) to ensure they have the skills and understanding to assist their community in achieving ODF / MHV status and safe water from point of supply to consumption.

Activities:

Day 1 - Review of skills learnt, observation of committee implementation of project management, group discussion of facilitator observations.

Day 2 – Household visits (per activity plan) for follow up and committee facilitated to engage with community constructively to deliver ODF/WS messages and encourage practical application for household improvement in safe water, sanitation, hygiene, behaviour change.

Day 3 – Reflection with committee(s) on previous day’s activities and plan next steps.

Phase VI. Activity 1: Village WSP & CLTS Pre-Triggering

Description: Water Safety Plans are now a GoL requirement for any new water supply. The WSP focuses on preventive risk management, facilitating the community to identify risks to drinking-water safety, prioritise these and develop a locally relevant management plan that documents the practical process of protecting drinking-water quality before problems occur and providing safe water at the community level. This includes the issue of in-house contamination of drinking water before consumption. Water safety planning requires regular monitoring of control measures and periodic confirmation of water quality (verification / compliance monitoring).

Activities:

Day 1 – Meeting with village authority to discuss “triggering” activities and purpose

Day 2 – Meet with the community, introduction and building rapport

Phase VI. Activity 2: Village WSP & CLTS Triggering -

Description: Initial sanitation “Triggering” *before* resettlement of village to raise community awareness of their current sanitation situation, why sanitation is important, sanitation options in Laos for toilets, expectations for new village and their toilet, what can they do *now* before resettlement to improve their sanitation situation.

Activities:

Day 1 – Meeting with village authority to discuss “triggering” activities and purpose

Day 2 – Community facilitated through the following activities:

- Personal hygiene (faecal – oral pathway)
- Diseases from faeces
- CLTS Sequence
 - Transect walk
 - Village mapping
 - Calculation of faeces
 - Medical calculation
 - Ignition moment (igniting awareness/realisation within community of
WASH → nutrition → diarrhoea → health/death)
- Household water storage and handling
- Sanitation examples in Laos & sanitation infrastructure in new village
- “What can you do now?” – facilitate community to find solutions for sanitation & hygiene daily practice prior to resettlement (e.g. HWWS, covering OD faeces, water storage etc.)

Phase VI. Activity 3: Post-Triggering / Committee Election, Project Management Training & Implementation

Description: Members of various village committees (water user group, village health committee, ‘positive defiance’ role models etc.) should undertake this training, along with others identified by project staff and/or nominated by the community.

Activities:

Day 1 - Community

- Community agreement on separate or combined WSP / Sanitation committee
- Community election of committee members
- Identify tasks, roles and responsibilities (of committee as a whole and individual members)
- Develop action plan, rules, regulations, reporting framework etc.

Day 2 – Committee

- Training on detail of tasks, roles, and responsibilities (leadership for development training)
- Training on designing and action plan, monitoring and reporting
- Practical implementation of training skills

Day 3 – Household Visits

- Committee individual household visits to assess sanitation and WSP situation (sanitation committee mapping CLTS/MHV, WSP committee mapping water safety for each household)
- Community sanitation / WSP report

Phase VI. Activity 4: Post-Triggering / Sanitation, WSP Committee Mobilisation, & Community Engagement

Description: Follow up support to committee(s) to ensure they have the skills and understanding to assist their community in achieving ODF / MHV status and safe water from point of supply to consumption.

Activities:

Day 1 - Review of skills learnt, observation of committee implementation of project management, group discussion of facilitator observations.

Day 2 – Household visits (per activity plan) for follow up and committee facilitated to engage with community constructively to deliver ODF/WS messages and encourage practical application for household improvement in safe water, sanitation, hygiene, behaviour change.

Day 3 – Reflection with committee(s) on previous day’s activities and plan next steps.

Phase VII. Activity 1: Village WSP & CLTS Triggering -

Description: Initial sanitation “Triggering” *before* resettlement of village to raise community awareness of their current sanitation situation, why sanitation is important, sanitation options in Laos for toilets, expectations for new village and their toilet, what can they do *now* before resettlement to improve their sanitation situation.

Activities:

Day 1 – Meeting with village authority to discuss “triggering” activities and purpose

Day 2 – Community facilitated through the following activities:

- Personal hygiene (faecal – oral pathway)
- Diseases from faeces
- CLTS Sequence
 - Transect walk
 - Village mapping
 - Calculation of faeces
 - Medical calculation
 - Ignition moment (igniting awareness/realisation within community of
WASH → nutrition → diarrhoea → health/death)
- Household water storage and handling
- Sanitation examples in Laos & sanitation infrastructure in new village
- “What can you do now?” – facilitate community to find solutions for sanitation & hygiene daily practice prior to resettlement (e.g. HWWS, covering OD faeces, water storage etc.)

Phase VII. Activity 2: Village Water Safety Plan

Description: Water Safety Plans are now a GoL requirement for any new water supply. The WSP focuses on preventive risk management, facilitating the community to identify risks to drinking-water safety, prioritise these and develop a locally relevant management plan that documents the practical process of protecting drinking-water quality before problems occur and providing safe water at the community level. This includes the issue of in-house contamination of drinking water before consumption. Water safety planning requires regular monitoring of control measures and periodic confirmation of water quality (verification / compliance monitoring).

Objectives:

- Engage the community and assemble a water safety plan team
- Describe the community water supply and gather supporting information
- Identify community water supply objectives

- Identify and assess hazards, hazardous events, risks and existing control measures
- Develop and implement an incremental improvement plan and/or management plan for new water sources
- (Monitoring of control measures and verifying effectiveness of WSP and adaptive management will be a separate step)

Phase VIII. Activity 1: Youth Volunteer-SLTS Pre-Triggering and Triggering

Description: Training of Youth Volunteers in the process of SLTS and WASH through fun and interactive games to deliver the message and awareness of why is sanitation and hygiene is important; what is Open Defaecation Free; how is water linked to sanitation and hygiene (faecal – oral pathway); menstrual hygiene; and how to facilitate a ‘School Triggering Day’. Staff and Student Volunteers will carry out the ‘Triggering Day’ at the same time. The 6 days of activities will be carried out of 6, 2 hour sessions at a time agreed upon by school administration, student volunteers and parents.

- Objective:**
- Personal hygiene (faecal – oral pathway)
 - Diseases from faeces
 - Menstrual hygiene (integrating women within the community as “Mother Knowledge”)
 - CLTS Sequence
 - Transect walk – flag game
 - Connection game (faecal-oral pathway)
 - Ignition moment (igniting awareness/realisation within community of
 WASH → nutrition → diarrhoea → health/death)
 - School mapping and “dream school” activity

Phase VIII. Activity 2: Youth Volunteer -SLTS / Project Development / Management Training

Description: In groups, students will develop targeted WASH plans for their school focusing on the areas of HWWS, Personal Hygiene, Sanitation/ODF, and Nutrition. Delivered in a fun and interactive way that will facilitate student participation, understanding and enjoyment.

- Objective:** Part I:
- Youth WASH Volunteer Club; volunteer recruiting; school WASH project
 - Understand what a project is; what ‘management’ is.
 - How to develop a project plan (project cycle, adaptive management, M&E etc.)

- Tools to use for project development (SWOT, mind mapping, problem tree etc.)

Part II

- Practical implementation of project plans
- How to 'manage' People, Budget, Work (includes time management)
- How to apply adaptive management
- Design for change; how to achieve behavioural change within their school.

M&E. Activity 1: Supporting follow up, Monitoring and Evaluation in field

Descriptions: This phase spans all others, consisting of: Ongoing project management; In-field support to community and GoL / Nam Saat monitoring of CLTS/VHM and WSP implementation, and support to school Youth Volunteers in implementing WASH plans (developed as part of the SLTS); Consultation meetings with SED staff to ensure adaptive management practices are incorporated throughout all Phases, ensuring greater success of project goals. Reporting on each Activity and summarising each Phase, sharing “*lessons learned*” with NNP1, GoL, and Community. Incorporating feedback and adapting activities as required. Consultation will be flexible taking into consideration NNP1 staff availability and will be carried out by means of formal and informal meetings, and via electronic correspondence.

Monitoring and evaluation is calculated for the life of the iWASH programme assuming implementation of all activities in identified villages. It is based on number of estimated in-field monitoring support days required for each activity (CLTS, SLTS, WSP) in each village. No charge will be made for consultation meetings with SED staff in Vientiane.

International Consultant: The international consultant will take a lead role in ongoing monitoring and evaluation tasks, establishing the monitoring framework, adaptive management practices, and compiling all relevant reports to be provided to NNP1 to a high, international standard, ensuring transparency, clarification and ‘lessons learned’ are recorded.

Objectives:

- CLTS Pre-triggering, triggering and post-triggering monitoring after each actions.
- WSP - Support community and Nam Saat to carry out operational monitoring and inspections to demonstrate effectiveness of control measures, and verification that the WSP is appropriate and working effectively to provide safe drinking-water within the community.
- Consultation following training workshops to ensure all training has practical outcomes relevant to individuals work. Approximately 4 times for formal meetings during Phase II activities.
- At least, quarterly meetings between SED manager, RDAproject manager, and international advisor.
- Reporting and other concerning activities.

Annex 1. Tentative action plan and timeline of Thathom District

iWASH and Nutrition Action Plan, 2015-2016

Thathom District

No.	Activities	2015			2016												Partners/participants	Target village	
		10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
I	Community Led-total sanitation																		
1	village hygiene and sanitation situation dialouge																	Nam Saat District	Pou, PhiengTa, HadSamKhone
2	CLTS triggering																	NamSaat, health promotion, Woman union, cluster, health center	Pou, PhiengTa, HadSamKhone
3	set up/improve village committee																	Cluster, NamSaat, Health Center	Pou, PhiengTa, HadSamKhone
4	Create/improve village sanitation & hygiene regulation																		Pou, PhiengTa, HadSamKhone
5	Create Village Action Plan																		Pou, PhiengTa, HadSamKhone
6	Village committee training																		Pou, PhiengTa, HadSamKhone
7	taining on waste management																	NamSaat	Pou, PhiengTa, HadSamKhone
8	Recycle Bank follow up and education																	NamSaat	Pou, PhiengTa, HadSamKhone
9	Hygiene education (3 cleanliess)																	Health Promotion	Pou, PhiengTa, HadSamKhone
10	Determine livestock rule (shift the animals cage from space under a house																	Cluster, NamSaat, Health Center, Agriculture	Pou, PhiengTa, HadSamKhone
11	Toilet using day event (TUD)																	Cluster, NamSaat	Pou, PhiengTa, HadSamKhone
12	ODF village verification																	Cluster, NamSaat, Health Center, Health promotion, Environment	Pou, PhiengTa, HadSamKhone

3	Follow up and support the implementation of the action plan																			NamSaat	Pou, PhiengTa, HadSamKhone
4	water quality check																			Water quality unit and NamSaat Province	Pou, PhiengTa, HadSamKhone
5	Watershed management activities																			Enviromnet, Agriculture	Pou, PhiengTa, HadSamKhone
6	Water Safety Plan regulation development																			NamSaat, Environment, Agriculture	Pou, PhiengTa, HadSamKhone
7	Optional and maintenance water system training																			NamSaat	Pou, PhiengTa, HadSamKhone
8	Study tour in village water system maintaining model																			NamSaat	Pou, PhiengTa, HadSamKhone

Annex 2. Tentative action plan and timeline of Bolikan District

iWASH and Nutrition Action Plan, 2015-2016

Bolikan District

No.	Activities	2015			2016												Partners/participants	Target village	
		10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
I	Community Led-total sanitation																		
1	village hygiene and sanitation situation dialouge																	Nam Saat District	Hatyean, Thahuae, Hatsaykham
2	CLTS triggering																	NamSaat, health promotion, Woman union, cluster, health center	Hatyean, Thahuae, Hatsaykham
3	set up/improve village committee																	Cluster, NamSaat, Health Center	Hatyean, Thahuae
4	Create/improve village sanitation & hygiene regulation																		Hatyean, Thahuae
5	Create Village Action Plan																		Hatyean, Thahuae
6	Village committee training																		Hatyean, Thahuae
7	taining on waste management																	NamSaat	Hatyean, Thahuae
8	Recycle Bank follow up and education																	NamSaat	Hatyean
9	Hygiene education (3 cleanliess)																	Health Promotion	Hatyean, Thahuae, Hatsaykham
10	Determine livestock rule (shift the animals cage from space under a house																	Cluster, NamSaat, Health Center, Agriculture	Hatyean, Thahuae
11	Toilet using day event (TUD)																	Cluster, NamSaat	Hatyean, Thahuae
12	ODF village verification																	Cluster, NamSaat, Health Center, Health promotion, Environment	Hatyean, Thahuae

13	ODF Preparation Meeting and ODF Village declaration ceremony																			Cluster, NamSaat, Health Center, Health promotion, Environment and Provincial health	Hatyeuan, Thahuae
14	Post- ODF coaching (ODF Monitoring)																			NamSaat	Hatyeuan, Thahuae
15	Monthly follow up																			NamSaat	Hatyeuan, Thahuae
II	School-Led total Sanitation SLTS																				Hatyeuan, Thahuae, Hatsaykham
1	School Triggering (SLTS)																			Education and NamSaat	Hatyeuan, Thahuae, Hatsaykham
2	Project base planning with teacher and VEDC																			Education	Hatyeuan, Thahuae, Hatsaykham
3	forming school volunteers and training																			Education	Hatyeuan, Thahuae, Hatsaykham
4	Awareness campaign at schools(Project base)																			Education, NamSaat, Health promotion, Environment	Hatyeuan, Thahuae, Hatsaykham
4.1	Toilet using																		Hatyeuan, Thahuae, Hatsaykham		
4.2	Waste management																		Hatyeuan, Thahuae, Hatsaykham		
4.3	Hand washing with soap																		Hatyeuan, Thahuae, Hatsaykham		
4.4	Clean drinking water in school																		Hatyeuan, Thahuae, Hatsaykham		
5	Training for teacher (Child Center)																			Education	Hatyeuan, Thahuae, Hatsaykham
6	connect water to school's toilet																			NamSaat	Hatyeuan, Thahuae
III	Water safety Plan																				

1	triggering /community dialogue (System and water Using)																			NamSaat, Cluster	Hatyeuan, Thahuae, Somxuen, Houaykoun, NamPa
2	Development of village action plan on Water safety plan with village committee																			NamSaat, Cluster	Hatyeuan, Thahuae, Somxuen, Houaykoun, NamPa
3	Follow up and support the implementation of the action plan																			NamSaat	Hatyeuan, Thahuae, Somxuen, Houaykoun, NamPa
4	water quality check																			Water quality unit and NamSaat Province	Hatyeuan, Thahuae, Somxuen, Houaykoun, NamPa
5	Watershed management activities																			Enviromnet, Agriculture	Hatyeuan, Thahuae, Somxuen, Houaykoun, NamPa
6	Water Safety Plan regulation development																			NamSaat, Environment, Agriculture	Hatyeuan, Thahuae, Somxuen, Houaykoun, NamPa
7	Optional and maintenance water system training																			NamSaat	Hatyeuan, Thahuae, Somxuen, Houaykoun, NamPa
8	Study tour in village water system maintaining model																			NamSaat	Hatyeuan, Thahuae, Hatsaykham
IV	Nutrition																				
1	Identify vulnerable families (those who have children under 5 years weigh decrease, malnutrition)																			Mother and Child unit, health center	Hatsaykham
2	Planning to provide nutrition to children in each families																			Mother and Child unit, health center	Hatsaykham

3	Suggestion to Feeding the children by age																Mother and Child unit, health center	Hatsaykham
4	Support HH gardening in vulnerable families																Agriculture	Hatsaykham
5	Support small animal raising in the family/ vulnerable																Agriculture	Hatsaykham
6	Hygiene education to vulnerable families (3 cleanliness)																Health promotion, Mother and child unit, health center	Hatsaykham
7	Cooking demonstrations																Health promotion, Mother and child unit, health center	Hatsaykham
8	Monthly follow up on girls and boys' growth																Health Center and Mother and chil	Hatsaykham

Annex 3. Tentative action plan and timeline of Hom District

iWASH and Nutrition Action Plan, 2015-2016

Hom District

No.	Activities	2015			2016												Partners/participants	Target village	
		10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
I	Community Led-total sanitation																		
2	CLTS triggering																	NamSaat, health promotion, Woman union, cluster, health center	Sobyouk, Namyouk Sobphouan
9	Hygiene education (3 cleanliess)																	Health Promotion	Sobyouk, Namyouk Sobphouan
11	Toilet using day event (TUD)																	Cluster, NamSaat	Sobyouk, Namyouk Sobphouan
15	Monthly follow up																	NamSaat	Sobyouk, Namyouk Sobphouan
II	School-Led total Sanitation SLTS																		
1	School Triggering (SLTS)																	Education and NamSaat	Sobyouk, Namyouk Sobphouan
4	Awareness campaign at schools(Project base)																	Education, NamSaat, Health promotion, Environment	Sobyouk, Namyouk Sobphouan
4.1	Toilet using																Sobyouk, Namyouk Sobphouan		
4.2	Waste management																Sobyouk, Namyouk Sobphouan		
4.3	Hand washing with soap																Sobyouk, Namyouk Sobphouan		
4.4	Clean drinking water in school																Sobyouk, Namyouk Sobphouan		
5	Training for teacher (Child Center)																	Education	Sobyouk, Namyouk Sobphouan

Annex D = Annual Implementation Plan 2016

This information has been removed as it falls within exceptions to disclosure specified in paragraph 97, (x) of ADB's Public Communications Policy (2011).

The full information has been provided to monitoring agencies with the agreement of strict confidentiality.

Annex E

Report on Archaeological Verification at Tham Bing, Tham Phra and Tham Dan Por Sites

Nam Ngiep 1 Hydro-Power Project

Preliminary Report on the Archaeological Verification at Tham Bing, Tham Phra and Tham Dan Por Sites

Bolikhan District, Bolikhamxay Province



August 2014

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1. Executive Summary

The author has been commissioned by the Nam Ngiep 1 Power Company to conduct an archaeological verification at the three main sites located on the right bank of Nam Ngiep between Dam and Bridge Construction Sites in order to prove the probable archaeological indicators that would be occurred at the entire sites; and to inventory the movable assets that have been relocated from these rock shelters.

Three rock shelters Tham Bing, Tham Phra and Tham Dan Por were properly examined. No additional Buddha statues or relics were found during the site visit. According to the features of these rock shelters, it could not have been used as habitation by prehistoric settlers, thus none of prehistoric artifacts were identified in the vicinity. All of 29 Buddha Statues which actually kept at Ban Hat Gnun were documented and inventoried. They are dated back to 40-50 years ago. The veneration of Buddha Statues in the caves or rock shelters reflects the ancient tradition of worship to the nature as combining between Animistic and Buddhist practice in order to establish a kind of spiritual protector within the village territory.

The road access to Dam Site is passing through these 3 sites , Tham Phra was already blasted, whilst the adjacent rock shelter Tham Dan Por will be the next target. Tham Bing seems to stay beside the road alignment, but the crushing plant and quarrying would somehow affect the site.

Recommendations

It is not possible to draw up mitigation measures since the earth work have already been planned and in some cases started. However the recommendations are as following:

1. Establish a Network of coordination between the concerned parties of Developer and Governmental agencies. The prehistoric remains may be occurred during the soil disturbance, the Chance Find Procedure would be the most effective way to safeguard the unpredictable buried cultural properties.
2. Acquire the archaeological artifacts owned by the villagers before they sell to antique dealers (start a district collection of national treasures and objects of Museum values).
3. Construct a kind of museum or cultural centre at district level to house the collections, conserve, interpret, exhibit and carry out public education programs concerning awareness to both cultural tangible and intangible heritage and also protection of environment.
4. Organise campaigns of public information and education concerning the protection of cultural heritage in order to raise public awareness and participation in cultural heritage activities.
5. Integrate actions of document and rescue the cultural heritage with the rest of the program of the hydropower project.

2. Introduction

a. Objectives

- Identify and assess the presence of archaeological sites of significance located within the impact area of the Nam Ngiep 1 Hydro-Power Project (limited to the area between the Dam and Bridge sites, ~1.5 Km along the right bank).
- Assess the risk of direct or indirect impacts from the proposed project on identified archaeological sites.
- Identify appropriate management and mitigation measures of such impacts.

b. Scope and Study Area

- To extend the survey within the surrounding area of the three main cave sites: Tham Bing, Tham Phra and Tham Dan Por (the area between Dam site and the bridge site on the right bank).
- To conduct the systematic inventory of the Buddha statues and others probable finds.
- To review the existing Project's documentation, literature and interpret the recovered artifacts.
- To plan the mitigation measure and recommendations with regard to the management manner.
- To prepare a report on the cultural heritage impact assessment at those 3 caves
- To investigate the contemporary and Neolithic use of the area (caves).
- Working with NNP1 contractor determines if there will be irreversible damage to the cave area – if any.
- Define any mitigation that can be reasonably applied to preserve the area
a) during construction and b) after construction is completed.

3. Background

Overall situation. The Nam Ngiep 1 Hydropower Project will be located along the Nam Ngiep River in Xaysomboun and Bolikhamxay Province of Lao PDR, downstream of Nam Ngiep 2 Hydropower Project. The Project is set 41 km north of Pakxan, the capital of Bolikhamxay Province, which is located 145 km north-east of the national capital, Vientiane.

Construction Schedule. Main construction activities of NNP1 started in August 2014. The NNP1 reservoir is planned to be filled during the rainy season of 2018. Electricity will be generated from a proposed Commercial Operation Date (COD) in January 2019 onwards during a concession period of 27 years. Currently the various project components are on schedule to meet the COD target date. Some delays have occurred in the past, but plans to make up for lost time are in place to be provided by the NNP1PC.

During early works on the access road, caves were identified which contained Buddha images. Following the established procedures and cultural practices, these were relocated to the Buddhist temple in the nearby village of Hat Gniun. Following this relocation, a follow up investigation was conducted, for which the

4. Methodology

4.1 Literature Review

- Old publications on Lao archaeology were reviewed.
- Recent reports on physical cultural resource study conducted by the Department of National Heritage for various projects were reviewed such as (i) Nam Theun 2, Xeset 2, Nam Lik, Nam Tha, Nam Ou, Nam Ngiep, Nam Kong 1, Sekong 4, for hydropower construction and (ii) Sepon, Phu Bia, Hongsa and Paksong for mining.
- Recent publications on the prehistory of Vietnam, Cambodia and Thailand, in particular concerning Hoabinhian and Neolithic sites, were reviewed in order to conduct comparative study with similar sites found in Laos.

4.2 Village Consultation

A village consultation consists of establishing direct contact and dialogue with the representatives of a village aiming to find out accurate information on any object or site of historic or/and archaeological significance, their local history and oral traditions (folklore).

Each shown artefact was documented by taking picture, measurement, and record of finding's history. The identified objects are the key indicators for interpretation of human occupations in various period of time in the region, so qualitative and quantitative study would help to determine the concentration and distribution of such a material culture of the area.

5. Result of Literature Review

Prehistory and history (Archaeology)

Archaeological research conducted by the Department of Heritage (Department of Museums and Archaeology before 2009) since 1980s has improved our understanding on prehistoric occupation within the Lao territory in particular the distribution of sites and the time sequence. Hunters and gatherers using flaked stone tools commonly called Hoabinhian type from 10,000 years ago until the second millennia BC; Neolithic societies with cord-marked potsherds and signs of plant manipulation as well as early stage of agriculturist activities have left a rich graves goods as these latter were buried with dead bodies or deposited in the caves that were converted into funeral repository from the second millennia until the beginning of the Christian era. Metal Age appeared suddenly and seemed to co-exist and mix with the Neolithic Culture as observed at several sites that were excavated such as Tam Hua Phu (Sayavongkhamdy et al 2000, Tam Pha Phen (Sayavongkhamdy and Souksavatdy, 2008).

In 2005, the Middle Mekong Archaeological Project (MMAP) a joint project between the Department of Heritage and the University of Pennsylvania Museum, has identified 58 archaeological sites along the basins of the three rivers tributaries of the Mekong North of Luang Prabang. Among them six have been found along the valley of Nam Ou on its last 20 km before joining the Mekong. It was found that “the Ou was the main migration avenue for Lao speakers entering the country in proto-historic times (Stuart Fox 2002:2), and thus logically may have been a migration avenue for populations moving south from Southern China in prehistoric times including postulated agricultural migrations (Blust 1996; Higham 1996:195)” (White and al 2007).

If the Nam Ou functioned as a highway of migratory route during the proto-history and probably since the prehistoric times, archaeological sites and other related vestiges must lay along its basin.

The series of archaeological surveys along the Mekong valley and its tributaries have been shown the important evidence of the human occupation since the pre-historic time. In particular the late stone age – Neolithic, the people used to settle and conduct their farming activities near to the agricultural soil and frequently on the riverside. Therefore we should consider the river valley as a highly sensitive area of potential archaeological discovery.

6. Archaeological Team & Time Schedule

The archaeological Team was composed of 4 members which represented central and local authorities:

1. Mr Viengkeo SOUKSAVATDY,
2. Mr Soulinthone PHETSOMPHOU, Head of the Museum Section
3. Mr Souphalak Luang-latbandith, representative of Bolikhamxay Provincial Department of Information, Culture and Tourism (PD-ICT).
4. Mr Kaenchanh Keovanxay, Head of Bolikhan District's Office of ICT.

The Team was kindly accompanied by the 3 NNP1PC personnel: they are,

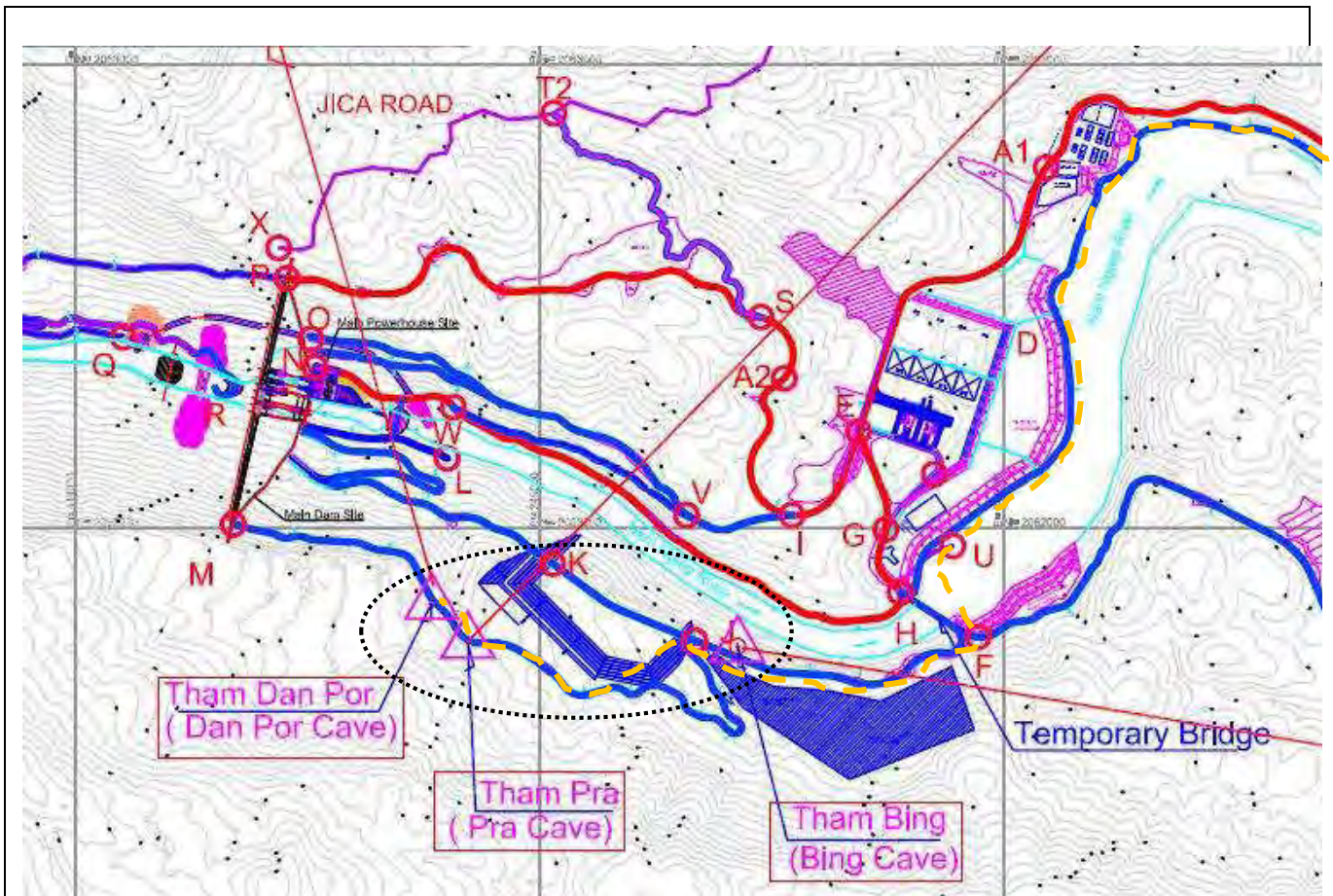
1. Mr Kheungkham, civil engineer
2. Mr Manomai Sengmani, Environmental unit
3. Mr Neng Her, community relations

The field study was carried out from August 7th until August 11th, 2014.

7. Results

7.1 On site verification

The geographic characteristic of Nam Ngiep river at the location where NNP1PC Dam Site will be constructed is represented a “V-shape” valley. Both banks occupied by series of steep cliffs and gigantic rocky formations. Many big rocks have rolled down and formed a tough cascade, so the navigation between the up-stream and down-stream through this passage is not possible at all seasons. Hence the water course at this place is representing a



Map 1. Geo-morphological map showing the location of the three sites: Tham Bing, Tham Phra and Tham Dan Por. The orange dotted line indicates the access route of the Archaeology survey team. (1 Km grid system)

narrowest passage which mammal wild life like tigers used to migrate through and the local inhabitants give name to this place as ‘Kaeng Sua Ten - ຄາງສູ້ເສືອເຕັ້ນ’ which in lao means – *the rapid of tiger jump across* .

The current mission is to focus on the 3 main cave sites where Buddha statues were found by villager in September 2013 and then on the November 5th, 2013 with accordance of the local authorities these statues were relocated to the temple of Ban Had Gnun. The archaeology team was composed of the concerned officials from provincial and district level, as well as village

representatives who have been involved in the process of the relocation. To facilitate the site access 3 staff from NNP1PC have also been attended the site verification.

The 3 entire sites are located on the right bank of Nam Ngiep River (fig.1) between the Dam and Bridge sites, which represented nearly 2 km in distance. The road access to Dam site on the left bank is largely practicable; whilst on the right side is still on its commencement phase. Although the concrete bridge is planning to be operational by the end of the year, but as alternative a cross-river service using ferry boat and also small motorized boat is available there. Usually the access footpath to the caves is uniquely possible by boat and during dry season only. Starting from down-stream Tham Bing is the first site located close to the bank, while Tham Phra and Tham Dan Por are about 600-700 m away up-stream, it is about 300-400 m inland and on higher elevation.

‘Tham’ in lao means cave, but is also widely used to indicate in general the cavities, rock shelters, hollow spaces enclosed by rock or stone formations or just by earth . The real cave does not existed within the vicinity of the dam site, because no lime stone formation is available here. Most of the monoliths and stone formations here are kind of sand stone and conglomerate sandstone, which quite usual that boulders of stones can form cavities or rock shelter. That’s why, what the local people uses to name ‘tham- ຖໍ່’ here, is represented ‘rock shelter’.

According to literature review on the PCR report within proposed NNP1 Project in 2007, these sites were mentioned on the interview of Mr Yer Song, villager of Ban Hatsaykham. The extract information is shown below:

5. Ban Hatsaykham (ໂບນຮັດສັດສະໝັດ ບໍລິຄໍາສັດສະໝັດ ບໍລິຄໍາສັດສະໝັດ Province)

a. Village profile.



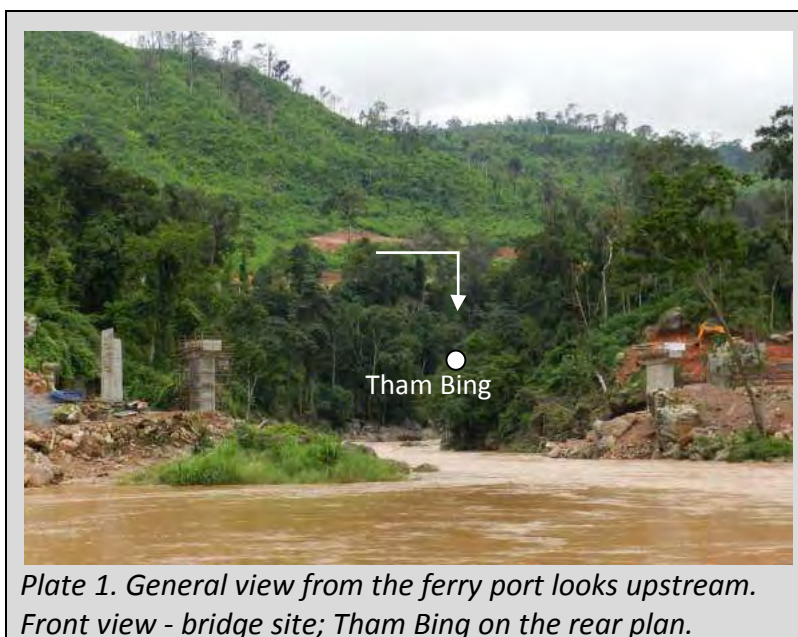
Ban Hatsaykham is located on the left bank of Nam Ngiep and immediately below the dam site (a few Kilometres away). It is a small village as it is made of 23 households with 165 inhabitants. The population is of Hmong ethnic group. Ban Hatsaykham was founded in 1994. The villagers migrated from people was formerly living in the upstream area nearby Ban Nong or Sop Youak. The trip takes a day walking through rugged terrain as fluvial navigation is made impossible by a series of dangerous rapids and cascades.

The villagers informed us about the existence of a Buddha cave, which is located at approximately 6 km from the village, upstream and on the right bank of the Nam Ngiep. The cave is not immediately on the bank but at approximately 200 m further inland, at the foothill of Phu Hong, a mountain that belongs to the Phu Kata range. The cave would have housed a large collection of Buddha statues but it was looted (in 1987). Three bronze statues survived the looting and were then moved to the Buddhist temple of Ban Hat Yun (10 km away from the cave) for their security. Both Phu Hong, “the Palace Mountain” and Phu Kata, “the pan shaped mountain” would have been named after the famous “Sinxay epic”, a masterpiece of Lao classic literature because they were believed to be the real places of that story.

As for the archaeological evidence found near the village Mr Yer Song has shown us a polished stone tool which represented an important indicator for the presence of late Stone Age at this valley, around 4000-6000 years ago. This object fit with those found at the upstream villages of Ban Nam Phouan and Ban Sop Youak. During the preliminary survey in 2007 it was not possible to visit all localities. Therefore the current mission is too important to verify both historic and prehistoric existence in this area.

Three rock shelters were carefully investigated started from Tham Bing, Tham Phra and Tham Dan Por respectively.

7.2 Tham Bing (ຖ້ຳບິ່ງ)



Judging on the traditional accessibility Tham Bing or 'Bat Rock shelter' is the nearest and uncomplicated place to reach. It is accessed straightforward by boat. During the Archaeology Team visits these sites, due to torrential flow of Nam Ngiep, so the traditional route by boat is not practicable anymore at this time. Nevertheless since recently the earthwork for road access to Dam Site on the right side was in progress. The access from the ferry port to Tham Bing by walk on the new road is less than 15 minutes; the major impediment for visiting the site at this time is not

only the strong flow, but also the way how to descend to the cave itself. The fact is that the cave entrance is situated 40 m below the actual road, and at the foothill of the steep cliff, so it is not possible to get there without any help of instruments. In order to complete the mission the Team is obliged to use rope to descend the 20 m steep cliff in two relays, then continue on the quite hard slope. The author was helped by an inhabitant of Ban Had Gnun who used to participate in the ceremony of relocation did dedicate a great effort and time to reach the place where Buddha statues were found.

The access to the Buddha location from the rear side of this rock shelter is extremely risky. Due to the necessity of assessing the prehistoric context of Tham Bing throughout the long past this dedication is very valuable. The geographic characteristic of this location makes this site quite scenic, as a land mark on the Nam Ngiep River. It is recognized as a demarcation spot of the landscape differentiation. On one hand it is considered as a dangerous place that may frequently cause accident, so the local people have to pay respect to the spirit and commemorate to the victims, and on another hand it is back to the high rise cliff, looks like a wall on the back ground, while the rock shelter entrance is faced the torrential cascade. The natural feature brings attention of the local people as a both animistic and religious sanctuary. It is not by hazard that this site

became the Buddha cave. The reason of converting this place to the religious site may reflect the worship to the nature force and to venerate the Buddha statues in order to establish the god protector for the people who settled along this river valley. It is an ideal worship place.

It was told by the local people that in the past at this place used to have many Buddha statues made of bronze. But they were completely looted during the war time. It was further told that those who committed this crime were encountered bad luck and felled seriously sick, in order to express their forgive to the Buddha god, hoping for help and sooner recovery they have produced replica to replace the missing one, of which some among them take parts of the relocated collection now kept at Ban Had Gnun.



Plate 2. General view of the Tham Bing formation; white arrow shows the Buddha location. The access is from the top of cliff by using the rope to descend through stone fracture.

According to the evidence from the graffiti appeared in front of the cave wall the painting was made at least three times (plate 3). The worshippers have left their names and the date *in situ* each time they contribute the donation of painting. (Graffiti in black, charcoal? ທາສີພະ ໄມຄຳ 1995; acrylic paint in red color ທາສີພະ 2013 ທອງມີ, ໄມສອນ,...; in white color was not clear and was overlapped by red color).

The dates demonstrate the frequency of pilgrimage to the site even until very recently '2013'.

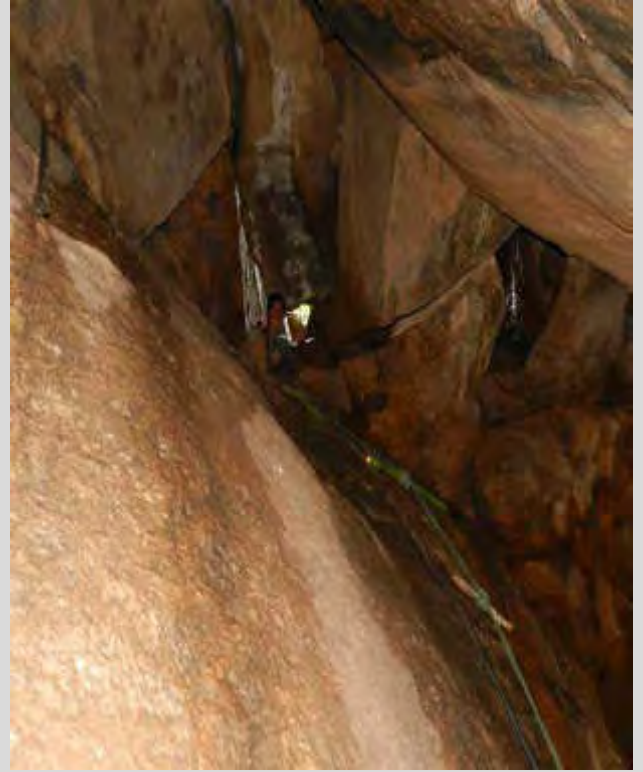
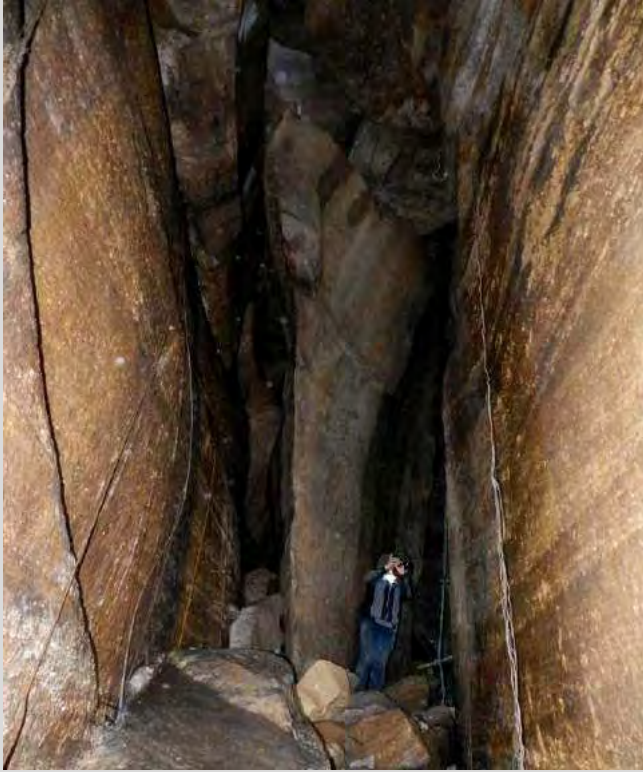


Plate 3. Tham Bing. Top row, the major stone fracture forms Tham Bing chamber where the team uses rope to drop from the top; the accumulation of the big boulders make a rough passage of which underground river is running underneath. Middle row, on going out from Tham Bing chamber there is a slope terrain that allows to walk to the Buddha location. Bottom row, shows empty cement pedestal which indicated the former seat of 7 Buddha statues.

The site observation around the vicinity has shown that there is no really cavity or rock chamber to protect from rain; the terrain is too steep, dangerous access, no sign of human occupation in the past. The altar where Buddha statues are venerated is a narrow space of stone crack which formed a triangular vault about 2 m wide, 2 m deep and maximum 3 m high, the floor made of cement. The team did not identify any appropriate natural condition to allow a living space at this place. Therefore it is not supportive to be a human settlement, unless to serve as a temporary camping for hunting or fishing purpose. In contrast this characteristic is more likely to be a spiritual site as it currently is.

The collection of 7 Buddha statues from Tham Bing Cave are inventoried and actually kept in the temple of Ban Had Gnun.





Plate 4. A collection of 7 Buddha statues from Tham Bing are inventoried and numbered as TBC-001 to TBC-007 as shown on the photo from top row left to right respectively.

7.3 Tham Phra (ព្រៃឃាត)

Tham Phra or 'Buddha Rock shelter' is located about 500 m west of Tham Bing. It is on the new road alignment and directly accessed from the actual surface. Tham Phra rock shelter was already blasted before the team arrives. Tham Phra represented a narrow and horizontally elongated rock shelter. It is 0.40 m high, 1.50 m wide and about 5 m long. The Buddha location faces North-East and located on the upper part of the sandstone boulders, which on the East suddenly forms an important depression of the elevation and became a catchment of a stream which flows right through Tham Bing.

The remains of the ritual items such as candles, soft drink bottles and golden leave trees which were used as offering during the relocation ceremony are still visible at the place where statues seated. No any other objects of cultural or historic significance have been observed.



According to the uniformity of the size and position of Buddha Statues from the Collection Tham Phra, it is interpreted that they were made from the same mould, except the glass one which is widely traded in the market as imported object, probably from Thailand.

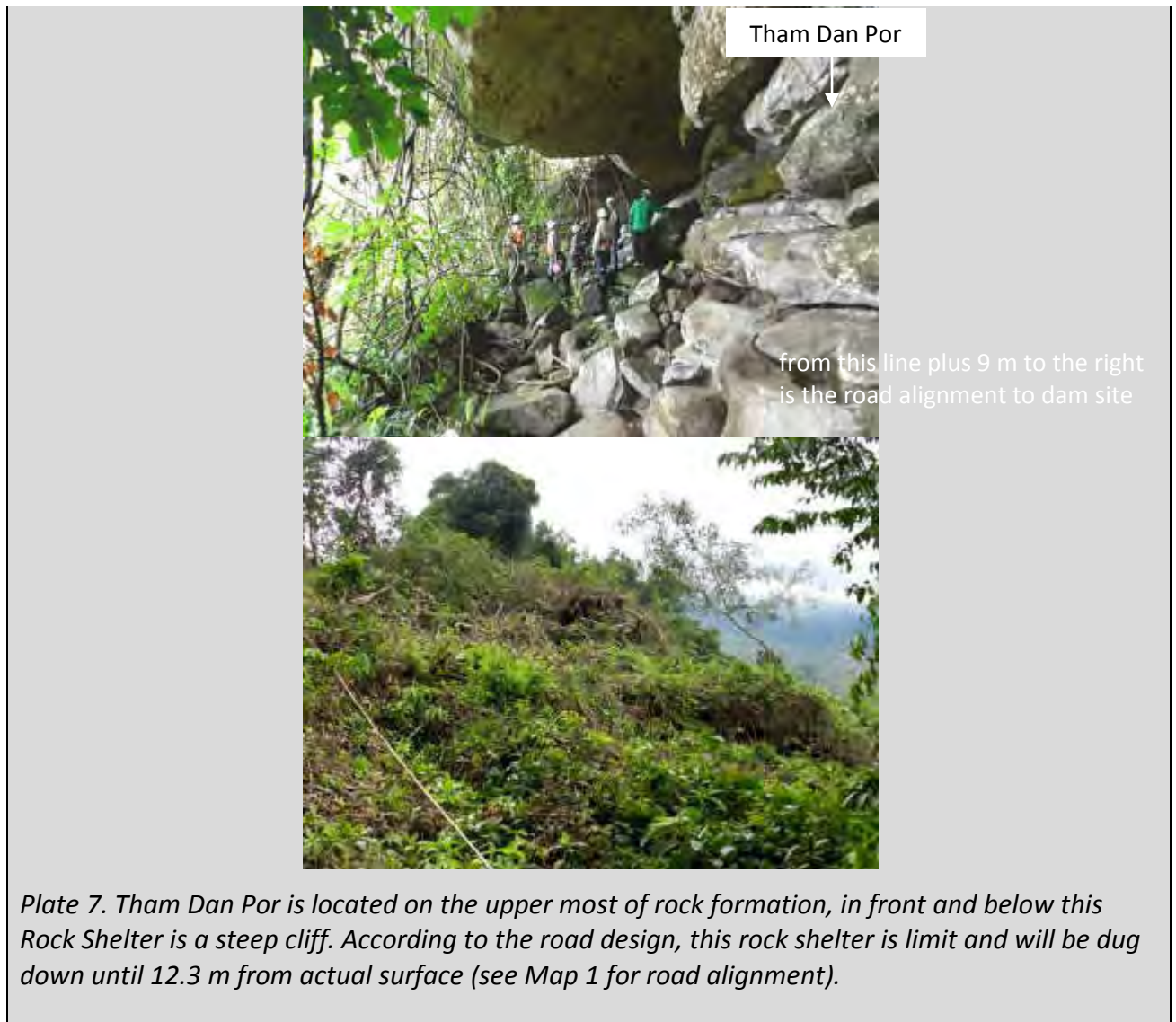


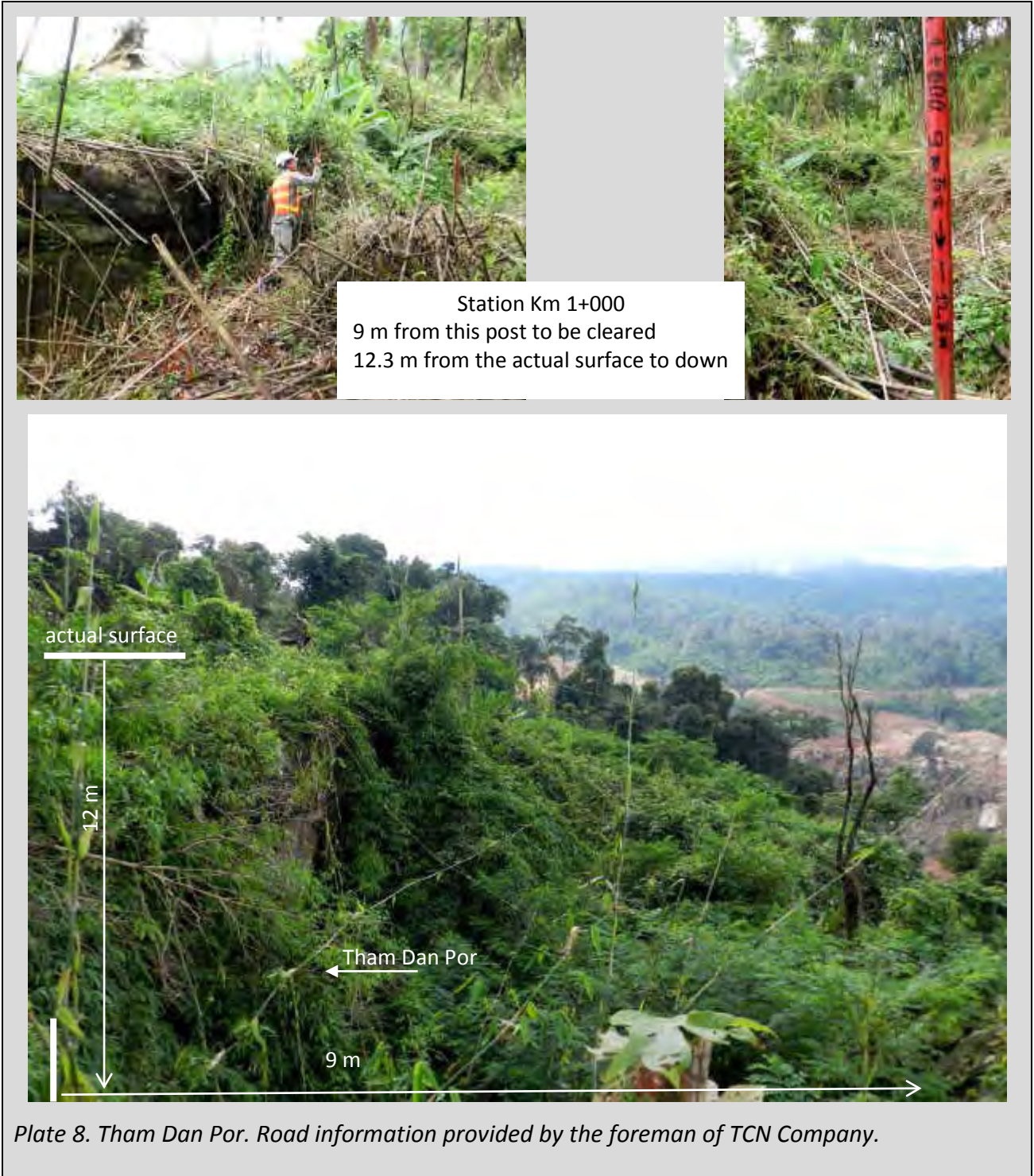


7.4 Tham Dan Por (ถ้ำดามบ่)

Tham Dan Por is the last among the three known rock shelters where Buddha statues were found. The rock shelter faces north-east to the Nam Ngiep River. It is the most spacious comparing to the two others, about 10 m long, 4-6 m wide and 4 m high. The dripping line is not so advance, it can partly protect from rain; the rugged floor of boulders and close to cliff edge is not suitable to be living space. During the site visit, apart of the offering for ritual no remains of Buddha statues have been observed at this place.







Buddha statues from Tham Dan Por, made of vegetal, flower pollens or Phra Keson Dokmai.







Plate 9. Collection of 15 Buddha Statues from Tham Dan Por. They were made of vegetal or known as 'Phra Keson Dokmai'. Due to high humidity many of them are decomposed and fragmented.

8. Recommendations

It is not possible to draw up mitigation measures since the earth work has already anticipated. However the recommendations are as following:

1. Establish a Network of coordination between the concerned parties of Developer and Governmental agencies. The prehistoric remains may be occurred during the soil disturbance, the Chance Find Procedure would be the most effective way to safeguard the unpredictable buried cultural properties.
2. Acquire the archaeological artifacts owned by the villagers before they sell to antique dealers (start a district collection of national treasures and objects of Museum values).
3. Construct a kind of museum or cultural centre at district level to house the collections, conserve, interpret, exhibit and carry out public education programs concerning awareness to both cultural tangible and intangible heritage and also protection of environment.
4. Organise campaigns of public information and education concerning the protection of cultural heritage in order to raise public awareness and participation in cultural heritage activities.
5. Integrate actions of document and rescue the cultural heritage with the rest of the program of the hydropower project.

9. Conclusion

The archaeological verification at Tham Bing, Tham Phra and Tham Dan Por has shown that the relocation of the Buddha Items from these three rock shelters was conducted properly; no additional items of cultural or archaeological interest were remained on the sites during our visit. Most of the recovered Buddha Statues are made by local craftsmen of Ban Hat Gnun except the glass one which is imported from outside, probably made in Thailand. The age of statues would not exceed 50 years old, though the village head is among eye witnesses during the fabrication of the cement one.

The natural factors of these three sites seem to not make possible for the prehistoric people to settle and use as habitation unless for temporary stay or worship place. Although no evidences of the human activity during prehistoric time have been identified there, it is hard to judge that prehistoric community was not present there.

During the previous survey in 2007 had demonstrated that on the upstream area there are more polished stone tools recorded, whilst at the downstream area only one was reported at Ban Hatsaykham. The modernization and more densely populated of the downstream valley may also explain the diminution of archaeological finds.

Concerning the historic period the result of the field observation has shown that upstream area is dominated by animistic belief, whilst Buddhism has introduced at downstream area very long times ago. However the river valley is considered as cradle of the ancient civilizations since prehistoric time. Therefore we should envisage a network of coordination with concerned parties like Chance

Find Procedures in order to rescue unpredictable archaeological objects or sites which buried underground.

There was an inconsistency in the point 3 of Procedure of the report “Summary of Buddha Relocation” provided by NNP1PC, and the road basic design. It was stated that:

“The moving of the Buddhas is based on the request of the local population and is a precautionary action. The site, where the Buddhas are currently located, **is not scheduled to be directly impacted by the project**; however, the local population fears indirect impacts as in the past Buddha statues have been disappeared (before project commencement). Therefore, for security reasons, the team sent from the Province agrees with this assessment and the company's support of preventive action.”

With this regard the author has convened a meeting at Paksan office and also conducted an onsite check with accompany of the personnel of NNP1PC and TCN, so the technical explanation is as following: The three sites are potentially impacted by the infrastructure development. Tham Bing may have partially affected by the primary crushing plant (to be checked with the developer), while the two remaining sites Tham Phra and Tham Dan Por are located in the road alignment. The rock shelters will be quarried to fill up the depressions of the terrain (see Map1, Plate 5, Plate 8 and Plate 9). The earth work and blasting is in progress when the team visits sites.

Appendix A

Inventory Sheets of the Buddha Collection Relocated from Tham Bing, Tham Phra and Tham Dan Por

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳບຶ້ງ-001
Inventory no.: TBC-001
(Tham Bing Cave)
coordinate: UTM 48 Q,
345427.000 E 2061744.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງ ບໍລິຄັນ, ແຂວງ ບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ
Object's name : Buddha statue, in posture Bhumisparshamudra or Maravijaya
ເຮັດດ້ວຍ : ປຸນຊີມັງ
Material : cement
ຮູບຖ່າຍເລກທີ: TBC-001a, b, c, d, e, f
Digital Photo no.:



ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	40	ທີ່ຂະມັບ	11	ທີ່ໜ້າຜາກ	7
		top		ຂອງຈອມເກດ	5	ທີ່ປ່າ	22	ທີ່ເອິກ	7
		mid		ຂອງອົງຜະ	32	ທີ່ໜ້າຕັກ	35	ທີ່ຫົວເຂົ້າ	14
		base		ຂອງແທ່ນ	3	ທີ່ແທ່ນ	38	ທີ່ແທ່ນ	24
ສີ Color	ທາສີຄຳຮອງຜິ້ນ, ທາສີແດງທັບ			ນ້ຳໜັກ Weight (gr.)	15.000 (15 Kg)				

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:
ກຸ່ມພະພຸດທະຮູບເຮັດດ້ວຍຊີມັງ ຈຳນວນ 7 ອົງ ໄດ້ຖືກສ້າງຂຶ້ນໃນໄລຍະ ປີ 1969 ພາຍໃຕ້ການຊີ້ນຳ ຂອງ ຍາພໍ່ ສີທາ, ຊຶ່ງບວດຢູ່ ວັດບ້ານ ຫາດຍື່ນ. ໃນໄລຍະສົງຄາມ ບ້ານຖືກທຳລາຍ. ຖ້ຳບຶ້ງ ຕັ້ງຢູ່ແຄມຝັ່ງຂວາຂອງນ້ຳງຽບ, ຢູ່ລະຫວ່າງສັນເຂື່ອນ ແລະ ຂົວເບຕິງ ຂ້າມນ້ຳງຽບ, ຫ່າງຈາກສັນເຂື່ອນປະມານ 600 ແມັດ ແລະ ຫ່າງຈາກຂົວ ປະມານ 500 ແມັດ. ໃນທຸກໆປີພໍ່ເຖົ້າບຸນເດືອນຫ້າ ຊາວບ້ານໄດ້ຈັດຕັ້ງກັນໄປຫົດສົງຢູ່ເປັນປະຈຳ. ມາເຖິງ ວັນທີ 5 ເດືອນພະຈິກ 2013 ທາງອຳນາດການປົກຄອງ ບ້ານ ຫາດຍື່ນ ແລະ ເມືອງ ບໍລິຄັນ ໄດ້ພ້ອມພຽງກັບເຖົ້າແກ່ແນວໂຮມ ອັງເຊີນເອົາພະພຸດທະຮູບທັງ 7 ອົງນີ້ ຄົນມາໄວ້ຢູ່ວັດຫາດຍື່ນເໝືອນເດີມ ເນື່ອງຈາກເກງວ່າ ຈະມີຜົນກະທົບຈາກການກໍ່ສ້າງເຂື່ອນໄຟຟ້ານ້ຳງຽບ1 ນີ້.

ປັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:
ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:
ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼືປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ:Date:

9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:


ສຸລິນທອນ ເພັດຊິມພຸ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,

ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ມຸດສິມຫວັງ,
70, ແນວໂຮມ; ມຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ Artefact Inventory Sheet ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ Bolikhamsay Provincial Department of Information, Culture and Tourism	ເລກທະບຽນ: ຖ້ຳບຶ້ງ-002 Inventory no.: TBC-002 (Tham Bing Cave) coordinate: UTM 48 Q, 345427.000 E 2061744.000 W
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ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ Site name: Temple of Ban Had Gneun	ເມືອງ ບໍລິຄັນ, ແຂວງ ບໍລິຄຳໄຊ
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ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ Object's name : Buddha statue, in posture Bhumisparshamudra or Maravijaya	ຮູບຖ່າຍ: Photo: 
ເຮັດດ້ວຍ : ປຸນຊີມັງ Material : cement	
ຮູບຖ່າຍເລກທີ: TBC-002, a, b, c, d, e Digital Photo no.:	

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	57.5	ທີ່ຂະມັບ	10	ທີ່ໜ້າຜາກ	8
		top		ຂອງຈອມເກດ	10	ທີ່ປ່າ	21	ທີ່ເອິກ	8
		mid		ຂອງອິງຜະ	42	ທີ່ໜ້າຕັກ	32	ທີ່ຫົວເຂົ້າ	18
		base		ຂອງແທ່ນ	5.5	ທີ່ແທ່ນ	37	ທີ່ແທ່ນ	19
ສີ Color	ທາສີຄຳຮອງຜື້ນ, ທາສີແດງທັບ			ນ້ຳໜັກ Weight (gr.)	22.500 (22.5 Kg)				

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ກຸ່ມພະພຸດທະຮູບເຮັດດ້ວຍຊີມັງ ຈຳນວນ 7 ອົງ ໄດ້ຖືກສ້າງຂຶ້ນໃນໄລຍະ ປີ 1969 ພາຍໃຕ້ການຊີ້ນຳຂອງຍາພໍ່ ສີທາ, ຊຶ່ງບວດຢູ່ ວັດບ້ານຫາດຍື່ນ. ໃນໄລຍະເວລາສົງຄາມ ບ້ານຖືກທຳລາຍ. ຖ້ຳບຶ້ງ ຕັ້ງຢູ່ແຄມຝັ່ງຂວາຂອງນ້ຳງຽບ, ລະຫວ່າງສັນເຂື່ອນ ແລະ ຂົວເບຕົງ ຂ້າມນ້ຳງຽບ, ຫ່າງຈາກສັນເຂື່ອນປະມານ 600 ແມັດ ແລະ ຫ່າງຈາກຂົວ ປະມານ 500 ແມັດ. ໃນທຸກໆປີພໍ່ເຖິງບຸນເດືອນທ້າ ຊາວບ້ານໄດ້ຈັດຕັ້ງກັນໄປຫົດສິ່ງຢູ່ເປັນປະຈຳ. ມາເຖິງ ວັນທີ 5 ເດືອນພະຈິກ 2013 ທາງອຳນາດການປົກຄອງບ້ານຫາດຍື່ນ ແລະເມືອງບໍລິຄັນ ໄດ້ພ້ອມພຽງກັບເຖົ້າແກ່ແນວໂຮມ ອັງເຊີນເອົາພະພຸດທະຮູບທັງ 7 ອົງນີ້ ຄົນມາໄວ້ຢູ່ວັດຫາດຍື່ນເໝືອນເດີມ ເນື່ອງຈາກເກງວ່າ ຈະມີຜົນກະທົບຈາກການກໍ່ສ້າງເຂື່ອນໄຟຟ້ານ້ຳງຽບ 1 ນີ້.

ປັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ	ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕູ້ ຫຼືປະຕູປິດ
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ຂໍ້ສັງເກດ Remark:	 
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ວັນທີ, ເດືອນ, ປີ: Date:

9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:

ສຸລິນທອນ ເພັດຊິມພຸ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,

ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ

Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ

Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳບຶ້ງ-003

Inventory no.: TBC-003

(Tham Bing Cave)

coordinate: UTM 48 Q,

345427.000 E 2061744.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ

Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄັນ, ແຂວງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ

Object's name : Buddha statue, in posture Bhumisparshamudra or Maravijaya

ຮູບຖ່າຍ:

Photo:



ເຮັດດ້ວຍ : ປູນຊີມັງ

Material : cement

ຮູບຖ່າຍເລກທີ:

Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
				ລວງສູງລວມ	47	ທີ່ຂະມັບ	9.5	ທີ່ໜ້າຜາກ	9.5
		Maximum		ຂອງຈອມເກດ	5	ທີ່ປ່າ	20	ທີ່ເອິກ	7
		top		ຂອງອິງຜະ	36	ທີ່ໜ້າຕັກ	25	ທີ່ຫົວເຂົ້າ	11
		mid		ຂອງແທ່ນ	6	ທີ່ແທ່ນ	26	ທີ່ແທ່ນ	13
		base							
ສີ Color	ທາສີຄຳຮອງຜື່ນ, ທາສີແດງທັບ			ນ້ຳໜັກ Weight (gr.)	11.000 (11 Kg)				

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ກຸ່ມພະພຸດທະຮູບເຮັດດ້ວຍຊີມັງ ຈຳນວນ 7 ອົງ ໄດ້ຖືກສ້າງຂຶ້ນໃນໄລຍະ ປີ 1969 ພາຍໃຕ້ການຊີ້ນຳຂອງຍາພໍ່ ສີທາ, ຊຶ່ງບວດຢູ່ ວັດບ້ານຫາດຍື່ນ. ໃນເວລາສົງຄາມ ບ້ານຖືກທຳລາຍ. ຖ້ຳບຶ້ງ ຕັ້ງຢູ່ແຄມຝັ່ງຂວາຂອງນ້ຳງຽບ, ລະຫວ່າງສັນເຂື່ອນ ແລະ ຂົວເບຕິງ ຂ້າມນ້ຳງຽບ, ຫ່າງຈາກສັນເຂື່ອນປະມານ 600 ແມັດ ແລະ ຫ່າງຈາກຂົວ ປະມານ 500 ແມັດ. ໃນທຸກໆປີພໍ່ເຖົ້າບຸນເດືອນຫ້າ ຊາວບ້ານໄດ້ຈັດຕັ້ງກັນ ໄປຫົດສິ່ງຢູ່ເປັນປະຈຳ. ມາເຖົ້າ ວັນທີ 5 ເດືອນພະຈິກ 2013 ທາງອຳນາດການປົກຄອງບ້ານຫາດຍື່ນ ແລະເມືອງບໍລິຄັນ ໄດ້ຜ່ອມພຽງກັບ ເຖົ້າແກ່ແນວໂຮມ ອົງເຊີນເອົາພະພຸດທະຮູບທັງ 7 ອົງນີ້ ຄືນມາໄວ້ຢູ່ວັດຫາດຍື່ນເໝືອນເດີມ ເນື່ອງຈາກເກງວ່າ ຈະມີຜົນກະທົບຈາກການກໍ່ສ້າງເຂື່ອນໄຟຟ້ານ້ຳງຽບນີ້.

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:

ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:

ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼືປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ: Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕີນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດສ່ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ບຸດສິມຫວັງ,
70, ແນວໂຮມ; ບຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳບຶ້ງ-004
Inventory no.: TBC-004
(Tham Bing Cave)
coordinate: UTM 48 Q,
345427.000 E 2061744.000 W


ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ
Object's name : Buddha statue, in posture Bhumisparshamudra or Maravijaya

ຮັດດ້ວຍ : ປຸນຊີມັງ
Material : cement

ຮູບຖ່າຍເລກທີ: TBC-004, a, b, c, d, e
Digital Photo no.:

ຮູບຖ່າຍ: Photo: 

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	48	ທີ່ຂະມັບ	11	ທີ່ໜ້າຜາກ	9
		top		ຂອງຈອມເກດ	6	ທີ່ປ່າ	21	ທີ່ເອິກ	6
		mid		ຂອງອົງຜະ	36	ທີ່ໜ້າຕັກ	26	ທີ່ຫົວເຂົ້າ	12
		base		ຂອງແທ່ນ	6	ທີ່ແທ່ນ	27.5	ທີ່ແທ່ນ	15
ສີ Color	ທາສີຄຳຮອງຜິ້ນ, ທາສີແດງທັບ			ນ້ຳໜັກ Weight (gr.)	15.000 (15 Kg)				

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ກຸ່ມພະພຸດທະຮູບເຮັດດ້ວຍຊີມັງ ຈຳນວນ 7 ອົງ ໄດ້ຖືກສ້າງຂຶ້ນໃນໄລຍະ ປີ 1969 ພາຍໃຕ້ການຊີ້ນຳຂອງຍາພໍ່ ສີທາ, ຊຶ່ງບວດຢູ່ ວັດບ້ານຫາດຍື່ນ. ໃນເວລາສົງຄາມ ບ້ານຖືກທຳລາຍ. ຖ້ຳບຶ້ງ ຕັ້ງຢູ່ແຄມຝັ່ງຂວາຂອງນ້ຳງຽບ, ລະຫວ່າງສັນເຂື່ອນ ແລະ ຂົວເບຕົງ ຂ້າມນ້ຳງຽບ, ຫ່າງຈາກສັນເຂື່ອນປະມານ 600 ແມັດ ແລະ ຫ່າງຈາກຂົວ ປະມານ 500 ແມັດ. ໃນທຸກໆປີພໍ່ເຖົ້າບຸນເດືອນຫ້າ ຊາວບ້ານໄດ້ຈັດຕັ້ງກັນໄປຫົດສິ່ງຢູ່ເປັນປະຈຳ. ມາເຖິງ ວັນທີ 5 ເດືອນພະຈິກ 2013 ທາງອຳນາດການປົກຄອງບ້ານຫາດຍື່ນ ແລະເມືອງບໍລິຄຳໄຊ ໄດ້ຜ່ອມພຽງກັບເຖົ້າແກ່ແນວໂຮມ ອັງເຊີນເອົາພະພຸດທະຮູບທັງ 7 ອົງນີ້ ຄົນມາໄວ້ຢູ່ວັດຫາດຍື່ນເໝືອນເດີມ ເນື່ອງຈາກເກງວ່າ ຈະມີຜົນກະທົບຈາກການກໍ່ສ້າງເຂື່ອນໄຟຟ້ານ້ຳງຽບນີ້.

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:
ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:
ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼືປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ:Date:

9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:

ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,

ສາລະວັດ; ທິດສ່ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳບຶ້ງ-005
Inventory no.: TBC-005
(Tham Bing Cave)
coordinate: UTM 48 Q,
345427.000 E 2061744.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ
Object's name : Buddha statue, in posture Bhumisparshamudra or Maravijaya

ເຮັດດ້ວຍ : ປຸນຊີມັງ
Material : cement

ຮູບຖ່າຍເລກທີ: TBC-005, a, b, c, d, e
Digital Photo no.:



ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	54	ທີ່ຂະມັບ	11	ທີ່ໜ້າຜາກ	10
		top		ຂອງຈອມເກດ	6	ທີ່ປ່າ	22	ທີ່ເອິກ	11.5
		mid		ຂອງອົງຜະ	44	ທີ່ໜ້າຕັກ	26	ທີ່ຫົວເຂົ້າ	15
		base		ຂອງແທ່ນ	4	ທີ່ແທ່ນ	31	ທີ່ແທ່ນ	16
ສີ Color	ທາສີຄຳຮອງຜິ້ນ, ທາສີແດງທັບ			ນ້ຳໜັກ Weight (gr.)		18.000 (18 Kg)			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ກຸ່ມພະພຸດທະຮູບເຮັດດ້ວຍຊີມັງ ຈຳນວນ 7 ອົງ ໄດ້ຖືກສ້າງຂຶ້ນໃນໄລຍະ ປີ 1969 ພາຍໃຕ້ການຊີ້ນຳຂອງຍາພໍ່ ສີທາ, ຊຶ່ງບວດຢູ່ ວັດບ້ານຫາດຍື່ນ. ໃນເວລາສົງຄາມ ບ້ານຖືກທຳລາຍ. ຖ້ຳບຶ້ງ ຕັ້ງຢູ່ແຄມຝັ່ງຂວາຂອງນ້ຳງຽບ, ລະຫວ່າງສັນເຂື່ອນ ແລະ ຂົວເບຕິງ ຂ້າມນ້ຳງຽບ, ຫ່າງຈາກສັນເຂື່ອນປະມານ 600 ແມັດ ແລະ ຫ່າງຈາກຂົວ ປະມານ 500 ແມັດ. ໃນທຸກໆປີພໍ່ເຖິງບຸນເດືອນຫ້າ ຊາວບ້ານໄດ້ຈັດຕັ້ງກັນໄປຫົດສິ່ງຢູ່ເປັນປະຈຳ. ມາເຖິງ ວັນທີ 5 ເດືອນພະຈິກ 2013 ທາງອຳນາດການປົກຄອງບ້ານຫາດຍື່ນ ແລະເມືອງບໍລິຄຳໄຊ ໄດ້ຜ່ອມພຽງກັບເຖົ້າແກ່ແນວໂຮມ ອັງເຊີນເອົາພະພຸດທະຮູບທັງ 7 ອົງນີ້ ຄົນມາໄວ້ຢູ່ວັດຫາດຍື່ນເໝືອນເດີມ ເນື່ອງຈາກເກງວ່າ ຈະມີຜົນກະທົບຈາກການກໍ່ສ້າງເຂື່ອນໄຟຟ້ານ້ຳງຽບນີ້.

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:
ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:
ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕູ້ ຫຼືປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ: Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ


ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳບຶ້ງ-006
Inventory no.: TBC-006
(Tham Bing Cave)
coordinate: UTM 48 Q,
345427.000 E 2061744.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ Site name: Temple of Ban Had Gneun	ເມືອງບໍລິຄຳໄຊ
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ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ Object's name : Buddha statue, in posture Bhumisparshamudra or Maravijaya	ຮູບຖ່າຍ: Photo: 
ເຮັດດ້ວຍ : ປຸນຊີມັງ Material : cement	
ຮູບຖ່າຍເລກທີ: TBC-006a, b, c, d, e, f Digital Photo no.:	

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	69	ທີ່ຂະມັບ	13	ທີ່ໜ້າຜາກ	11
		top		ຂອງຈອມເກດ	7	ທີ່ປ່າ	24	ທີ່ເອິກ	12
		mid		ຂອງອົງຜະ	56	ທີ່ໜ້າຕັກ	28	ທີ່ຫົວເຂົ້າ	24
		base		ຂອງແທ່ນ	6	ທີ່ແທ່ນ	37	ທີ່ແທ່ນ	27
ສີ Color	ທາສີຄຳຮອງຜິ້ນ, ທາສີແດງທັບ			ນ້ຳໜັກ Weight (gr.)	38.000 (38 Kg)				

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:
ກຸ່ມພະພຸດທະຮູບເຮັດດ້ວຍຊີມັງ ຈຳນວນ 7 ອົງ ໄດ້ຖືກສ້າງຂຶ້ນໃນໄລຍະ ປີ 1969 ພາຍໃຕ້ການຊີ້ນຳຂອງຍາພໍ່ ສີທາ, ຊຶ່ງບວດຢູ່ ວັດບ້ານຫາດຍື່ນ. ໃນເວລາສົງຄາມ ບ້ານຖືກທຳລາຍ. ຖ້ຳບຶ້ງ ຕັ້ງຢູ່ແຄມຝັ່ງຂວາຂອງນ້ຳງຽບ, ລະຫວ່າງສັນເຂື່ອນ ແລະ ຂົວເບຕິງ ຂ້າມນ້ຳງຽບ, ຫ່າງຈາກສັນເຂື່ອນປະມານ 600 ແມັດ ແລະ ຫ່າງຈາກຂົວ ປະມານ 500 ແມັດ. ໃນທຸກໆປີພໍ່ເຖິງບຸນເດືອນຫ້າ ຊາວບ້ານໄດ້ຈັດຕັ້ງກັນໄປຫົດສິ່ງຢູ່ເປັນປະຈຳ. ມາເຖິງ ວັນທີ 5 ເດືອນພະຈິກ 2013 ທາງອຳນາດການປົກຄອງບ້ານຫາດຍື່ນ ແລະເມືອງບໍລິຄຳໄຊ ໄດ້ຜ່ອມພຽງກັບເຖົ້າແກ່ແນວໂຮມ ອີງເຊິນເອົາພະພຸດທະຮູບທັງ 7 ອົງນີ້ ຄົນມາໄວ້ຢູ່ວັດຫາດຍື່ນເໝືອນເດີມ ເນື່ອງຈາກເກງວ່າ ຈະມີຜົນກະທົບຈາກການກໍ່ສ້າງເຂື່ອນໄຟຟ້ານ້ຳງຽບນີ້.

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ	ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼືປະຕູປິດ
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ຂໍ້ສັງເກດ Remark:		
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ວັນທີ, ເດືອນ, ປີ: Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ


ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳບຶ້ງ-007
Inventory no.: TBC-007
(Tham Bing Cave)
coordinate: UTM 48 Q,
345427.000 E 2061744.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ Site name: Temple of Ban Had Gneun	ເມືອງບໍລິຄຳໄຊ
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ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ Object's name : Buddha statue, in posture Bhumisparshamudra or Maravijaya	ຮູບຖ່າຍ: Photo: 
ເຮັດດ້ວຍ : ປຸນຊີມັງ Material : cement	
ຮູບຖ່າຍເລກທີ: TBC-007a, b, c, d, e, f, g, h Digital Photo no.:	

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	62	ທີ່ຂະມັບ	13	ທີ່ໜ້າຜາກ	12
		top		ຂອງຈອມເກດ	7	ທີ່ປ່າ	23	ທີ່ເອິກ	12
		mid		ຂອງອົງຜະ	48	ທີ່ໜ້າຕັກ	27	ທີ່ຫົວເຂົ້າ	20
		base		ຂອງແທ່ນ	7	ທີ່ແທ່ນ	37	ທີ່ແທ່ນ	27
ສີ Color	ທາສີຄຳຮອງຜິ້ນ, ທາສີແດງທັບ			ນ້ຳໜັກ Weight (gr.)	30.000 (30 Kg)				

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:
ກຸ່ມພະພຸດທະຮູບເຮັດດ້ວຍຊີມັງ ຈຳນວນ 7 ອົງ ໄດ້ຖືກສ້າງຂຶ້ນໃນໄລຍະ ປີ 1969 ພາຍໃຕ້ການຊີ້ນຳຂອງຍາພໍ່ ສີທາ, ຊຶ່ງບວດຢູ່ ວັດບ້ານຫາດຍື່ນ. ໃນເວລາສົງຄາມ ບ້ານຖືກທຳລາຍ. ຖ້ຳບຶ້ງ ຕັ້ງຢູ່ແຄມຝັ່ງຂວາຂອງນ້ຳງຽບ, ລະຫວ່າງສັນເຂື່ອນ ແລະ ຂົວເບຕົງ ຂ້າມນ້ຳງຽບ, ຫ່າງຈາກສັນເຂື່ອນປະມານ 600 ແມັດ ແລະ ຫ່າງຈາກຂົວ ປະມານ 500 ແມັດ. ໃນທຸກໆປີພໍ່ເຖົ້າບຸນເດືອນຫ້າ ຊາວບ້ານໄດ້ຈັດຕັ້ງກັນໄປຫົດສິ່ງຢູ່ເປັນປະຈຳ. ມາເຖິງ ວັນທີ 5 ເດືອນພະຈິກ 2013 ທາງອຳນາດການປົກຄອງບ້ານຫາດຍື່ນ ແລະເມືອງບໍລິຄຳໄຊ ໄດ້ພ້ອມພຽງກັບເຖົ້າແກ່ແນວໂຮມ ອີງເຊີນເອົາພະພຸດທະຮູບທັງ 7 ອົງນີ້ ຄົນມາໄວ້ຢູ່ວັດຫາດຍື່ນເໝືອນເດີມ ເນື່ອງຈາກເກງວ່າ ຈະມີຜົນກະທົບຈາກການກໍ່ສ້າງເຂື່ອນໄຟຟ້ານ້ຳງຽບນີ້.

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ	ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼືປະຕູປິດ
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ຂໍ້ສັງເກດ Remark:		
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ວັນທີ, ເດືອນ, ປີ: Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳຜະ-001
Inventory no.: **TPC-001**
(Tham Phra Cave: GPS
coordinate: UTM 48 Q, 0344856;
2061738, 328 m)


ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ
Object's name : Buddha statue, in posture Dhayanamudra or meditation or smadhi

ຮັດດ້ວຍ : ປຸງຊີມັງ (ຝີມດ້ວຍເບົ້າດຽວກັນຈຳນວນ 5 ອົງ)
Material : cement

ຮູບຖ່າຍເລກທີ: DSCN0548-0552
Digital Photo no.:

ຮູບຖ່າຍ: 

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	15.5	ທີ່ຂະມັບ	3	ທີ່ໜ້າຜາກ	2.5
		top		ຂອງຈອມເກດ	3	ທີ່ປ່າ	4.5	ທີ່ເອິກ	2.5
		mid		ຂອງອົງຜະ	9	ທີ່ໜ້າຕັກ	7.5	ທີ່ຫົວເຂົ້າ	4
		base		ຂອງແທ່ນ	3.5	ທີ່ແທ່ນ	10	ທີ່ແທ່ນ	5
ສີ Color	ເທົາ (ບໍ່ໄດ້ທາສີ)			ນ້ຳໜັກ Weight (gr.)		250			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕີນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳຜະ-002
Inventory no.: **TPC-002**
(Tham Phra Cave: GPS
coordinate: UTM 48 Q, 0344856;
2061738, 328 m)

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ
Object's name : Buddha statue, in posture Dhayanamudra or meditation or smadhi

ຮູບຖ່າຍ:
Photo:



ເຮັດດ້ວຍ : ປຸນຊີມັງ (ຜິມດ້ວຍເປົ້າດຽວກັນຈຳນວນ 5 ອີງ)

Material : cement

ຮູບຖ່າຍເລກທີ: DSCN 0553-0557

Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)

ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)

ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height	ລວງກວ້າງ Width	ລວງໜາ Thickness
		Maximum		ລວງສູງລວມ 15.5	ທີ່ຂະມັບ 3	ທີ່ໜ້າຜາກ 2.5
		top		ຂອງຈອມເກດ 3	ທີ່ປ່າ 4.5	ທີ່ເອິກ 2.5
		mid		ຂອງອີງຜະ 9	ທີ່ໜ້າຕັກ 7.5	ທີ່ຫົວເຂົ້າ 4
		base		ຂອງແທ່ນ 3.5	ທີ່ແທ່ນ 10	ທີ່ແທ່ນ 5

ສີ Color ເທົ່າ (ບໍ່ໄດ້ທາສີ)

ນ້ຳໜັກ Weight (gr.) 250

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:
ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:
ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ: Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິ່ນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳຜະ-003
Inventory no.: **TPC-003**
(Tham Phra Cave: GPS
coordinate: UTM 48 Q, 0344856;
2061738, 328 m)


ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ
Object's name : Buddha statue, in posture Dhayanamudra or meditation or smadhi

ຮັດດ້ວຍ : ປຸນຊີມັງ (ຜິມດ້ວຍເບົ້າດຽວກັນຈຳນວນ 5 ອົງ)
Material : cement

ຮູບຖ່າຍເລກທີ: DSCN 0558-0562
Digital Photo no.:

ຮູບຖ່າຍ: 

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	15.5	ທີ່ຂະມັບ	3	ທີ່ໜ້າຜາກ	2.5
		top		ຂອງຈອມເກດ	3	ທີ່ປ່າ	4.5	ທີ່ເອິກ	2.5
		mid		ຂອງອົງຜະ	9	ທີ່ໜ້າຕັກ	7.5	ທີ່ຫົວເຂົ້າ	4
		base		ຂອງແທ່ນ	3.5	ທີ່ແທ່ນ	10	ທີ່ແທ່ນ	5
ສີ Color	ເທົ່າ (ບໍ່ໄດ້ທາສີ)			ນ້ຳໜັກ Weight (gr.)		250			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ປັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິ່ນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳຜະ-004
Inventory no.: **TPC-004**
(Tham Phra Cave: GPS
coordinate: UTM 48 Q, 0344856;
2061738, 328 m)

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄັນ, ແຂວງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ

Object's name : Buddha statue, in posture Dhayanamudra or meditation or smadhi

ຮູບຖ່າຍ:

Photo:



ເຮັດດ້ວຍ : ປຸງຊີມັງ (ພິມດ້ວຍເບົ້າດຽວກັນຈຳນວນ 5 ອີງ)

Material : cement

ຮູບຖ່າຍເລກທີ: DSCN 0563-0569

Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	15.5	ທີ່ຂະມັບ	3	ທີ່ໜ້າຜາກ	2.5
		top		ຂອງຈອມເກດ	3	ທີ່ປ່າ	4.5	ທີ່ເອິກ	2.5
		mid		ຂອງອິງຜະ	9	ທີ່ໜ້າຕັກ	7.5	ທີ່ຫົວເຂົ້າ	4
		base		ຂອງແທ່ນ	3.5	ທີ່ແທ່ນ	10	ທີ່ແທ່ນ	5
ສີ Color	ເທົ່າ (ບໍ່ໄດ້ທາສີ)			ນ້ຳໜັກ Weight (gr.)		250			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ປັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:
ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:
ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ:Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕີນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳຜະ-005
Inventory no.: **TPC-005**
(Tham Phra Cave: GPS
coordinate: UTM 48 Q, 0344856;
2061738, 328 m)

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ (ຄໍ່າກຸດ)
Object's name : Buddha statue (headless), in posture Dhayanamudra or smadhi

ເຮັດດ້ວຍ : ປຸນຊີມັງ (ຜິມດ້ວຍເບົ້າດຽວກັນຈຳນວນ 5 ອີງ)
Material : cement

ຮູບຖ່າຍເລກທີ: DSCN 0570-0574
Digital Photo no.:



ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	15.5	ທີ່ຂະມັບ	3	ທີ່ໜ້າຜາກ	2.5
		top		ຂອງຈອມເກດ	ຫັກ	ທີ່ປ່າ	4.5	ທີ່ເອິກ	2.5
		mid		ຂອງອີງຜະ	9	ທີ່ໜ້າຕັກ	7.5	ທີ່ຫົວເຂົ້າ	4
		base		ຂອງແທ່ນ	3.5	ທີ່ແທ່ນ	10	ທີ່ແທ່ນ	5
ສີ Color	ເທົາ (ບໍ່ໄດ້ທາສີ)			ນ້ຳໜັກ Weight (gr.)		250			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:
ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:
ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕູ້ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ


ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳຜະ-006
Inventory no.: **TPC-006**
(Tham Phra Cave: GPS
coordinate: UTM 48 Q, 0344856;
2061738, 328 m)

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ Site name: Temple of Ban Had Gneun	ເມືອງບໍລິຄຳໄຊ
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ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ Object's name	ຮູບຖ່າຍ: Photo: 
ເຮັດດ້ວຍ : ປຸນຊີມັງ (ຜິມດ້ວຍເບົ້າດຽວກັນຈຳນວນ 5 ອີງ) Material : cement	
ຮູບຖ່າຍເລກທີ: DSCN 0575-0581 Digital Photo no.:	

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	15.5	ທີ່ຂະມັບ	3	ທີ່ໜ້າຜາກ	2.5
		top		ຂອງຈອມເກດ	3	ທີ່ປ່າ	4.5	ທີ່ເອິກ	2.5
		mid		ຂອງອີງຜະ	9	ທີ່ໜ້າຕັກ	7.5	ທີ່ຫົວເຂົ້າ	4
		base		ຂອງແທ່ນ	3.5	ທີ່ແທ່ນ	10	ທີ່ແທ່ນ	5
ສີ Color	ເທົາ (ບໍ່ໄດ້ທາສີ)			ນ້ຳໜັກ Weight (gr.)		250			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ	ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ
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ຂໍ້ສັງເກດ Remark: ຄໍ້ມືຮອຍຊຳລຸດ ເຫຼືອແຕ່ແຖນເຫຼັກ		
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ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳຜະ-007
Inventory no.: **TPC-007**
(Tham Phra Cave: GPS
coordinate: UTM 48 Q, 0344856;
2061738, 328 m)

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ ? ຊະນະມານ
Object's name: Buddha statue, in posture Smadhi? Maravijaya?

ເຮັດດ້ວຍ : ແກ້ວ
Material: glass

ຮູບຖ່າຍເລກທີ: DSCN 0658-0664
Digital Photo no.:



ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)				
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness
		Maximum		ລວງສູງລວມ	7.2	ທີ່ຂະມັບ		ທີ່ໜ້າຜາກ
		top		ຂອງຈອມເກດ		ທີ່ປ່າ	5.3	ທີ່ເອິກ
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ		ທີ່ແທ່ນ 3.7
ສີ Color	ຂາວ			ນ້ຳໜັກ Weight (gr.)		165		

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place:
ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition:
ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:
ຫົວ, ແຂນກ້າຂວາ ແລະ ແທ່ນຊຳລຸດ



ວັນທີ, ເດືອນ, ປີ:Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ

ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານປໍ-001
Inventory no.: TDPC-001
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ (ພະເກສອນ)
Object's name : Buddha statue, Meditation or Smadhi (Keson Dokmai)
ຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal
ຮູບຖ່າຍເລກທີ: DSCN0586-0590
Digital Photo no.:

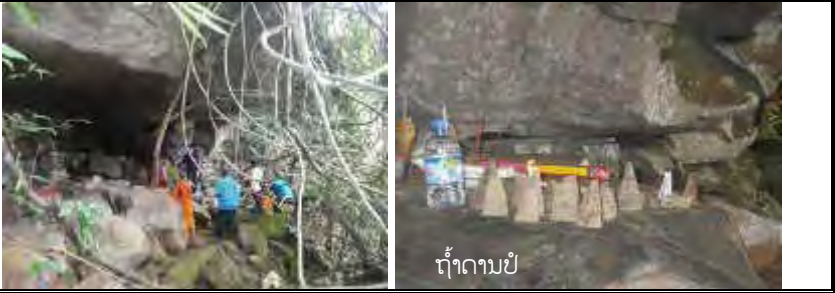


ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	5.9	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	2.6	ທີ່ແທ່ນ	1.7
ສີ Color				ນ້ຳໜັກ Weight (gr.)		15			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕີນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-002
Inventory no.: TDPC-002
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງສະມາທິ (ພະເກສອນ)
Object's name : Buddha statue
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material: vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0591-0593
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	6.7	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	2	ທີ່ແທ່ນ	1.7
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		15			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-003
Inventory no.: TDPC-003
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ, ແຂວງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0594-0596
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	3.6	ທີ່ຂະມັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອິງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	1.9	ທີ່ແທ່ນ	1.6
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		20			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ຖ້ຳດານບໍ

ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານປໍ-004
Inventory no.: TDPC-004
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)
Object's name: Buddha statue, Maravijaya
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0597-0603
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	7.7	ທີ່ຂະມັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	3.6	ທີ່ແທ່ນ	2.6
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		45			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ຖ້ຳດານປໍ

ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-005
Inventory no.: TDPC-005
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)
Object's name: Buddha statue, Maravijaya
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0604-0609
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)				
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness
		Maximum		ລວງສູງລວມ	7	ທີ່ຂະມັບ		ທີ່ໜ້າຜາກ
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	3.4	ທີ່ແທ່ນ 2.4
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)	45			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ຖ້ຳດານບໍ


ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເດິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-006
Inventory no.: TDPC-006
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0610-0624
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)			
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height	ລວງກວ້າງ Width	ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ 7.1	ທີ່ຂະໜັບ	ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ	ທີ່ປ່າ	ທີ່ເອິກ	
		mid		ຂອງອົງຜະ	ທີ່ໜ້າຕັກ	ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ	ທີ່ແທ່ນ	3.5	ທີ່ແທ່ນ 2.2
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)	40		

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ຖ້ຳດານບໍ


ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເດິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-007
Inventory no.: TDPC-007
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0626-0628
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	5.5	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	3.8	ທີ່ແທ່ນ	2.3
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		50			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານປໍ-008
Inventory no.: **TDPC-008**
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງ ບໍລິຄັນ, ແຂວງ ບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0629-0632
Digital Photo no.:



ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	6.4	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	3.7	ທີ່ແທ່ນ	2.7
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		60			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ: Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ


ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-009
Inventory no.: TDPC-009
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0633-0636
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)			
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height	ລວງກວ້າງ Width	ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ 5	ທີ່ຂະໜັບ	ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ	ທີ່ປ່າ	ທີ່ເອິກ	
		mid		ຂອງອົງຜະ	ທີ່ໜ້າຕັກ	ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ	ທີ່ແທ່ນ	3.1	ທີ່ແທ່ນ 2.4
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)	30		

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ປັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ຖ້ຳດານບໍ


ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ່ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານປໍ-010
Inventory no.: TDPC-010
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ, ແຂວງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0637-0639
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	5.8	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	4	ທີ່ແທ່ນ	2.2
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		55			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ປັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ຖ້ຳດານປໍ


ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພຸວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານປໍ-011
Inventory no.: TDPC-011
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0640-0643
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	6	ທີ່ຂະມັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	4.2	ທີ່ແທ່ນ	2.8
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		55			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-012
Inventory no.: TDPC-012
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ Site name: Temple of Ban Had Gneun	ເມືອງບໍລິຄຳໄຊ
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ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ) Object's name: Buddha statue, Maravijaya, headless	ຮູບຖ່າຍ: Photo: 
ເຮັດດ້ວຍ : ເກສອນດອກໄມ້ Material : vegetal	
ຮູບຖ່າຍເລກທີ: DSCN 0644-0646 Digital Photo no.:	

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	5.2	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	3.5	ທີ່ແທ່ນ	2.5
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)	40				

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ	ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ
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ຂໍ້ສັງເກດ Remark:		
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ວັນທີ, ເດືອນ, ປີ:Date:
9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by:
ສຸລິນທອນ ເພັດຊຶມພູ; ສຸພະລັກ ຫຼວງ
ລາດບັນດິດ


ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61,
ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ,
70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-013
Inventory no.: TDPC-013
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0647-0650
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	5.2	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ	2.7	ທີ່ຫົວເຂົ້າ	1.7
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ		ທີ່ແທ່ນ	
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		30			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າພະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ຖ້ຳດານບໍ

ວັນທີ, ເດືອນ, ປີ:Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕີນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານປໍ-014
Inventory no.: **TDPC-014**
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun

ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0651-0653
Digital Photo no.:



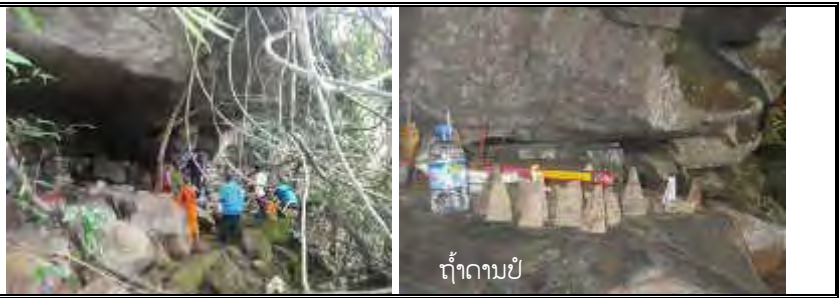
ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	3.3	ທີ່ຂະໜັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	3.2	ທີ່ແທ່ນ	2
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		25			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ

ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:



ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014

ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ


ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

ທະບຽນບັນຊີວັດຖຸບູຮານ
Artefact Inventory Sheet

ພະແນກຖະແຫຼງຂ່າວ, ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ ແຂວງບໍລິຄຳໄຊ
Bolikhamsay Provincial Department of Information, Culture and Tourism

ເລກທະບຽນ: ຖ້ຳດານບໍ-015
Inventory no.: TDPC-015
(Tham Dan Por Cave)
coordinate: UTM 48 Q,
344767.000 E 2061836.000 W

ຊື່ບ້ານ / ສະຖານທີ່: ວັດບ້ານຫາດຍື່ນ
Site name: Temple of Ban Had Gneun
ເມືອງບໍລິຄຳໄຊ

ຊື່ວັດຖຸ : ພະພຸດທະຮູບປາງຊະນະມານ (ພະເກສອນ)(ຄໍາກຸດ)
Object's name: Buddha statue, Maravijaya, headless
ຮູບຖ່າຍ:
Photo: 

ເຮັດດ້ວຍ : ເກສອນດອກໄມ້
Material : vegetal

ຮູບຖ່າຍເລກທີ: DSCN 0654-0657
Digital Photo no.:

ຂະໜາດ (ຊຕມ) Measurement (cm)				ພະພຸດທະຮູບ ຫຼື ຮູບປະຕິມາກຳ (Statue)					
ລວງຍາວ/ລວງສູງ Length/ Height	ລວງກວ້າງ Width	ຈຸດວັດແທກ At	ລວງໜາ Thickness	ລວງສູງ Height		ລວງກວ້າງ Width		ລວງໜາ Thickness	
		Maximum		ລວງສູງລວມ	3.3	ທີ່ຂະມັບ		ທີ່ໜ້າຜາກ	
		top		ຂອງຈອມເກດ		ທີ່ປ່າ		ທີ່ເອິກ	
		mid		ຂອງອົງຜະ		ທີ່ໜ້າຕັກ		ທີ່ຫົວເຂົ້າ	
		base		ຂອງແທ່ນ		ທີ່ແທ່ນ	2.9	ທີ່ແທ່ນ	1.9
ສີ Color	ເທົາເຂັ້ມ			ນ້ຳໜັກ Weight (gr.)		20			

ຄວາມເປັນມາຂອງວັດຖຸ Background of artefact:

ບັດຈຸບັນເກັບຮັກສາຢູ່ທີ່ Current kept place: ອາຮາມຂອງວັດບ້ານຫາດຍື່ນ
ເງື່ອນໄຂການເກັບຮັກສາ Keeping condition: ວາງຢູ່ແທ່ນລຸ່ມຕໍ່ໜ້າຜະໃຫຍ່, ບໍ່ມີລະບົບຕັ້ງ ຫຼື ປະຕູປິດ

ຂໍ້ສັງເກດ Remark:




ວັນທີ, ເດືອນ, ປີ: Date: 9.8.2014
ຊື່ຜູ້ບັນທຶກຂໍ້ມູນ Recorded by: ສຸລິນທອນ ເພັດຊິມພູ; ສຸພະລັກ ຫຼວງລາດບັນດິດ
ຊື່ຜູ້ໃຫ້ຂໍ້ມູນ Informant's name: ອາຈານ ເຕິ່ນ ເພຍແກ້ວ, 61, ສາລະວັດ; ທິດລ້ວນ ສິດລາກອນ, 70, ສາລະວັດ; ທິດຊຽງ ພຸດສິມຫວັງ, 70, ແນວໂຮມ; ພູວຽງ ເພຍແກ້ວ, 54, ນາຍບ້ານ.

**Annex F = Results of the 2014 Baseline
Socio-economic Survey**

CHAPTER 1 - Zone 2UR Socioeconomic Profile

1.1 Demography and Population Changes

1. All 2UR villages were recently established. Ban Pou and Ban Piengta were established after the revolutionary war in 1975 and Ban Hatsamkhone was founded in 1994. Ban Hatsamkhone was resettled from Huaphan province under government supervision and was located in between the two existing communities.



Figure 1 Ban Pou

2. The field survey of Ban Pou, Ban Hatsamkhone and Ban Piengta conducted in 2011 recorded a total of 2,036 people living in 328 households. By 2015, this number had grown to 2,191 people living in 352 in households, equivalent to an annual population growth rate of 1.9%. The villages of Ban Pou and Ban Hatsamkhone showed the highest growth rates (2.5% and 2.4%)

Village	Total 2011		Total 2015		Annual growth rate		Ethnicity
	HHs	Population	HHs	Population	HHs	Population	
<i>Ban Pou</i>	172	1,129	188	1,245	2.2%	2.5%	Hmong, Lao Loum, Khmu
<i>Ban Hatsamkhone</i>	74	453	80	499	2.0%	2.4%	Lao Loum
<i>Ban Piengta</i>	82	454	84	447	0.6%	-0.4%	Lao Loum, Hmong, Khmu
Total	328	2,036	352	2,191	1.8%	1.9%	

Table1. Annual Population growth

3. The 2016 asset registration records a total of 211 directly affected households, of which 183

households come from the 3 2UR villages affected by the reservoir, and 28 households have land assets impacted by the reservoir in Zone 2UR, but are currently living in other villages outside the zone. The asset registration has registered project impacts on all households as further detailed in the updated 2UR subplan.

Table 2. Population Profile of Zone 2UR (Source: 2014 Census and 2016 asset registration)

4. The age / gender structure of the population is shown in Table 3. There is no significant difference between the age structure for each gender within the zone or within each village, but there is a significant difference in age structure between the Hmong section of Ban Pou - where 63% of the population are aged under 19 years - and the other 2 villages with 45-48% of the population under the age of 19.

Age group (years)	Male	Female	Total	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
0-9	23%	26%	25%	35%	19%	18%	17%	24%
10-19	31%	25%	28%	28%	26%	27%	31%	28%
20-29	15%	16%	16%	12%	19%	20%	16%	16%
30-39	11%	12%	11%	11%	13%	12%	10%	11%
40-49	9%	8%	9%	6%	8%	9%	13%	8%
50-59	6%	6%	6%	4%	9%	6%	6%	6%
60+	6%	6%	6%	4%	7%	8%	8%	6%

Table 3 Age and Gender Structure of 2UR villages (Baseline Socio Economic Survey, 2014)

1.2 Ethnicity

The Lao Loum is the dominant ethnic group in Zone 2UR; however, there are also significant populations of Khmu and Hmong, particularly in Ban Pou, where two thirds of residents are Hmong (See Table 2)

1.3 House Style

5. The nature of the dwellings in Zone 2UR is linked to the ethnic group in each village. Typical dwellings are illustrated in Figure 3. However more modern materials are now being used with significant differences between the three villages and between the ethnic components (Hmong and Lao Loum) of Ban Pou:
 - If wood and brick are classified as “superior” wall material and bamboo and leaves as “inferior” then the Hmong component of Ban Pou has the largest percent of poor

building materials and the other villages have highest quality of wall material.

- 30% of Hmong households of Ban Pou have wood or thatched leaf roofing compared to 98% of households of other communities having roofs made of more durable materials.

Village / community	Brick	Wood	Bamboo	Total
Pou [Hmong]	2%	64%	34%	100%
Pou [Lao Loum]	17%	46%	37%	100%
Piengta	11%	65%	24%	100%
Hatsamkhone	12%	72%	17%	100%
Total (percent)	9%	63%	28%	100%
Total (count)	31 houses	215 houses	96 houses	342 houses

Table 4 Wall construction material, 2UR villages (Source: 2014 Baseline Socio Economic Survey)

Village / community	Tile/tile sheeting	Metal sheeting	Wood	Leaves	Total
Pou [Hmong]	43%	26%	24%	7%	100%
Pou [Lao Loum]	47%	51%	2%	0%	100%
Piengta	27%	70%	1%	1%	100%
Hatsamkhone	54%	44%	0%	3%	100%
Total (percent)	42%	45%	9%	3%	100%
Total (count)	145 houses	155 houses	31 houses	11 houses	342 houses

Table 5 Roofing construction material, 2UR villages (Source: 2014 Baseline Socio Economic Survey)



House of Lao Loum of zone 2UR



House of Hmong of zone 2UR



House of Khmu of zone 2UR

Figure 2 Typical houses of each ethnicity in 2UR zone

1.4 Social Organization and Cultural Relations

6. PAPs in Zone 2UR are integrated into a diverse and complex network of social organizations and cultural relations. A key element is the public administration of Lao PDR. People are resident in villages, headed by a Village Chief. Villages are combined into kumbans and at the next level into districts, which again form provinces, finally resulting in the national community of Lao PDR.
7. Ministries at national level are represented at provincial and district levels. Essential for this project are the Ministry of Energy and Mines (MEM), the Ministry of National Resources and Environment (MoNRE), the Ministry of Agriculture and Forestry (MAF), and also the Ministries of Health (MoH), Education (MoE), and of Information and Culture (MIC). These public institutions are supported by mass organizations with structures at all levels, including the Front for National Construction, the Lao Women's Union (LWU), and the Lao Youth Union.
8. As elsewhere in Laos, a significant number of villagers are members of village-based mass organisations such as the LWU, Lao Youth Union, and Lao Workers' Union.
9. Next to these public institutions, PAPs are integrated into further social and cultural relations within and between villages. These include at village level informal, but influential, elders' councils, which have an essential say in the development of a community.
10. Ban Pou is separated into two hamlets - a Hmong hamlet of 122 households and Lao Loum community of 63 households and 2 Khmu households.
11. Hmong households in 2UR villages (part of Ban Pou) are identified and linked by clan systems, which connect them with villagers from Hatsaykham in Zone 3, 2LR villages in the lower reservoir area and other villages in Hom District. These linkages extend further to Hmong communities in the rest of the country as well as abroad, which allows them to

mobilize economic, cultural, political and social resources to support the communities in their communication with the Project. It also enables information about experiences in other hydropower projects to be widely shared and circulated.

12. Social Organization and Cultural Relations follow the pattern discussed in Chapter 7 of the REDP. Hmong groups are divided into patrilineal clans (*xeem*) which are strictly exogamous, that is marriage outside the birth clan is compulsory. Polygamy is traditional but less observed nowadays than in the past.
13. The baseline socioeconomic survey of 2014 did not identify any polygamous households in Zone 2UR. Further, more detailed investigation of domestic arrangements are currently being undertaken as part of the asset registration and compensation process.
14. The Hmong are believed to have their origins in China and to have migrated into northern Southeast Asia during the 19th century. There are 19 Hmong clans currently living in Lao PDR and they are generally group-oriented, with interests of the group coming before the interests of the individual, and clan leaders in each village representing the interests of the village. In the project impacted areas, there are four main clans: Yang, Vang, Xiong, and Lor, although there are some persons from clans such as Pialouang, Moua, Lee, Her and Vue who have married into these clans. In Hmong community of Ban Pou hamlet, the Xiong clan leads other clans socially and politically. Family members are under the authority and direction of the male-headed clans and household, usually the oldest male. Sons will automatically inherit family property and all other assets, and are often the ones to receive formal education. For this reason, male elders represent village households in all discussions, particularly with outsiders, and it is unusual for any person or family to contradict elders in public meetings.
15. The few Khmu households are completely integrated in the Lao Loum community of their village (Pou and Hatsamkhone).
16. Recent Lao history has encouraged further social networks between local and central level, which have to be taken into account when addressing stakeholders. While for the older generation, the liberation war is an essential factor in the evolution of such networks, for the young generation, modern communication as well as work and education in urban areas have extended social networks, providing them with additional social and cultural resources and influencing their development, preferences and life choices. With, in the near future, expected better communications of Thathom District with other districts of Xaysomboun province and with Bolikhamxay province, a further influx of technology can be expected, with possible changing patterns of livelihoods expectations.

1.5 Infrastructure and services

17. As in most of rural Lao PDR, the infrastructure of the villages of Zone 2UR is limited.

Overview of it is listed in Table 6 below.

18.

Infrastructure	Ban Pou	Ban Hatsamkhone	Ban Piengta
<i>Electricity</i>	Available in most households, from national grid		
<i>Drinking water source</i>	Piped water from springs	Piped water from open streams	Piped water from open streams
<i>Transportation and type of road / Problem</i>	Asphalt-paved D1 road; earth paths inside the villages / difficult to use in wet season		
<i>Navigation waterway</i>	Nam Ngiep		
<i>Small grocery shops</i>	6 shops	5 shops	2 shops
<i>Rice Milling Machine</i>	Available	Available	Available
<i>Nursery School</i>	Not available	Not available	Not available
<i>Primary School</i>	1	1	1
<i>Secondary School</i>	1	Not available	Not available
<i>Temple</i>	1	Not available	Not available
<i>Health Centre</i>	Not available	Not available	1
<i>Pharmacy</i>	Not available	Not available	Not available
<i>Cemetery</i>	1	1	1
<i>Petrol</i>	Several villagers sell gasoline in bottles; several petrol stations in the area are located along D1 road		

Table 6 Infrastructure of 2UR villages (Source: field visits 2011; update 2013)

19. The main transportation access is the asphalt paved, all-weather National Road 1D which links the villages with Phonesavanh, the provincial capital of Xieng Khouang, approximately 90 km to the northwest and the district capital Thathom approximately 25 km to the southeast, from where roads continue to Bolikhamxay Province and Khamouane Province respectively. From Thaviengxay a paved road leads to Xaysomboun district. Roads within the villages are earth surface, just partly flattened, which become muddy and difficult to use following rains. Currently, people use boats to cross the Nam Ngiep during rainy season while it is possible to cross by foot or Tek-Tek (hand tractor) through the water in dry season.
20. All villages in this zone are connected to the electricity grid and only a few Hatsamkhone households are reported to be not connected (Table 15).

Community	Grid Electricity	No Electricity	Total
Pou [Hmong]	100%	0%	100%
Pou [Lao Loum]	100%	0%	100%
Piengta	100%	0%	100%
Hatsamkhone	96.15%	3.85%	100%
Total	339	3	342

Table 7 Electricity infrastructure of 2UR villages (Source: Baseline Socio Economic Survey, 2014)

21. All villages get water from a Gravity Fed System (GFS) but the one of Ban Pou is connected to springs with limited flow at the end of the dry season while for Hatsamkhone and Piengta the GFS are connected to a stream which is turbid in the rainy season, even though there is always enough quantity. Poor water quality (turbidity) is probably why bottled water, delivered by truck, is more common in Piengta (Table 8 and Table 9).

22.

Community	Bottled Water	GFS	Other	Total
Pou [Hmong]	3%	96%	1%	100%
Pou [Lao Loum]	8%	90%	2%	100%
Piengta	43%	56%	1%	100%
Hatsamkhone	13%	87%	0%	100%
Total	16%	83%	1%	100%
Total	55	284	3	339

Table 8 Drinking water sources of 2UR villages in wet season (Source: Baseline Socio Economic Survey, 2014)

Community	Bottled Water	GFS	Other	Total
Pou [Hmong]	3%	96%	1%	100%
Pou [Lao Loum]	8%	90%	2%	100%
Piengta	42%	57%	1%	100%
Hatsamkhone	13%	87%	0%	100%
Total (percent)	16%	83%	1%	100%
Total (count)	54	285	3	342

Table 9 Drinking water sources of 2UR villages in dry season (Source: Baseline Socio Economic Survey, 2014)

23. The availability of sanitation/toilets varies from village to village. It is the lowest in Hmong community of Ban Pou (69%). Almost all toilets are pour flush (99.6%) and 100% of toilets are used when owned (Table 10).

Community	Have toilet	Pour Flush	Pit Latrine	Use of toilet
Pou [Hmong]	69%	100%	0%	100%
Pou [Lao Loum]	98%	100%	0%	100%
Piengta	95%	100%	0%	100%
Hatsamkhone	96%	99%	1%	100%
Total (%)	87%	100%	0%	100%
Total (households)	297	296	1	297

Table 10 Sanitation in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

24. Primary schools are available in all three villages, and a lower secondary school opened in Ban Pou in September 2013.
25. Ban Piengta has a health centre which is also accessible by the people of the nearby villages. None of the communities have pharmacies.
26. All villages have small general stores. These are typically small rooms or add-ons at people's houses which sell soaps, shampoos and detergents, toothpaste, and a variety of packaged and canned goods.

1.6 School Attendance

27. In general, all villages reported education as one of their main concerns and good schooling opportunities for the younger generation as a major aspiration. There is a lack of teachers and teaching materials to provide adequate educational services, as well as household income to send children to school. Furthermore, some people have expressed concern that even the public school system needs private financial input to pay for extra tutoring.
28. Table 11 indicates the Primary Age Enrolment (PAE), 6-10 years in the 4 communities. Overall there is no significant difference in PAE between communities or in male and female PAE but there are differences in male and female PAE in individual villages. However the total surveyed numbers of male and female primary age students outside Ban Pou [Hmong] are relatively small (less than 50 students in each village).
- 29.

Community	MALE		FEMALE		TOTAL	
	Enrolled	Count	Enrolled	Count	Enrolled	Count
Pou [Hmong]	96%	75	95%	66	96%	141
Pou [Lao Loum]	77%	13	100%	20	91%	33
Piengta	100%	21	87%	23	93%	44
Hatsamkhone	92%	24	100%	23	96%	47
Total	94%	133	95%	132	95%	265

Table 11 Primary age (6-10 years) enrolment in 2UR villages
(Source: Baseline Socio Economic Survey, 2014)

30. Table 20 provides the Secondary Age Enrolment (SAE) in the 4 communities. There is no significant difference in SAE between males and females overall or in any individual villages.
31. SAE is significantly different between communities: SAE is 20% for Ban Pou [Hmong] and 65% for Ban Pou (Lao Loum] and reaches 84% in Piengta and Hatsamkhone. It is not clear if low SAE is due to language difficulties, higher than normal age for grade, poverty, distance to high school, or other impediments.

Village / Community	Male		Female		Total	
	Enrolled	Count	Enrolled	Count	Enrolled	Count
Pou [Hmong]	22%	76	17%	46	20%	122
Pou [Lao Loum]	71%	31	53%	17	65%	48
Piengta	87%	31	81%	27	84%	58
Hatsamkhone	86%	36	80%	25	84%	61
Total	56%	174	51%	115	54%	289

Table 12 Percent of students of lower secondary age (11-15 years) that are enrolled in Lower Secondary in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

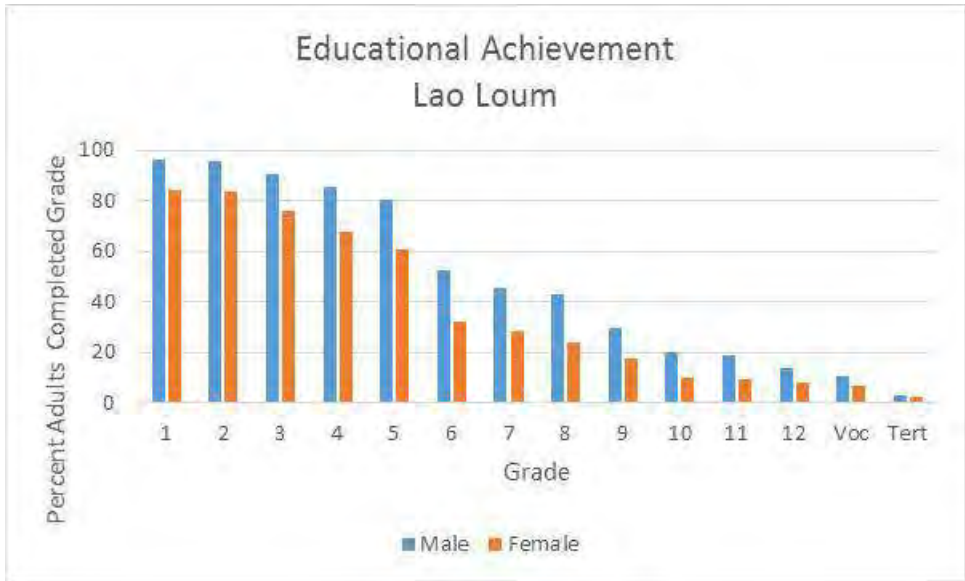
32. The Table 13 provides the mean age by Grade 5. Ban Pou [Hmong] children enrol late (mean age 7.1±0.2) compared to other villages who generally enrol at age 6.
33. Overall Hmong students of Ban Pou are older when they finish primary school (13.1±0.4) but Ban Pou [Lao Loum] are also old for grade, having a mean age of 11.3±0.3. The other villages have a mean age of 10.4 years. It is not clear what may be the issue (poverty, language, lack of motivation, etc.).
- 34.

Grade	Age in Years for Children in Each Grade			
	Pou [Hmong]	Pou [LaoLoum]	Piengta	Hatsamkhone
1	7.1	6.0	5.9	5.7
2	9.4	7.4	7.9	7.6
3	11.1	8.5	10.6	8.7
4	12.0	10.0	9.7	9.3
5	13.1	11.3	10.4	10.4

Table 13 Mean age (years) by grade in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

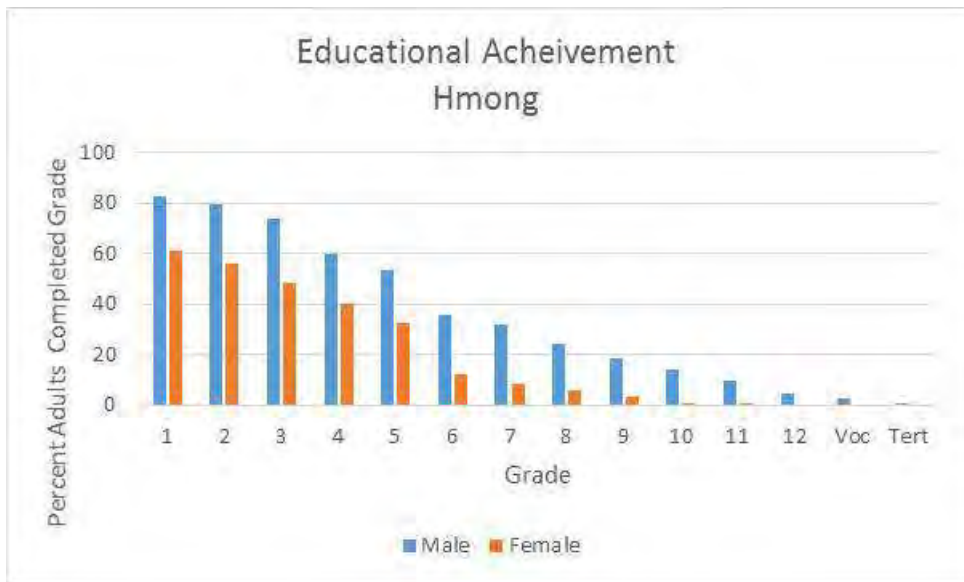
1.7 Adult Education and Literacy

35. Literacy is a challenge for rural communities and also for the Project's communication efforts in Zone 2UR. Levels of educational achievement are related to age, gender and ethnicity. For Zone 2UR:
- 28% of adult Hmong have no formal education compared to 10% of adult Lao Loum
 - 24% of adult Hmong have higher than primary education compared with 42% of Lao Loum adults
36. 40% of Hmong women have no formal education and only 4% have higher than primary level education whereas 16% of Lao Loum women have no formal education and 32% have higher than primary education.
37. Younger age groups have more education: the 20-29 year age group have about 7 years of education on average, with males having about 2 years more education on average. Older age groups have less education and more difference between genders – the 50-59 year group have an average of 4 years of education, males averaged 5 years and females average 3.4 years (Table 14).
- 38.
- 39.



40.

Figure 3 Educational Achievement for adults 18 years and over that have completed their education.



41.

Figure 4 Educational achievement for adults 18 years and over who have completed their education.

Age Group (years)	Male		Female		Total	
	Mean	Se	Mean	Se	Mean	Se
20-29	8.2	±0.3	6	±0.3	7.1	±0.2
30-39	6.6	±0.4	4.1	±0.3	5.3	±0.3
40-49	5.5	±0.4	3.6	±0.3	4.6	±0.3
50-59	5	±0.4	3.4	±0.4	4.2	±0.3
60+	3.7	±0.4	1	±0.3	2.3	±0.3

Table 14 Mean years of formal education by age and gender
(Source: Baseline Socio Economic Survey, 2014)

Age group (years)	Male	Female	Total
5-9	64%	61%	63%
10-14	93%	93%	93%
15-19	92%	91%	92%
20-24	100%	86%	92%
25-29	90%	90%	90%
30-34	95%	76%	84%
35-39	95%	71%	84%
40-44	89%	93%	91%
45-49	100%	80%	90%
50-54	88%	91%	89%
55-59	100%	100%	100%
60-64	100%	75%	88%
65-69	77%	67%	72%
Total (%)	87%	80%	84%
Total surveyed	370	332	632

Table 15 Lao fluency by age and gender (Source: Baseline Socio Economic Survey, 2014)

42. Adult literacy is correlated with age, gender and village. (Table 16 and Table 17). Education and literacy are generally lower for women: only 49% of adult women in 2UR villages are fully literate compared to 70% of men. The percentage of literacy is particularly low for older women (>50years). Ban Pou [Hmong] has lowest literacy levels for both males and female adults: overall only 37% of adults are literate, with 48% of men and only 26% of women being fully literate.

43.

Age Group (years)	Male	Female	All
20-29	77%	69%	73%
30-39	76%	52%	64%
40-49	73%	46%	60%
50-59	60%	38%	49%
60+	44%	1%0	27%
Total	70%	49%	59%

Table 116 Literacy by age and gender for Zone 2UR (Source: Baseline Socio Economic Survey, 2014)

Village	Male	Female	All
Pou [Hmong]	48%	26%	37%
Pou [Lao Loum]	87%	65%	76%
Piengta	72%	47%	60%
Hatsamkhone	79%	68%	73%
TOTAL	69%	49%	59%

Table 17 Adult Literacy (age>20) by village and gender for Zone 2UR (Source: Baseline Socio Economic Survey, 2014)

44. The Project has started adult literacy classes in 2015 in Zone 2UR in response to an expressed desire from the villages to improve adult literacy.

1.8 Diet and Nutrition

45. The nutritional status of a person is a function of the nature and quantity of food intake (dietary intake), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.
46. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anaemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in , obesity and can lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption within the same community is an increasing problem in the developing world.
47. Volumes of food consumptions are lower in 2UR than in other zones and are particularly low in the Hmong community of Ban Pou (Table 18). Estimated consumption of staples (mainly rice) was 14.7 kg/month which was lower than the other zones included in the baseline (Baseline Socio Economic Survey, 2014). The Hmong households in Ban Pou have

the lowest consumption of staples in the zone, recording a consumption of only 13.4 kg/person/month.

48. Per capita fish consumption in Zone 2UR is relatively low, 1.8 ± 0.1 kg/person/month (this is total weight and includes non-edible parts) with Hmong community of Ban Pou having the lowest one (1.1 kg/person/month). The same can be said about meat consumption, slightly lower than average (1.4 kg/month) than for the whole area (1.5 kg/month) (Table 19). This is a minimum not including poultry which was counted by the bird.

49.

Community	Rice (kg/month)		Total Staples (kg/month)		Fish (kg/month)		Meat (kg/month)		Poultry (birds/month)	
	mean	se	mean	se	mean	se	mean	se	Mean	se
Pou [Hmong]	12.3	± 0.4	13.4	± 0.5	1.1	± 0.1	1.0	± 0.1	0.7	± 0.1
Pou [Lao Loum]	14.6	± 0.6	16.1	± 0.7	2.5	± 0.2	1.5	± 0.2	2.1	± 0.2
Piengta	13.4	± 0.4	14.7	± 0.5	2.1	± 0.2	1.6	± 0.2	2.1	± 0.2
Hatsamkhone	14.2	± 0.5	15.4	± 0.5	1.9	± 0.1	1.8	± 0.1	1.3	± 0.1
Total	13.4	± 0.2	14.7	± 0.3	1.8	± 0.1	1.4	± 0.1	1.5	± 0.1

Table 18 Per capita food consumption for Zone 2UR (Source: Baseline Socio Economic Survey, 2014)

ZONE	Fish Consumption Kg/person/ month		Meat Consumption Kg/person/ month	
	Mean	Se	Mean	Se
Z1 Catchment	1.5	± 0.1	1.1	± 0.1
Z2 Upper Reservoir	1.8	± 0.1	1.4	± 0.1
Z2 Lower Reservoir	3.9	± 0.2	1.7	± 0.1
Reference Village 1	1.3	± 0.1	0.6	± 0.1
Z3 Construction area	2.2	± 0.3	2.8	± 0.3
Z4 Downstream	2.7	± 0.2	1.4	± 0.1
Z5 Hosts	3.1	± 0.3	2.1	± 0.2
Reference Village 2	3.0	± 0.2	1.5	± 0.1

Table 19 Fish and meat consumption for all zones (Source: Baseline Socio Economic Survey, 2014)

50. The 2014 health baseline survey used 2 simple approaches to the measurement of the nutritional status of 2UR households:
1. Child anthropometric measurements and
 2. Anaemia levels amongst women of child bearing age.
51. Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition and recurrent infections, such as diarrhoea and helminthiasis (parasitic infections), in early childhood. Anaemia is low levels of red blood cells which causes tiredness, inability to work and affects child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.
52. The baseline health survey for 2UR shows that apparently adequate levels of food consumption are not translated into health outcomes. Child stunting and anaemia in women are high with child stunting affecting 34% of all children in the zone (but more than 50% in Ban Pou) and anaemia in 2UR affecting 51% of child bearing age women (but up to 67% in Hmong community of Ban Pou).
53. This compares to a national average of 44% stunting in rural areas with road access (Lao Social Indicator Survey 2012) and 36% of women who are anaemic (Lao PDR Nutrition Profile, 2014).
- 54.

Name	Stunting children < 5 years	Anaemia (women 25-45yrs)*	Contraceptive use (women 25-45yrs)
Pou [Hmong]	67%	50%	0%
Pou [Lao]	58%	56%	11%
Piengta	50%	11%	56%
Hatsamkhone	29%	30%	30%
Total	51%	34%	28%

Table 20 Nutritional indicators and condom use for 2UR villages
(Source: 2014 Baseline Socio-Economic Survey)

55. Contraceptive use (28%) is rather low compared to the overall average for the socio-economic survey (40%) but that figure hides variability with high use in Piengta and a null use in the Hmong community of Ban Pou.

1.9 Health and Health Services

56. Health care in the villages relies on two bases: on the one hand villagers consult traditional healers and use local knowledge on treatment and medicine; this extends to spiritual analysis and procedures. On the other hand they are integrated into the formal health care

system, which, however, is still weakly established. There is a health centre in Ban Piengta and dispensaries provide services in Ban Thaviengxay and the district capital Thathom. The nearest hospital is located in Phonesavanh, the capital of Xieng Khouang Province; a distance of 77km. All of these facilities are accessible year round by an all-weather-road (Road D1).

57. The 2014 Baseline Socio-Economic Survey provides some information on health perceptions, treatment seeking and health access. There is no gender differences but there are significant differences between villages – Ban Pou reported the lowest number of days off due to ill health (Table 14). Previous analysis has shown that poor households generally self-report less illness and lose fewer days of normal activities. Reported ill health is also related to age with children less than 5 and older adults reporting highest levels of ill health.
58. Almost all persons reporting ill health sought treatment (>90%). Lowest level of treatment seeking was in Ban Pou [Hmong] (90%) and highest was in Hatsamkhone where 99% of those reporting ill-health sought some form of treatment.
- 59.

Community / village	Ill health	Seek treatment	Days off
Pou [Hmong]	23%	21%	11%
Pou [Lao Loum]	36%	33%	8%
Piengta	31%	29%	13%
Hatsamkhone	28%	28%	15%
TOTAL	28%	21%	12%

Table 21 Seeking treatment if ill (Source: Baseline Socio-Economic Survey, 2014)

Zone 2UR villages use various health facilities (Table 15). Public hospitals and village health volunteers are the most commonly used health facilities but there are significant differences between villages.: Ban Pou [Lao Loum] has a high use of the village health volunteers but the other villages use public health hospitals and clinics the most frequently

60.

Health facility \ Village	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
Public hospital/Clinic	74%	48%	75%	69%	68%
Village Health/Volunteer	18%	59%	18%	29%	29%
Pharmacy/Shop	8%	2%	8%	2%	5%
Traditional Healer	4%	0%	1%	2%	2%
Private clinic/doctor	0%	0%	3%	1%	1%
Doctor Home visit	1%	1%	1%	0%	1%

Total	104%	109%	107%	103%	106%
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Table 22 Health facilities used by 2UR villages (Source: Baseline Socio-Economic Survey, 2014)

61. Table 23 lists the health issues recorded by the Piengta Health Centre in 2015. Diarrhoea and respiratory diseases are the most prevalent health complaints reported.

Health Complaint	Piengta		Hatsamkhone		Pou	
	Patients	Percent population	Patients	Percent population	Patients	Percent population
Gastritis	8	1.8%	9	1.9%	13	1.24%
Cold/Flu	38	8.5%	40	8.5%	49	4.70%
Diarrhoea	42	9.5%	50	10.77%	64	6.14%
Bronchitis	18	4.07%	35	7.54%	51	4.89%
Button	5	1.13%	6	1.29%	11	1.05%
Wound	13	2.9%	6	1.29%	8	0.76%
Other	43	9.72%	40	8.62%	72	6.90%
Patients	167	38%	186	40%	268	26%
Total population	442		464		1042	

Table 23 Summary of outpatients' health data from January to October 2015 in Piengta Health Centre (Source: Piengta Health Centre)

1.10 Gender Issues and Status of Women

62. Gender dimensions of concern in the project area which also apply to Zone 2UR include:
- land rights; most land and housing are formally or informally under male control and patrilineal heritage line. This is addressed by all replacement land and housing registered and titled in the joint names of husband and wife. Where a man has more than one wife, the second family will be separately titled in the name of the wife and a male family member of her choice (e.g. eldest son)
 - financial management; where compensation money may be handed only to a male household head, there is higher risk of poor subsequent investment. The Project has instituted bank accounts in the joint names of husband and wife, with prior financial training provided to understand how to deposit and withdraw funds. All acknowledgements of receipts or withdrawals must have the joint signatures or

thumbprints of both husband and wife. This compensation procedure was instituted for roads and TL land acquisition, and has proved very popular, particularly with women

- hard work; women have multiple responsibilities taking care of the house, cooking, caring for the sick, elderly and children, gender-specific agricultural tasks (e.g. weeding, hoeing, fetching water, land clearance, harvesting, etc.), and income generating work. Replacement housing will integrate labour saving devices such as accessible domestic water supply, electricity, etc. to reduce the drudgery component of these responsibilities
 - health; reproductive and maternal health is poor with comparatively high levels of anaemia, and continued laborious work throughout pregnancy. Sanitation is poor, and improved water and sanitation facilities will be provided in replacement housing, and training given in their use. The health program is outlined in more detail in the SDP.
 - education; less formal education due to early inclusion into domestic work, and less ability to understand written documents particularly if the first language is not Lao. Improved educational facilities will be provided in Houaysoup, with permanent teacher presence and teacher housing. Adult literacy and basic numeracy classes, particularly for women, will also be implemented for all those interested to participate.
 - communication; typically external agencies and government extension staff tend to talk only to male village representatives and in Lao language, especially where the culture is patriarchal and patrilineal, as with Hmong. The Project has made particular effort to employ Hmong men and women as fieldworkers for Hmong communities. Women's meetings are held separately from those of men, and women's preferences for various types of training are given precedence
 - ethnicity; ethnic minority women are proportionately less familiar with Lao language and therefore less likely to be informed of their rights. See above point.
63. 2UR Hmong community are strongly patriarchal. Family members are under the authority and direction of the male-headed household, usually the oldest male. Sons will automatically inherit family property and all other assets and are often the ones to receive a formal education. Hmong women normally do not represent the family status and may not be included in meetings. Even if they participate, women rarely voice their opinions. Both a Hmong man and woman are considered adults only after they have produced children. Hmong woman only gain prestige in the family by giving birth to a boy.
64. Separate consultation meetings with female villagers resulted in the following gender issues being identified:
- A high percentage of females have no formal education and many did not complete primary school
 - Early marriage (15 to 16 years) and early and frequent pregnancies
 - High demand of physical labour including raising of children and care of livestock,

as well as most housework and tending gardens

- Informally no property rights for females recognized
- No traditional right to divorce for females
- Husbands generally as lone decision makers;
- Few opportunities for financial independence or to learn new livelihood activities such as weaving, tailoring, and food preservation techniques
- Health problems such as diarrhoea, womb pain, body ache; distance to Paksan hospital is a further health-related issue and previous access available only during the dry season

1.11 Information and Services

65. There is significant difference in 14 asset types regarding communities and Ban Pou [Hmong] owns least assets. 2UR has full access to national electricity grid and mobile phone networks, and this translates in a high ownership of mobile phones and other electrical assets (Table 24).
66. It is worth noting the ownership of hand tractors (higher than in 2LR) and the one of boat and boat engines: the ownership is virtually nil for the Hmong community of Ban Pou but is particularly high for Piengta and Hatsamkhone, and relatively less for the Lao Loum Ban Pou community. This has to be put in relation with the importance of income from fishing for these 3 communities.

Asset \ Villages	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total	Chi2
Mobile phones/other phones	93%	98%	96%	100%	96	0.042
Televisions	56%	95%	93%	91%	80	0
Motorcycles/scooters	76%	85%	80%	81%	80	0.578
Satellite dish	22%	92%	83%	85%	63	0
Wardrobe	51%	68%	63%	69%	61	0.039
Electric rice cooker	31%	59%	45%	72%	49	0
Bicycles	34%	54%	45%	58%	46	0.004
Refrigerators/freezers	21%	68%	40%	55%	42	0
Hand Tractor	34%	54%	40%	46%	42	0.057
Tape players/CD players/radio	31%	54%	36%	37%	37	0.022
DVD Player	28%	32%	26%	32%	29	0.801
Boat	1%	20%	45%	28%	21	0
Boat motor	0%	20%	26%	18%	14	0
Generator	19%	24%	0%	8%	13	0
Glass Fronted Cabinet	5%	15%	19%	12%	12	0.015
Car or truck	5%	7%	5%	12%	7	0.262
Water Pump	1%	14%	7%	5%	6	0.005
Cameras, video cameras	6%	3%	6%	3%	5	0.65
Water Dispenser	5%	2%	5%	4%	4	0.752
Couch	2%	2%	2%	8%	4	0.151
Washing Machines	1%	5%	1%	3%	2	0.259

Table 24 Ownership of assets (in percentage) by households in 2UR villages
(Source: 2014 Baseline Socio- Economic Survey)

1.12 Income

67. Total income is the sum of income from all sources for all household members; it includes wages and salaries, pensions, interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food). It is expressed as income per person per month in this report.
68. The 2014 Baseline Socio Economic Survey represents the most comprehensive and reliable

estimate of household income in 2UR villages. This survey found households in 2UR reported a mean per capita income of 881,000 LAK/month, with approximately 63% of this income occurring as cash income. There are significant differences in mean per capita income between villages with Ban Pou [Hmong] community having a mean per capita income of 367,000 LAK/person/month only. All other villages in this zone have a mean income higher than 1,000,000 LAK/person/month

69. Fishing, Agriculture, Employment and Business income (cash sales + imputed value of self-consumption) are the 4 largest sources of income overall.
70. Fishing is the largest source of income except in Ban Pou [Hmong] where agriculture is the largest source of income - note that fishing is a minor source of income for the Hmong community in this village - and in Hatsamkhone where business income is larger and fishing comes second.
71. Rural households in the Lao PDR typically utilize a wide variety of livelihoods, with income diversity often adding to a household's resilience, particularly for poor households.
72. There are significant differences in the average number of income sources for households in the 4 communities of Zone 2UR. Households in the Hmong hamlet in Ban Pou reported an average of 5 income sources out of a maximum possible 8 sources over the last year, whereas the other communities reported an average of more than 6 sources per household. A significant proportion of Hmong households in Ban Pou had very limited set of income sources: 10% of households reported 3 or fewer income sources in the last year, and 33% reported 4 or fewer income sources.

No of income sources declared in the last year	Ban Pou [Hmong]	Ban Pou [Lao]	Piengta	Hatsamkhone
2	1%	0%	0%	0%
3	9%	0%	0%	1%
4	23%	2%	7%	5%
5	31%	14%	24%	10%
6	26%	37%	39%	28%
7	7%	39%	26%	45%
8	2%	8%	4%	10%
Total (%)	100%	100%	100%	100%
Mean number of income sources	5.0±0.1	6.4±0.1	6.0±0.1	6.4±0.1
Total (households)	121	59	84	78

Table 325 Diversity of income sources in Zone 2UR. The survey identified 8 possible incomes sources (Employment, Business, Fishing, Agriculture, Livestock, Forests, Hunting and Other)

73.

Source	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	51,000	±9,000	235,000	±38,000	244,000	±49,000	246,000	±37,000	175,000	±17,000
Business	19,000	±9,000	129,000	±37,000	221,000	±79,000	392,000	±111,000	173,000	±33,000
Other	11,000	±5,000	27,000	±6,000	42,000	±15,000	28,000	±7,000	25,000	±5,000
Fishing	66,000	±8,000	311,000	±62,000	360,000	±50,000	298,000	±45,000	233,000	±20,000
Agriculture	142,000	±10,000	235,000	±24,000	159,000	±13,000	223,000	±20,000	181,000	±8,000
Livestock	56,000	±9,000	62,000	±12,000	57,000	±15,000	72,000	±22,000	61,000	±7,000
Forest	19,000	±3,000	30,000	±10,000	19,000	±3,000	20,000	±4,000	21,000	±2,000
Hunting	3,000	±1,000	24,000	8,000	8,000	±4,000	23,000	±7,000	13,000	±2,000
Total	367,000	23,000	1,053,000	94,000	1,110,000	±102,000	1,303,000	±145,000	881,000	50,000

Table 26 Per capita total income (LAK/month) in 2UR villages (Source: 2014 Baseline Socio- Economic Survey)

Source	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	14%	±2%	22%	±4%	22%	±4%	19%	±3%	20%	±2%
Business	5%	±2%	12%	±3%	20%	±7%	30%	±9%	20%	±4%
Other	3%	±1%	3%	±1%	4%	±1%	2%	±1%	3%	±1%
Fishing	18%	±2%	30%	±6%	32%	±4%	23%	±3%	26%	±2%
Agriculture	39%	±3%	22%	±2%	14%	±1%	17%	±2%	21%	±1%
Livestock	15%	±2%	6%	±1%	5%	±1%	6%	±2%	7%	±1%
Forest	5%	±1%	3%	±1%	2%	±0.3%	2%	±0.3%	2%	±0%
Hunting	1%	±0.2%	2%	±1%	1%	±0.3%	2%	±1%	1%	±0.3%
Total	100%		100%		100%		100%		100%	

Table 27 Total income (in percentage) in 2UR villages (Source: 2014 Baseline Socio- Economic Survey)

	Pou[Hmong]		Pou [LaoLoum]		Piengta		Hatsamkhone		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	51,000	±9,000	235,000	±38,000	244,000	±49,000	246,000	±37,000	175,000	±17,000
Business	19,000	±9,000	129,000	±37,000	221,000	±79,000	392,000	±111,000	173,000	±33,000
Other	11,000	±5,000	27,000	±6,000	42,000	±15,000	28,000	±7,000	25,000	±5,000
Fishing	1,000	-	95,000	±38,000	139,000	±34,000	95,000	±29,000	72,000	±13,000
Agriculture	29,000	±5,000	83,000	±18,000	37,000	±8,000	90,000	±15,000	54,000	±5,000
Livestock	45,000	±8,000	47,000	±11,000	38,000	1±±4,000	58,000	±22,000	47,000	±7,000
Forest	8,000	±2,000	8,000	±6,000	5,000	±3,000	5,000	±2,000	7,000	±1,000
Hunting	1,000	-	7,000	±4,000	3,000	±2,000	12,000	±5,000	5,000	±1,000
Total	165,000	18,000	631,000	±72,000	729,000	±96,000	925,000	±132,000	557,000	±44,000

Table 28 Per capita cash income (LAK/month) in 2UR villages (Source: 2014 Baseline Socio- Economic Survey)

	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
Employment	100%	100%	100%	100%	100%
Business	100%	100%	100%	100%	100%
Other	100%	100%	100%	100%	100%
Fishing	2%	31%	39%	32%	31%
Agriculture	20%	35%	23%	40%	30%
Livestock	80%	76%	67%	81%	77%
Forest	42%	27%	26%	25%	33%
Hunting	33%	29%	38%	52%	38%
Total	45%	60%	66%	71%	63%

* Assumption is made that employment, business & other income are mostly cash income, as these were not split into cash & non-cash in the SES questionnaire.

Table 29 Cash income (in percentage) in 2UR villages (Source: 2014 Baseline Socio-Economic Survey)

- 74. Household incomes are not equally distributed, and typically a small percentage of the population have much higher incomes than the rest. This is also the case for Zone 2UR.
- 75. Ban Pou [Hmong] has a very narrow wealth distribution and most households (72%) are clustered in the poorest group: 10% of Pou [Hmong] households even reported incomes of less than 125,000 LAK/person/month. There are no wealthy households. In other villages there is a long “tail” of a few households with very high incomes.

Per capita income (million LAK/month)	Pou[Hmong]	Pou[LaoLoum]	Piengta	Hatsamkhone	Total
0-0.4	72%	14%	15%	12%	34%
0.4- 0.8	22%	27%	27%	32%	27%
0.8- 1.2	4%	31%	25%	17%	17%
1.2- 1.6	2%	14%	14%	17%	10%
1.6- 2.0	0%	0%	6%	8%	3%
2.0- 2.4	0%	8%	5%	6%	4%
2.4- 2.8	0%	2%	1%	3%	1%
3.2- 3.6	0%	5%	2%	1%	2%
3.6- 4,2	0%	0%	2%	0%	1%
>4.2	0%	0%	1%	5%	1%
TOTAL (%)	100%	100%	100%	100%	100%
TOTAL (households)	121	59	84	78	342

Table 430 Per capita income Distribution in 2UR (Source: Baseline Socio Economic Survey, 2014)

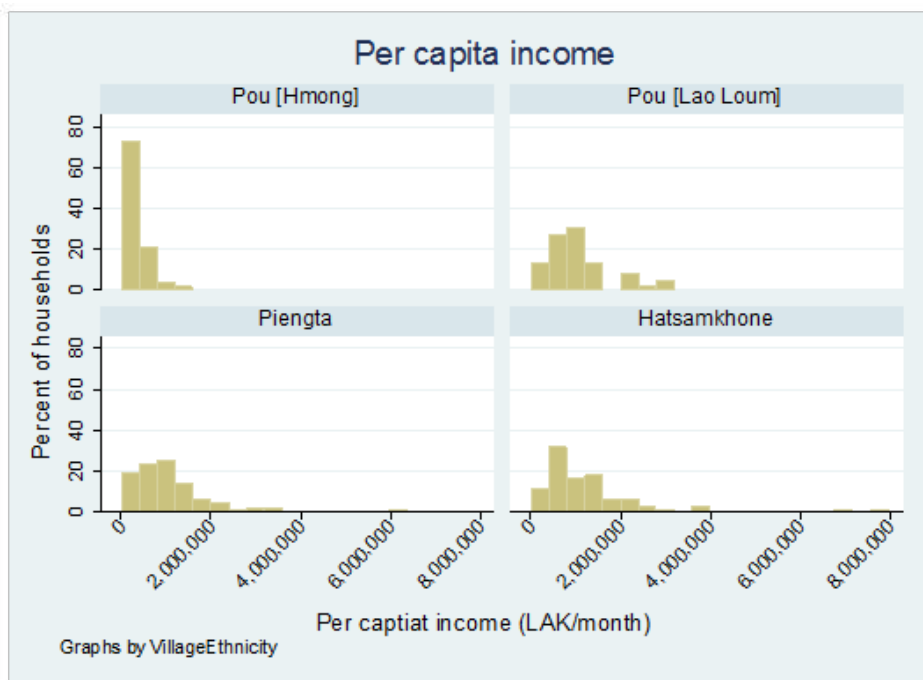


Figure 5 Income Distribution in 2UR (Source: Baseline Socio Economic Survey, 2014)

1.13 Agriculture and Horticulture Land Use

76. A total of 75% of adults over the age of 18 years in 2UR (with up to 82% in Hmong community of Ban Pou) identified their main occupation as farmer. The second group is the one of students and only 4.6% identified themselves as government workers. The percentage of government workers is much higher in all Lao Loum communities than in the Hmong community of Ban Pou (only 0.8%).

Main occupation (in %)	Pou [Hmong]	Pou [LaoLoum]	Piengta	Hatsamkhone	Total
Farmer	82%	72%	74%	69%	75%
School Student	10%	8%	9%	15%	11%
Too old/Retired	3.4%	7.3%	5.6%	4.8%	5.0%
GOV worker	0.8%	7.7%	5.2%	6.5%	4.6%
Home duties	2.5%	2.4%	0.8%	2.8%	2.1%
Non-farm Labourer	0.0%	1.0%	1.5%	1.0%	0.8%
University/Tertiary	0.6%	0.5%	2.2%	0.0%	0.8%
Trader	0.0%	0.0%	1.5%	0.7%	0.5%
Farm Labourer	0.8%	0.0%	0.0%	0.0%	0.3%
Other (specify)	0.0%	0.5%	0.4%	0.3%	0.3%
Child, < school age	0.0%	1.0%	0.0%	0.0%	0.2%

Table 531 Households' main occupation in 2UR Villages. (Source: 2014 Baseline Socio-Economic Survey)

77. The land ownership and land use of the three villages in Zone 2UR (as per 2011 field survey) are presented in Table 32.
78. Privately held lands account for only slightly more than 6% of the total land area of these villages. These privately held lands are almost all agricultural. About 30% of the privately held lands in all four communities are paddy fields. 17% of the privately held lands are upland rice fields, and 47% of the privately held lands are other cultivated areas.

Type of land use (ha)	Piengta	Hatsamkhone	Pou	Total
1. Private Land				
1.1 Residential area	5.51	9.88	18.94	34.33
1.2 Paddy field	68.19	78.44	130.1	276.73
1.3 Upland rice field	24.074	37.29	93.78	155.14
1.4 Other cultivated land	125.95	126.05	172.58	424.58
1.5 Other private land use	4	3	7	14
Total	227.73	254.66	422.4	904.78
1.6 Fish Ponds (unit)	0	3	7	10
2. Public Land				
2.1 School Land	1	1.5	1.5	4
2.2 Temple Land	0	0	0.5	0.5
2.3 Village Office Land	0	0	0	0
2.4 Health Centre Land	0.5	0.42	0.71	1.63
2.5 Cemetery land	2	3	2	7
2.6 Grazing area	41.9	2.5	6.15	50.55
2.7 Pond/water body	0	0	0	0
2.8 Other public land use	23.7	26.3	35.4	85.4
Total	69.1	33.72	46.26	149.08
3 Forest and others				
3.1 Community-managed production forest	245	857	2,050	3,152
3.2 Community-managed reserved forest	253	637	694	1,584
3.3 Other Forest				
Protection forest	5423	540	657.5	6,620.5
Unstocked forest	363	365	882	1,610
Buffer zone	41.9	2.5	6.15	50.55
Total	6,325.90	2,401.50	4,289.65	13,017.10
Total Land Use				14,070.91

Table 32 Land Use Patterns of 2UR Villages (Source: Field Survey 2011)

79. Forest land makes up more than 90% of village land in each of the three villages, however, the nature of the forest land differs between each village. In Piengta, 82% of village land is protection forest. In Ban Pou and Hatsamkhone a much smaller percentage (20% and 14% respectively) is classified as protection forest and a larger percentage of village land is

classified as community production forest (32% and 43% respectively).

80. Table 33 presents the area of rice cultivation in each community, by each type of rice field: paddy and swidden or upland fields. Paddy fields make up approximately one third of total cultivation in each village, whereas swidden cultivation makes up 11-24% of cultivation. Ban Pou has the highest level of swidden, with the Hmong community within this village being more reliant on swidden cultivation than other communities.

Village Name	Paddy Field Cultivation (ha)	Paddy Field / Overall Cultivation Area (%)	Swidden Cultivation (ha)	Swidden Field / Overall Cultivation Area (%)
<i>Upper section of the reservoir area</i>				
Piengta	68.19	31.25	24.074	11.03
Hatsamkhone	78.44	32.44	37.291	15.42
Pou	130.10	32.81	93.786	23.66

Table 33 Area of Rice Cultivation of each Type and Area of Rice Cultivation in Comparison to Other Agricultural Activities (Source: Field Survey 2011)

1.14 Rice Sufficiency

81. An assessment of rice-self-sufficiency in 2011 showed that the majority of households (80%) are able to produce enough rice to meet their needs for the year (Table 35). There are significant differences between villages, with Ban Pou¹ having the lowest level of rice self-sufficiency (71%) and Hatsamkhone (92%) the highest. There are several coping strategies applied by villagers including local rice banks, as indicated by villagers in Ban Hatsamkhone.

82.

Village	No. of HH	No. of HHs interviewed	Sufficient Year Round	Insufficient for 2 to 4 months	Insufficient for 5 to 6 months	Insufficient for 7 to 8 months
<i>Upper section of the reservoir area</i>						
Piengta	82	79	87%	9%	2%	2%
Hatsamkhone	74	73	92%	6%	1%	1%
Pou	172	145	71%	15%	9%	5%
TOTAL	328	297	80%	11%	5%	3%

Table 34 Rice Sufficiency Production Rates of Households on a Yearly Basis (Source: Field Survey 2011)

83. The Baseline Socio Economic Survey was undertaken in October-November 2014, just prior

¹ The 2011 field survey did not differentiate between the Hmong and Lao Loum sub-villages.

to the annual rice harvest. At that time, households in 2UR reported eating rice about 7 days/week (mean value) (Table 43).

	Pou [Hmong] (days/week)		Pou [Lao Loum] (days/week)		Piengta (days/week)		Hatsamkhone (days/week)	
	mean	se	mean	se	mean	se	mean	se
Sticky rice	2.2	±0.3	6.9	±0.1	6.6	±0.1	6.8	±0.1
Plain rice	5.3	±0.3	0.6	±0.2	0.7	±0.2	0.5	±0.2
Fish	2.4	±0.2	4.7	±0.3	3.9	±0.3	4.1	±0.2
Pork	1.5	±0.1	1.2	±0.2	1.0	±0.1	2.5	±0.3
Poultry	1.4	±0.1	2.9	±0.3	3.1	±0.3	2.4	±0.2
Wild Animals	0.4	±0.1	0.6	±0.2	0.5	±0.1	1.2	±0.2
Beef	0.5	±0.1	0.7	±0.2	1.3	±0.2	0.8	±0.1
Wild Birds	0.2	±0.1	0.3	±0.1	0.3	±0.1	0.4	±0.1
Buffalo	0.0	±0.0	0.4	±0.1	0.8	±0.2	0.2	±0.1

Table 35 Mean consumption days/week for key food (Source: 2014 Baseline Socio-Economic Survey)

84. The Project’s vulnerability officer regularly monitors claims of rice insufficiency to understand which households are most poor and vulnerable. The incidence and causes of any food insufficiency will be closely monitored and addressed through the livelihood support program.

1.15 Livestock

85. Livestock is an important income and savings source. All households raise a variety of animals, including large and small livestock (Table 36). For large livestock with fenced grazing areas farther away, villagers have formed livestock groups, organizing the supervision of livestock in these remote grazing areas. This livelihood activity is reported by PAPs as a favoured livelihood activity.
86. Importance of large livestock and pigs is however much lower in Piengta, which may seem contradictory when looking at the respective grazing areas of the 3 villages, with Piengta area representing 80% of the total grazing area according to the 2011 field survey (refer to Table 32).
87. Median per capita income from livestock is similar in all communities but representing 15% for Hmong community of Ban Pou, 3 times the one of other communities, and 77% of livestock is part of the cash income (Table 70)

	Village	Buffalo	Cattle	Pig	Duck	Chicken	TOTAL	Large Livestock
Percent households owning livestock	Pou [Hmong]	13%	66%	69%	60%	98%	98%	60%
	Pou [Lao Loum]	15%	61%	68%	93%	100%	100%	93%
	Piengta	11%	20%	38%	81%	99%	100%	81%
	Hatsamkhone	12%	53%	49%	72%	100%	100%	72%
Average number owned	Pou [Hmong]	0.5	3.9	2.6	4.9	18.5	30.6	4.4
	Pou [Lao Loum]	0.6	5.1	2.9	12.3	30.2	51.1	5.8
	Piengta	0.1	0.8	0.8	11.9	25.1	38.8	0.9
	Hatsamkhone	0.5	3.2	1.6	6.0	26.2	37.5	3.7
Mean per capita value (million kip)	Pou [Hmong]	0.5±0.1	2.4±0.3	0.2±0	0.05±0	0.1±0	3.4±0	3±0.3
	Pou [Lao Loum]	0.7±0.2	4±0.7	0.3±0	0.1±0	0.2±0	5.4±0.8	4.7±0.8
	Piengta	0.2±0.1	0.7±0.2	0.1±0	0.2±0	0.2±0	1.4±0.2	0.9±0.2
	Hatsamkhone	0.7±0.3	2.5±0.5	0.1±0	0.1±0	0.2±0	3.7±0.6	3.2±0.6

Table 36 Livestock in 2UR (Source: 2014 Baseline Socio-Economic Survey)

1.16 Fisheries

88. The Nam Ngiep River as well as larger tributaries and smaller streams are an important fisheries resource, with many meals including some fish, either fresh or preserved for the 2UR villages.
89. Fisheries are an important element of nutrition for people from 2UR. Analysis of the 2014 Baseline Socio Economic Survey shows that households in 2UR consume fresh fish about 4 days/ week in most villages (Table 35), but with a total consumption of only 1.8 kg/per person/month (Table 19), lower than other impacted zones. The Hmong community of Ban Pou have lower than average fish consumption with consumed 2.4 days/week of fish on average with a total of 1.1 kg/per person/month (Table 18).
90. The Survey found the total income from fishing was approximately 233,000 kip/person/month which constitute 26% of total income. Cash income from fisheries amounted to 26% of total (cash + imputed) income (Table 70)
91. As elsewhere in the area, river fishing is the task of the men. They use cast nets, fishnet, and sometimes fishhooks. While most of the fish they catch is for home consumption, some surplus is on occasion sold at the market like in Ban Thaviengxay. Women and older persons use scoop nets in areas where they can wade, to scoop small fry and aquatic products such as snails, frogs, etc.

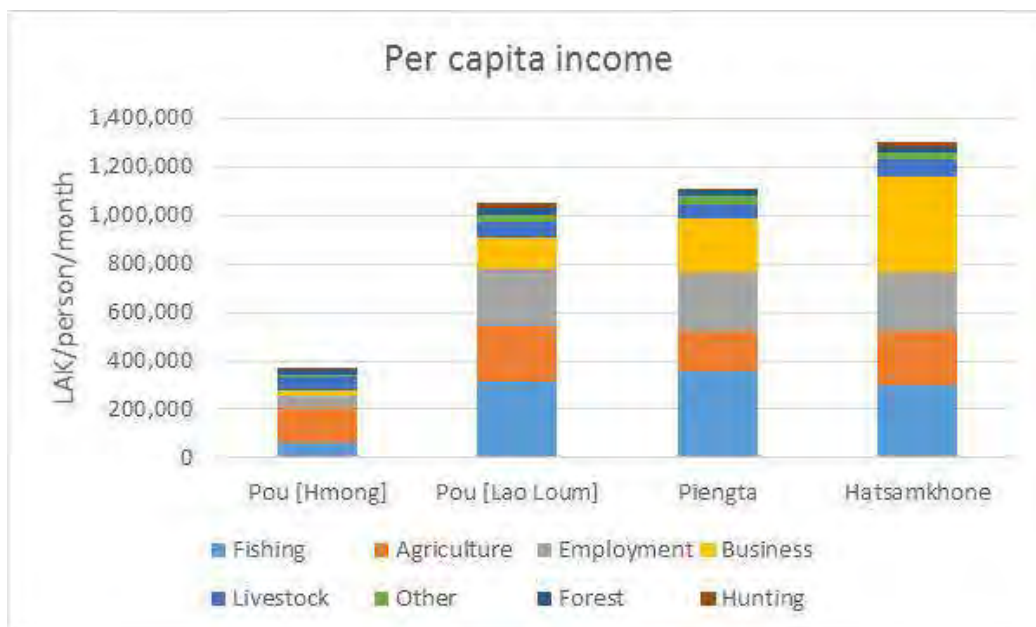
92. The Project implements a long term fish catch monitoring program to complement this SES assessment and better understand seasonal variation in fisheries, fishing environments and fishing gears. These data are not yet available but will be reported annually. They will feed the Fisheries Co-Management Programme for the reservoir fisheries development that will need to partially offset the loss of the current fishing grounds together with a Project-supported programme of capture fisheries in constructed ponds if of interest to PAPs.

1.17 Forest Utilization

93. While Non-Timber Forest Products have been an important livelihood activity in 2UR, PAPs reported already during the 2011 survey that in recent years NTFP collection had become more and more difficult due to overconsumption in the nearby forests. Forests have become a less important factor for most households' livelihoods and this is confirmed by the Baseline SES that found that forest based incomes (NTFP, timber and hunting) provided a total per capita income of only 34,000 LAK/ month and constituted less than 4% of total income and only 2.2% of cash income (refer to Table 70)

1.18 Other Sources of Income

94. Household income in 2UR comes mainly from fisheries, agriculture (crops and livestock) but also from employment and business (20% each) and Forest resource (NTFP, timber and hunting). The Hmong community of Ban Pou has a different profile with a much higher income from agriculture and a livestock income (15%) higher than the one of employment and business (14% and 6% respectively) (see Table 70)



1.19 Primary Production and Off-Farm Income

95. Income can be divided between primary production and off-farm income. Primary production includes income from agriculture, livestock, forests and fishing. Off farm income includes employment, business income, and other income which includes, land rental, interest payments, and remittances. Primary production includes both cash income and the imputed value of self-consumed production. Off-farm income is largely cash income. Off-farm income is an important method of reducing vulnerability and poverty but, in rural settings, is also highly dependent on the strength of farm sector.
96. As expected, primary production accounts for the majority of income contributing 57% of total income in Zone 2UR and off-farm income accounts for the remaining 43%. There is a large range in the importance of off-farm income between villages, with off-farm income accounting for only 22% of total income in Ban Pou [Hmong] and over 51% of off-farm income in Hatsamkhone.

1.20 Household Expenditure and Consumption

97. Consumption has been pioneered by the World Bank Living Standards Measurement Studies program as the key indicator of household living standards since the program's inception in the 1980's. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household livings standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:
- consumption has a direct relation to the total "utility" or welfare level of a household;
 - consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
 - consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and
 - households are thought to be less reluctant to share information about expenditure than income
98. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:
- Not all consumption adds to wellbeing of the household
 - Consumption of durable items is spread over many years
 - Purchase of high values items may inappropriately bias consumption upwards
 - Goods and services produced and consumed by the family are not directly valued through a purchase

- Consumption of some items may be supported by increasing debt.
99. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an “annual use value” for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being / standard of living of the household.
100. The 2014 Baseline Socio Economic Survey divided consumption into:
1. Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 2. Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 3. Durable Items such as minor household goods and furniture; and
 4. Use value of major assets such as cars, motorcycles, major household items etc.
101. Mean per capita consumption in 2UR in late 2014 is estimated to be approximately 701,000 kip/month (Table 37). Food is the biggest source of consumption accounting for 64% of total consumption (Table 38). Cash expenditure on food accounts for 30% of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc.).
102. Mean consumption for Ban Pou [Hmong] is very low (397±18k LAK/person/month) compared to other villages (>820k LAK person/month). Ban Pou [Hmong] also spend more on food as a percentage of total consumption (70%) than other villages (<64%) – this is also typical for poorer households and villages.
103. Cash expenditure amounts to 49% of total consumption, which is less than for Zone 3 (Hatsaykham). The percentage of consumption obtained by cash expenditure generally increases with increasing wealth, and conversely the proportion of food consumption in the total generally decreases with increasing wealth.

Consumption	Pou [Hmong] (LAK/person/month)		Pou [Lao Loum] (LAK/person/month)		Piengta (LAK/person/month)		Hatsamkhone (LAK/person/month)		Total (LAK/person/month)	
	mean	se	mean	se	mean	se	mean	se	mean	se
Food	277,000	±11,000	602,000	±40,000	569,000	±33,000	485,000	±19,000	452,000	±14,000
Cash Food	101,000	±8,000	317,000	±35,000	291,000	±26,000	228,000	±18,000	214,000	±11,000
Consumables	95,000	±9,000	230,000	±29,000	181,000	±14,000	214,000	±21,000	167,000	±9,000
Durables	22,000	±4,000	100,000	±17,000	106,000	±23,000	117,000	±20,000	78,000	±8,000
Asset Use	2,000	±0	3,000	±1,000	7,000	±2,000	8,000	±2,000	5,000	±1,000
Total	397,000	±18,000	935,000	±65,000	863,000	±48,000	824,000	±40,000	701,000	±23,000

Table 37 Household consumption (LAK/ person/ month) in 2UR (Source: Baseline Socioeconomic Survey, 2014)

Consumption	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	mean	se	mean	Se	mean	se	mean	Se	mean	se
Food	70%	±3%	64%	±4%	66%	±4%	59%	±2%	64%	±2%
Cash Food	25%	±2%	34%	±4%	34%	±3%	28%	±2%	30%	±2%
Consumables	24%	±2%	25%	±3%	21%	±2%	26%	±3%	24%	±1%
Durables	6%	±1%	11%	±2%	12%	±3%	14%	±2%	11%	±1%
Asset Use	0%	±0%	0%	±0%	1%	±0%	1%	±0%	1%	±0%
Total	100%	±5%	100%	±7%	100%	±6%	100%	±5%	100%	±3%

Table 38 Household consumption by village (by percentage of Total) in 2UR (Source: Baseline Socioeconomic Survey, 2014)

104. Household consumption is more normally distributed than income, and the majority of households have per capita consumption rates of between 0 and 1.0 million LAK/month (Table 39). There are however, significant differences between villages: 83% of household in Ban Pou [Hmong] have per capita consumption less than 500,000 kip/person/month whereas in the other villages it is typically only 20%. Piengta has a relatively low level of per capita consumption with a narrow distribution

105.

Per capita consumption (million LAK/month)	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
0 - 0.5	83%	22%	19%	22%	43%
0.5 - 1	15%	44%	54%	53%	38%
1 - 1.5	2%	22%	15%	22%	13%
1.5 - 2	1%	5%	11%	4%	5%
2 - 2.5	0%	7%	1%	0%	1%
TOTAL	100%	100%	100%	100%	100%
Total households.	121	59	84	78	342

Table 39 Frequency distribution of household consumption in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

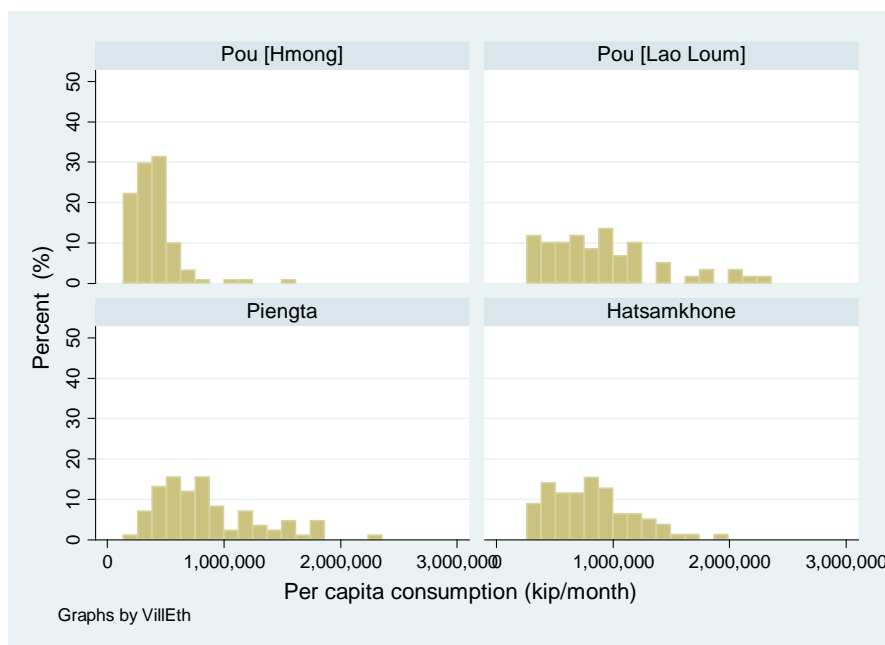


Figure 7: Distribution of Per Capita Consumption (Source: Baseline Socio Economic Survey, 2014)

106. The components of food consumption have also been estimated. Meat has the highest monetary value of monthly consumption, followed by staples and fish (Table 40). There are significant differences between villages with Ban Pou [Hmong] having a relatively low consumption of meat and fish (in kip) compared to the other communities in Zone 2UR.

107.

	Impute value of goods produced and consumed within the household unit (LAK/person/month)									
	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	mean	se	mean	se	mean	se	mean	se	mean	se
Meat	72,000	±5,000	175,000	15,000	199,000	±22,000	135,000	±9,000	135,000	±7,000
Staples	78,000	±3,000	94,000	±4,000	82,000	±3,000	85,000	±3,000	83,000	±2,000
Fish	31,000	±3,000	81,000	±8,000	75,000	±7,000	76,000	±6,000	61,000	±3,000
Other	23,000	±2,000	66,000	±7,000	69,000	±7,000	55,000	±6,000	49,000	±3,000
Vegetables	23,000	±1,000	29,000	±2,000	28,000	±2,000	29,000	±2,000	27,000	±1,000
Alcohol	5,000	±1,000	49,000	±9,000	42,000	±9,000	20,000	±4,000	25,000	±3,000
Fruit	17,000	±1,000	26,000	±3,000	23,000	±2,000	31,000	±2,000	23,000	±1,000
Milk Eggs	7,000	±1,000	22,000	±2,000	21,000	±2,000	23,000	±3,000	17,000	±1,000
Tobacco	3,000	0	12,000	±1,000	12,000	±1,000	7,000	±1,000	8,000	±1,000
TOTAL	258,000		554,000		552,000		461,000		428,000	

Table 640 Imputed consumption values (LAK) per person per month (Source: 2014 Baseline Socio-Economic Survey)

1.21 Poverty

108. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social, health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics.
109. The current estimate of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 LAK per capita /month (US\$28.75 at current rate of exchange). It is based on the inflation of the 2010 poverty line to 2014 prices (Table 41). Poverty lines also include measurements typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at the moment as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line ²
January 2010	96.45	180,000
October 2014	124.9	~233,000

Table 7 Estimated poverty line for study area.

110. A total of 342 households out of 352 households were assessed in the 3 communities in 2014. A total of 14 households or about 4% of the population were classified as potentially poor on our estimate of the current poverty line (233,000 LAK/person/month). See Table 42.
111. This poverty evaluation is likely to be valid at a statistical level for the population (i.e. it is a reliable estimate of the overall percentage of household living in poverty) – however, it only provides an initial guide for evaluation individual households since it is largely based on “average calorific requirements” and subject to some measurement error.
112. All poor households live in Ban Pou [Hmong] where 12% of the households lived below the poverty. A further 9 households or 3% of households lived just above the poverty line in the same community.

Poverty level	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
Non Poor	81%	100%	100%	100%	93%
Near Poor	7%	0%	0%	0%	3%
Poor	12%	0%	0%	0%	4%
Total	121	59	84	78	342

Table 42 households’ poverty percentage in 2UR (Source: Baseline Socioeconomic Survey, 2014).

² GoL Decree on Poverty Criteria and Development Criteria 2012-2015, No. 201/GO, April 25, 2012

1.22 Vulnerable Households

113. The vulnerability-assessment for 2UR identified 27 vulnerable households with a total population of 124 people. The reasons for their vulnerability are diverse and include the presence of physically or mentally impaired household members, low income, and 4 female headed household

Source of vulnerability	<i>Piengta</i>		<i>Hatsamkhone</i>		<i>Pou</i>	
	HHs	Residents of vulnerable HH	HHs	Residents of vulnerable HH	HHs	Residents of vulnerable HH
Intellectually impaired	2	10	1	4	0	0
Low income and physical disability	1	4	5	23	5	32
Female headed household	2	3	0		2	8
Households living below the poverty line	0	0	2	13	4	20
Elderly	2	5	1	2	0	10
TOTAL	7	22	9	42	11	60

Table 43 Vulnerable Households in 2UR villages (Source: Vulnerable household database, 2016)

114. Vulnerable households are entitled to project support under different programs, the SDP programs including but not limited to Health, Education, Gender and if land is impacted, the compensation and livelihood restoration measures.

CHAPTER 2 - Zone 2LR Socioeconomic Profile

2.1 Demography and Population Changes

115. The 4 villages in Zone 2LR were established by Hmong families after the end of the war in the eighties and nineties, migrating from various areas of Xaysomboun and Xieng Khouang provinces. These families have relationships and relatives upstream in Zone 2UR, downstream in Hatsaykham and also in Hom District and beyond in Xaysomboun Province. The migration was guided by GoL's policies to eradicate slash-and-burn and to sedentarise Hmong in lowland areas.



Figure 8 Ban Houaypamom

116. A new census (August 2014) and baseline socio-economic survey (October - November 2014) of the population were conducted in 2014 to determine total population, expected losses and to integrate DP perspectives and concerns in the planned social and economic development activities. Survey results and Asset Registration show that the number of households has increased from 384 in 2011 to 481 households in 2014, and the total affected population have increased from 2,735 to 3,197 (Table 6). The age and gender structure of the population is shown in Table 45.

Village Name	HH	Population 2011		HH	Population 2014		Annual Population Growth Rate
		(Total)	(Fem.)		(Total)	(Fem.)	
Houaypamom	37	254	122	44	311	149	7%
Sopphuane	58	416	206	77	495	248	6%
Sopyouak	126	916	439	173	1,101	534	6%
Namyouak	163	1149	564	187	1,290	626	4%
	384	2735	1331	481	3,197	1,557	5%

Table 44 Population Profile of Zone 2LR in 2011 and 2014 (Source: Census 2014)

Age (year)	Male	Female	Total
0-9	36%	32%	34%
10-19	26%	27%	26%
20-29	13%	15%	14%
30-39	10%	10%	10%
40-49	6%	7%	7%
50-59	5%	5%	5%
60+	4%	4%	4%
Total	100%	100%	100%

Table 45 Age and Gender Structure of 2LR villages (Baseline Socio Economic Survey, 2014)

117. Significant points for the resettlement action plan are as follows:

- Around 60% of the population is under age 19.
- There is no significant difference in the age structure for each gender within the zone or within each village.
- Population growth rate is approximately 5% per annum. A continuation of the current population growth rate will result in the doubling of the population of 2LR within 15 years.

2.2 Ethnicity

118. A total of 99.6% of households belong to the Hmong ethnic group with only 2 households living in Sopyouak identified as Lao Loum. No other ethnicities live in 2LR villages.

2.3 House Style

119. The majority of dwellings in 2LR villages are traditional Hmong structures of one storey built on rammed earth floor with the kitchen separate from the main house. Housing materials are of bamboo for the poorer households, and wood and sometimes brick for more prosperous households, with palm and rush roof roofing. Some elevated Lao Loum-style houses with wooden and bamboo matting construction for bedrooms have been adopted, while kitchens of Hmong type remain the same. The adoption of Lao Loum style dwellings by some households suggests that at least some of the population are prepared to adopt new technologies where they are seen to be advantageous.

120. There are significant difference in the nature of the dwellings between the four villages but there does not seem to be a coherent difference in quality of dwellings between villages:

- More than 78% of dwellings in each village have wooden or brick walls.
- Houaypamom has a high percentage of metal sheeting roof, probably because it's light weight is an advantage in transportation. Houaypamom also has a low

percentage of traditional wooden roofs, which may relate to availability and transport.

WALL MATERIAL						
Village	Brick	Wood	Bamboo	Leaves	Other	TOTAL
Houaypamom	9%	74%	16%	0%	0%	100%
Sopphuane	4%	74%	22%	0%	0%	100%
Sopyouak	2%	82%	16%	0%	0%	100%
Namyouak	4%	87%	8%	1%	0%	100%
ROOFING MATERIAL						
Village	Tiles	Metal sheet	Wood	Leaves	Other	
Houaypamom	35%	51%	7%	5%	2%	100%
Sopphuane	56%	17%	21%	4%	3%	100%
Namyouak	40%	34%	23%	2%	1%	100%
Sopyouak	29%	37%	30%	2%	3%	100%
Total	38%	34%	24%	2%	2%	100%

Table 46 Housing construction material, 2LR villages (Source: 2014 Baseline Socio Economic Survey)



Figure 9 Typical House Styles in Khum Hatsaykham

2.4 Social Organization and Cultural Relations

121. Villages are the lowest level of government administration in the Lao PDR. Villages are administered by a Village Chief who is supported by a deputy and village council. Villages are combined into districts, which are combined to form provinces, finally resulting into the national level administration. Ministries on the national level have counterpart organisations on the provincial and district level. These public institutions are supported by mass organizations with structures at all administrative levels these mass organisation include the Front for National Construction, the Lao Women Union, and the Lao Youth Union. (Table 47).

	Number of members per village
--	-------------------------------

	Houaypamom	Sopphuane	Sopyouak	Namyouak
Lao Women's Union	45	42	14	33
Lao Youth Union	68	55	30	38
Lao Workers' Union	66	20	8	23

Table 47 Membership of mass organizations in 2LR villages (Source: Field Survey 2008)

122. DPs are also integrated in family, social and cultural relations within and between villages. These include informal, but influential, elders' councils at the village level which have an essential say in the development of the community.
123. Hmong households in 2LR villages are also identified and linked by clan systems, which connect them with villagers from Hatsaykham in Zone 3, Ban Pou in the upper reservoir area and other villages in Hom District. These linkages extend further to Hmong communities in the rest of the country as well as abroad, which allows them to mobilize economic, cultural, political and social resources to support the communities in their communication with the Project. It also enables information about experiences in other hydropower projects to be widely shared and circulated.
124. Social Organization and Cultural Relations follow the pattern discussed in Chapter 7 of the REDP. Hmong groups are divided into patrilineal clans (*xeem*) which are strictly exogamous, that is marriage outside the birth clan is compulsory. Polygyny is traditional but less observed nowadays than in the past. However, there are only 20 cases of polygamy out of a total of 481 households in 2LR (Table 48). Loyalty to one's clan is central and clan solidarity is very important, linking members to villages throughout the country and even abroad.

	Houaypamom	Sopphuane	Sopyouak	Namyouak
Number of polygynous households	3	6	5	6

Table 48 Polygynous households in 2LR villages (Source: Baseline Socioeconomic Survey, 2014)

125. The Hmong are believed to have their origins as an ethnic group in China and to have migrated into northern Southeast Asia during the 19th century. There are 19 Hmong clans currently living in Lao PDR and they are generally group-oriented, with interests of the group coming before the interests of the individual, and clan leaders in each village representing the interests of the village. In the project impacted areas, there are four main clans: Yang, Vang, Xiong, and Lor, although there are some persons from clans such as Pialouang, Moua, Lee, Her and Vue who have married into these clans. Family members are under the authority and direction of the male-headed clans and household, usually the

oldest male. Sons will automatically inherit family property and all other assets, and generally receive the highest levels of formal education. For this reason, male elders represent village households in all discussions, particularly with outsiders, and it is unusual for any person or family to contradict elders in public meetings.

126. Hmong villages aim to be self-sufficient and autonomous with limited interaction with other ethnic groups. Of special importance is the historical as well as continuing clan-based relation to the village of Hatsaykham, whose people originate from the Zone 2LR. This relationship led to the request from affected households of Hatsaykham to resettle together with DPs from 2LR rather than follow the original proposal, which was to move the village closer to the centre of their current administrative unit, Hat Gniun.

2.5 Infrastructure and services

127. Community infrastructure in the villages of Zone 2LR is limited. Overview of it is listed in below.

Items	Village			
	Houaypamom	Sopphuane	Sopyouak	Namyouak
1. Infrastructure service				
Electricity	Pico-hydro and Solar Power			
Drinking water source Quantity/Quality	Nam Ngiep Nam Noi	Water Pipe Nam Ngiep Houay Phuane	Water Pipes Nam Ngiep Nam Youak	Water Pipe Nam Ngiep Nam Youak
Water use source Quantity/Quality	Water Pipes Nam Ngiep Nam Noi	Water Pipe Nam Ngiep Houay Phuane	Underground water Water Pipe Nam Ngiep / Nam Youak	Water Pipe Nam Ngiep Nam Youak
Transportation	Road access via a laterite road from Hom District via Phalaveck. Troublesome during wet season; waterway is limited within the vicinity because of islets and rapids			
2. Social Welfare				
Pre Primary	-			
Primary School	1	1	1	1
Secondary School	-	-	-	1
Temple	-			
Health Centre	-	-	1	-
Hospital	-			
Pharmacy	-			
Cemetery	1	1	1	1
Grocery	2	2	Available - not specified number	Available - not specified number

Table 849 Infrastructure of 2LR villages (Source: field visits 2014)

128. The main road access is a gravel (laterite) road from Hom District via Ban Phalaveck which is difficult to pass during the rainy season. The lanes and paths within the villages are compacted earth, and these become quite muddy in wet season. In 2014-15 NNP1 improved the bridge in Sopyouak. Their main waterway for transportation is the Nam Ngiep River, though parts of the river are difficult to travel because of rapids and rock outcrops in the rivers. Houaypamom has no road access.
129. None of the villages in this zone have grid electricity and the most common sources of electricity are Solar and Micro hydro (Table 7). 43% of households in Sopphuane have no electricity.

Type of Electricity	Houaypamom	Sopphuane	Sopyouak	Namyouak
Solar	79%	32%	51%	28%
Micro hydro	9%	18%	10%	39%
Generator	0%	3%	7%	14%
Rechargeable batteries	0%	4%	3%	1%
Other	0%	0%	0%	0.55%
Grid	0%	0%	0%	0%
No Electricity	12%	43%	29%	17%
Total	100%	100%	100%	100%

Table 50 Electricity infrastructure of 2LR villages (Source: Baseline Socio Economic Survey, 2014)

130. Drinking water comes from simple gravity flow water systems which transport source water from mountain streams or from wells. Water for other domestic uses is from the Nam Ngiep or its tributaries with associated water quality issues, or from wells. Sufficient water from the Gravity Flow water Supply system (GFS) is not available throughout the year. Details of household drinking water use from the 2014 baseline socio-economic survey are provided in Table 8 and Table 9. It should be noted that Houaypamom primarily uses surface water and rainwater in wet season and only surface water in dry season. In 2014/15 NNP1 repaired the water supply systems for Sopyouak and Namyouak.

Water Source in Wet Season	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
GFS	5%	94%	96%	100%	89%
River, Stream, Lake,	51%	5%	1%	0%	6%
Rainwater	44%	0%	0%	0%	4%
Protected Well	0%	0%	3%	0%	1%
Protected Spring	0%	1%	0%	0%	0%
Unprotected Spring	0%	0%	1%	0%	0%
TOTAL	100%	100%	100%	100%	100%

Table 951 Drinking water sources of 2LR villages in wet season (Source: Baseline Socio Economic Survey, 2014)

Water Source in Dry season	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
GFS	9%	94%	98%	100%	90%
River, Stream, Lake,	91%	5%	0%	0%	9%
Protected Well	0%	0	2%	0%	1%
Protected Spring	0%	1%	0%	0%	0%
Unprotected Spring	0%	0	1%	0%	0%
TOTAL	100%	100%	100%	100%	100%

Table 1052 Drinking water sources of 2LR villages in dry season
(Source: Baseline Socio Economic Survey, 2014)

131. The availability of sanitation/toilets varies from village to village. Availability is very low in Houaypamom (12%) but high in Namyouak (71%). Almost all toilets are pour flush (99.6%) and 100% of toilets are used when owned (Table 4).

Village	Have toilet	Type of toilet		Use of toilet
		Pour Flush	Pit Latrine	
Houaypamom	12%	100%	0%	100%
Sopphuane	23%	100%	0%	100%
Sopyouak	42%	99%	1%	100%
Namyouak	71%	100%	0%	100%
TOTAL	47%	99.6%	0%	100%

Table 1153 Sanitation in 2LR villages (Source: Baseline Socio Economic Survey, 2014)

132. All four the villages have primary schools – however, Ban Houaypamom only has grade 1 to 3 of primary school so not a full primary school. Children from there have to go to the school at Ban Sopphuane some 6 km away by boat to attend the higher grades of primary school. The school at Ban Sopphuane is not adequate, with relatively poor construction and insufficient materials and supplies.
133. Ban Namyouak also has a lower secondary school but teaching supplies and materials are insufficient. In 2014-15 the Project repaired, improved or built several structures prior to resettlement::
- 3 classrooms for primary school built in Sopyouak
 - 3 classrooms built for the secondary school in Namyouak
 - Sopphuane primary school improved
134. Ban Sopyouak has a health centre which is readily accessible by the residents of Ban Namyouak. None of the communities have temples or pharmacies.
135. All villages have small shops. These are typically single rooms or add-ons to people’s houses where they sell soaps, shampoos and detergents, toothpaste, and a variety of packaged and canned goods. Each community has more than one of these.

2.6 School Attendance

136. The table below provides the Primary Age Enrolment (PAE) in the 4 villages. There is no significant difference in PAE by gender, overall or in any single village. There is no significant difference in female enrolment between villages. There is a significant difference in male and total enrolment between villages: Sopphuane has the lowest enrolment of males and the lowest overall enrolment.

Village	Male	Female	Total
Houaypamom	85%	81%	83%
Sopphuane	71%	84%	77%
Sopyouak	92%	94%	93%
Namyouak	91%	92%	92%
Total	88%	90%	89%

Table 1254 Primary age (6-10 years) enrolment in 2LR villages (Source: Baseline Socio Economic Survey, 2014)

137. Secondary Age Enrolment (SAE) in the 4 villages has significant differences between villages overall with Houaypamom having very low SAE. There is no significant difference in Lower Secondary Enrolment by gender overall, however there are differences within individual villages:

- Houaypamom has very low female SAE.
- Namyouak has lower male SAE.

Village	Male	Female	Total
Houaypamom	56%	16%	35%
Sopphuane	75%	68%	71%
Sopyouak	65%	69%	67%
Namyouak	66%	81%	74%
Total	66%	69%	68%

Table 1355 Percent of students of lower secondary age (11-15 years) in 2LR villages that are enrolled in Lower Secondary education (Source: Baseline Socio Economic Survey, 2014)

138. Table 56 provides the mean age of student in Grade 5 (completion of primary school). As a reference the mean age Lao Loum in Grade 5 from all other project zones is =10.4±0.1years. Overall Hmong students are slightly older when they finish primary school (10.8±0.2).

Grade	Houaypamom			Sopphuane			Namyouak			Sopyouak			Total			
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	
5	Mean	11.6	7	11.1	10.7	11.7	11.3	10.7	10.6	10.7	10.6	10.6	10.6	10.8	10.8	10.8
	Se	0.9	-	0.9	0.6	0.7	0.5	0.2	0.7	0.4	0.3	0.3	0.2	0.2	0.4	0.2

Table 1456 Mean age by Grade 5 in 2LR villages (Source: Baseline Socio Economic Survey, 2014)

2.7 Adult Education and Literacy

139. Literacy is a challenge for rural communities and also for the Project's communication efforts in Zone 2LR.
140. Highest school grade completed by adults of more than 18 years is illustrated in Figure 11.

Overall 13% of adult males have no formal education but 41% of females have no formal education. In total, 51% of adult men have some post primary education, but only 21% of adult women.

- 141. Educational achievement by adults is strongly controlled by age. The youngest generation of male adults (20-29 years) in 2LR have received 9 years of schooling on average, but this number falls to 4.5 years for males 50-59 years. Females have significantly fewer years of formal education in all age groups. Young female adults have 5 years of formal education on average but females 50-59 years have only 1 year of formal education (Table 58).
- 142. The length of formal education is particularly low in Houaypamom (Table 59).

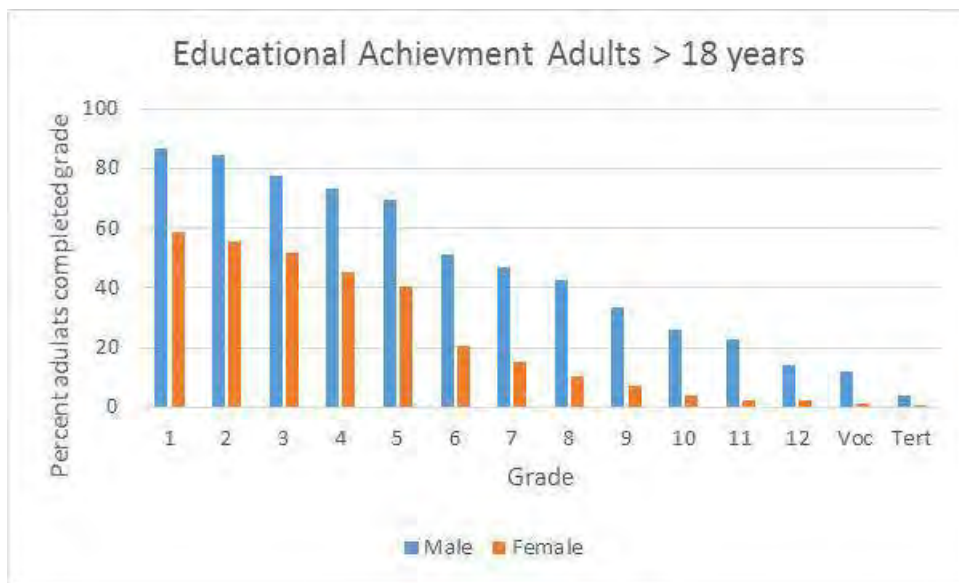


Figure 10 Educational achievement of adults (>=18 years). Primary school includes grades 1-5.

Age Group (years)	MALE		FEMALE		TOTAL	
	Mean	Se	Mean	Se	Mean	Se
20-29	8.9	0.3	5	0.2	6.8	0.2
30-39	6.6	0.4	2.8	0.3	4.8	0.3
40-49	5	0.5	1.5	0.2	3.1	0.3
50-59	4.5	0.5	1.1	0.3	2.7	0.3
60+	2.8	0.5	0.1	0	1.4	0.3

Table 1557 Mean Years of formal education by age and gender (Source: Baseline Socio Economic Survey, 2014)

Village	Male (years formal education)		Female (years formal education)		TOTAL (years formal education)	
	Mean	Se	Mean	Se	Mean	Se
Houaypamom	4.8	0.5	1.8	0.3	3.3	0.3
Sopphuane	5.8	0.5	1.9	0.3	3.7	0.3
Namyouak	7	0.3	3.2	0.2	5	0.2
Sopyouak	6.8	0.3	3.3	0.3	4.9	0.2

Table 58 Mean years of formal education by village (Source: Baseline Socio Economic Survey, 2014)

143. There is a significant difference in Lao language proficiency by age and gender with older people and particularly older women having the lowest fluency (Table 59). There is also a significant difference in fluency between villages (males, females, and combined), with Sopphuane having the lowest levels of fluency (Table 60). Overall 72% of adult women speak Lao compared to 88% of men.

Age Group (years)	Male	Female	All
10-19	80%	80%	80%
20-29	95%	80%	87%
30-39	93%	69%	81%
40-49	90%	57%	72%
50-59	94%	53%	73%
60+	84%	48%	66%
Total	88%	72%	80%

Table 59 Lao fluency by age and gender (Source: Baseline Socio Economic Survey, 2014)

Village	Male	Female	All
Houaypamom	84%	62%	73%
Sopphuane	72%	51%	61%
Sopyouak	93%	83%	88%
Namyouak	90%	73%	82%
Total	88%	72%	80%

Table 60 Lao fluency by village and gender (Source: Baseline Socio Economic Survey, 2014)

144. Adult literacy is correlated with age, gender and village. Education and literacy are generally lower for women: only 26% of adult women in 2LR villages are fully literate compared to 62% of men. The percentage of literacy is particularly low for older women (>40years). Sopphuane has lowest literacy levels for both males and female adults: overall only 28% of adults are literate, with 48% of men and only 9% of women being fully literate.

Age Group (years)	Male	Female	All
20-29	81%	47%	63%
30-39	62%	23%	43%
40-49	52%	12%	31%
50-59	55%	15%	35%
60+	29%	0%	14%
Total	62%	26%	44%

Table 61 Literacy by age and gender for Zone 2LR (Source: Baseline Socio Economic Survey, 2014)

Village	Male	Female	All
Houaypamom	46%	13%	30%
Sopphuane	48%	9%	28%
Namyouak	64%	32%	48%
Sopyouak	72%	31%	50%
Total	62%	26%	44%

Table 62 Literacy by village and gender for Zone 2LR (Source: Baseline Socio Economic Survey, 2014)

145. The Project has already started adult literacy classes in Zone 2LR in response to an expressed desire from the villages to improve adult literacy (see section 9.4.4).

2.8 Diet and Nutrition

146. The nutritional status of a person is a function of the nature and quantity of food intake (diet), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.
147. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anaemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in health-threatening conditions like wasting, obesity and metabolic syndrome and lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption is an increasing problem in the developing world.
148. Estimated food intake per person in 2LR villages (Baseline Socio Economic Survey, 2014) appears relatively good with more than 18 kg of rice and about 25 kg of staples consumed per person per month and a total intake of nearly 5 kg of meat and fish/person/month (This is total weight and includes non-edible parts and rice/staples provided to animals).

Village		Per Capita Food Consumption per month				
		Total Rice (kg)	Total Staples (kg)	Fish (kg)	Meat (kg)	Poultry (birds)
Houaypamom	mean	18.4	23.6	4.5	1.6	1.4
	se (mean)	1.0	1.3	0.6	0.2	0.2
Sopphuane	mean	19.1	23.8	3.9	1.8	1.7
	se (mean)	0.9	1.3	0.4	0.2	0.2
Namyouak	mean	19.4	26.0	3.6	1.9	1.8
	se (mean)	0.5	0.8	0.2	0.1	0.2
Sopyouak	mean	18.2	23.9	4.0	1.5	1.9
	se (mean)	0.5	0.8	0.3	0.1	0.1
Total	mean	18.8	24.6	3.9	1.7	1.8
	se (mean)	0.3	0.5	0.2	0.1	0.1

Table 1663 Per capita food consumption for Zone 2LR (Source: Baseline Socio Economic Survey, 2014)

149. Fish consumption in Zone 2LR is high – nearly 4 kg/person/month and is the highest of all zones (see Table 19). These data underline the critical importance of fish in diet (and hence imputed income).
150. Per capita Meat consumption is also high (1.7kg /month) – slightly above average for whole area (1.5kg/month) (note this is a minimum and does not include poultry which was counted by the bird rather than by kilograms which are more difficult to estimate).

ZONE	Fish Consumption		Meat Consumption	
	Kg/person/ month		Kg/person/ month	
	Mean	Se	Mean	Se
Z1 Catchment	1.5	0.1	1.1	0.1
Z2 Upper Reservoir	1.8	0.1	1.4	0.1
Z2 Lower Reservoir	3.9	0.2	1.7	0.1
Reference Village 1	1.3	0.1	0.6	0.1
Z3 Hatsaykham	2.2	0.3	2.8	0.3
Z4 Downstream	2.7	0.2	1.4	0.1
Z5 Hosts	3.1	0.3	2.1	0.2
Reference Village 2	3.0	0.2	1.5	0.1

Table 1764 Fish and meat consumption for all zones (Source: Baseline Socio Economic Survey, 2014)

151. The 2014 Health Survey used 2 simple indicators of the nutritional status of the 2LRpopulation:
3. Child anthropometric measurements and
 4. Anaemia levels amongst women of child bearing age.
152. Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition

and recurrent infections, such as diarrhoea and helminthiasis (parasitic infections), in early childhood. Anaemia is low levels of red blood cells due to insufficient iron. It causes tiredness, inability to work and affects child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.

153. The baseline health survey for 2LR shows that the apparently adequate levels of food consumption are not translated into health outcomes. Child stunting and anaemia in women are high but close to the overall average for the socio-economic survey. High levels of child stunting (45%) and anaemia in 2LR women (29%) and particularly in Houaypamom (50%) are likely to be the result of a combination of the historical use of unsafe water supply (Houaypamom uses only surface water in dry season), no household sanitation, open defecation and poor hygiene leading to high rates of diarrhoea and parasitic infections, in turn contributing to poor overall nutritional status. Other factors that may be important are lack of access to health services, inequitable distribution of food within the household (women and children), significant drudgery workloads, as well as early and frequent pregnancies for women.

Name	Anaemia (women 25-45yrs)*	Stunting children < 5 years	Condom use (women 25-45yrs)
Houaypamom	50%	48%	0%
Soppuane	17%	35%	0%
Sopyouak	25%	46%	13%
Namyouak	28%	50%	4%
Total	29%	45%	6%

Table 65 Nutritional indicators and condom use for 2LR villages
(Source: Baseline Health Survey, 2014)

154. Contraceptive use (6%) is very low compared to the overall average for the socio-economic survey (40%). Population growth rate amongst the Hmong population is likely to be high and presents a challenge for the sustainability of the resettlement village.

2.9 Health and Health Services

155. Most of the people in these 4 villages practice animism, so whenever anyone gets sick or has other health problems, they often seek treatment by traditional animist practices or medicines. There is only one health centre at Ban Sopyouak. The Health staff in the health centre are Hmong and from Ban Sopyouak. Villagers with more serious health conditions have to travel to the district centre at Ban Phalaveck in Hom district, where there is a district hospital (with the majority of the hospital staff being Hmong), or to a major hospital at Vientiane. The trip to Ban Phalaveck takes several hours by car and during rainy season the road may be impassable.

156. The 2014 Baseline Socio-Economic Survey provides some information on treatment seeking behaviour and health access. Health services utilised varies greatly between villages. Houaypamom, accessible only by boat, has the lowest rate of seeking health treatment, Sopyouak has the highest.

Village	Health issues disrupt normal activities	Seek treatment if ill
Houaypamom	14%	90%
Namyouak	17%	94%
Sopphuane	16%	99%
Sopyouak	23%	99%
Total	18%	96%

Table 1866 Seeking treatment if ill (Source: Baseline Socio-Economic Survey, 2014)

157. Zone 2LR villages use various health facilities for seeking treatment (Table 68). There is clearly an opportunity effect with Sopyouak villagers making a high use of Public hospital/clinic (the Health Centre) in Sopyouak compared to the other villages.

	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
Public hospital/Clinic	49%	47%	70%	42%	55%
Pharmacy/Shop	40%	42%	30%	47%	39%
Village Health Volunteer	7%	7%	9%	12%	10%
Private clinic/doctor	7%	1%	1%	4%	3%
Traditional Healer	5%	3%	1%	3%	3%
Mobile Clinic/MCH	2%	0%	1%	3%	2%
Other	0%	8%	0%	1%	2%
Total	110%	109%	113%	112%	11%2

Table 1967 Health facilities used by 2LR villages (Source: Baseline Socio-Economic Survey, 2014)

158. Table 68 lists the health issues recorded by the Sopyouak Health Centre during 2015. Angina³, gastritis, diarrhoea, and cold/flu diseases are the most prevalent health complaints reported.

³ Angina pectoris, commonly known as angina, is the sensation of chest pain, pressure, or squeezing, often due to ischemia of the heart muscle from obstruction or spasm of the coronary arteries. [1] While angina pectoris can derive from anemia, abnormal heart rhythms and heart failure, its main cause is coronary artery disease. The high incidence of angina suggests over-diagnosis.

Health Complaint	Namyouak		Sopyouak		Sopphuane		Houaypamom	
	Patients	Percent village population	Patients	Percent village population	Patients	Percent village population	Patients	Percent village Population
Angina	25	1.94%	89	8.07%	20	4.04%	14	0.50%
Cold/Flu	58	4.50%	28	2.54%	10	2.02%	5	0%
Diarrhoea	4	0.31%	40	3.62%	15	3.03%	5	1.60%
Gastritis	24	1.80%	5	0.45%	1	0%	0	0%
Eye pain	5	0.38%	10	0.90%	0	0%	0	0%
Neuralgia	5	0.38%	8	0.72%	0	0%	0	0%
Vertigo	5	0.38%	2	0.28%	1	0.20%	0	0%
Fatigue	2	0.15%	5	0.45%	0	0%	1	0.32%
Ear infection	0	0%	8	0.72%	0	0%	0	0%
Bronchitis	0	0%	6	0.54%	0	0%	0	0%
Dysentery	2	0.15%	13	1%	0	0%	0	0%
Back pain	2	0.15%	2	0.18%	1	0.20%	0	0%
Vaginal discharge*	1	0.07%	2	0.18%	0	0%	1	0.32%
Burn	0	0%	2	0.18%	0	0%	0	0%
Rheumatism	0	0%	1	0.09%	0	0%	0	0%
Button	0	0	0	0	0	0	0	0
Wound	0	0%	0	0%	0	0%	0	0%
Other	9	0.70%	66	5.98%	6	1.2%	1	0.32%
Population checked	142	11.05%	289	26.22%	54	11.11%	27	8.68%
Total population	1,285		1,102		495		311	

* Incidence of vaginal discharge is for total number of females.

Table 2068 Summary of outpatients' health data from January to October 2015 in Sopyouak Health Centre (Source: Sopyouak Health Centre)

2.10 Gender Issues and Status of Women

159. Gender dimensions of concern in the project area which also apply to Zone 2LR include:

- land rights; most land and housing are formally or informally under male control and patrilineal heritage line. This is addressed by all replacement land and housing registered and titled in the joint names of husband and wife. Where a man has more than one wife, the second family will be separately titled in the name of the wife and a male family member of her choice (e.g. eldest son)
- financial management; where compensation money may be handed only to a male household head, there is higher risk of poor subsequent investment. The Project has

instituted bank accounts in the joint names of husband and wife, with prior financial training provided to understand how to deposit and withdraw funds. All acknowledgement of receipts or withdrawals must have the joint signatures or thumbprints of both husband and wife. This compensation procedure was instituted for roads and TL land acquisition, and has proved very popular, particularly with women

- hard work; women have multiple responsibilities taking care of the house, cooking, caring for the sick, elderly and children, gender-specific agricultural tasks (e.g. weeding, hoeing, fetching water, land clearance, harvesting, etc.), and income generating work. Replacement housing will integrate labour saving devices such as accessible domestic water supply, electricity, etc. to reduce the drudgery component of these responsibilities
- health; reproductive and maternal health is poor with comparatively high levels of anaemia, and continued laborious work throughout pregnancy. Sanitation is poor, and improved water and sanitation facilities will be provided in replacement housing, and training given in their use. The health program is outlined in more detail in the SDP.
- education; less formal education due to early inclusion into domestic work, and less ability to understand written documents particularly if the first language is not Lao. Improved educational facilities will be provided in Houay Soup, with permanent teacher presence and teacher housing. Adult literacy and basic numeracy classes, particularly for women, will also be implemented for all those interested to participate.
- communication; typically external agencies and government extension staff tend to talk only to male village representatives and in Lao language, especially where the culture is patriarchal and patrilineal, as with Hmong. The Project has made particular effort to employ Hmong men and women as fieldworkers. All communication with 2LR DPs is in Hmong language. Women's meetings are held separately from those of men, and women's preferences for various types of training are given precedence
- ethnicity; ethnic minority women are proportionately less familiar with Lao language and therefore less likely to be informed of their rights. See above point.

160. 2LR Hmong communities are strongly patriarchal. Family members are under the authority and direction of the male-headed household, usually the oldest male. Sons will automatically inherit family property and all other assets and are often the ones to receive a formal education. Hmong women normally do not represent the family status and may not be included in meetings. Even if they participate, women rarely voice their opinions. Both a Hmong man and woman are considered adults only after they have produced children. Hmong woman only gain prestige in the family by giving birth to a boy.

161. Separate consultation meetings with female villagers resulted in the following gender issues being identified:

- A high percentage of females have no formal education and many did not complete

primary school

- Early marriage (15 to 16 years) and early and frequent pregnancies
- High demand of physical labour including raising of children and care of livestock, as well as most housework and tending gardens
- Informally no property rights for females recognized
- No traditional right to divorce for females
- Husbands generally as lone decision makers;
- Few opportunities for financial independence or to learn new livelihood activities such as weaving, tailoring, and food preservation techniques
- Health problems such as diarrhoea, womb pain, body ache; distance to Hom district hospital is a further health-related issue and previous access available only during the dry season

2.11 Information and Services

162. Zone 2LR has recently (2015) gained direct access to national mobile phone networks in Namyouak and Sopyouak. Houaypamom and Sopphuane remain without coverage. Mobile phone ownership is already high, especially in Sopyouak and Namyouak with easier connection (Table 69). Other electrical asset ownership is already significant although there is no grid connection. It is expected that 2LR households are likely to rapidly accumulate a range of electrical assets once provided with grid connection in Houay Soup.
163. Not surprisingly Houaypamom has a high ownership of boat and boat engines and Namyouak and Sopyouak, with significant paddy fields areas, have a higher ownership of hand tractors.

	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
Mobile phones/ other phones	67%	62%	92%	92%	85%
Motorcycles /scooters	74%	94%	84%	83%	84%
DVD Player	28%	32%	37%	36%	35%
Tape players/ CD players/ radio	42%	40%	33%	34%	35%
Hand Tractor	12%	13%	31%	37%	29%
Wardrobe	14%	22%	30%	29%	27%
Boat	63%	45%	21%	8%	24%
Bicycles	7%	10%	11%	9%	10%
Boat motor	72%	51%	11%	1%	19%
Cameras, video cameras	2%	6%	10%	10%	9%
Car or truck	0%	5%	8%	5%	6%
Televisions	7%	9%	7%	9%	8%
Generator	7%	10%	5%	9%	8%
Glass Fronted Cabinet	5%	1%	2%	2%	2%
Satellite dish	7%	1%	2%	2%	2%
Couch	0%	0%	1%	2%	1%
Refrigerators /freezers	0%	1%	1%	1%	1%
Electric rice cooker	0%	4%	1%	1%	1%
Water Dispenser	0%	0%	0%	0%	0%
Washing Machines	0%	0%	0%	0%	0%
Water Pump	0%	1%	0%	1%	0%

Table 69 Ownership of assets by households in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

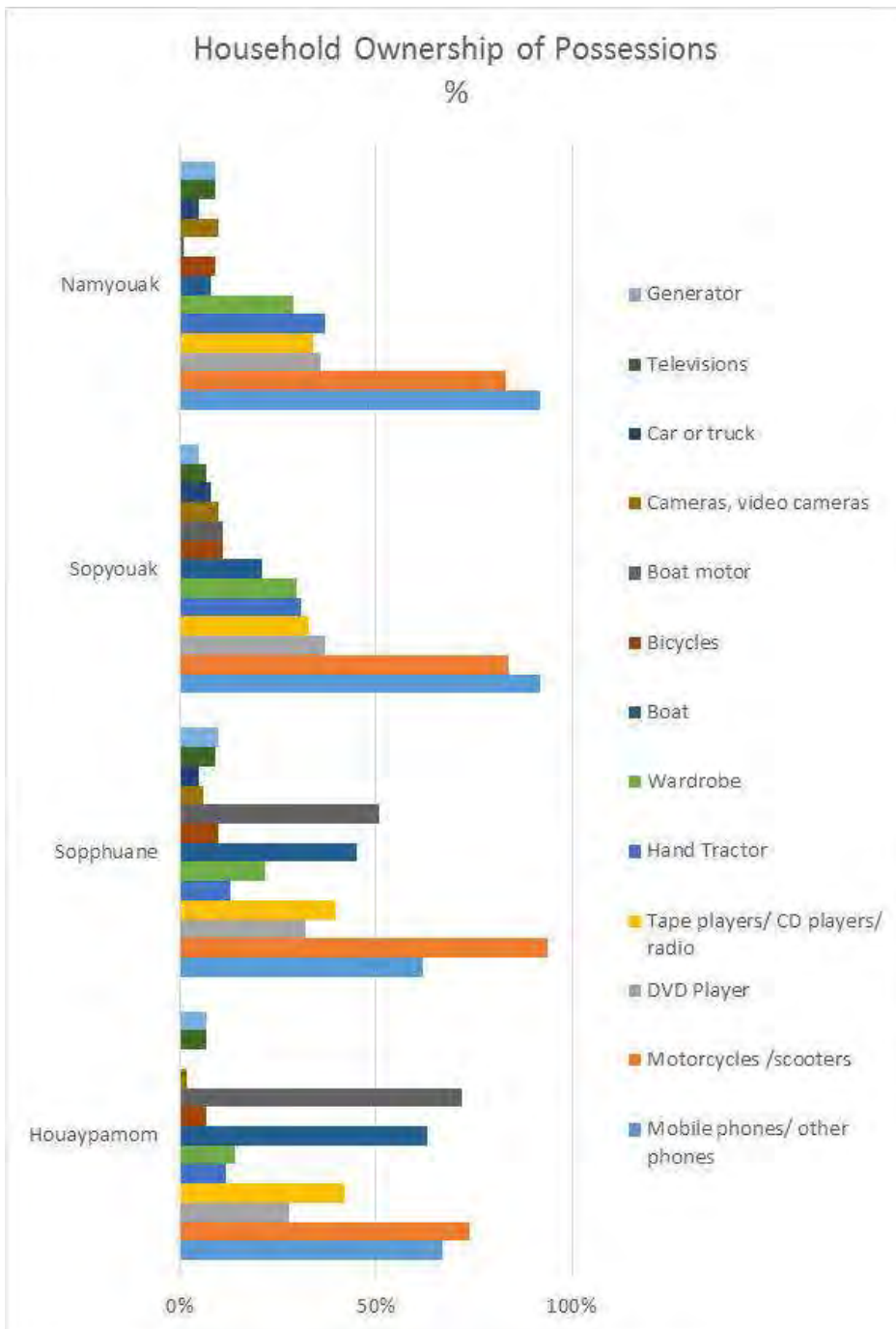


Figure 11 Ownership of assets by households in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

2.12 Income

164. Total income is expressed as income per person per month for the household. Total income is the sum of income from all sources for all household members; it includes wages and

salaries, pensions, interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food).

165. The 2014 Baseline Socio Economic Survey found households in 2LR reported a mean per capita income of 1.07 million LAK/month, with approximately 55% of this income occurring as cash income. There are significant differences between villages and it is also worth noting the importance of fishing in the income with on the contrary a rather low off-farm income. Fishing represents also an important part of cash income in Houaypamom and Sopphuane.

	Houaypamom		Sopphuane		Namyouak		Sopyouak		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	41,000	14,000	66,000	17,000	100,000	19,000	104,000	15,000	90,000	10,000
Business	18,000	14,000	18,000	9,000	38,000	11,000	58,000	22,000	40,000	9,000
Other	12,000	4,000	19,000	7,000	10,000	2,000	41,000	17,000	23,000	6,000
Agriculture	245,000	25,000	279,000	27,000	267,000	20,000	365,000	23,000	302,000	13,000
Livestock	34,000	11,000	52,000	11,000	95,000	11,000	126,000	17,000	93,000	8,000
Forest	69,000	21,000	106,000	21,000	106,000	16,000	204,000	32,000	138,000	14,000
Hunting	36,000	7,000	63,000	13,000	38,000	6,000	30,000	4,000	39,000	4,000
Fishing	282,000	63,000	455,000	86,000	325,000	36,000	320,000	36,000	341,000	24,000
TOTAL	736,000	72,000	1,057,000	116,000	978,000	63,000	1,250,000	81,000	1,066,000	43,000
Off farm income	71,000	21,000	103,000	19,000	148,000	22,000	204,000	30,000	153,000	14,000

Table 70 Per capita total income (LAK/month) in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total
	Mean	Mean	Mean	Mean	Mean
Employment	6%	6%	10%	8%	8%
Business	2%	2%	4%	5%	4%
Other	2%	2%	1%	3%	2%
Agriculture	33%	26%	27%	29%	28%
Livestock	5%	5%	10%	10%	9%
Forest	9%	10%	11%	16%	13%
Hunting	5%	6%	4%	2%	4%
Fishing	38%	43%	33%	26%	32%
TOTAL	100%	100%	100%	100%	100%

Off farm income	10%	10%	15%	16%	14%
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Table 71 Total income (in percentage) in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

166. Household incomes are not equably distributed, and typically a small percentage of the population have much higher incomes than the rest. This is also the case for 2LR, where more than 50% of households have per capita incomes of less than 800,000 LAK per month and 11% of households have declared incomes > 2.0 million LAK / month (Table 72 and Figure 13).

Per capita income (million LAK/month)	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total
0-0.4	28%	25%	21%	17%	21%
0.4- 0.8	40%	27%	36%	24%	30%
0.8- 1.2	19%	18%	18%	20%	19%
1.2- 1.6	9%	13%	10%	11%	11%
1.6- 2.0	2%	5%	6%	11%	7%
2.0- 2.4	0%	5%	1%	7%	3%
2.4- 2.8	2%	3%	2%	1%	2%
3.2- 3.6	0%	0%	2%	3%	2%
3.6- 4.2	0%	1%	2%	3%	2%
>4.2	0%	3%	2%	3%	2%
Total n	100%	100%	100%	100%	100%
Total HHs	43	77	181	168	469

Table 72 Income Distribution in 2LR (Source: Baseline Socio Economic Survey, 2014)

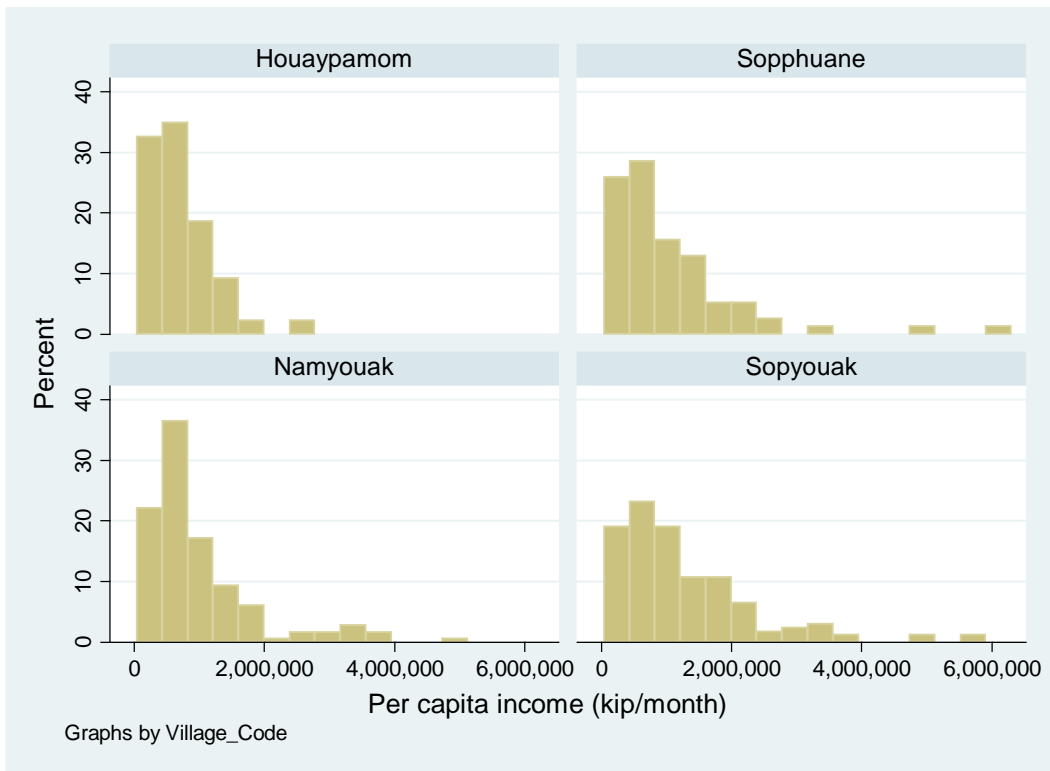


Figure 12 Income Distribution in 2LR (Source: Baseline Socio Economic Survey, 2014)

Rural households in the Lao PDR typically utilize a wide variety of livelihoods, with income diversity often adding to a household’s resilience, particularly for poor households.

There are small differences in the average number of income sources for households between the 4 villages of Zone 2LR. Households in Sopyouak reported an average of 5.4 ± 0.1 income sources whereas the other villages report 5.0-5.2 sources. A small proportion of households have a limited range of household incomes: 7% reported 3 income sources or less, and 24% reported 4 income sources or less.

No of income sources declared in the last year	Houaypamom	Sopphuane	Namyouak	Sopyouak	TOTAL
2	0%	3%	1%	0%	1%
3	7%	10%	4%	5%	6%

4	28%	16%	19%	13%	17%
5	26%	38%	36%	33%	34%
6	28%	25%	31%	37%	32%
7	12%	6%	8%	12%	9%
8	0%	3%	1%	1%	1%
Total	100%	100%	100%	100%	100%
Mean number of income sources	5.1±0.2	5.0±0.1	5.2±0.1	5.4±0.1	5.2±0.1
Total (households)	43	77	181	168	469

Table 2173 Diversity of income sources in Zone 2LR. The survey identified 8 possible incomes sources (Employment, Business, Fishing, Agriculture, Livestock, Forests, Hunting and Other)

2.13 Agriculture and Horticulture Land Use

167. A total of 75% of adults over the age of 18 years in 2LR (with up to 88% in Houaypamom) identified their main occupation as farmer. Students are the second most common occupation (adults > 15 years) and only 5% identified themselves as government workers.
168. Land ownership and land use of the four villages in Zone 2LR is presented in Table 82. Privately held lands account for approximately one third of the total land area of the communities. These privately held lands are almost all agricultural. About 7% of the privately held lands in all four communities are paddy fields and 14 % of the privately held lands are upland rice fields.
- 169.

No.	Village/ Land type	Developed land with planted grass and fence (Ha)	Digging Fish pond/Fish pond with stream (Ha)	Fallow rice field (Ha)	Garden land (Ha)	Garden land for industrial plantation (Ha)	Land at the edge of paddy rice field (Ha)	Land development with natural glass and fence (Ha)	Plowed upland field (Ha)	Rain-fed rice paddy rice field (Ha)	Residential/ Housing land (Ha)	Rotational shifting cultivation (Ha)	Total Area (Ha)
1	Houaypamom	10.19	0.31	1.62	38.15	0.31	9.85	152.11	0.61	20.16	8.21	60.86	302.36
2	Namyouak	13.86	2.70	9.29	73.35	14.07	31.41	141.89		62.95	20.54	16.47	386.53
3	Sopphuane	-	2.20	6.80	98.57	10.25	14.72	119.86		31.56	11.01	99.36	394.33
4	Sopyouak	67.08	6.82	30.92	196.08	134.15	83.52	601.16	0.37	67.00	29.30	181.41	1,397.81
Total		91.13	12.02	48.61	406.15	158.79	139.50	1,015.02	0.99	181.66	69.06	358.11	2,481.03

Table 2274 Land acquisition of 2LR Villages, in ha. (Source: Asset registration 2016)

170. All 4 villages have some common/communal property (Table 75). All 4 villages have cemetery lands and also community grasslands.
171. In all 4 communities, 56% of the total forest land is community managed production forest, with the largest proportion of such forest in Ban Sopyouak and Namyouak, (nearly 64% in both), community managed reserved forest accounts 20% of the total forest area.

Item	Village				Total
	Sopphuane	Sopyouak	Namyouak	Houaypamom	
2. Public Properties					
2.1 School Land	0.8	1.2	1.6	0.5	4.1
2.2 Temple Land	0.0	0.0	0.0	0.0	0
2.3 Village Office Land	0.0	0.0	0.0	0.0	0
2.4 Cemetery Land	1.9	3.6	3.5	1.5	10.5
2.5 Village Health Centre Land	0	0	0	0	0
2.6 Community Grass Land	24.0	125.0	97.0	17.0	263
Total Public Land	26.7	129.8	102.1	19.0	277.6
3. Forest and others					
3.1 Production forest	483.0	750.0	852.0	425.0	2,510.0
3.2 Reserved forest	126.0	311.0	336.0	121.0	894.0
3.3 Other forest					
Protection Forest					
Un-stocked forest	104.0	210.0	218.0	81.0	613.0
Buffer zone	39.0	198.0	210.0	30.0	477.0
Total Forest Land	752.0	1,469.0	1,616.0	657.0	4,494.0
Total Land					7,507.96

Table 2375 Land Use Patterns of Villages in Zone 2LR – community land, in ha.

(Source: Field Survey 2008)

172. Agriculture land use in the project area is currently based primarily upon rain fed rice cultivation, other field crop cultivation, livestock rearing and vegetable gardens. The size of family land holdings varies per land type and village. Holdings in Sopyouak tend to be larger than in the other communities

173.

No	Land plot size of Rainfed Paddy Rice Field	No. of HH/Village				Total
		Houaypamom	Namyouak	Sopphuane	Sopyouak	
1	<0.8 ha.	16	41	16	20	93
2	0.8 - 1.6 ha.	7	33	8	31	79
3	1.7 - 2.4 ha.	2	3	4	10	19
4	More than 2.4 ha			2	1	3
Total:		25	77	30	62	194

Table 2476 Number of households with rainfed paddy rice fields land plots by 4 category of size of (Asset registration 2016)

No	Land plot size of Rotational Shifting Cultivation	No. of HH/Village				Total
		Houaypamom	Namyouak	Sopphuane	Sopyouak	
1	<0.8 ha.	9	29	27	28	93
2	0.8 - 1.6 ha.	14	5	15	30	64
3	1.7 - 2.4 ha.	5	2	8	26	41
4	More than 2.4 ha	9		14	23	46
Total:		37	36	64	107	244

Table 77 Number of households with rotational shifting cultivation field plots by 4 category of size (Asset registration 2016).

174. Table 78 presents the area of rice cultivation in each community, by each type of rice field: paddy and swidden or upland fields. The ratio of paddy fields to upland rice fields tend to be about 1 to 1 in Ban Houaypamom, 3 to 4 in Ban Sopphuane, 4 to 3 in Ban Sopyouak and 2 to 3 in Ban Namyouak.

No.	Village	Rain-fed rice paddy rice field (Ha)	Rain-fed rice paddy rice field /Total Cultivation Area (%)	Rotational shifting cultivation (Ha)	Rotational shifting cultivation / Total Cultivation Area (%)
1	Houaypamom	20.16	6.67%	60.86	20.13%
2	Namyouak	62.95	16.29%	16.47	4.26%
3	Sopphuane	31.56	8.00%	99.36	25.20%
4	Sopyouak	67.00	4.79%	181.41	12.98%
Total		181.66	7.32%	358.11	14.43%

Table 25 Area of Rice Cultivation of each Type and Area of Rice Cultivation in Comparison to Other Agricultural Activities (Source: Asset registration 2016)

175. The average yields for rice range from a low of 2.1 ton/ha for upland rice in swidden fields in Ban Sopphuane to a high of 3.8 ton/ha for lowland rice in rain fed paddy fields in Ban Houaypamom. Differences in yields among the communities are rather slight (Table 79).

Village	Paddy Cultivation (ton/ha)	Swidden Cultivation (ton/ha)
Houaypamom	2.6 - 3.8	2.3 - 2.7
Sopphuane	2.4 - 3.7	2.1 - 2.7
Sopyouak	2.9 - 3.6	2.2 - 3.1
Namyouak	2.8 - 3.5	2.4 - 3.0
Average	2.7 - 3.7	2.2 - 2.9

Table 2679 Comparison Yield of Rice Production (Source: Field Survey 2008)

2.14 Rice Sufficiency

176. An assessment of rice-self-sufficiency in 2011 showed that most households are able to produce enough rice to meet their needs for the year. Between 3 to 14% of the villagers have shortfalls of self-produced rice for up to 2 - 4 months of the year, as shown in Table 80 below. These households either buy or exchange in kind the additional rice they need.

Village	Number of Households	Sufficient Year Round	Insufficient for 2 to 4 months	Insufficient for 5 to 6 months	Insufficient for 7 to 8 months
Houaypamom	37	86.5%	13.5%	0%	0%
Sopphuane	58	87.9%	8.6%	3.44%	0%
Sopyouak	126	94.4%	3.2%	0%	2.38%
Namyouak	163	92.6%	7.4%	0%	0%

Table 80 Rice Sufficiency Production Rates of Households on a Yearly Basis (Source: Field Survey 2011)

177. The Baseline Socio Economic Survey was undertaken in October-November 2014, just prior to the annual rice harvest. At that time, households in 2LR reported eating plain rice 6.1 to 6.8 days/week (min and max village mean values)

Food type	Frequency of Food Consumption (days/week)			
	Houaypamom	Sopphuane	Namyouak	Sopyouak
Plain Rice consumption	6.8	6.8	6.5	6.1
Fish	4.5	4.6	4.3	4.8
Pork	1.2	1.1	1.3	1.0
Poultry	1.7	1.4	1.8	2.0
Wild birds	0.9	1.1	1.1	1.1
Wild game	1.3	1.6	1.4	1.1

Table 81 Mean consumption days/week for key food (Source: 2014 Baseline Socio-Economic Survey)

178. The Project's vulnerability officer regularly monitors claims of rice insufficiency to

understand which households are most poor and vulnerable. In the period immediately following relocation, food insecurity will not be an immediate issue due to the planned Rice Supplement Program. However, such a program is not a long term sustainable option; therefore the incidence and causes of any food insufficiency will be closely monitored and addressed through the livelihood support program.

2.15 Livestock

179. Almost all households raise a variety of animals. Chickens, ducks and pigs roam around the houses. Some larger pigs are kept in pens. Other large animals such as water buffaloes, cows and goats are usually left to roam or herded during the day before being brought back to stay near the house at night. Grazing areas are increasingly fenced. The animals are raised both for domestic consumption and for sale. Smaller livestock are an important source of protein.
180. Livestock is an important socioeconomic factor with most households owning some animals, and some households having a large number of large animals. Table 82 provides an overview.
181. While livestock ownership is common within the villages, income⁴ from this source is relatively small, providing only 9% of total income and 13% of cash income. Livestock do, however, provide an important source of savings. Table 84 shows that large livestock (buffalo and cattle) is the principle component of animal value in 2LR. Cows are the most important in terms of total value with an average of 6.2 animals per household providing an average value of 34 million kip/household. Cattle are the next most important in terms of value, though more important in terms of numbers.

182.

Village name	Buffalo	Cow	Pig	Chicken	Duck	Large Livestock
Houaypamom	7%	60%	58%	100%	37	60
Sopphuane	16%	65%	70%	88%	21	68
Namyouak	33%	86%	83%	94	38	90
Sopyouak	45%	79%	82%	95	29	85
Total	32%	78%	78%	94	32	81

Table 2782 Percent households with livestock ownership 2LR (Source: Baseline Socio Economic Survey, 2014)

Village name	Buffalo	Cow	Pig	Chicken	Duck	Large Livestock
Houaypamom	0.3	2.4	2.3	28.3	3.4	2.7

⁴ The cash value of animal and meat sold plus the imputed value of self-consumption)

Village name	Buffalo	Cow	Pig	Chicken	Duck	Large Livestock
Sopphuane	0.7	3.2	4.7	18.6	1.3	3.9
Namyouak	1.8	7.7	4.7	28.9	2.7	9.4
Sopyouak	2.4	6.9	3.5	32.9	2.7	9.3
Total	1.7	6.2	4	28.5	2.5	7.9

Table 83 Mean number of animals owned per household. Chicken ownership is a cropped mean to account for extreme outliers. (Source: Baseline Socio Economic Survey, 2014)

Village name	Buffalo	Cow	Pig	Chicken	Duck	Total	Total Value (x1000 LAK)
Houaypamom	11%	73%	7%	8%	1%	100%	2,400±400
Sopphuane	22%	61%	12%	4%	0%	100%	3,600±500
Namyouak	25%	67%	5%	3%	0%	100%	8,600±600
Sopyouak	34%	58%	3%	3%	0%	100%	8,800±700
Total	28%	63%	5%	3%	0%	100%	7,300±400

Table 84 Per capita value of livestock. Chicken ownership is a cropped mean to account for extreme outliers. (Source: Baseline Socio Economic Survey, 2014)



Figure 13 Poultry promotion at 2LR

2.16 Fisheries

183. The Nam Ngiep River as well as larger tributaries and smaller streams are an important fisheries resource, with almost every meal including some fish, either fresh or preserved.
184. Fisheries are an essential element of nutrition for people from 2LR. Analysis of the 2014 Baseline Socio Economic Survey shows that households in 2LR consume fresh fish an average of 4.3 to 4.8 days/ week depending on the village (Table 35), with a total consumption of about 3.9 kg/per person/month (Table 64).
185. The Baseline Survey found total income (cash and imputed) from fishing was approximately 340,000 kip/person/ month which constitutes 32% of total income. Cash income from fisheries amounted to 25% of total income (Table 72).
186. As elsewhere in the area, river fishing is the task of the men. They use gill net, hook and line and cast nets as the three top gears. While most of the fish they catch is for home consumption, some surplus is on occasion sold at the market. Some villagers also mention that they sell dried fish along the road. In low laying areas women and older persons often contribute significantly to the household fishing, through the use of scoop nets in areas where they can wade, to scoop small fry and collect aquatic products such as snails, frogs, etc. However, in Zone 2LR, there is limited suitable habitat (wetlands) available for this kind of fishing, which can be seen in the fishing gear used and the participation of women in fishing days. The negative impact of no longer being able to do this kind of fishing is therefore limited after resettlement.
187. The Project implements a long term fish catch monitoring program to complement this SES assessment and better understand seasonal variation in fisheries, fishing environments and fishing gears. The survey results will also be used to inform and monitor the Fisheries Co-Management Program for the reservoir. Fisheries development in the reservoir and fish capture program in constructed ponds will be needed to offset the loss of the current fishing grounds.

2.17 Forest Utilization

188. Most households claim that forests are an important factor in their livelihoods. The Baseline Socio Economic Survey (2014) found that forest based incomes (NTFP, timber and hunting) provided a total per capita income of 177,000 kip/ month and constituted 17% of total income and 20% of cash income (refer to Table 71 and Table 72).
189. Villagers largely make use of the surrounding community forests. Most houses are still built from wood and bamboo from the forests and grasses from the fields. Food is cooked with firewood gathered from the forests. Many kinds of food, such as mushrooms, bamboo shoots, vegetables, and herbs are gathered from the forests, while women gather plants for dyeing cloth and for medicinal purposes.

190. Hunting is an important tradition in the communities as well as livelihood activity for people from 2LR, with men out of contact for days in the forest to hunting birds and animals. Villagers hunt, partly for own consumption and partly for sale. Hunting in 2LR is a continuing livelihood activity and the local shops sell ammunition for small guns. While it will be possible for hunters to return to non-inundated forests of 2LR they will also utilize new areas, crossing the mountain next to the resettlement site, within the new resettlement site and potentially over the river on the side of the host communities. Hunting will therefore have to be carefully regulated and managed to avoid resource conflicts.
191. Villagers plant fruit trees and other economic or commercial trees in the forests, including rubber trees in the last years and this trend is ongoing. The Project will undertake community tree plantation in allocated regeneration and protected forest areas of Houay Soup.
192. A number of commercial trees (rubber trees) planted by 2LR villagers above FSL will remain after reservoir impoundment and the Project plan to re-establish access to these plantations through the operation of a commercially operated boat service on the reservoir.
193. Commercial tree and rubber plantation in the resettlement village of Houay Soup are also a potential source of income in the future given the good road access to Houay Soup and the proximity to Paksan, a major trading centre.
194. The products from fruit trees are mostly for domestic consumption. During visits to local markets and markets in nearby towns, nearly all the fruits sold in the market were from the local forests. Commercially grown fruits tend to be imported from China or Thailand. Local fruit selling is very seasonally dependent.

2.18 Other Sources of Income

195. Household income in 2LR comes mainly from fisheries, agriculture (crops and livestock) and Forest resource (NTFP, timber and hunting). Employment and business income remain rather low (14% of total income with “other” and 26% of cash income) according to the 2014 Baseline Socio Economic Survey (see Table 71 and Table 72). Business income is difficult to estimate because of the variation in the nature of businesses and because most business are run almost entirely without record keeping.

2.19 Primary Production and Off-Farm Income

196. Income can be divided between primary production and off-farm income. Primary production includes income from agriculture, livestock, forests and fishing. Off farm income includes employment, business income, and other income such as land rental, interest payments, and remittances. Primary production includes both cash income from sales and the imputed value of self-consumed production. Off-farm income is largely cash

income. Off-farm income is an important method of reducing vulnerability and poverty but, in rural settings, is also highly dependent on the strength of farm sector.

197. As expected, primary production accounts for the majority of income contributing 86% of total income. Off-farm income accounts for only 14% of the total household income but is important to many households because of the cash income it provides (26% of total cash income, mostly from employment).

2.20 Household Expenditure and Consumption

198. Household consumption is the amount of goods and services consumed by a household. Household consumption has been pioneered by the World Bank Living Standards Measurement Studies program as the key indicator of poverty and household living standards since the program's inception in the 1980's. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household living standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:
- consumption has a direct relation to the total "utility" or welfare level of a household;
 - consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
 - consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and
 - households are thought to be less reluctant to share information about expenditure than income
199. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:
- Not all consumption adds to wellbeing of the household
 - Consumption of durable items is spread over many years
 - Purchase of high values items may inappropriately bias consumption upwards
 - Goods and services produced and consumed by the family are not directly valued through a purchase
 - Consumption of some items may be supported by increasing debt.
200. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an "annual use value" for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being / standard of living of the household.
201. The 2014 Baseline Socio Economic Survey divided consumption into:

5. Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 6. Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 7. Durable Items such as minor household goods and furniture; and
 8. Use value of major assets such as cars, motorcycles, major household items etc.
202. Mean per capita consumption in 2LR in late 2014 is estimated to be approximately 790,000 kip/month (Table 85 and Table 86). Food is the biggest source of consumption accounting for 69% of total consumption (Table 85 and Table 86). Cash expenditure on food accounts for 27% of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc.).
203. Houaypamom and Sopphuane have the lowest cash expenditure on food but there is no significant difference in consumption between villages.
204. Cash expenditure amounts to 49% of total consumption, which is less than for Zone 3 (Hatsaykham). The percentage of consumption obtained by cash expenditure generally increases with increasing wealth, and conversely the proportion of food consumption in the total generally decreases with increasing wealth.

	Houaypamom		Sopphuane		Namyouak		Sopyouak		Total	
	mean	±se	mean	±se	mean	±se	mean	±se	mean	±se
Food (total)	572,000	±49,000	513,000	±34,000	549,000	±20,000	557,000	±22,000	548,000	±13,000
Food (cash)	116,000	±23,000	103,000	±17,000	160,000	±12,000	161,000	±13,000	147,000	±8,000
Consumables	160,000	±19,000	150,000	±35,000	168,000	±11,000	193,000	±18,000	173,000	±10,000
Durables	48,000	±16,000	60,000	±11,000	54,000	±7,000	75,000	±15,000	62,000	±6,000
Asset Use	3,000	±1,000	6,000	±3,000	4,000	±1,000	10,000	±4,000	7,000	±1,000
Total	783,000	±65,000	730,000	±59,000	776,000	±28,000	835,000	±45,000	790,000	±23,000

Table 85 Household consumption (LAK/person/month) in 2LR (Source: Baseline Socioeconomic Survey, 2014)

	Houaypamom		Sopphuane		Namyouak		Sopyouak		Total	
	mean	±se	mean	±se	mean	±se	mean	±se	mean	±se
Food	73%	±6%	70%	±5%	±71%	±3%	67%	±3%	69%	±2%
Cash Food	15%	±3%	14%	±2%	±21%	±2%	19%	±2%	19%	±1%
Consumables	20%	±2%	21%	±5%	±22%	±1%	23%	±2%	22%	±1%
Durables	6%	±2%	8%	±1%	±7%	±1%	9%	±2%	8%	±1%
Asset Use	0%	±0%	1%	±0%	±1%	±0%	1%	±0%	1%	±0%
Total	100%		100%		100%		100%		100%	

Table 86 Household consumption by village (by percentage of Total) in 2LR (Source: Baseline Socioeconomic Survey, 2014)

205. Household consumption is more normally distributed than income. The majority of households (77% in Sopyouak & Namyouak to 84% in Houaypamom) have per capita consumption rates of less than 1.0 million LAK/month (Table 87).

Per capita income (million LAK/month)	Houaypamom		Sopphuane		Sopyouak		Namyouak	
	Number of HHs	Percent	Number of HHs	Percent	Number of HHs	Percent	Number of HHs	Percent
0 - 0.5	9	21%	27	35%	32	19%	50	28%
0.5 - 1	27	63%	36	47%	97	58%	88	49%
1 - 1.5	4	9%	10	13%	27	16%	33	18%
1.5 - 2	1	2%	1	1%	5	3%	9	5%
2 - 2.5	2	5%	3	4%	7	4%	1	1%
Total	43	100%	77	100%	168	100%	181	100%

Table 87 Frequency distribution of household consumption in 2LR villages
(Source: Baseline Socio Economic Survey, 2014)

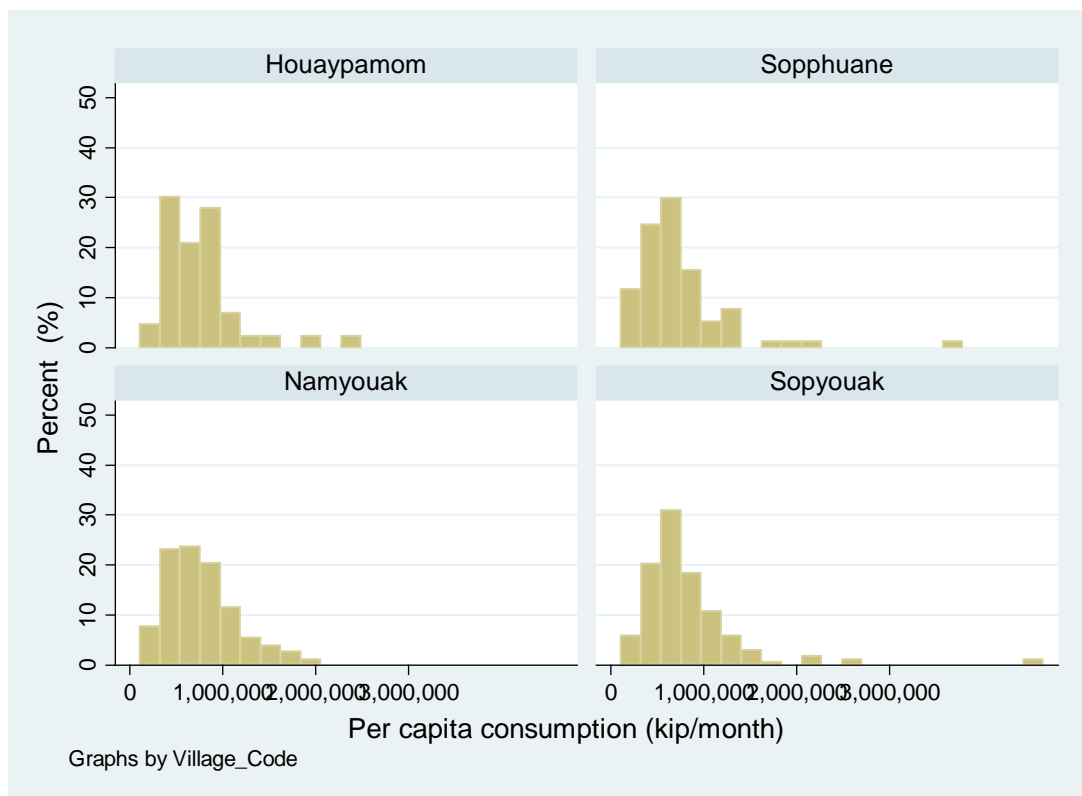


Figure 14: Distribution of Per Capita Consumption (Source: Baseline Socio Economic Survey, 2014)

206. The components of food consumption have also been estimated. Meat has the highest monetary value of monthly consumption, followed closely by staples and fish (Table 88).

	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total	
	mean	mean	mean	mean	mean	se
Staples	115,000	125,000	124,000	124,000	123,000	4,000
Fish	102,000	153,000	104,000	110,000	114,000	10,000
Meat	105,000	125,000	128,000	127,000	125,000	5,000
Milk Eggs	8,000	10,000	20,000	25,000	19,000	1,000
Vegetables	57,000	34,000	48,000	48,000	47,000	2,000
Fruit	44,000	41,000	33,000	27,000	33,000	1,000
Other	28,000	39,000	47,000	50,000	45,000	2,000
Alcohol	27,000	10,000	7,000	14,000	11,000	2,000
Tobacco	9,000	5,000	3,000	4,000	4,000	1,000
TOTAL	496,000	543,000	513,000	529,000	522,000	

Table 2888 Imputed Consumption Values (LAK) per Person per Month (Source: SES AR 2014)

2.21 Poverty

207. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social, health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics. .
208. The current estimate of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 kip per capita /month (US\$28.75 at current rate of exchange). It is based on the inflation of the 2010 poverty line to 2014 prices). Poverty lines also include measurements typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at the moment as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line ⁵
January 2010	95	180,000
October 2014	123.4	230,000

.*

Table 2989 Estimated poverty line for study area. (Expressed to the nearest 10,000 LAK)

209. A total of 469⁶ households out of the total 481 households were assessed in the 4 villages. A

⁵ GoL Decree on Poverty Criteria and Development Criteria 2012-2015, No. 201/GO, April 25, 2012

⁶ 469 Households were interviewed for the socio economic survey. The remaining 12 households could not be interviewed, because they were temporary absent from their home; refused to

total of 9 households or about 2% of the population were classified as poor on our estimate of the current poverty line (230,000 kip/person/month). See Table 90.

210. This poverty evaluation is likely to be valid at a statistical level for the population (i.e. it is a reliable estimate of the overall percentage of household living in poverty) – however, it only provides an initial guide for evaluation individual households since it is largely based on “average calorific requirements” and subject to some measurement error.
211. The estimate of the number of households living in poverty is relatively insensitive to increases in the poverty line above our estimate since only one household was classified as “near poor” (230,000-250,000 LAK/ month).

Village	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total
Above Poverty Line	100%	95%	98%	99%	98%
Near Poor	0.0%	0.0%	0.6%	0.0%	0.2%
Poor	0%	5.2%	1.7%	1.2%	1.9%
Total number households	43	77	181	168	469

Table 3090 households’ poverty percentage in 2LR (Source: Baseline Socioeconomic Survey, 2014).

2.22 Vulnerable Households

212. Vulnerable households are households that may fall into poverty as the result of external stresses such as resettlement. The vulnerability assessment also included identification of households with special needs.
213. The vulnerability-assessment for 2LR identified 66 potentially vulnerable households with a total population of 418 people. The reasons for their vulnerability are diverse and include the presence of physically or mentally impaired household members, drug addicts, low income, and 6 female headed household (Table 91 below).

participated in the survey or otherwise unavailable to be interviewed.

Source of vulnerability	<i>Houaypamom</i>		<i>Sopphuane</i>		<i>Sopyouak</i>		<i>Namyouak</i>	
	HHs	Residents of vulnerable HH	H Hs	Residents of vulnerable HH	HHs	Residents of vulnerable HH	HHs	Residents of vulnerable HH
Intellectually impaired	1	4	1	7	5	26	7	57
Low income and physical disability	4	12	3	27	6	45	6	40
Female headed household	0		2	2	3	19	1	1
Low income	0		3	19	0		4	37
Drug addict	4	20	3	13	5	49	5	34
Elderly	0		0		2	4	1	2
<u>TOTAL</u>	<u>9</u>	<u>36</u>	<u>12</u>	<u>68</u>	<u>21</u>	<u>143</u>	<u>24</u>	<u>171</u>

Table 91 Vulnerable Households in 2LR villages (Source: 2015 field visits)

While the vulnerable households overlap with households experiencing rice insufficiency, special attention will be paid by the Project to the specific kinds and causes of vulnerability, and it will extend transitional assistance, and provide additional health support. For households having persons with physical disabilities, care will be taken to ensure the replacement housing is easily accessible.

CHAPTER 3 - Zone 3 Socioeconomic Profile

3.1 Demography and Population Changes

214. Hatsaykham village (Figure 16) was founded in 1993 by 13 Hmong families from the Wang and Xiong clans, migrating from Phou Hong area near Phou Katha. These families have relationships and relatives upstream including in Zone 2LR. The migration was guided by GoL's policies to eradicate slash-and-burn and to sedentarise Hmong in lowland areas. The village is administratively amalgamated with Hat Gniun, a Lao Loum village located a few kilometres away.

215.



Figure 15 Khum Hatsaykham

216. A new census (August) and baseline socio-economic survey (October - November) were conducted in 2014 with every household of the village, to determine expected losses and to integrate DP perspectives and concerns in the planned social and economic development activities. Hatsaykham was also part of the Socioeconomic Survey along the Access Road and 230kV-T/L. Survey results show the original 13 families of earlier surveys have now expanded to 39 households with a total affected population of 289 people (Table 100). The population structure is shown in Table 101.

Item	Village
	Hatsaykham (sub-Village of Ban Hat Gniun)
Population Structure (people)	289
Household Number	39
Male (people)	146
Female (people)	143
Size of Household(people/HH.)	7.41
Ethnicity	Hmong: 274 Lao Loum: 15

Table 92 Population Profile of Zone 3 (Census survey, Aug. 2014)

Remark: in the 2011 survey, all DPs of Hatsaykham declared themselves Hmong

Age	Male	%	Female	%	Total	%	M:F Ratio
<5	28	19.18%	30	20.98%	58	20.07%	0.93
5-10	26	17.81%	22	15.38%	48	16.61%	1.18
11-15	15	10.27%	24	16.78%	39	13.49%	0.63
16-20	21	14.38%	14	9.79%	35	12.11%	1.50
21-25	14	9.59%	16	11.19%	30	10.38%	0.88
26-30	12	8.22%	7	4.90%	19	6.57%	1.71
31-40	15	10.27%	12	8.39%	27	9.34%	1.25
41-50	5	3.42%	6	4.20%	11	3.81%	0.83
51-60	6	4.11%	5	3.50%	11	3.81%	1.20
>61	4	2.74%	7	4.90%	11	3.81%	0.57
Total	146	100%	143	100%	289	100%	1.02

Table 93 Age and Gender Structure of Hatsaykham (Census survey, Aug. 2014)

217. Compared census results from 2007 with the Census of 2011 and the Confirmation Survey of 2014, show a population increase from 165 to 289, i.e. an annual population growth of more than 8%. Significant points for the resettlement action plan are as follows:

- Around half the population is under age 15 and females slightly exceed males in this age group.
- A continuation of the current population growth rate will result in the doubling of the population of Hatsakykham within 9 years. The population of affected villages in zone 2LR are believed to have a similar growth rate (these villages have a similar percentage of the population under 15)

3.2 Ethnicity

218. A total of 95% of villagers belong to the Hmong ethnic group and no household solely consists of people of Lao Loum ethnicity. Three families are of mixed ethnicity due to intermarriage. No other ethnicities other than Hmong or Lao Loum live in Hatsaykham.

3.3 House Style

219. The majority of dwellings in Hatsaykham are traditional Hmong structures of one storey built on rammed soil with the kitchen separate from the main house. Housing materials are of bamboo for the poorer households, and wood for more prosperous households, with palm and rush roof roofing (Figure 16). Some elevated Lao Loum-style houses with wooden and bamboo matting construction for bedrooms have been adopted, while kitchens of Hmong type remain the same. The adoption of Lao Loum style by some households suggests that at least some of the population are prepared to adopt new technologies where they are seen to be advantageous. Household preferences have been taken into account when designing replacement housing in Houaysoup (see Chapter 8).



Hmong Style with Kitchen Space



Hmong Style Main House



Hmong Style Kitchen House



Lao Loum Style Main House with Hmong Style Kitchen Space

Figure 16 Typical House Styles in Khum Hatsaykham

Wall Material	Percent households	Roof Material	Percent households
Wood	54%	Corrugated metal	67%
Bamboo	41%	Tiles/sheet tile	15%
Brick	5%	Leaf/rush matting	10%
		Other	8%
Total	100	Total	100

Table 94 Housing construction material, Hatsaykham (Source: 2014 Baseline Socio Economic Survey)

3.4 Social Organization and Cultural Relations

220. DPs in Zone 3 are integrated into a diverse and complex network of social organizations and cultural relations. A key element is the public administration of Lao PDR. People are resident in villages, headed by a Village Chief. In the case of Zone 3, the Village Chief is Lao Loum and based in Hat Gniun. The Deputy Chief is Hmong and based in Hatsaykham. Villages are combined into kumbans and at the next level into districts, which again form provinces, finally resulting in the national community of Lao PDR. On relocation to Houaysoup and with the arrival of the 2LR households, the district authorities intend to recognise the new village and appoint its own administration.
221. Ministries at national level are represented at provincial and district levels. Essential for this project are the Ministry of Energy and Mines (MEM), the Ministry of National Resources and Environment (MoNRE), the Ministry of Agriculture and Forestry (MAF), and also the Ministries of Health (MoH), Education (MoE), and of Information and Culture (MIC). These public institutions are supported by mass organizations with structures at all levels, including the Front for National Construction, the Lao Women's Union (LWU), and the Lao Youth Union.
222. Next to these public institutions, DPs are integrated into further social and cultural relations within and between villages. These include at village level informal, but influential, elders' councils, which have an essential say in the development of a community. Different communities may be amalgamated into one administrative unit, even though culturally and geographically distinct, as in Hatsaykham's pre-relocation circumstances.
223. Hmong households in Hatsaykham are identified and linked by clan systems, which connect them with villagers from the upper and lower reservoir area. These linkages extend further to Hmong communities in the rest of the country as well as abroad, which allows them to mobilize economic, cultural, political and social resources to support the communities in their communication with the Project. It also enables information about experiences in other

hydropower projects to be widely shared and circulated.

224. Recent Lao history has encouraged further social networks between local and central level, which have to be taken into account when addressing stakeholders. While for the older generation, the liberation war is an essential factor in the evolution of such networks, for the young generation, modern communication as well as work and education in urban areas have extended social networks, providing them with additional social and cultural resources and influencing their development, preferences and life choices. With the recent electrification of the villages in zone 3, a further influx of technology can be expected, with possible changing patterns of livelihoods expectations.
225. Social Organization and Cultural Relations follow the pattern discussed in Chapter 7 of the REDP. Hmong groups are divided into patrilineal clans (*xeem*) which are strictly exogamous, that is marriage outside the birth clan is compulsory. Polygyny is traditional but less observed nowadays than in the past (no polygynous households occur in Hatsaykham). Loyalty to one's clan is central and clan solidarity is very important, linking members to villages throughout the country and even abroad.
226. The Hmong are believed to have their origins in China and to have migrated into northern Southeast Asia during the 19th century. There are 19 Hmong clans currently living in Lao PDR and they are generally group-oriented, with interests of the group coming before the interests of the individual, and clan leaders in each village representing the interests of the village. In the project impacted areas, there are four main clans: Yang, Vang, Xiong, and Lor, although there are some persons from clans such as Pialouang, Moua, Lee, Her and Vue who have married into these clans. In Hatsaykham hamlet, the Xiong clan leads other clans socially and politically. Family members are under the authority and direction of the male-headed clans and household, usually the oldest male. Sons will automatically inherit family property and all other assets, and are often the ones to receive formal education. For this reason, male elders represent village households in all discussions, particularly with outsiders, and it is unusual for any person or family to contradict elders in public meetings.
227. Hmong villages aim to be self-sufficient and autonomous with limited interaction with other ethnic groups. Of special importance is the historical as well as continuing clan-based relation to the villages of 2LR, where people from the Zone 3 village originate. This relationship led to the request from affected households to resettle together with DPs from 2LR rather than follow the original proposal, which was to move the village closer to the centre of their current administrative unit, Hat Gniun.

3.5 Infrastructure

228. Infrastructure and services in Khum Hatsaykham were basic prior to the start of the project. Water for drinking and household use came from the Nam Ngiep or the adjacent Houay Say tributary. In June 2014 the Project installed three boreholes with hand

pumps as a temporary measure until relocation. Sufficient water is available from these boreholes throughout the year and the quality is considered good. The Baseline Socio-Economic Survey (2014) found that 29 households were using the hand pumps for drinking water in the dry season, 3 households stated they used bottled water and 2 household continued to use river water. Electricity reached the village in 2013, and the Project enabled every household to install electricity meters and to link up to the grid.

229. With the exception of a school for 1 to 3 grades, public services are available only in the main village of Hat Gniun. There are some privately owned small shops, similar to those in other villages, where soaps, detergents, and other daily household goods can be purchased. Business has been quite good with construction workers.
230. As elsewhere in Laos, a significant number of villagers are members of village-based mass organisations such as the LWU, Lao Youth Union, and Lao Workers’ Union.

Items	Existing Condition
1. Infrastructure / service	
Electricity	Available; electricity meters subsidized by the Project
Drinking water source	Boreholes with hand pumps, Nam Ngiiep, Houay Say
Water use source	Boreholes with hand pumps, Nam Ngiiep, Houay Say
Transport/ Communication Problem	All-season/all-weather road by the Project Dirt roads within villages Boats with engine Mobile phone available
2. Social Welfare	
Market	None
Pre Primary/Nursery	None
Primary School	Grade1-3 (2014/15: Grade 1-2); at Ban Hat Gniun for Grade 4-5
Temple	None
Health Centre	None
Cemetery	1.2 ha
Grocery	Available
3. Private and Public Organization (number of members)	
Lao Women’s Union	30
Lao Youth Union	52

Items	Existing Condition
Lao Workers' Union	7

Table 95 Infrastructure of Hatsaykham (Source: field visits 2014;)

3.6 School Attendance

231. Historically, school attendance in Hatsaykham has been poor as it is often not a high priority for households, particularly when they must struggle to find enough to eat, and families are unlikely to have seen the impact of education in improving their daily life. This is especially so for girls who are expected to help in household chores. Traditionally, Hmong girls are supposed to work at home and education is not considered important for them. Education is more accessible to Lao Loum communities, given that Lao language is the medium of education, especially at higher levels. With the increasing importance of off-farm activities, formal education has become more valuable and nation-wide the general awareness of this importance is rising.
232. Khum Hatsaykham has a newly established school with Grades 1 to 2 (2014/15 reduced to grade 2), and with one teacher on service. To continue their studies beyond Grade 2, the children have to travel 4 kilometres to Ban Hat Gniun.
233. Historically, school enrolment and attendance rates were low, particularly during main agricultural seasons due to the need for children's labour. The poor road access to Hat Gniun was also a deterrent to continued education, and those children who did continue in school either stayed overnight at Ban Hat Gniun or had to commute by boat. The regular absence of the assigned teacher also reduced the number of school days for the children.
234. The Project has now organized a school bus system for primary school children, guaranteeing safe and reliable transport to school. It will be handed over to the community after a year of operation if villagers would like to continue it. It brings children from Hatsaykham and other villages to Hat Gniun in the morning and brings them back in the evening.
235. The Baseline Socio Economic Survey (2014) was undertaken after the introduction of the new school bus system and the start of monitoring school attendance by the NNP1 Education Team. Primary age enrolment is now > 90%, with enrolment rates slightly higher for girls than boys. Boys appear to be enrolled in the first year of primary school later than girls. Hmong children in Hatsaykham are not all able to speak the Lao language when they start school: 6 of the 17 children in Hatsaykham aged 5 or 6 years could not speak Lao well and one child could not speak Lao at all. The combination of Lao as a second language and the historical lack of emphasis on education has resulted in children from Hatsaykham progressing through primary at a relatively slow rate: the average age of children in Grade 5 in Hatsaykham was 14 years (Baseline Socio Economic Survey, 2014). Secondary enrolment

is also relatively low with only 55% of children of Lower Secondary age enrolled. Enrolment in Lower Secondary School was similar for males and females.

School Enrolment	Zone 3 Hatsaykham
Primary enrolment	
MALE	90%
FEMALE	94%
Mean age in grade 5 (10.5years)	14 years
Secondary enrolment	
MALE	54%
FEMALE	55%

Table 96 School enrolment 2014 (data source: Baseline Socio Economic Survey)

3.7 Education and Literacy

236. The Baseline Socio Economic Survey indicated only 15% of adults had no formal education, 68% had primary education or higher, a further 17% had lower secondary of higher. Women have relatively high rates of primary education compared to men but are less likely to go on to higher education: 61% of women have completed primary education or higher, but 79% of men have completed primary education or higher.

Years of Education	Completed Grade	Male		Female		Total	
		#	percent	Number	percent	Number	Percent
0		6	8%	16	22%	22	15%
1		0	0%	1	1%	1	1%
2		1	1%	3	4%	4	3%
3		1	1%	2	3%	3	2%
4		5	7%	5	7%	10	7%
5	Primary	22	31%	32	44%	54	38%
6		5	7%	2	3%	7	5%
7		3	4%	0	0%	3	2%
8		4	6%	5	7%	9	6%
9	Lower Secondary	7	10%	4	6%	11	8%
11		7	10%	0	0%	7	5%
12	Upper Secondary	6	8%	1	1%	7	5%
	Tertiary	3	4%		0%		0%
	Vocational	2	3%	0	0%	2	1%

Table 97 Adult Education Profiles of Zone 3 (Hatsaykham) Affected People (Source: Socioeconomic Baseline Survey 2014)

237. Total years of schooling, literacy and the ability to speak the Lao language are related to age. The youngest generation of adults (20-29 years) in Hatsaykham have received 6.5 years of schooling on average, and while 96% of this group speaks Lao, only 49% are fully literate in the Lao language. Older age groups have lower levels of education and literacy. Elders over 60 years of age have received 3 years of education on average, 55% speak Lao and only 33% are fully literate in the Lao language.
238. Education and literacy are generally lower for women: only 24% of adult women in Hatsaykham were fully literate compared to 64% of men, and 80% of adult women spoke Lao compared to 95% of men.
239. The Project has already started adult literacy classes in Zone 3 in response to an expressed desire from the village to improve adult literacy.

Age Group	Number in age groups	Mean years of schooling	Se(mean)	Literate	Speak Lao
20-29yrs	53	6.5	± 0.6	49%	96%
30-39yrs	28	5.1	±0.6	44%	96%
40-49yrs	10	4	±1.2	40%	67%
50-59yrs	16	3.9	±1	44%	79%
60+yrs	12	3	±1	33%	55%

Table 98 Years of education and literacy by age group for adults in Hatsaykham (data source: Baseline Socio Economic Survey, 2014).

3.8 Diet and Nutrition

240. The nutritional status of a person is a function of the nature and quantity of food intake (diet), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.
241. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anaemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in health-threatening conditions like wasting, obesity and metabolic syndrome and lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption is an increasing problem in the developing world.
242. Estimated food intake per person in Hatsaykham (Baseline Socio Economic Survey, 2014) appears relatively good with nearly 18kg of staples consumed per person per month and a total intake of about 6kg of meat and fish/person/month (This is total weight and includes non-edible parts).

FOOD	Days per week	Amount	Unit
Staples	7	17.9	Kg/person/month
Fish and Eels	4.7	2.2	Kg/person/month
Chicken/Duck etc	2.7	1.2	bird/person/month
Pork	3.2	1.1	Kg/person/month.
Wild Animals	2.3	0.8	Kg/person/month.
Beef	1.6	0.6	Kg/person/month.
Wild Birds	1.4	0.4	bird/person/month
Dried or preserved whole fish	2	0.3	Kg/person/month.
Buffalo	1	0.3	Kg/person/month.
Land/Water insects	0.4	0.1	Kg/person/month.

Table 99 Food intake for Hatsaykham (data source Baseline Socio Economic Survey, 2014)

243. The 2014 Health Survey used 2 simple approaches to the measurement of the nutritional status of Hatsaykham:

5. Child anthropometric measurements and
6. Anaemia levels amongst women of child bearing age.

Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition and recurrent infections, such as diarrhoea and helminthiasis (parasitic infections), in early childhood. Anaemia is low levels of red blood cells due to insufficient iron. It causes tiredness, inability to work and affects child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.

Nutritional Indicator	Value
Stunting children under 5	54%
Anaemia in women 25-45 years	30%

Table 100 Nutritional indicators for Hatsaykham (data source Baseline Health Survey 2014)

247. The baseline health survey for Hatsaykham shows that apparently adequate levels of food consumption have not been translated into health outcomes. High levels of child stunting (54%) and anaemia in Hatsaykham women (30%) are likely to be the result of a combination of the historical use of unsafe water supply, no household sanitation, open defecation and poor hygiene leading to high rates of diarrhoea and parasitic infections, in turn contributing to poor overall nutritional status. Other factors that may be important are lack of access to

health services, inequitable distribution of food within the household (women and children), significant drudgery workloads, as well as early and frequent pregnancies for women.

3.9 Health and Health Services

248. The Hmong of Khum Hatsaykham practice animism. When people become ill, they may first turn to local spiritual healers and traditional medicines. When illness becomes more serious, they resort to modern health facilities in the district of Bolikhan or the provincial hospital at Pakxan. With the upgrade of the road to Hatsaykham by the Project, access to Bolikhan district hospital (45 minutes by motorbike or car) and Pakxan Provincial Hospital (90 minutes by motorbike or car) is now possible year-round. Previously, road access to Bolikhan was difficult during rainy season and Pakxan mainly reachable first by boat and then by car, and taking much longer.
249. Table 101 lists the illnesses identified by the Bolikhan District Health department during a health check conducted in March 2015 in Khum Hatsaykham. The health checks were voluntary, and a total of 246 persons presented for the check out of a total population of 292 (84% sample). Gastritis and neuralgia are the most prevalent health complaints reported. Gastritis, diarrhoea, dysentery, bronchitis and cold/flu diseases are seasonal and temperature-dependent with levels of rainfall and humidity playing an important role in their occurrence. Lack of sanitation facilities is a further aggravating factor for gastritis type diseases.

Health Complaint	Patients	Percent population
Gastritis	22	9%
Neuralgia	21	9%
Cold/Flu	10	4%
Back pain	10	4%
Vertigo	7	2.8%
Angina	7	2.8%
Vaginal discharge*	6	1.0%
Fatigue	5	2.0%
Eye pain	5	2.0%
Diarrhoea	3	1.2%
Dysentery	3	1.2%
Bronchitis	3	1.2%
Ear infection	1	0.4%
Wound	1	0.4%
Rheumatism	1	0.4%
Burn	1	0.4%
Population checked	246	84%
Total population	292	

* Prevalence of vaginal discharge is for total number of females.

Table 101 Health complaints reported in Zone 3 (Source: Health Checking, Mar. 2015)

3.10 Gender Issues and Status of Women

250. Gender dimensions of concern in the project area which also apply to Zone 3 include:

- land rights; most land and housing are formally or informally under male control and patrilineal heritage line. This is addressed by all replacement land and housing registered and titled in the joint names of husband and wife. Where a man has more than one wife, the second family will be separately titled in the name of the wife and a male family member of her choice (e.g. eldest son)
- financial management; where compensation money may be handed only to a male household head, there is higher risk of poor subsequent investment. The Project has instituted bank accounts in the joint names of husband and wife, with prior financial training provided to understand how to deposit and withdraw funds. All acknowledgement of receipts or withdrawals must have the joint signatures or thumbprints of both husband and wife. This compensation procedure was instituted for roads and TL land acquisition, and has proved very popular, particularly with women

- hard work; women have multiple responsibilities taking care of the house, cooking, caring for the sick, elderly and children, gender-specific agricultural tasks (e.g. weeding, hoeing, fetching water, land clearance, harvesting, etc.), and income generating work. Replacement housing will integrate labour saving devices such as accessible domestic water supply, electricity, etc. to reduce the drudgery component of these responsibilities
- health; reproductive and maternal health is poor with comparatively high levels of anaemia, and continued laborious work throughout pregnancy. Sanitation is poor, and improved water and sanitation facilities will be provided in replacement housing, and training given in their use. The health program is outlined in more detail in the SDP
- education; less formal education due to early inclusion into domestic work, and less ability to understand written documents particularly if the first language is not Lao. The Project is already running a bus service to enable children to access the higher school in Hat Gniun. Improved educational facilities will be provided in Houaysoup, with permanent teacher presence and teacher housing. Adult literacy and basic numeracy classes, particularly for women, will also be implemented for all those interested to participate.
- communication; typically external agencies and government extension staff tend to talk only to male village representatives and in Lao language, especially where the culture is patriarchal and patrilineal, as with Hmong. The Project has made particular effort to employ Hmong men and women as fieldworkers. All communication with Hatsaykham DPs is in Hmong language. Women's meetings are held separately from those of men, and women's preferences for various types of training are given precedence
- ethnicity; ethnic minority women are proportionately less familiar with Lao language and therefore less likely to be informed of their rights. See above point

251. Hatsaykham's Hmong community is strongly patriarchal. Family members are under the authority and direction of the male-headed household, usually the oldest male. Sons will automatically inherit family property and all other assets and are often the ones to receive a formal education. Hmong women normally do not represent the family status and may not be included in meetings. Even if they participate, women rarely voice their opinions. Both a Hmong man and woman are considered adults only after they have produced children. Hmong woman only gain prestige in the family by giving birth to a boy.

252. Separate consultation meetings with female villagers resulted in the following gender issues being identified:

- Around 24 % of females have no formal education and around 25 % did not complete primary school
- Early marriage (15 to 16 years) and early and frequent pregnancies
- High demand of physical labour including raising of children and care of livestock,

as well as most housework and tending gardens

- Informally no property rights for females recognized
- No traditional right to divorce for females
- Husbands generally as lone decision makers;
- Few opportunities for financial independence or to learn new livelihood activities such as weaving, tailoring, and food preservation techniques
- Health problems such as diarrhoea, womb pain, body ache; distance to Pakxan hospital is a further health-related issue and previous access available only during the dry season

3.11 Information and Services

253. Hatsaykham has access to national mobile phone networks, and now that electricity has reached the village, to television coverage also. Television also communicates information to the villages from national stations, as well as Thai, Chinese, and Vietnamese stations. Via satellite dishes, other international stations can be reached.

254. Provision of electricity and compensation payments in 2014 (for access road impacts) has led to rapid acquisition of electrical goods. In 2015, a total of 97% of households reported owning a mobile phone and 85% own a TV. Ownership of labour saving devices is also rising: 82% of households own an electrical rice-cooker and 44% a refrigerator / freezer.

Item	Household owning asset.
Mobile phones/other	97%
Televisions	85%
Electric rice cooker	82%
Satellite dish	72%
Tape players/CD	54%
DVD Player	49%
Refrigerators/freezers	44%
Water Dispenser	8%
Cameras, video cameras	8%

Table 102 Ownership of electrical goods by household in Hatsaykham (data source: 2014 Baseline Socio Economic Survey)

255. Improved transportation and widespread ownership of motorbikes, together with electrification and a captive market of several thousand construction workers, have contributed to increased diversification of the Hatsaykham economy.

256. The 2014 Baseline Socio Economic Survey found that 85% of households own a motorcycle and 21% of households a car/truck. Boat ownership (36%) was high, and 18% of households

owned a hand tractor.

Item	Household owning asset.
Motorcycles/scooters	85%
Boat	36%
Boat motor	31%
Water Pump	28%
Car or truck	21%
Hand Tractor	18%

Table 103 Ownership of productive assets by household (data source: 2014 Baseline Socio Economic Survey)

3.12 Income

257. Total income is expressed as income per person per month for the household. Total income is the sum of income from all sources for all household members; it includes wages and salaries, pensions, interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food).
258. The 2014 Baseline Socio Economic Survey (2014) represents the most comprehensive and reliable estimate of household income in Hatsaykham and largely supersedes the results of the Road Access Socio Economic Survey (2014).
259. The Baseline Socio Economic Survey (2014) found households in Hatsaykham reported a mean per capita income of 1.06 million kip/month, with approximately 63% of this income occurring as cash income, which is similar to the estimate of total incomes made in the Road Access socio-economic survey (1.1 million kip/month).

Hatsaykham	Total Income (LAK/person/month)	Percent of total income	Mean Cash (LAK/person/month)	Percent of total cash income	Have cash income Percent Households
Fishing	462,362	43%	195,086	31%	49
Forest	181,252	17%	175,401	28%	56
Agriculture	167,211	16%	31,612	5%	44
Employment	95,380	9%	95,380	15%	85
Livestock	63,823	6%	51,641	8%	54
Business	47,639	4%	47,639	8%	21
Hunting	41,442	4%	26,376	4%	41
Other	5,928	1%	5,928	1%	13
Total	1,065,037	100%	629,063	100%	95

Table 104 Income Per Person Per Month (Source: Baseline Socio Economic Survey 2015)

260. Household incomes are not equably distributed, and typically a small percentage of the population have much higher incomes than the rest. This is also the case for Hatsaykham, where 32 households (40%) have per capita incomes of less than 800,000 kip per month⁷ and 2 households (6%) have declared incomes > 2.4 million kip / month.

Per capita income (million LAK/month)	Number of households.	Percent
0-0.8	17	44%
0.8- 1.6	14	36%
1.6- 2.4	6	15%
2.4- 3.2	1	3%
3.2- 4.0	1	3%
Total	39	100%

Table 31 Income Distribution in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

3.13 Agriculture and Horticulture Land Use

261. A total of 91% of adults over the age of 18 years in Hatsaykham identified their main

⁷ Lowest per capita income was 133,000 kip/month.

occupation as farmer. While farming activities are likely to consume the majority of people's time, and hold an important place in their cultural identity, the cash and imputed value of farming activities (Agriculture and Livestock) is only the second highest source of income for the village, providing only 22% of total income and 13% of cash income. The importance of farming, particularly agriculture, should not be underestimated however, as having rice in the rice store after harvest is an important starting point for the forthcoming year's activities. Additionally, livestock provide an important fallback or coping mechanism to deal with internal and external shocks to the household (e.g. ill health, floods, agricultural pests etc.)

262. Table 10 presents the patterns of land use in Khum Hatsaykham. As with the other villages upstream from the dam site, about 60% of the total village land is forest area and officially state owned, though villagers consider it part of their overall village resources and use it accordingly to extract non-timber forest products (NTFPs), for hunting, and livestock grazing. Thirty five percent (35%) of the total land area of the village has private tenure claims. Ninety four percent of this land (or 32% of the total village land area) is claimed agricultural land. Sixty eight percent (68%) of privately held agricultural land is for rice production, the large majority being for rain fed upland rice land, not too different from the ratio found in other communities upstream from the dam site. Only about 2% of the total land area is claimed as residential.
263. Six percent (6%) of the total land area is considered public or common property. Most of that is public grassland for grazing. The other public properties are a cemetery and school land.
264. Much of the forest land is used or managed by the community. About 40% of the total area and 52% of forest land is community and conservation forest. Another 22% of the total area and about 29% of the forest land is production forest. 11% of total area is un-stocked forest.

Land Use	Hectares	%
<i>Private Properties</i>		
Upland rice fields (Temporary or Permanent)	140.6	12%
Grazing Land (Private) with Land DPer and tax payment	52.5	5%
Upland Garden Field - Short term crop	36.5	3%
Paddy fields	30.7	3%
Rubber and other production tree plantation land	29.6	3%
River Bank Gardens	28.1	3%
Residential land	22.9	2%
Timber Plantation Land	17.4	2%
Fruit tree plantation Land	15.7	1%
Fallow field	13.5	1%
Fish Ponds	1.8	0.20%
Total Private Properties	389.3	35.20%
<i>Public Properties</i>		
Grass Land	67	5.9%
Cemetery land	1.20	0.1%
School Land	0.70	0.06%
Total Public Properties	68.9	6.06%
<i>Forest and Others</i>		
Community Forest	244	21.6%
Production forest	193	17.1%
Conservation Forest	107	9.5%
Un - stocked forest	97	8.6%
Buffer Zone	25	2.2%
Other land use	4.60	0.4%
Total Forest Land	670.6	59.4%
Total	1128.86	100.00

Table 106 Land Use Pattern of Zone 3, Khum Hatsaykham (Source: private properties from self-declarations in SES Access Road 2014; public land from Field Survey 2011)

265. The scope of land acquisition is outlined in the next chapter. Agricultural land which is not impacted will not be compensated as DPs will be able to continue to use it. Given that the new residential area of the resettlement site will be just around 1.5 kilometres distant from the current residential area, the maximum additional distance to non-impacted agricultural land is another 1.5 km and readily accessible.

3.14 Rice Sufficiency

266. An assessment of rice self-sufficiency in 2011 showed that 64 per cent of the villagers grow enough rice themselves to consume for more than 10 months of a year round. The remaining rice requirements are purchases or acquired by exchange. These households do not suffer any rice insufficiency.
267. The Baseline Socio Economic Survey was undertaken in October 2014, just prior to the annual rice harvest. At that time, households in Hatsaykham reported eating plain rice 5.2 days/week and glutinous rice 3.6 days per week. A cross-tabulation indicated no household consumed rice less than 7 days/week. The majority of households reported purchasing plain rice (85% of households) and sticky rice (77% of households).
268. The Access Road Socio Economic Survey (2014) found that all households except one now have enough rice to eat for 12 months of the year. The Project's vulnerability officer regularly monitors claims of rice insufficiency to understand which households are most poor and vulnerable. In the period immediately following relocation, food insecurity will not be an immediate issue due to the planned Rice Supplement Program. However, such a program is not a long term sustainable option; therefore the incidence and causes of any food insufficiency will be closely monitored and addressed through the livelihoods support program.

3.15 Livestock

269. Almost all households raise a variety of animals. Chickens, ducks and pigs roam around the houses. Some larger pigs are kept in pens. Other large animals such as water buffaloes, cows and goats are usually left to roam or herded during the day before being brought back to stay near the house at night. Grazing areas are increasingly fenced. The animals are raised both for domestic consumption and for sale. Smaller livestock are an important source of protein.
270. While livestock ownership is common within the village (Table 107), income⁸ from this source is relatively small, providing only 6% of total income and 8% of cash income. Livestock do, however, provide an important source of savings with large livestock (buffalo and cattle) the principle component of animal value in Hatsaykham. Buffalo are the most important in terms of total value with an average of 4.5 animals per household providing an average value of 34 million kip/household. Cattle are the next most important in terms of value, though more important in terms of numbers. All but one household in Hatsaykham reported owning livestock; 30 out of the 39 households reported owning large livestock (cow or buffalo) with one household owning 58 buffalo. The median per capita value of livestock

⁸ The cash value of animal and meat sold plus the imputed value of self-consumption)

owned in Hatsaykham was estimated to be 8.9 million kip (US\$1,100).

271. Comparison of livestock data from the socioeconomic survey (2014) with data from the Baseline Socio Economic Survey (2014) suggests there has been a significant increase in ownership, from 166 to 209 cattle and from 166 to 177 Buffalo. Compensation for land acquired for the access road was paid between these two surveys, and this may be one factor behind the increase. The Project's Social Management Office (SMO) has an ongoing livestock program which includes monitoring numbers, and trends in livestock ownership will be followed closely during relocation.

	Number	Average/ all household	Percent households owning	Mean value/hh
Buffalo	177	4.5	59%	34,000,000
Cattle	209	5.4	56%	23,400,000
Pig	291	7.5	85%	3,700,000
Chickens	829*	25*	89%	1,000,000
Ducks	20%	1.6	20%	100,000
TOTAL			97%	62,200,000

Table 107 Livestock ownership in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

3.16 Fisheries

272. Fisheries are an essential element of nutrition for people from Hatsaykham. Analysis of the Baseline Socio Economic Survey (2014) shows that households in Hatsaykham consume fresh fish an average of 4.7 days/ week, with a total consumption of about 2.2kg/per person/month.
273. The Survey found income from fishing was approximately 460,000 kip/person/ month which constitutes 43% of total income. Forty nine percent of household in Hatsaykham said they sold fish for cash, and cash income from fisheries amounted to just under a third of total cash income (31%).
274. The Nam Ngiep River as well as larger tributaries and smaller streams are an important fisheries resource, with almost every meal including some fish, either fresh or preserved for the villages close to the dam site.
275. The Project also implements a fish-catch-monitoring program to complement this assessment providing an indication of seasonal variation in fisheries, fishing environments and fishing gear. These data are not yet available but will be reported annually.
276. As elsewhere in the area, river fishing is the task of the men. They use cast nets, fishnet, and sometimes fishhooks. While most of the fish they catch is for home consumption, some surplus is on occasion sold at the market, at Ban Somseun or at Pakxan. Some villagers also

mention that they sell dried fish along the road. Women and older persons use scoop nets in areas where they can wade, to scoop small fry and aquatic products such as snails, frogs, etc.

277. Construction of the dam will result in changes to water flow regime of the Nam Ngiep, with much higher flows occurring during the dry-season. These changes will potentially reduce the average fish-catch per household as a result of changes to the number and species composition of fish in the river, and the higher flow velocities and varying water level increasing the difficulty of fishing. These reductions in incomes may, to some extent, be offset by the increased fishing opportunities in the reservoir and a Project-supported program of capture fisheries in constructed ponds.

3.17 Forest Utilization

278. Most households claim that forests are an important factor in their livelihoods. The Baseline Survey found that forest based incomes (NTFP, timber and hunting) provided a total per capita income of 223,000 kip/ month and constituted 21% of total income and 32% of cash income.
279. Villagers largely make use of the surrounding community forests. Houses are still built from wood and bamboo from the forests and grasses from the fields. Food is cooked with firewood gathered from the forests. Many kinds of food, such as mushrooms, bamboo shoots, vegetables, and herbs are gathered from the forests, while women gather plants for dyeing cloth and for medicinal purposes.
280. Villagers plant fruit trees and other economic or commercial trees, though few households in Hatsaykham have started planting commercial trees, such as teak (*Tectonagrandis*), auri (*Acacia auriculiformis*), eucalyptus (hybrid for pulp), and Agar wood (*Aquilaria* spp.). The Project will undertake community tree plantation in allocated regeneration and protected forest areas of Houaysoup.
281. Fruit trees are mostly for domestic consumption. During visits to local markets and markets in nearby towns, nearly all the fruits sold in the market were from the local forests. Commercially grown fruits tend to be imported from China or Thailand. Local fruit selling is very seasonally dependent.
282. Commercial tree and rubber plantation are also a potential source of income in the future given the improved road access to the villages of zone 3 and 5 and proximity to Pakxan, a major trading centre. Commercial trees and rubber income is relatively minor at the moment with only one household in Hatsaykham recording an income from rubber in the 2015 Baseline Survey (though more households stated they were growing rubber, they did not declare an income.)
283. NTFPs are not an important source of cash income but are used for home consumption, complementing other food. Analysis of data from the Access Road Survey finds that timber

products are increasing in importance for household income.

	NTFPs collected per year in kgs			
	Winding bark and bamboo	Resin	Eatable NTFPs: (Shoots, Vegetable, Mushrooms)	Flowers and herbs
Total	4,652	3,270	7,746	203
Average per household	122.4	86.1	203.8	5.3

Table 108 NTFP Collection (Source: SES Access Road 2014)

3.18 Hunting

284. Hunting is an important tradition as well as livelihood activity for people from Hatsaykham, with men out of contact for days to spend time in the forest to hunt birds and animals. Villagers are hunting in forests around the villages, partly for own consumption, partly for sale. The NNP1 Environmental Management Office (EMO) together with public authorities are responsible for controlling NNP1 workers from hunting and restricting trade of hunting goods according to the national and international regulations. All workers have to sign a code of conduct which includes prohibition of hunting.

3.19 Other Sources of Income

285. Household income in Khum Hatsaykham comes mainly from fisheries, agriculture (crops and livestock) and Forest resource (NTFP, timber and hunting). Other important source of income is employment and business income. A total of 85% of all households in Hatsaykham reported some form of paid employment and this constituted 9% of total income and 15% of cash income (Source: Baseline Socio Economic Survey, 2014). Business income is difficult to estimate because of the variation in the nature of businesses and because most business are run almost entirely without record keeping. Data from the Baseline Socio Economic Survey (2014) indicated that 21% of household in Hatsaykham run some form of small business and this had contributed 4% of total income, and 8% of cash incomes.

3.20 Primary Production and Off-Farm Income

286. Income can be divided between primary production and off-farm income. Primary production includes income from agriculture, livestock, forests and fishing. Off farm income includes employment, business income, and other income which includes, land rental, interest payments, and remittances. Primary production includes both cash income and the imputed value of self-consumed production. Off-farm income is largely cash income. Off-farm income is an important method of reducing vulnerability and poverty but, in rural settings, is also highly dependent on the strength of farm sector.

287. As expected, primary production accounts for the majority of income contributing 86% of total income. Off-farm income accounts for only 14% of the total household income but is important to many households because of the cash income it provides (24% of total cash income, mostly from employment).

Hatsaykham	Total Income	Mean Cash
	(LAK/person/month)	
Fishing	462,362	195,086
Forest	181,252	175,401
Agriculture	167,211	31,612
Livestock	63,823	51,641
Hunting	41,442	26,376
Total Primary Production	916,090	480,116
Percent Total	86%	76%
Employment	95,380	95,380
Business	47,639	47,639
Other	5,928	5,928
Off Farm Income	148,947	148,947
Percent Total	14%	24%
Total	1,065,037	629,063

Table 109 Total income and cash income from primary production and off-farm income (Source:2014 Baseline Socio Economic Survey)

3.21 Household Expenditure and Consumption

288. Consumption has been pioneered by the World Bank Living Standards Measurement Studies program as the key indicator of household living standards since the program's inception in the 1980's. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household living standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:

- consumption has a direct relation to the total "utility" or welfare level of a household;
- consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
- consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and

- households are thought to be less reluctant to share information about expenditure than income
289. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:
- Not all consumption adds to wellbeing of the household
 - Consumption of durable items is spread over many years
 - Purchase of high values items may inappropriately bias consumption upwards
 - Goods and services produced and consumed by the family are not directly valued through a purchase
 - Consumption of some items may be supported by increasing debt.
290. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an “annual use value” for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being / standard of living of the household.
291. The Baseline Socio Economic Survey (2014) divided consumption into
9. Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 10. Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 11. Durable Items such as minor household goods and furniture; and
 12. Use value of major assets such as cars, motorcycles, major household items etc.
292. Mean per capita consumption in Hatsaykham in 2014 was estimated to be approximately 1.2 million kip/month (Source: Baseline Socio Economic Survey, 2014). Food was the biggest source of consumption accounting for 61% of total consumption. Cash expenditure on food accounts for 58% of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc.).
293. Cash expenditure amounts to 74% of total consumption. The percentage of consumption obtained by cash expenditure generally increases with increasing wealth, and conversely the proportion of food consumption in the total generally decreases with increasing wealth.

	Mean Per Capita consumption (LAK/month)	Se (mean)	Percent total
Food (Total)	709,284	50,383	61%
Food (Cash)	412,001	42,035	36%
Consumables	319,429	36,877	28%
Durables	93,634	14,509	8%
Major Assets*	32,119	11,409	3%
Total	1,566,467	155,213	100%

Table 110 Household consumption in Hatsaykham

294. Household consumption is more normally distributed than income, and the majority of households (74%) have per capita consumption rates of between 500,000 and 1.5 million LAK/month.

Per capita consumption (million LAK/month)	Households	Percent
0-0.5	2	5%
0.5 - 1.0	13	33%
1.0 - 1.5	16	41%
1.5 - 2.0	5	13%
2.0 - 2.5	3	8%

Table 111 Frequency distribution of household consumption in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

295. The components of food consumption have also been estimated. Meat has the highest monetary value of monthly consumption, followed by cereals (mainly rice). The consumption of alcohol, beer, and cigarettes has also become important factors, as are candies and sweets. The monetary value of the fruit and vegetables consumed is low.

FOOD TYPE	Per capita consumptions (LAK/month)
Meat	197,000
Cereals/Tubers	117,000
Other Food (Salt, spices, MSG, etc)	112,000
Fish OAA	95,000
Beer and Cigarettes	63,000
Vegetables	50,000
Fruit	46,000
Eggs Milk	44,000

Table 112 Imputed Consumption Values per Person per Month (Source: Socio Economic Survey 2014)

3.22 Poverty

296. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social, health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics. Both methods have been used in Hatsaykham.
297. The current estimate of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 kip per capita /month (US\$28.75 at current rate of exchange), see Table 113 for the calculation. Poverty lines also include measurements typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at the moment as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line ⁹
January 2010	96.45	180,000
October 2014	124*	230,000

Table 113 Estimated poverty line for study area.

* The CPI value for October 2014 is an extrapolation and will be updated when the data is available.

⁹ GoL Decree on Poverty Criteria and Development Criteria 2012-2015, No. 201/GO, April 25, 2012

298. None of the households in Hatsaykham was classified as poor on the basis of household consumption. The lowest per capita consumption recorded in Hatsaykham was 340,000 kip/month which is approximately nearly 50% higher than the current national estimate of the poverty line.
299. Historically, Hatsaykham was, on a community level, poorer than other REDP villages according to the 2011 assessment, but clearly changes in household well being are now beginning to emerge with better access to markets and improved provision of infrastructure and following compensation for land acquired for the access road to the dam. Increased income and consumption, also increases inequalities between households in the village, because while most villagers can now rely on a strengthened economic structure (indicated for example by the livestock data presented above) a few households in the community remain vulnerable to falling back into poverty despite strong economic development.

3.23 Vulnerable Households

300. The Project follows Lao and ADB standards regarding vulnerable household, putting them into the Project context. Four types of vulnerability are addressed by the overall design of the social programs:
- Indigenous People/Ethnic Groups. These form the majority of DPs in the PIZ overall. Some households in Hatsaykham affected by relocation to Houaysoup are classified as vulnerable.
 - The issue of DPs without legal title to land or property is addressed by acknowledging customary rights to lands and compensating accordingly.
 - Women are among the most vulnerable in remote areas. Should any vulnerable household be further identified during ground clearance and construction, they will be eligible for the specific measures in the Project GAP. For example cash compensation is transferred into joint bank accounts in the names of both the male and female heads of households.
 - Households below poverty line (currently 200,000LAK per person per month¹⁰) will be brought above poverty line in compliance with the poverty elimination test outlined in the Concession Agreement along the Livelihood and Income Restoration Plan outlined in the REDP (Section 4.22.2).
301. Additionally to these categories of vulnerability, the Project uses the following context-adapted definition of vulnerable groups other than the groups discussed above, based on outlined national and international standards:
302. Vulnerable Households are households who might suffer disproportionately from the loss of

¹⁰ At exchange rates as of this REDP-U3 update, this amounts to US\$25.

fixed and movable assets, other assets, and production base; or face the risk of being marginalized from the effects of resettlement; and specifically include:

- Single female headed households with dependents and low income;
- Households whose members are socially stigmatized as a result of traditional or cultural bias inside the community
- Households living in poverty with not enough labour to make use of general pro-poor activities outlined above;
- Landless households with no alternative sustainable income from regular employment or businesses
- Elderly households with no means of support
- Households with disabled or invalid persons;
- Households with members with severe and long-term diseases having a substantial impact on the households productivity and/or expenditure
- Households with members of households addicted to substance abuse.

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- Elderly households with no means of support
- Households with disabled or invalid persons;
- Households with members with severe and long-term diseases having a substantial impact on the households productivity and/or expenditure
- Households with members of households addicted to substance abuse.

306. A vulnerability check-list was attached to the Asset Registration Form to screen all impacted households on a first step, before the Project's vulnerability officer is engaged to identify vulnerable households and implement specific mitigation measures together with the DPs. The Project's social monitoring team supported the vulnerability officer in this task. Also, all other Project staff (above all the Asset Registration and the Community Relations staff) are trained to identify potential vulnerability and inform the vulnerability officer, so that she can investigate further.

307. The vulnerability-assessment for Hatsaykham identified 8 potentially vulnerable households with a total population of 46 people. The reasons for their vulnerability are diverse and include the presence of physically or mentally impaired household members, low income, and 1 female headed household.

Source of vulnerability	Households	Residents of vulnerable household
Intellectually impaired	2	14
Low income and physical disability	1	9
Female headed household	1	8
Low income	1	7
Drug addict	1	5
Elderly	1	2
Orphan	1	1
TOTAL	8	46

Table 114 Vulnerable Households in Hatsaykham (Source: GoL Document 165, dated 23/07/2015, confirming the number of vulnerable households in Hatsaykham)

308. While the vulnerable households overlap with households experiencing rice insufficiency, special attention will be paid by the Project to the specific kinds and causes of vulnerability, and it will extend transitional assistance, and provide additional health support. For households having persons with physical disabilities, care will be taken to ensure the replacement housing is easily accessible. Each vulnerable household has also participated in at least one livelihood development activity to date.

CHAPTER 4 - Zone 5 Socioeconomic Profile

309. The data used in this report is based on three surveys:

- **Socio Economic Survey Access Road 2014** – a socio economic survey, landholder, DP and asset registration survey for the widening of the access road. Undertaken from March to April 2014.
- **Confirmation Survey 2014** - Household, DP, landholder and asset registration survey of Zones 2UR, 2LR, 3 and 5 undertaken in stages throughout 2014. The data has been entered into the resettler and compensation database which registers all Project Affected Persons/DPs in the above project zones, their land holdings and relevant assets including non-residential buildings and perennial crops liable for compensation. The Compensation Database currently (December 2015) records 127 households in Zone 5 for the purposes of compensation and asset registration.
- **Baseline Socio Economic Survey 2014** – a household socio economic survey of households Zones 1, 2LR, 2UR, 3, 4 and 5. The survey is based on the list of households collected during the Confirmation Survey 2014 as of October 2014. The survey design included a census of all households available for interview in Zones 2UR, 2LR, 3 and 5 and a statistically based sample of households in Zone 1 and 4. The survey also included a sample of 2 reference populations unaffected by the project. A total of 124 households were interviewed in Zone 5.

310. The three surveys were carried out at different dates in 2014 and used slightly different methods/survey instruments. The confirmation survey has subsequently been updated to provide a final list of households eligible for compensation. The total population of each zone and other data collected in the 3 surveys will differ slightly because of the different methods and the changing nature of the population. Note that Confirmation Survey (2104) is the “master dataset” for the purposes of compensation and assistance and forms an unchanging baseline reference point.

311. This report has used data from each of these surveys where the data collected is the most appropriate for the question at hand.

4.1 Demography and Population Changes

312. The population of Ban Hat Gniun is 393 people in 72 households, with an average household size of 5.5; all are ethnically Lao Loum (Table 7). Ban Thahuea has a population of 265 people in 50 households, with an average household size of 5.3. Some 88% of the population of Thahuea identify themselves as Lao Loum, with the remaining 12% (6 households) identifying as Khmu.

Community	Households	Population	Females	Affected Households	Ethnicities
Ban Hat Gniun	72	393	171	65	Lao
Ban Thahuea	55	300	145	0	Lao, Khmu
Ban Somseun	221	1207	602	26	Lao
Total	348	1900	918	91	

Table115: Population profile of Ban Hat Gniun & Thahuea (Source: Confirmation Survey 2014)

313. As presented in the overall REDP (4.2.4), data for Hat Gniun and Thahuea show a slight reduction in population numbers from 2007/8 to 2011, but an updated census and baseline Socio Economic Survey (SES - also termed in the CA as a Confirmation Survey) in 2014 shows a population increase of 5.9% in Hat Gniun and 13.6% in Thahuea over the last three years.



Figure 17 : Typical House of Lao Loum, Ban Hat Gniun

4.2 Social Organization

314. Unlike the Hmong villages of Zone 2LR and Zone 3, Lao Loum communities in Zone 5 do not follow a clan system. Nonetheless, families form important internal organizations with socioeconomic functions. There is particularly strong community cohesiveness in Thahuea.
315. Migration from the village for work and study in Pakxan and further afield has expanded

rural-urban connections. These connections have been further strengthened due to the spread of modern electronic communications.

316. Villages in Lao are the final level of government administration, headed by a Village Chief who is supported by a deputy and village council. Villages are combined into districts, which are combined to form provinces, finally resulting into the national community of the Lao PDR. Ministries on the national level have embodiments on the provincial and district level. These public institutions are supported by mass organizations with structures at all administrative levels: the Front for National Construction, the Lao Women Union, and the Lao Youth Union.
317. Ban Hat Gniun is the administrative village center for Hatsaykham. The Village Chief is Lao Loum and based in Hat Gniun, while the Deputy Chief is Hmong and based in Hatsaykham. Hat Gniun village authorities are therefore represented in discussions related both to Hatsaykham compensation and relocation plans, as well as in those related solely to Hat Gniun host programs. On relocation to Houaysoup and with the arrival of the 2LR households, the district authorities intend to recognise the new village of Houaysoup and to appoint its own administration.
318. **Physical Cultural Resources.** No physical resources of archaeological and cultural significance have been identified in Hat Gniun and Thahuea as impacted by the Project.

4.3 Infrastructure

319. Ban Hat Gniun, Ban Thahuea and Ban Somseun can be accessed by road or river. The two host villages are 15 and 17 km by unsealed road from Ban Nonsomboun which is located 3 km from Bolikhan on the sealed road from Pakxan (22 km). The main access road to the villages is passable by cars and motorbikes in all seasons due to upgrade of the access road by the Project in 2014/15. The Nam Ngiep River provides additional access from downstream communities by boat.
320. Ninety eight percent of households surveyed in Ban Hat Gniun and Ban Thahuea were connected to the electrical grid system in 2014 (Baseline Socio Economic Survey, 2014). Before the provision of grid electricity the villages relied on small river-powered generators (micro-hydro) that produced electricity for a few lamps or TVs among a small number of households. The Project subsidized installation fees.

Items	Hat Gniun	Thahuea
1. Infrastructure		
Electricity	Yes	Yes
Drinking water source	Underground water	Stream and Underground water
Access road	Gravel Road	Gravel Road
River navigation	Nam Ngiep	Nam Ngiep, Nam Xao
2. Social Welfare		
Market	No	No
Pre Primary / Nursery	No	No
Primary School	Yes	Yes (to 3rd grade only)
Temple	Yes	Yes
Health Centre	No	No
Cemetery	Yes	Yes
Grocery	Yes	Yes
Water supply	Yes	Yes
Underground water well	Yes	Yes
3. Private and Public Organization		
LWU	Yes	Yes
LY	Yes	Yes

Table116: Infrastructure of Ban Hat Gniun and Ban Thahuea (Source: Field Surveys 2014)

321. Hat Gniun has a gravity fed water system (GFS) recently constructed by the Project, with two thirds of households in 2014 using the GFS for drinking water in both wet and dry seasons (Table 117). The remaining 34% of households stated that they used bottled water for their main source of drinking water. Both GFS and bottled water are considered improved water sources, and should remain relatively free from contamination if basic sanitation procedures are followed.
322. In contrast, in the village of Thahuea, 26% of households use surface water for their main source of drinking water in the dry season, though this drops to only 6% in the wet season. Two thirds of households in Thahuea use bottled water for drinking in both the wet and dry seasons.
323. The Project has in November 2015 provided an improved domestic water supply system for both Hat Gniun and Thahuea.

Water Supply	Hat Gniun		Thahuea	
	Wet	Dry	Wet	Dry
GFS	66%	66%	0%	0%
Bottled Water	34%	34%	67%	65%
Tube Water	0%	0%	9%	7%
Protected Well	0%	0%	2%	2%
River, Stream, Lake,	0%	0%	6%	26%
Rainwater	0%	0%	17%	0%

Table117: Sources of drinking water in Ban Hat Gniun and Ban Thahuea (Source: Baseline Socio Economic Survey 2014)

4.4 School Attendance

324. Availability of educational facilities has had a direct impact on school attendance levels. Ban Hat Gniun has a school with 4 teachers providing all 5 levels of primary education. It also serves students from the two nearby communities of Ban Thahuea and Khum Hatsaykham for Grades 4 and 5. The school has only one building in fair condition, but no housing for teachers or other support facilities. Access to the Hat Gniun School is via the main access road to the construction site, and the children typically walked several miles along this road morning and evening. The Project started a daily bus service a year ago from both Thahuea and Hatsaykham to take children to and from the Hat Gniun School to increase the safety of children from these villages who were at risk from construction traffic, and whose school attendance dropped during the rainy season.
325. Primary age enrolment is currently quite high, with 100% primary age enrolment in Hat Gniun and 84% primary age enrolment in Thahuea (Baseline Socio Economic Survey, 2014). Enrolment is determined more by location than ethnicity with all Khmu students in Thahuea enrolled in primary school. The improved access via the daily school bus service from Thahuea and Hatsaykham to Hat Gniun has also increase enrolment from both villages.
326. Traditionally, girls normally work at home from young age and education was not considered important, particularly for girls from non-Lao ethnic groups. However, currently there is no difference in male (90%) and female (90%) primary age enrolment (Baseline Socio Economic Survey, 2014) and girls from Zone 5 are receiving a basic education.
327. The closest secondary school to Zone 5 villages is located in Bolikhan, the district capital, approximately 22 km from Thahuea. Historically, travel to the secondary school was difficult because of the isolation of the villages and poor quality of the access road.
328. Secondary age enrollment is calculated as the percentage of children of secondary school age (11-15 years inclusive) who are enrolled in secondary school. There are 42 secondary age students in Hat Gniun and Thahuea, of whom 17 (42%) are enrolled.

329. There are only 14 girls of secondary age in the two villages included in the survey (compared to 28 boys). Female enrolment (50%) is higher than male enrolment (36%) but the difference is not statistically significant because of the small size of the secondary age population.

4.5 Literacy

330. Eighty five percent of adults in Hat Gniun have completed primary school, however only 16% have completed any post-primary education (Table 118). Thahuea shows a slightly lower rate of formal education, with 78% having completed primary education and 15% having completed any post primary education.

331. Women generally have fewer years of education than males in both villages. Eleven percent of women have no formal education compared to 3% of men, 89% of males have completed primary school compared to only 74% of women.

Maximum Level of Education	Hat Gniun			Thahuea			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
No formal education	2%	6%	4%	4%	17%	10%	3%	11%	7%
Some primary	8%	15%	11%	9%	15%	12%	8%	15%	11%
Completed Primary	72%	66%	69%	67%	60%	64%	70%	63%	67%
Completed Lower Secondary	12%	8%	10%	16%	5%	11%	13%	7%	10%
Completed Upper Secondary	4%	3%	4%	2%	2%	2%	3%	3%	3%
Tertiary Educated	2%	2%	2%	1%	0%	1%	2%	1%	2%
Vocational/Other	0%	0%	0%	1%	0%	1%	0%	0%	0%
# respondents completed education	127	99	226	81	81	162	208	180	388

Table 118: Adult Education profile of DPs of Ban Hat Gniun and Thahuea (Source: BSES 2014)

4.6 Diet and Nutrition

332. Nutritional status is a function of the nature and quantity of food intake (diet), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.

333. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in health-threatening conditions like wasting, obesity and metabolic syndrome and lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption is an increasing problem in the developing world.
334. Estimated food intake per person in Hat Gniun and Thahuea (data from Baseline Socio Economic Survey, 2014) appears relatively good. Staples are consumed 7 days per week in both villages, with nearly 15 kg of staples consumed per person per month in Hat Gniun and 14 kg/person/month consumed in Thahuea. Fish consumption is common with households eating fish about 4.8 days/ week with a total consumption of 3.5 kg /person /month in Hat Gniun and 2.5 kg /person /month in Thahuea. Meat consumption is also significant with pork and poultry being the most commonly consumed.

FOOD	Hat Gniun		Thahuea		Unit
	Days per week	Amount	Days per week	Amount	
Staples	7	16±1	7	14±1	Kg/person/month
Fish and Eels	4.8	3.5±0.4	4.7	2.5±0.3	Kg/person/month
Chicken/Duck etc	1.9	1.2±0.2	1.4	0.9±0.1	bird/person/month
Pork	2.4	1.2±0.1	2.0	0.7±0.1	Kg/person/month
Beef	1.4	0.9±0.1	1.2	0.5±0.1	Kg/person/month
Wild Animals	0.8	0.3±0.1	0.5	0.2±0.1	Kg/person/month
Buffalo	0.5	0.3±0.1	0.3	0.2±0.1	bird/person/month
Wild Birds	0.3	0.1±0.1	0.3	0.2±0.1	Kg/person/month
Goat	0	0	0.1	0.1±0.03	Kg/person/month

Table 119 Food intake for Hat Gniun and Thahuea (data source Baseline Socio Economic Survey, 2014)

4.7 Health

335. There is no health center in either village or nearby. A village health volunteer is responsible for a standard health and medicine kit provided for each village and responsible for distributing medicines to treat common illnesses. Patients requiring more care need to go to the health center at Ban Houykhoun, the district hospital in Bolikhan, or the provincial hospital in Pakxan, about 20 kilometers away. The upgraded road has reduced the travel time to the health services in Pakxan to less than one hour and enabled year-round access.
336. The targets of the seventh national development plan for 2011 to 2015 gives an indication of the main public health issues facing most rural villages. The targets are:
- To decrease maternal mortality ratio to not more than 260 per 100,000 live births;
 - To decrease the infant mortality to 45 per 1,000 live births;
 - To decrease under-five child mortality ratio to 70 per 1,000 live births;
 - 80% of total population to have access to potable water;
 - 60% of total population to have and use latrines.
 - To decrease the proportion of underweight children age under five years to 20%;
 - To decrease the proportion of stunted children under five years to 34%;
337. The 2014 Health Survey used 2 simple approaches to the measurement of the health and nutritional status of project affected people:
- Child anthropometric measurements and
 - Anemia levels amongst women of child bearing age.
- Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition and recurrent infections, such as diarrhea and helminthiasis (parasitic infections), in early childhood. Anemia is low levels of red blood cells (RBCs) in the blood due to not enough iron. It causes tiredness, inability to work and impacts on child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.
338. The project has not collected data on infant and child mortality, malaria, TB and other serious health issues in Zone 5, because initial surveys revealed that incidence of these diseases are too low for the project to collect meaningful data.
339. Both stunting and anemia in Hat Gniun and Thahuea are lower than in the adjacent village of Hatsaykham (Table 120) but both still need to be reduced. Nutrition data suggest apparently adequate levels of food consumption recorded in both villages have not been fully translated into health outcomes. Child stunting and anemia in women are likely to be the result of a combination of the historical use of unsafe water supply, open defecation and poor hygiene leading to high rates of diarrhea and parasite infections leading to poor overall nutritional status. Other factors that may be important are lack of access to health services, inequitable distribution of food within the household (women and children), as well as early and frequent pregnancies for the women.

Name	Stunting children under 5 years	Anemia in women 25 - 45 years
Hat Gniun	32%	21%
Thahuea	35%	24%
Hatsaykham	54%	30%

Table 120: Key Health Indicators (Source: Health Survey Data 2014)

342. Potential serious threats to long-term health status in the Project area are ongoing malnutrition and the increase of sexually transmitted infections as a consequence of more sex workers attracted by the construction workers in infrastructure and mining activities in the area. This risk is being mitigated by the activities outlined in the Social Management Action Plan, implemented by the project (available on the company and ADB website).
343. The Project will establish health and education infrastructure in the resettlement site. The villages of Hat Gniun and Thahuea will have access to these facilities and thus profit from benefit sharing. Both villages are also being supplied with improved water supplies (GFS). Clean water and sanitation practices are promoted through the Project's Public Health Action Plan (PHAP), as outlined in the SDP.

4.8 Gender Issues

From focus group meetings with both men and women, the following specific gender issues have been raised by Zone 5 communities as relevant:

- Few possibilities for higher employment positions for women
- Interest in alternative cash income opportunities and technical training
- Women's heavier burden of fetching clean water is a problem

344. The Project has developed strategies to respond to these concerns as well as other gender issues, as described in Section 4.4 of this document and in the SDP (Gender Action Plan - GAP)

4.9 Information and Services

345. Both villages of Zone 5 have access to national mobile phone networks and ownership of phones is almost universal by household (Table 121). With access to the national grid, television ownership has become almost universal and this will also open up information access to a broader world. Apart from that, the service sector remains weak. With the influx of people due to the Project, some services have already increased, for example the opening of new restaurants. While this enhances socioeconomic development, it has also may lead to

some social disturbances. Social mitigation measures are outlined in the SDP and their implementation progress described in Chapter 4.

Item	Hat Gniun	Thahuea	Hatsaykham
	Percent households owning item (%)		
Mobile phones/other phones	99	94	97
Televisions	93	91	85
Satellite dish	91	91	72
Wardrobe	83	81	85
Refrigerators/freezers	80	76	44
Electric rice cooker	79	61	82
Motorcycles/scooters	60	67	85
Boat motor	56	24	31
Boat	51	43	36
Tape players/CD players/radio	44	46	54
DVD Player	31	24	49
Bicycles	29	13	41
Car or truck	13	4	21
Hand Tractor	13	52	18
Water Dispenser	10	9	8
Water Pump	10	54	28

Table 121 Ownership of household goods (data source: 2014 Baseline Socio Economic Survey)

4.10 Income

346. Total income is expressed as income per person per month for the household. Total income is the sum of income from all sources for all household members, including wages and salaries, pensions, bank interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food).
347. The 2014 Baseline Socio Economic Survey represents the most comprehensive and reliable estimate of household income in Hat Gniun and Thahuea and income data largely supersedes the results of the Access Road Socio Economic Survey (2014). The Baseline SES 2014 found a mean per capita income of 1.15 million kip/month in Hat Gniun but a mean

income of only 919,000 kip/month in Thahuea (Table 130).

Village	Number of households in survey	Mean net income (LAK/person/month)	± Se ¹²	Median net income (LAK/person/month)
Hat Gniun	70	1,155,000	109,000	919,000
Thahuea	54	898,000	141,000	585,000

Table 122: Income per Person per Month (Source: Baseline Socio Economic Survey 2014)

352. Household incomes are not normally distributed and typically a small percentage of the population has much higher incomes than the rest (Table 123). This is the case for both Hat Gniun and Thahuea.

Per capita income (million LAK/month)	Hat Gniun		Thahuea	
	# House holds	% House holds	#House holds	%Households
0-0.8	29	41%	34	6
0.8- 1.6	24	34%	14	2
1.6- 2.4	12	17%	2	4
2.4- 3.2	3	4%	2	4
3.2- 4.0	2	3%	2	4
Total	70	100%	54	1

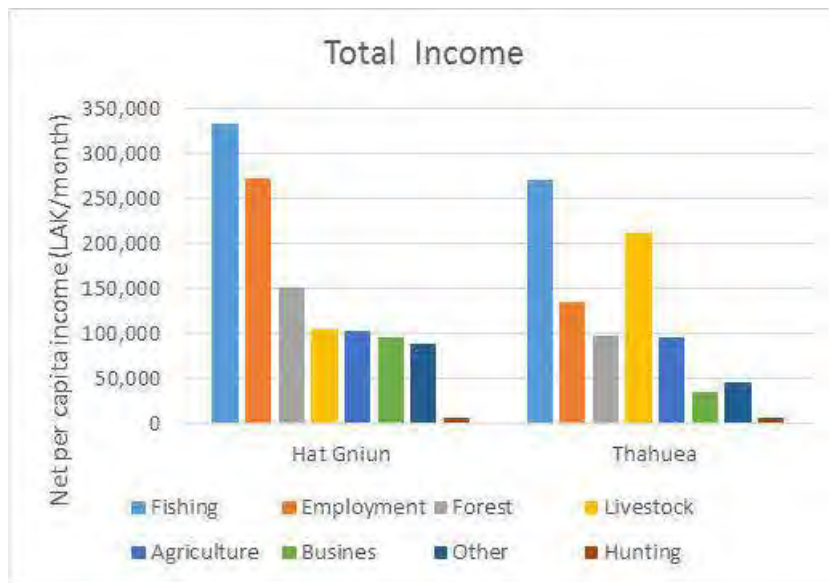
Table 123 Income distribution in Zone 5 host villages (Source: Baseline Socio Economic Survey, 2014)

4.11 Income Sources

353. Rural households typically obtain both cash and “in-kind” income from a wide variety of sources. This makes it difficult for both the researcher and the household to fully evaluate the relative importance of different sources of household income, particularly as different types of income may be subject to substantially different biases. Factors which bias income estimates include recall bias (i.e. difficulty of remembering exact figures for previous months or years) and reluctance to reveal incomes to outsiders (income that may be subject to tax or is illegal).

¹² Se is the standard error. It is a measure of the accuracy of the estimate of the mean.

354. The two villages of Zone 5 have a different balance in their income sources as well as different average incomes (Table 124). Hat Gniun, the wealthier village, obtains much more income from fishing and employment than Thahuea, which relies more heavily on livestock incomes.



355.

Figure 18: Composition of income by source for Hat Gniun and Thahuea (Source: Baseline Socio Economic Survey 2014)

356. Cash income is an increasingly important component of total income for rural households as it is needed for many transactions such as health expenditure, school costs, purchasing of consumer items etc. The proportion of cash income that a household obtains also provides some indication of the degree to which the individual household or village has transitioned from a subsistence to the free-market or cash economy. The village of Hat Gniun obtains both a higher cash income (750,000 LAK / person / month) than Thahuea (500,000 LAK/ person / month) and cash income also constitutes a higher proportion of the total: 65% of total income for Hat Gniun as opposed to 56% for Thahuea.

Source	Total per capita income (LAK/month)		Percent of total income		Cash per capita income (LAK/month)		Percent cash income		Has Cash Income (% households)	
	Hat Gniun	Thahuea	Hat Gniun	Thahuea	Hat Gniun	Thahuea	Hat Gniun	Thahuea	Hat Gniun	Thahuea
Fishing	333,274	271,226	29%	30%	101,607	35,998	30%	13%	31%	26%
Employment	273,241	135,010	24%	15%	273,241	135,010	100%	100%	91%	83%
Forest	150,185	97,633	13%	11%	80,265	48,917	53%	50%	53%	46%
Livestock	105,205	211,591	9%	24%	95,768	193,689	91%	92%	47%	54%
Agriculture	103,527	94,706	9%	11%	15,118	4,696	15%	5%	34%	22%
Business	94,711	35,432	8%	4%	94,711	35,432	100%	100%	26%	13%
Other	87,716	45,710	8%	5%	87,716	45,710	100%	100%	49%	37%
Hunting	6,890	6,731	1%	1%	1,778	1,865	26%	28%	13%	9%
Total	1,154,749	898,039	100%	100%	750,204	501,317	65%	56%	100%	98%

Table 124: Income per Person per Month (Source: Baseline Socio Economic Survey 2014)

4.12 Agriculture and Horticulture

357. People of Ban Hat Gniun and Ban Thahuea make use of the flat valley on the left bank of Nam Ngiiep River as their main productive land. This land is not affected by the Project, with the exception of some small areas acquired for upgrading the access roads. Of the total land use, 61% is classified as agricultural area, 2.6% as residential area, and 36% forest land. While most villagers did not provide much information on their upland crops lands, from observation, much of the un-stocked forest land is in fact used for upland crops.

Land Use(ha)	Ban Hat Gniun	Ban Thahuea
<i>Private properties</i>		
Residential area	13	8
Rice field	10	20
Other cultivation	152	310
Total	175	338
<i>Public properties</i>		
Cemetery land	1.0	N/A
<i>Forest and others</i>	213	79
Total Land	389	417

Table 125 : Land Use Patterns of Ban Hat Gniun and Ban Thahuea (Source: Field Survey 2011)

358. A total of 75% of adults over the age of 18 years in Hat Gniun, and 85% of adults in Thahuea, identify their main occupation as farmer. While farming activities are likely to consume the majority of people's time, and hold an important place in cultural identity, the cash and imputed value of farming activities (Agriculture and Livestock) is only the second highest source of income for the village, providing 18% of total income in Hat Gniun but 34% in Thahuea.
359. The importance of farming, particularly arable agriculture, should not be underestimated however, as having rice in store after harvest provides an important starting point for the forthcoming year's activities. Additionally, livestock provide an important fallback or coping mechanism to deal with internal and external shocks to the household (e.g. ill health, floods, agricultural pests etc.)
360. Rice is the principal crop for both villages, with maize, sugar cane, cassava, banana, and pineapple also grown. Most households have small herb and vegetable gardens grown on stands with flat beds constructed at a high enough level to protect the plants from their animals. Vegetables are grown around the homestead and seasonally along the riverbank. Riverbank gardens, use and productivity, have been assessed and included in the updated asset register.

Villagers surround the vegetable plots with woven bamboo fences to demarcate use boundaries and to keep out animals. Because of considerable river bank erosion, seasonal cultivation sites tend to shift from year to year.

361. Most crops are grown for home consumption, with some surplus sold: cash sales constitute 15% of total crop income in Hat Gniun and 5% in Thahuea.

4.13 Rice Self Sufficiency

362. The 2014 Baseline Socio Economic Survey found that rice was consumed at least 7 days/week by all households. The average consumption of staples (rice, cassava, maize etc) in October was 15.5 ± 0.7 kg per month in Hat Gniun and 14.0 ± 0.6 kg per month for Thahuea. Average consumption of staples for both villages are lower than the value previously reported for Hatsaykham (18 ± 1 kg/month). However, total income for Hat Gniun is similar to that reported for Hatsaykham and levels of stunting and anemia are also lower. The existing data therefore suggest that the lower levels of consumption of staples is not part of a systematic pattern of higher poverty levels in these villages but this will be subject to further monitoring and verification.
363. Food and rice consumption are monitored in each village every 6 months using a simple consumption monitoring survey tool. This survey, combined with repeated Socio Economic Surveys will provide the project with a detailed record of the changing patterns of food consumption throughout the relocation and post-resettlement period.

4.14 Forest Utilization

364. The villagers make use of many of the surrounding natural resources, in particular the community forests and rivers. Houses are built from wood and bamboo, and roofed with grasses from the fields. Their food is cooked with firewood gathered from the forests. Many kinds of non-timber forest products (NTFPs), such as mushrooms, bamboo shoots, vegetables, and herbs are gathered. Villagers have planted fruit and other economically valuable trees. Farmers have started recently planting commercial species such as teak (*Tectonagrandis*), auri (*Acacia auriculiformis*), eucalyptus (hybrid for pulp), and Agar wood (*Aquilaria spp.*).
365. Fruit trees are mostly for domestic consumption. During visits to local markets and in nearby towns, nearly all seasonal fruits sold in the market were from local forests. Commercially grown fruits tend to be from China or Thailand. One exception is pineapple, grown for sale in fairly large numbers by some households.
366. The 2014 Baseline SES evaluates cash and in-kind income obtained from forests. This included

hunting, the collection of NTFPs, and collection of timber. Forests provide a significant source of income for both villages: Hat Gniun obtained 13% of its total income from Timber and NTFPs, and Thahuea obtained 11% of total income. These are important sources of cash income which constitute approximately 50% of admitted total forest income in both villages.

367. Substantial amounts of rough sawn timber are stored in and around houses at Thahuea. The extent to which this timber was obtained legally could not be determined, but it has the potential to contribute a significant proportion of income. The extent to which income from timber collection is under-reported is unclear.

4.15 Hunting

368. Villagers hunt regularly, partly for own consumption, partly for sale, even though until now limited access to markets reduced the possibilities for the latter. The NNP1 Environmental Management Office (EMO), together with public authorities, is responsible for ensuring that no NNP1 workers are hunting in the area and that trade of hunting goods is restricted according to national and international regulations.
369. The Baseline SES found that less than 1% of total average income was obtained from hunting in both villages, and less than 30% of hunting income was obtained as cash income.

4.16 Fisheries

370. The Nam Ngiep River, as well as its tributaries, are important sources of income and nutrition. Fresh fish was consumed on 5 days out of seven in both villages with a total per capita consumption of 3.6 ± 0.4 kg /month in Hat Gniun and 2.5 ± 0.3 kg/month in Thahuea. Also, other aquatic species such as shrimps, frogs, snails, etc. are collected and form part of the daily diet. None of the households fish for commercial purposes.
371. Fishing is important from the perspective of income, but the significance of fishing as income has probably been underestimated in the past by both the DPs and by the project team. The Baseline SES (2014) found that fishing constituted 30% of total per capita income. However, the majority of the fish caught is consumed within the household: 30% of fishing income in Nam Ngiep was in cash, and sales contributed only 13% of total fishing income in Thahuea. The majority of sales are made to friends and neighbors within the village, though there is now an expanding opportunity to make sales to a larger external market.
372. A fish-catch monitoring program for all significantly affected villages has been started. The monitoring program commenced in 2015 and results are not yet available. Once the resettlement site is established and after COD, usage of reservoir fisheries will become a shared

resource between Houaysoup DPs and the host communities, and a co-management plan will be prepared and implemented.

4.17 Livestock

373. Raising livestock is almost ubiquitous in rural Laos, and chickens, ducks and pigs roam around the houses. Some larger pigs are kept in pens. Other large animals such as water buffaloes, cows and goats are usually left to roam or herded during the day before being brought back to stay near the house at night. Animals are raised both for domestic consumption and for sale, with smaller livestock in particular an important source of protein, though second to fish.

	Village	Buffalo	Cattle	Pig	Large	TOTAL
Percent household s owning livestock	Hat Gniun	43%	43%	30%	71%	
	Thahuea	37%	63%	72%	76%	
Average number owned	Hat Gniun	2.3	2.9	1	5.2	
	Thahuea	2.3	5.7	1.6	7.9	
Mean per capita value (million kip)	Hat Gniun	5±1	3.2±0.6	0.1±0.01	8±1	9±1
	Thahuea	5±1	6 ±1	0.2±0.01	11±2	12±2

Table 126: Livestock ownership in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

374. Ownership of large livestock is common but not universal: approximately 70% of households in both village own large livestock (Table 126) with Thahuea having a greater focus on cattle than buffalo; 63% of household in Thahuea own cattle with an average holding of 5.7 head/household, compared to Hat Gniun where only 43% of households own cattle with an average holding of 2.9 head/household.

375. While livestock ownership is common within Hat Gniun and Thahuea, income¹³ from livestock is relatively minor. In Hat Gniun, livestock provides only 9% of mean per capita income of

¹³ The cash value of animal and meat sold plus the imputed value of self-consumption

which the majority is cash income (91%). Livestock is substantially more important in the poorer village of Thahuea where it contributes 24% of total per capita income with 92% of that income consisting of cash income. Thus livestock is a largely cash livelihood with most income derived from the sale of large livestock. Subsistence livestock income (self-consumption) is of limited economic importance and is restricted to the consumption of a few small animals (pigs, chickens etc.). Consumption of even small amounts of meat is, however, of potentially greater significance in terms of nutrition, particularly anemia in women and children.

376. Livestock also provide an important source of savings (Table 126). The average per capita value of household livestock in Households is 9 million kip/person in Hat Gniun and 12 million kip/person in Thahuea. While livestock assets are not as safe or as liquid as other forms of savings, they do form an important reserve for households in times of stress or difficulty, though it should be noted that large livestock constitute the majority of the value of savings and a significant percentage of households do not own large livestock.

4.18 Employment

377. Salaries and wages have become an important component of income in Zone 5, particularly in daily wage labor for construction activities related to the Project. Employment is relatively more common and lucrative in Hat Gniun than in Thahuea.
378. In Hat Gniun, employment was the second biggest source of total income after fishing, and the largest source of cash income (Table 122). Employment of some form was almost universal with 91% of households reporting employment income and 65% of households reporting 2 or more members with employment income in the last year (Baseline Socio Economic Survey, 2014).
379. Employment in Thahuea is also important. Employment was the third largest source of total income after fishing and livestock and the second largest source of cash income after livestock. Employment in Thahuea is also very common with 83% of households reporting employment income and 53% of households reporting 2 or more members with employment income in the last year (Baseline Socio Economic Survey, 2014).
380. Both villages in Zone 5 are located close to the main construction site and may therefore benefit from employment in the construction phase of the project. The degree to which this happens depends on a number of factors including skills, availability, alternative opportunities, and contacts with employers. The Baseline Socio Economic Survey undertaken in late 2014, shortly after construction commenced, found that 14% of households in Hat Gniun and 20% of households in Thahuea reported income from the NNP1 project (either directly or indirectly).

4.19 Business Income

381. Most villages and communities support a number of small businesses. These are often small shops but may include a wider variety of shops and business in larger communities.
382. Business income was reported by 26% of households in Hat Gniun but constituted only 8% of average incomes. In Thahuea, only 13% of households reported a business income and business constituted only 4% of average income.

4.20 Other Income

383. Not all income can be neatly categorized. Income such as interest, rents, remittances, and incomes from milling rice etc. were categorized under the general heading of “other income”. Compensation payments, and money obtained from the sales of assets such as cars, motorcycles etc. are not categorized as income.
384. In Hat Gniun, other income sources contributed 8% of total income and in Thahuea they contributed 5% of total income. Thus they represent a small but important source of income, particularly cash for households.

4.21 Household Expenditure

385. Consumption has been pioneered by the World Bank Living Standards Measurement Studies (LSMS) program as the key indicator of household living standards since the program’s inception in the 1980’s. The Lao Expenditure and Consumption Surveys (LECS) are an LSMS style household survey undertaken every 5 years since 1998. They provide an invaluable long-term record of changes in household living standards and poverty in the Lao PDR.
386. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household living standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:
- consumption has a direct relation to the total “utility” or welfare level of a household;
 - consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
 - consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and
 - households are thought to be less reluctant to share information about expenditure than income

387. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:
- Not all consumption adds to wellbeing of the household
 - Consumption of durable items is spread over many years
 - Purchase of high values items may inappropriately bias consumption upwards
 - Goods and services produced and consumed by the family are not directly valued through a purchase
 - Consumption of some items may be supported by increasing debt.
388. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an “annual use value” for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being /standard of living of the household.
389. The Baseline Socio Economic Survey (2014) divided consumption into:
- Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 - Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 - Durable Items such as minor household goods and furniture; and
 - Use value of major assets such as cars, motorcycles, major household items etc.
390. Mean per capita consumption in Hat Gniun in 2014 was estimated to be approximately 1.2 million kip/month (Source: Baseline Socio Economic Survey, 2014). Food was the biggest source of consumption accounting for 64% of total consumption (Table 135). Cash expenditure on food account for approximately two thirds of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc).
391. Mean per capita consumption in Thahuea in 2014 was 0.85 million kip/month (Source: Baseline Socio Economic Survey, 2014) which is about 70% of mean consumption in Hat Gniun. Food was the biggest source of consumption accounting for 66% of total consumption (Table 135). Cash expenditure on food accounts for 56% of total food consumption.

	Hat Gniun			Thahuea		
	Mean per capita consumption (LAK/month)	Se	Percent Total Consumption	Mean per capita consumption (LAK/month)	Se	Percent Total Consumption
Food	761,000	44,000	64%	562,000	39,000	66%
Food(cash)	517,000	42,000	44%	313,000	33,000	37%
Consumables	290,000	59,000	24%	149,000	13,000	18%
Durables	116,000	20,000	10%	120,000	29,000	14%
Asset Depreciation	17,000	4,000	1%	16,000	4,000	2%
Total	1,185,000	85,000	100%	847,000	63,000	100%

Table 127 Average Expenditures per Person per Month (Source: Baseline Socio Economic Survey 2014)

392. Household consumption is more normally distributed than income. The Baseline Socio Economic Survey (2014) indicates that Ban Gniun is wealthier than Thahuea. Ban Gniun only has 6% of households with a total per capita consumption less than 500,000 LAK /month whereas Thahuea has 24% of households with consumption less than 500,000 LAK/month.
393. Thahuea also lacks the same proportion of wealthy households: 19% of households in Hat Gniun have per capita consumption > 1.5 million LAK/month whereas Thahuea has only 8%.

Per capita consumption (LAK/month)	Ban Gniun		Thahuea	
	Households	Percent	Households	Percent
0-0.5 million	4	6	13	24
0.5 - 1.0 million	29	41	23	43
1.0 - 1.5 million	24	34	14	26
1.5 - 2.0 million	7	10	3	6
>2.0 million	6	9	1	2

Table 128: Frequency distribution of household consumption in Hat Gniun and Thahuea (source: Baseline Socio Economic Survey, 2014)

4.22 Poverty

394. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social,

health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics. Both methods have been used in Zone 5.

395. One household in Hat Gniun has been classified as poor through participatory poverty assessment following GoL guidelines. This household also meets a number of vulnerability categories. In these cases, livelihood activity programs alone will not be sufficient to improve their condition, but the specific kinds of vulnerability need addressing. Suggestions have been elicited from both these households as well as from village authorities, and the Project has integrated these into Project activities, as described below.
396. The current estimate (quantitative) of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 kip per capita /month (Table 129). Poverty lines are typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at present as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line
January 2010	96.45	180,000
October 2014	124*	230,000

Table 129 Estimated poverty line for study area.

* The CPI value for October 2014 is an extrapolation and will be updated when data are available.

397. Quantitatively, one household in Thahuea with a mean per capita consumption of 217,000 LAK/month was classified as poor, but one other household had per capita consumption of 280,000 LAK/month, and should also be considered near poor.
398. The lowest per capita consumption recorded in Hat Gniun was 396,000 kip/month which is approximately nearly 50% higher than the current estimate of the poverty line.

4.23 Vulnerability

399. Households in Zone 5 currently classified as vulnerable are listed in Table 130. A qualitative analysis of each household situation has been conducted by the Project's Vulnerability Officer, so that special attention can be paid to specific kinds of vulnerability. Recommendations from

consultations include: (i) extending food assistance beyond the time specified in the CA, (ii) alternative livelihood options, and (iii) health support.

Village	No. of vulnerable HHs*	No. of vulnerable people	Orphan (living alone)	Elderly	Disabled (mentally & physically)	Absolutely Poor	Other (Widower)	Impacted by land acquisition for HSRA
Hat Gniun	8	10	0	0	8	1	1	2
Thahuea	5	5	1	1	3	0	0	0
Total	13	15	1	1	11	1	1	2

Table 130: Vulnerable person profile of each village in Zone 5 (Source: Vulnerability Report2015)

**Remark: Individual HHs might be found with several indicators of vulnerability*

**Annex F = Results of the 2014 Baseline
Socio-economic Survey**

CHAPTER 1 - Zone 2UR Socioeconomic Profile

1.1 Demography and Population Changes

1. All 2UR villages were recently established. Ban Pou and Ban Piengta were established after the revolutionary war in 1975 and Ban Hatsamkhone was founded in 1994. Ban Hatsamkhone was resettled from Huaphan province under government supervision and was located in between the two existing communities.



Figure 1 Ban Pou

2. The field survey of Ban Pou, Ban Hatsamkhone and Ban Piengta conducted in 2011 recorded a total of 2,036 people living in 328 households. By 2015, this number had grown to 2,191 people living in 352 in households, equivalent to an annual population growth rate of 1.9%. The villages of Ban Pou and Ban Hatsamkhone showed the highest growth rates (2.5% and 2.4%)

Village	Total 2011		Total 2015		Annual growth rate		Ethnicity
	HHs	Population	HHs	Population	HHs	Population	
<i>Ban Pou</i>	172	1,129	188	1,245	2.2%	2.5%	Hmong, Lao Loum, Khmu
<i>Ban Hatsamkhone</i>	74	453	80	499	2.0%	2.4%	Lao Loum
<i>Ban Piengta</i>	82	454	84	447	0.6%	-0.4%	Lao Loum, Hmong, Khmu
Total	328	2,036	352	2,191	1.8%	1.9%	

Table1. Annual Population growth

3. The 2016 asset registration records a total of 211 directly affected households, of which 183

households come from the 3 2UR villages affected by the reservoir, and 28 households have land assets impacted by the reservoir in Zone 2UR, but are currently living in other villages outside the zone. The asset registration has registered project impacts on all households as further detailed in the updated 2UR subplan.

Table 2. Population Profile of Zone 2UR (Source: 2014 Census and 2016 asset registration)

4. The age / gender structure of the population is shown in Table 3. There is no significant difference between the age structure for each gender within the zone or within each village, but there is a significant difference in age structure between the Hmong section of Ban Pou - where 63% of the population are aged under 19 years - and the other 2 villages with 45-48% of the population under the age of 19.

Age group (years)	Male	Female	Total	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
0-9	23%	26%	25%	35%	19%	18%	17%	24%
10-19	31%	25%	28%	28%	26%	27%	31%	28%
20-29	15%	16%	16%	12%	19%	20%	16%	16%
30-39	11%	12%	11%	11%	13%	12%	10%	11%
40-49	9%	8%	9%	6%	8%	9%	13%	8%
50-59	6%	6%	6%	4%	9%	6%	6%	6%
60+	6%	6%	6%	4%	7%	8%	8%	6%

Table 3 Age and Gender Structure of 2UR villages (Baseline Socio Economic Survey, 2014)

1.2 Ethnicity

The Lao Loum is the dominant ethnic group in Zone 2UR; however, there are also significant populations of Khmu and Hmong, particularly in Ban Pou, where two thirds of residents are Hmong (See Table 2)

1.3 House Style

5. The nature of the dwellings in Zone 2UR is linked to the ethnic group in each village. Typical dwellings are illustrated in Figure 3. However more modern materials are now being used with significant differences between the three villages and between the ethnic components (Hmong and Lao Loum) of Ban Pou:
 - If wood and brick are classified as “superior” wall material and bamboo and leaves as “inferior” then the Hmong component of Ban Pou has the largest percent of poor

building materials and the other villages have highest quality of wall material.

- 30% of Hmong households of Ban Pou have wood or thatched leaf roofing compared to 98% of households of other communities having roofs made of more durable materials.

Village / community	Brick	Wood	Bamboo	Total
Pou [Hmong]	2%	64%	34%	100%
Pou [Lao Loum]	17%	46%	37%	100%
Piengta	11%	65%	24%	100%
Hatsamkhone	12%	72%	17%	100%
Total (percent)	9%	63%	28%	100%
Total (count)	31 houses	215 houses	96 houses	342 houses

Table 4 Wall construction material, 2UR villages (Source: 2014 Baseline Socio Economic Survey)

Village / community	Tile/tile sheeting	Metal sheeting	Wood	Leaves	Total
Pou [Hmong]	43%	26%	24%	7%	100%
Pou [Lao Loum]	47%	51%	2%	0%	100%
Piengta	27%	70%	1%	1%	100%
Hatsamkhone	54%	44%	0%	3%	100%
Total (percent)	42%	45%	9%	3%	100%
Total (count)	145 houses	155 houses	31 houses	11 houses	342 houses

Table 5 Roofing construction material, 2UR villages (Source: 2014 Baseline Socio Economic Survey)



House of Lao Loum of zone 2UR



House of Hmong of zone 2UR



House of Khmu of zone 2UR

Figure 2 Typical houses of each ethnicity in 2UR zone

1.4 Social Organization and Cultural Relations

6. PAPA in Zone 2UR are integrated into a diverse and complex network of social organizations and cultural relations. A key element is the public administration of Lao PDR. People are resident in villages, headed by a Village Chief. Villages are combined into kumbans and at the next level into districts, which again form provinces, finally resulting in the national community of Lao PDR.
7. Ministries at national level are represented at provincial and district levels. Essential for this project are the Ministry of Energy and Mines (MEM), the Ministry of National Resources and Environment (MoNRE), the Ministry of Agriculture and Forestry (MAF), and also the Ministries of Health (MoH), Education (MoE), and of Information and Culture (MIC). These public institutions are supported by mass organizations with structures at all levels, including the Front for National Construction, the Lao Women's Union (LWU), and the Lao Youth Union.
8. As elsewhere in Laos, a significant number of villagers are members of village-based mass organisations such as the LWU, Lao Youth Union, and Lao Workers' Union.
9. Next to these public institutions, PAPA are integrated into further social and cultural relations within and between villages. These include at village level informal, but influential, elders' councils, which have an essential say in the development of a community.
10. Ban Pou is separated into two hamlets - a Hmong hamlet of 122 households and Lao Loum community of 63 households and 2 Khmu households.
11. Hmong households in 2UR villages (part of Ban Pou) are identified and linked by clan systems, which connect them with villagers from Hatsaykham in Zone 3, 2LR villages in the lower reservoir area and other villages in Hom District. These linkages extend further to Hmong communities in the rest of the country as well as abroad, which allows them to

mobilize economic, cultural, political and social resources to support the communities in their communication with the Project. It also enables information about experiences in other hydropower projects to be widely shared and circulated.

12. Social Organization and Cultural Relations follow the pattern discussed in Chapter 7 of the REDP. Hmong groups are divided into patrilineal clans (*xeem*) which are strictly exogamous, that is marriage outside the birth clan is compulsory. Polygamy is traditional but less observed nowadays than in the past.
13. The baseline socioeconomic survey of 2014 did not identify any polygamous households in Zone 2UR. Further, more detailed investigation of domestic arrangements are currently being undertaken as part of the asset registration and compensation process.
14. The Hmong are believed to have their origins in China and to have migrated into northern Southeast Asia during the 19th century. There are 19 Hmong clans currently living in Lao PDR and they are generally group-oriented, with interests of the group coming before the interests of the individual, and clan leaders in each village representing the interests of the village. In the project impacted areas, there are four main clans: Yang, Vang, Xiong, and Lor, although there are some persons from clans such as Pialouang, Moua, Lee, Her and Vue who have married into these clans. In Hmong community of Ban Pou hamlet, the Xiong clan leads other clans socially and politically. Family members are under the authority and direction of the male-headed clans and household, usually the oldest male. Sons will automatically inherit family property and all other assets, and are often the ones to receive formal education. For this reason, male elders represent village households in all discussions, particularly with outsiders, and it is unusual for any person or family to contradict elders in public meetings.
15. The few Khmu households are completely integrated in the Lao Loum community of their village (Pou and Hatsamkhone).
16. Recent Lao history has encouraged further social networks between local and central level, which have to be taken into account when addressing stakeholders. While for the older generation, the liberation war is an essential factor in the evolution of such networks, for the young generation, modern communication as well as work and education in urban areas have extended social networks, providing them with additional social and cultural resources and influencing their development, preferences and life choices. With, in the near future, expected better communications of Thathom District with other districts of Xaysomboun province and with Bolikhamxay province, a further influx of technology can be expected, with possible changing patterns of livelihoods expectations.

1.5 Infrastructure and services

17. As in most of rural Lao PDR, the infrastructure of the villages of Zone 2UR is limited.

Overview of it is listed in Table 6 below.

18.

Infrastructure	Ban Pou	Ban Hatsamkhone	Ban Piengta
<i>Electricity</i>	Available in most households, from national grid		
<i>Drinking water source</i>	Piped water from springs	Piped water from open streams	Piped water from open streams
<i>Transportation and type of road / Problem</i>	Asphalt-paved D1 road; earth paths inside the villages / difficult to use in wet season		
<i>Navigation waterway</i>	Nam Ngiep		
<i>Small grocery shops</i>	6 shops	5 shops	2 shops
<i>Rice Milling Machine</i>	Available	Available	Available
<i>Nursery School</i>	Not available	Not available	Not available
<i>Primary School</i>	1	1	1
<i>Secondary School</i>	1	Not available	Not available
<i>Temple</i>	1	Not available	Not available
<i>Health Centre</i>	Not available	Not available	1
<i>Pharmacy</i>	Not available	Not available	Not available
<i>Cemetery</i>	1	1	1
<i>Petrol</i>	Several villagers sell gasoline in bottles; several petrol stations in the area are located along D1 road		

Table 6 Infrastructure of 2UR villages (Source: field visits 2011; update 2013)

19. The main transportation access is the asphalt paved, all-weather National Road 1D which links the villages with Phonesavanh, the provincial capital of Xieng Khouang, approximately 90 km to the northwest and the district capital Thathom approximately 25 km to the southeast, from where roads continue to Bolikhamxay Province and Khamouane Province respectively. From Thaviengxay a paved road leads to Xaysomboun district. Roads within the villages are earth surface, just partly flattened, which become muddy and difficult to use following rains. Currently, people use boats to cross the Nam Ngiep during rainy season while it is possible to cross by foot or Tek-Tek (hand tractor) through the water in dry season.
20. All villages in this zone are connected to the electricity grid and only a few Hatsamkhone households are reported to be not connected (Table 15).

Community	Grid Electricity	No Electricity	Total
Pou [Hmong]	100%	0%	100%
Pou [Lao Loum]	100%	0%	100%
Piengta	100%	0%	100%
Hatsamkhone	96.15%	3.85%	100%
Total	339	3	342

Table 7 Electricity infrastructure of 2UR villages (Source: Baseline Socio Economic Survey, 2014)

21. All villages get water from a Gravity Fed System (GFS) but the one of Ban Pou is connected to springs with limited flow at the end of the dry season while for Hatsamkhone and Piengta the GFS are connected to a stream which is turbid in the rainy season, even though there is always enough quantity. Poor water quality (turbidity) is probably why bottled water, delivered by truck, is more common in Piengta (Table 8 and Table 9).

22.

Community	Bottled Water	GFS	Other	Total
Pou [Hmong]	3%	96%	1%	100%
Pou [Lao Loum]	8%	90%	2%	100%
Piengta	43%	56%	1%	100%
Hatsamkhone	13%	87%	0%	100%
Total	16%	83%	1%	100%
Total	55	284	3	339

Table 8 Drinking water sources of 2UR villages in wet season (Source: Baseline Socio Economic Survey, 2014)

Community	Bottled Water	GFS	Other	Total
Pou [Hmong]	3%	96%	1%	100%
Pou [Lao Loum]	8%	90%	2%	100%
Piengta	42%	57%	1%	100%
Hatsamkhone	13%	87%	0%	100%
Total (percent)	16%	83%	1%	100%
Total (count)	54	285	3	342

Table 9 Drinking water sources of 2UR villages in dry season (Source: Baseline Socio Economic Survey, 2014)

23. The availability of sanitation/toilets varies from village to village. It is the lowest in Hmong community of Ban Pou (69%). Almost all toilets are pour flush (99.6%) and 100% of toilets are used when owned (Table 10).

Community	Have toilet	Pour Flush	Pit Latrine	Use of toilet
Pou [Hmong]	69%	100%	0%	100%
Pou [Lao Loum]	98%	100%	0%	100%
Piengta	95%	100%	0%	100%
Hatsamkhone	96%	99%	1%	100%
Total (%)	87%	100%	0%	100%
Total (households)	297	296	1	297

Table 10 Sanitation in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

24. Primary schools are available in all three villages, and a lower secondary school opened in Ban Pou in September 2013.
25. Ban Piengta has a health centre which is also accessible by the people of the nearby villages. None of the communities have pharmacies.
26. All villages have small general stores. These are typically small rooms or add-ons at people's houses which sell soaps, shampoos and detergents, toothpaste, and a variety of packaged and canned goods.

1.6 School Attendance

27. In general, all villages reported education as one of their main concerns and good schooling opportunities for the younger generation as a major aspiration. There is a lack of teachers and teaching materials to provide adequate educational services, as well as household income to send children to school. Furthermore, some people have expressed concern that even the public school system needs private financial input to pay for extra tutoring.
28. Table 11 indicates the Primary Age Enrolment (PAE), 6-10 years in the 4 communities. Overall there is no significant difference in PAE between communities or in male and female PAE but there are differences in male and female PAE in individual villages. However the total surveyed numbers of male and female primary age students outside Ban Pou [Hmong] are relatively small (less than 50 students in each village).
- 29.

Community	MALE		FEMALE		TOTAL	
	Enrolled	Count	Enrolled	Count	Enrolled	Count
Pou [Hmong]	96%	75	95%	66	96%	141
Pou [Lao Loum]	77%	13	100%	20	91%	33
Piengta	100%	21	87%	23	93%	44
Hatsamkhone	92%	24	100%	23	96%	47
Total	94%	133	95%	132	95%	265

Table 11 Primary age (6-10 years) enrolment in 2UR villages
(Source: Baseline Socio Economic Survey, 2014)

30. Table 20 provides the Secondary Age Enrolment (SAE) in the 4 communities. There is no significant difference in SAE between males and females overall or in any individual villages.
31. SAE is significantly different between communities: SAE is 20% for Ban Pou [Hmong] and 65% for Ban Pou (Lao Loum] and reaches 84% in Piengta and Hatsamkhone. It is not clear if low SAE is due to language difficulties, higher than normal age for grade, poverty, distance to high school, or other impediments.

Village / Community	Male		Female		Total	
	Enrolled	Count	Enrolled	Count	Enrolled	Count
Pou [Hmong]	22%	76	17%	46	20%	122
Pou [Lao Loum]	71%	31	53%	17	65%	48
Piengta	87%	31	81%	27	84%	58
Hatsamkhone	86%	36	80%	25	84%	61
Total	56%	174	51%	115	54%	289

Table 12 Percent of students of lower secondary age (11-15 years) that are enrolled in Lower Secondary in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

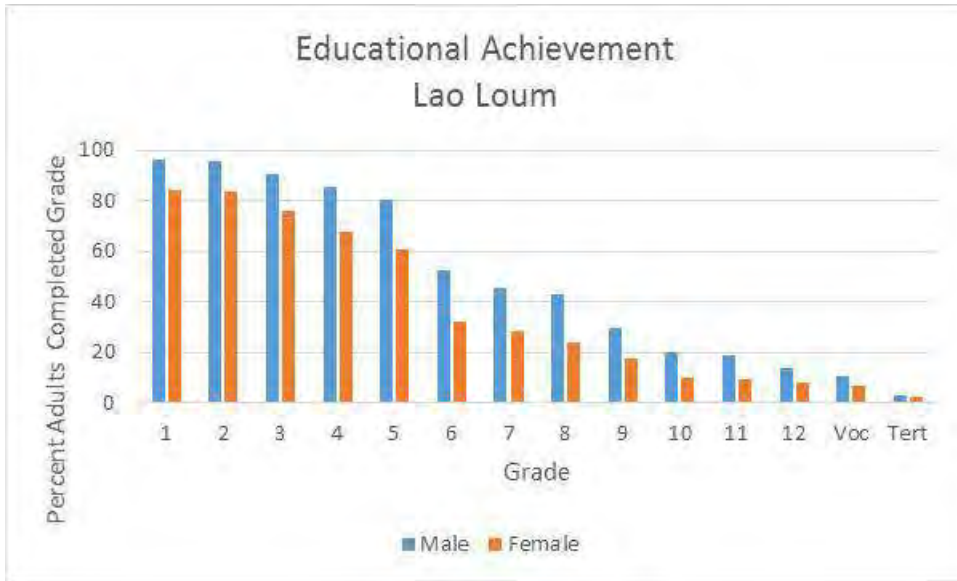
32. The Table 13 provides the mean age by Grade 5. Ban Pou [Hmong] children enrol late (mean age 7.1±0.2) compared to other villages who generally enrol at age 6.
33. Overall Hmong students of Ban Pou are older when they finish primary school (13.1±0.4) but Ban Pou [Lao Loum] are also old for grade, having a mean age of 11.3±0.3. The other villages have a mean age of 10.4 years. It is not clear what may be the issue (poverty, language, lack of motivation, etc.).
- 34.

Grade	Age in Years for Children in Each Grade			
	Pou [Hmong]	Pou [LaoLoum]	Piengta	Hatsamkhone
1	7.1	6.0	5.9	5.7
2	9.4	7.4	7.9	7.6
3	11.1	8.5	10.6	8.7
4	12.0	10.0	9.7	9.3
5	13.1	11.3	10.4	10.4

Table 13 Mean age (years) by grade in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

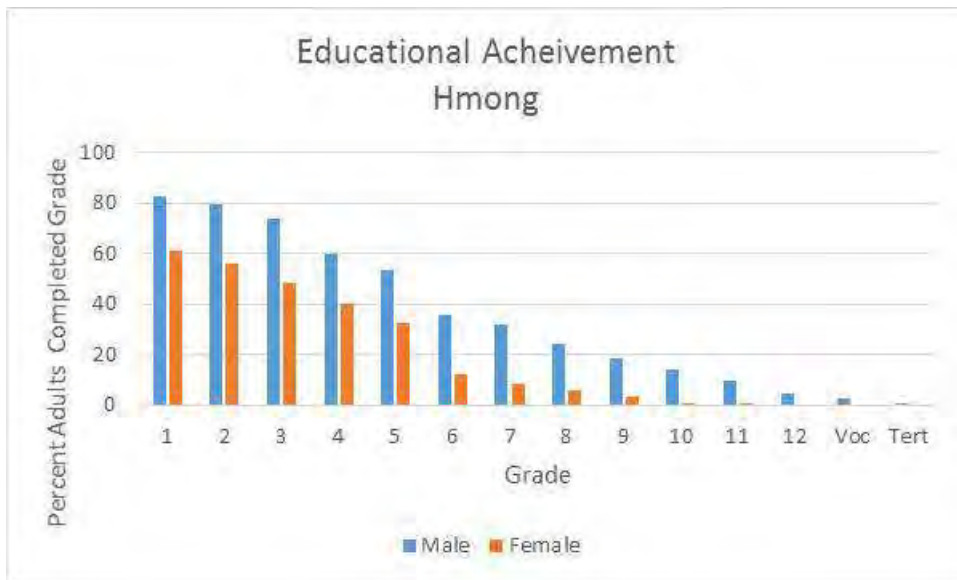
1.7 Adult Education and Literacy

35. Literacy is a challenge for rural communities and also for the Project's communication efforts in Zone 2UR. Levels of educational achievement are related to age, gender and ethnicity. For Zone 2UR:
- 28% of adult Hmong have no formal education compared to 10% of adult Lao Loum
 - 24% of adult Hmong have higher than primary education compared with 42% of Lao Loum adults
36. 40% of Hmong women have no formal education and only 4% have higher than primary level education whereas 16% of Lao Loum women have no formal education and 32% have higher than primary education.
37. Younger age groups have more education: the 20-29 year age group have about 7 years of education on average, with males having about 2 years more education on average. Older age groups have less education and more difference between genders – the 50-59 year group have an average of 4 years of education, males averaged 5 years and females average 3.4 years (Table 14).
- 38.
- 39.



40.

Figure 3 Educational Achievement for adults 18 years and over that have completed their education.



41.

Figure 4 Educational achievement for adults 18 years and over who have completed their education.

Age Group (years)	Male		Female		Total	
	Mean	Se	Mean	Se	Mean	Se
20-29	8.2	±0.3	6	±0.3	7.1	±0.2
30-39	6.6	±0.4	4.1	±0.3	5.3	±0.3
40-49	5.5	±0.4	3.6	±0.3	4.6	±0.3
50-59	5	±0.4	3.4	±0.4	4.2	±0.3
60+	3.7	±0.4	1	±0.3	2.3	±0.3

Table 14 Mean years of formal education by age and gender
(Source: Baseline Socio Economic Survey, 2014)

Age group (years)	Male	Female	Total
5-9	64%	61%	63%
10-14	93%	93%	93%
15-19	92%	91%	92%
20-24	100%	86%	92%
25-29	90%	90%	90%
30-34	95%	76%	84%
35-39	95%	71%	84%
40-44	89%	93%	91%
45-49	100%	80%	90%
50-54	88%	91%	89%
55-59	100%	100%	100%
60-64	100%	75%	88%
65-69	77%	67%	72%
Total (%)	87%	80%	84%
Total surveyed	370	332	632

Table 15 Lao fluency by age and gender (Source: Baseline Socio Economic Survey, 2014)

42. Adult literacy is correlated with age, gender and village. (Table 16 and Table 17). Education and literacy are generally lower for women: only 49% of adult women in 2UR villages are fully literate compared to 70% of men. The percentage of literacy is particularly low for older women (>50years). Ban Pou [Hmong] has lowest literacy levels for both males and female adults: overall only 37% of adults are literate, with 48% of men and only 26% of women being fully literate.

43.

Age Group (years)	Male	Female	All
20-29	77%	69%	73%
30-39	76%	52%	64%
40-49	73%	46%	60%
50-59	60%	38%	49%
60+	44%	1%0	27%
Total	70%	49%	59%

Table 116 Literacy by age and gender for Zone 2UR (Source: Baseline Socio Economic Survey, 2014)

Village	Male	Female	All
Pou [Hmong]	48%	26%	37%
Pou [Lao Loum]	87%	65%	76%
Piengta	72%	47%	60%
Hatsamkhone	79%	68%	73%
TOTAL	69%	49%	59%

Table 17 Adult Literacy (age>20) by village and gender for Zone 2UR (Source: Baseline Socio Economic Survey, 2014)

44. The Project has started adult literacy classes in 2015 in Zone 2UR in response to an expressed desire from the villages to improve adult literacy.

1.8 Diet and Nutrition

45. The nutritional status of a person is a function of the nature and quantity of food intake (dietary intake), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.
46. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anaemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in , obesity and can lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption within the same community is an increasing problem in the developing world.
47. Volumes of food consumptions are lower in 2UR than in other zones and are particularly low in the Hmong community of Ban Pou (Table 18). Estimated consumption of staples (mainly rice) was 14.7 kg/month which was lower than the other zones included in the baseline (Baseline Socio Economic Survey, 2014). The Hmong households in Ban Pou have

the lowest consumption of staples in the zone, recording a consumption of only 13.4 kg/person/month.

48. Per capita fish consumption in Zone 2UR is relatively low, 1.8 ± 0.1 kg/person/month (this is total weight and includes non-edible parts) with Hmong community of Ban Pou having the lowest one (1.1 kg/person/month). The same can be said about meat consumption, slightly lower than average (1.4 kg/month) than for the whole area (1.5 kg/month) (Table 19). This is a minimum not including poultry which was counted by the bird.

49.

Community	Rice (kg/month)		Total Staples (kg/month)		Fish (kg/month)		Meat (kg/month)		Poultry (birds/month)	
	mean	se	mean	se	mean	se	mean	se	Mean	se
Pou [Hmong]	12.3	± 0.4	13.4	± 0.5	1.1	± 0.1	1.0	± 0.1	0.7	± 0.1
Pou [Lao Loum]	14.6	± 0.6	16.1	± 0.7	2.5	± 0.2	1.5	± 0.2	2.1	± 0.2
Piengta	13.4	± 0.4	14.7	± 0.5	2.1	± 0.2	1.6	± 0.2	2.1	± 0.2
Hatsamkhone	14.2	± 0.5	15.4	± 0.5	1.9	± 0.1	1.8	± 0.1	1.3	± 0.1
Total	13.4	± 0.2	14.7	± 0.3	1.8	± 0.1	1.4	± 0.1	1.5	± 0.1

Table 18 Per capita food consumption for Zone 2UR (Source: Baseline Socio Economic Survey, 2014)

ZONE	Fish Consumption Kg/person/ month		Meat Consumption Kg/person/ month	
	Mean	Se	Mean	Se
Z1 Catchment	1.5	± 0.1	1.1	± 0.1
Z2 Upper Reservoir	1.8	± 0.1	1.4	± 0.1
Z2 Lower Reservoir	3.9	± 0.2	1.7	± 0.1
Reference Village 1	1.3	± 0.1	0.6	± 0.1
Z3 Construction area	2.2	± 0.3	2.8	± 0.3
Z4 Downstream	2.7	± 0.2	1.4	± 0.1
Z5 Hosts	3.1	± 0.3	2.1	± 0.2
Reference Village 2	3.0	± 0.2	1.5	± 0.1

Table 19 Fish and meat consumption for all zones (Source: Baseline Socio Economic Survey, 2014)

50. The 2014 health baseline survey used 2 simple approaches to the measurement of the nutritional status of 2UR households:
1. Child anthropometric measurements and
 2. Anaemia levels amongst women of child bearing age.
51. Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition and recurrent infections, such as diarrhoea and helminthiasis (parasitic infections), in early childhood. Anaemia is low levels of red blood cells which causes tiredness, inability to work and affects child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.
52. The baseline health survey for 2UR shows that apparently adequate levels of food consumption are not translated into health outcomes. Child stunting and anaemia in women are high with child stunting affecting 34% of all children in the zone (but more than 50% in Ban Pou) and anaemia in 2UR affecting 51% of child bearing age women (but up to 67% in Hmong community of Ban Pou).
53. This compares to a national average of 44% stunting in rural areas with road access (Lao Social Indicator Survey 2012) and 36% of women who are anaemic (Lao PDR Nutrition Profile, 2014).
- 54.

Name	Stunting children < 5 years	Anaemia (women 25-45yrs)*	Contraceptive use (women 25-45yrs)
Pou [Hmong]	67%	50%	0%
Pou [Lao]	58%	56%	11%
Piengta	50%	11%	56%
Hatsamkhone	29%	30%	30%
Total	51%	34%	28%

Table 20 Nutritional indicators and condom use for 2UR villages
(Source: 2014 Baseline Socio-Economic Survey)

55. Contraceptive use (28%) is rather low compared to the overall average for the socio-economic survey (40%) but that figure hides variability with high use in Piengta and a null use in the Hmong community of Ban Pou.

1.9 Health and Health Services

56. Health care in the villages relies on two bases: on the one hand villagers consult traditional healers and use local knowledge on treatment and medicine; this extends to spiritual analysis and procedures. On the other hand they are integrated into the formal health care

system, which, however, is still weakly established. There is a health centre in Ban Piengta and dispensaries provide services in Ban Thaviengxay and the district capital Thathom. The nearest hospital is located in Phonesavanh, the capital of Xieng Khouang Province; a distance of 77km. All of these facilities are accessible year round by an all-weather-road (Road D1).

57. The 2014 Baseline Socio-Economic Survey provides some information on health perceptions, treatment seeking and health access. There is no gender differences but there are significant differences between villages – Ban Pou reported the lowest number of days off due to ill health (Table 14). Previous analysis has shown that poor households generally self-report less illness and lose fewer days of normal activities. Reported ill health is also related to age with children less than 5 and older adults reporting highest levels of ill health.
58. Almost all persons reporting ill health sought treatment (>90%). Lowest level of treatment seeking was in Ban Pou [Hmong] (90%) and highest was in Hatsamkhone where 99% of those reporting ill-health sought some form of treatment.

59.

Community / village	Ill health	Seek treatment	Days off
Pou [Hmong]	23%	21%	11%
Pou [Lao Loum]	36%	33%	8%
Piengta	31%	29%	13%
Hatsamkhone	28%	28%	15%
TOTAL	28%	21%	12%

Table 21 Seeking treatment if ill (Source: Baseline Socio-Economic Survey, 2014)

Zone 2UR villages use various health facilities (Table 15). Public hospitals and village health volunteers are the most commonly used health facilities but there are significant differences between villages.: Ban Pou [Lao Loum] has a high use of the village health volunteers but the other villages use public health hospitals and clinics the most frequently

60.

Health facility \ Village	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
Public hospital/Clinic	74%	48%	75%	69%	68%
Village Health/Volunteer	18%	59%	18%	29%	29%
Pharmacy/Shop	8%	2%	8%	2%	5%
Traditional Healer	4%	0%	1%	2%	2%
Private clinic/doctor	0%	0%	3%	1%	1%
Doctor Home visit	1%	1%	1%	0%	1%

Total	104%	109%	107%	103%	106%
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Table 22 Health facilities used by 2UR villages (Source: Baseline Socio-Economic Survey, 2014)

61. Table 23 lists the health issues recorded by the Piengta Health Centre in 2015. Diarrhoea and respiratory diseases are the most prevalent health complaints reported.

Health Complaint	Piengta		Hatsamkhone		Pou	
	Patients	Percent population	Patients	Percent population	Patients	Percent population
Gastritis	8	1.8%	9	1.9%	13	1.24%
Cold/Flu	38	8.5%	40	8.5%	49	4.70%
Diarrhoea	42	9.5%	50	10.77%	64	6.14%
Bronchitis	18	4.07%	35	7.54%	51	4.89%
Button	5	1.13%	6	1.29%	11	1.05%
Wound	13	2.9%	6	1.29%	8	0.76%
Other	43	9.72%	40	8.62%	72	6.90%
Patients	167	38%	186	40%	268	26%
Total population	442		464		1042	

Table 23 Summary of outpatients' health data from January to October 2015 in Piengta Health Centre (Source: Piengta Health Centre)

1.10 Gender Issues and Status of Women

62. Gender dimensions of concern in the project area which also apply to Zone 2UR include:
- land rights; most land and housing are formally or informally under male control and patrilineal heritage line. This is addressed by all replacement land and housing registered and titled in the joint names of husband and wife. Where a man has more than one wife, the second family will be separately titled in the name of the wife and a male family member of her choice (e.g. eldest son)
 - financial management; where compensation money may be handed only to a male household head, there is higher risk of poor subsequent investment. The Project has instituted bank accounts in the joint names of husband and wife, with prior financial training provided to understand how to deposit and withdraw funds. All acknowledgements of receipts or withdrawals must have the joint signatures or

thumbprints of both husband and wife. This compensation procedure was instituted for roads and TL land acquisition, and has proved very popular, particularly with women

- hard work; women have multiple responsibilities taking care of the house, cooking, caring for the sick, elderly and children, gender-specific agricultural tasks (e.g. weeding, hoeing, fetching water, land clearance, harvesting, etc.), and income generating work. Replacement housing will integrate labour saving devices such as accessible domestic water supply, electricity, etc. to reduce the drudgery component of these responsibilities
 - health; reproductive and maternal health is poor with comparatively high levels of anaemia, and continued laborious work throughout pregnancy. Sanitation is poor, and improved water and sanitation facilities will be provided in replacement housing, and training given in their use. The health program is outlined in more detail in the SDP.
 - education; less formal education due to early inclusion into domestic work, and less ability to understand written documents particularly if the first language is not Lao. Improved educational facilities will be provided in Houaysoup, with permanent teacher presence and teacher housing. Adult literacy and basic numeracy classes, particularly for women, will also be implemented for all those interested to participate.
 - communication; typically external agencies and government extension staff tend to talk only to male village representatives and in Lao language, especially where the culture is patriarchal and patrilineal, as with Hmong. The Project has made particular effort to employ Hmong men and women as fieldworkers for Hmong communities. Women's meetings are held separately from those of men, and women's preferences for various types of training are given precedence
 - ethnicity; ethnic minority women are proportionately less familiar with Lao language and therefore less likely to be informed of their rights. See above point.
63. 2UR Hmong community are strongly patriarchal. Family members are under the authority and direction of the male-headed household, usually the oldest male. Sons will automatically inherit family property and all other assets and are often the ones to receive a formal education. Hmong women normally do not represent the family status and may not be included in meetings. Even if they participate, women rarely voice their opinions. Both a Hmong man and woman are considered adults only after they have produced children. Hmong woman only gain prestige in the family by giving birth to a boy.
64. Separate consultation meetings with female villagers resulted in the following gender issues being identified:
- A high percentage of females have no formal education and many did not complete primary school
 - Early marriage (15 to 16 years) and early and frequent pregnancies
 - High demand of physical labour including raising of children and care of livestock,

as well as most housework and tending gardens

- Informally no property rights for females recognized
- No traditional right to divorce for females
- Husbands generally as lone decision makers;
- Few opportunities for financial independence or to learn new livelihood activities such as weaving, tailoring, and food preservation techniques
- Health problems such as diarrhoea, womb pain, body ache; distance to Paksan hospital is a further health-related issue and previous access available only during the dry season

1.11 Information and Services

65. There is significant difference in 14 asset types regarding communities and Ban Pou [Hmong] owns least assets. 2UR has full access to national electricity grid and mobile phone networks, and this translates in a high ownership of mobile phones and other electrical assets (Table 24).
66. It is worth noting the ownership of hand tractors (higher than in 2LR) and the one of boat and boat engines: the ownership is virtually nil for the Hmong community of Ban Pou but is particularly high for Piengta and Hatsamkhone, and relatively less for the Lao Loum Ban Pou community. This has to be put in relation with the importance of income from fishing for these 3 communities.

Asset \ Villages	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total	Chi2
Mobile phones/other phones	93%	98%	96%	100%	96	0.042
Televisions	56%	95%	93%	91%	80	0
Motorcycles/scooters	76%	85%	80%	81%	80	0.578
Satellite dish	22%	92%	83%	85%	63	0
Wardrobe	51%	68%	63%	69%	61	0.039
Electric rice cooker	31%	59%	45%	72%	49	0
Bicycles	34%	54%	45%	58%	46	0.004
Refrigerators/freezers	21%	68%	40%	55%	42	0
Hand Tractor	34%	54%	40%	46%	42	0.057
Tape players/CD players/radio	31%	54%	36%	37%	37	0.022
DVD Player	28%	32%	26%	32%	29	0.801
Boat	1%	20%	45%	28%	21	0
Boat motor	0%	20%	26%	18%	14	0
Generator	19%	24%	0%	8%	13	0
Glass Fronted Cabinet	5%	15%	19%	12%	12	0.015
Car or truck	5%	7%	5%	12%	7	0.262
Water Pump	1%	14%	7%	5%	6	0.005
Cameras, video cameras	6%	3%	6%	3%	5	0.65
Water Dispenser	5%	2%	5%	4%	4	0.752
Couch	2%	2%	2%	8%	4	0.151
Washing Machines	1%	5%	1%	3%	2	0.259

Table 24 Ownership of assets (in percentage) by households in 2UR villages
(Source: 2014 Baseline Socio- Economic Survey)

1.12 Income

67. Total income is the sum of income from all sources for all household members; it includes wages and salaries, pensions, interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food). It is expressed as income per person per month in this report.
68. The 2014 Baseline Socio Economic Survey represents the most comprehensive and reliable

estimate of household income in 2UR villages. This survey found households in 2UR reported a mean per capita income of 881,000 LAK/month, with approximately 63% of this income occurring as cash income. There are significant differences in mean per capita income between villages with Ban Pou [Hmong] community having a mean per capita income of 367,000 LAK/person/month only. All other villages in this zone have a mean income higher than 1,000,000 LAK/person/month

69. Fishing, Agriculture, Employment and Business income (cash sales + imputed value of self-consumption) are the 4 largest sources of income overall.
70. Fishing is the largest source of income except in Ban Pou [Hmong] where agriculture is the largest source of income - note that fishing is a minor source of income for the Hmong community in this village - and in Hatsamkhone where business income is larger and fishing comes second.
71. Rural households in the Lao PDR typically utilize a wide variety of livelihoods, with income diversity often adding to a household's resilience, particularly for poor households.
72. There are significant differences in the average number of income sources for households in the 4 communities of Zone 2UR. Households in the Hmong hamlet in Ban Pou reported an average of 5 income sources out of a maximum possible 8 sources over the last year, whereas the other communities reported an average of more than 6 sources per household. A significant proportion of Hmong households in Ban Pou had very limited set of income sources: 10% of households reported 3 or fewer income sources in the last year, and 33% reported 4 or fewer income sources.

No of income sources declared in the last year	Ban Pou [Hmong]	Ban Pou [Lao]	Piengta	Hatsamkhone
2	1%	0%	0%	0%
3	9%	0%	0%	1%
4	23%	2%	7%	5%
5	31%	14%	24%	10%
6	26%	37%	39%	28%
7	7%	39%	26%	45%
8	2%	8%	4%	10%
Total (%)	100%	100%	100%	100%
Mean number of income sources	5.0±0.1	6.4±0.1	6.0±0.1	6.4±0.1
Total (households)	121	59	84	78

Table 325 Diversity of income sources in Zone 2UR. The survey identified 8 possible incomes sources (Employment, Business, Fishing, Agriculture, Livestock, Forests, Hunting and Other)

73.

Source	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	51,000	±9,000	235,000	±38,000	244,000	±49,000	246,000	±37,000	175,000	±17,000
Business	19,000	±9,000	129,000	±37,000	221,000	±79,000	392,000	±111,000	173,000	±33,000
Other	11,000	±5,000	27,000	±6,000	42,000	±15,000	28,000	±7,000	25,000	±5,000
Fishing	66,000	±8,000	311,000	±62,000	360,000	±50,000	298,000	±45,000	233,000	±20,000
Agriculture	142,000	±10,000	235,000	±24,000	159,000	±13,000	223,000	±20,000	181,000	±8,000
Livestock	56,000	±9,000	62,000	±12,000	57,000	±15,000	72,000	±22,000	61,000	±7,000
Forest	19,000	±3,000	30,000	±10,000	19,000	±3,000	20,000	±4,000	21,000	±2,000
Hunting	3,000	±1,000	24,000	8,000	8,000	±4,000	23,000	±7,000	13,000	±2,000
Total	367,000	23,000	1,053,000	94,000	1,110,000	±102,000	1,303,000	±145,000	881,000	50,000

Table 26 Per capita total income (LAK/month) in 2UR villages (Source: 2014 Baseline Socio- Economic Survey)

Source	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	14%	±2%	22%	±4%	22%	±4%	19%	±3%	20%	±2%
Business	5%	±2%	12%	±3%	20%	±7%	30%	±9%	20%	±4%
Other	3%	±1%	3%	±1%	4%	±1%	2%	±1%	3%	±1%
Fishing	18%	±2%	30%	±6%	32%	±4%	23%	±3%	26%	±2%
Agriculture	39%	±3%	22%	±2%	14%	±1%	17%	±2%	21%	±1%
Livestock	15%	±2%	6%	±1%	5%	±1%	6%	±2%	7%	±1%
Forest	5%	±1%	3%	±1%	2%	±0.3%	2%	±0.3%	2%	±0%
Hunting	1%	±0.2%	2%	±1%	1%	±0.3%	2%	±1%	1%	±0.3%
Total	100%		100%		100%		100%		100%	

Table 27 Total income (in percentage) in 2UR villages (Source: 2014 Baseline Socio- Economic Survey)

	Pou[Hmong]		Pou [LaoLoum]		Piengta		Hatsamkhone		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	51,000	±9,000	235,000	±38,000	244,000	±49,000	246,000	±37,000	175,000	±17,000
Business	19,000	±9,000	129,000	±37,000	221,000	±79,000	392,000	±111,000	173,000	±33,000
Other	11,000	±5,000	27,000	±6,000	42,000	±15,000	28,000	±7,000	25,000	±5,000
Fishing	1,000	-	95,000	±38,000	139,000	±34,000	95,000	±29,000	72,000	±13,000
Agriculture	29,000	±5,000	83,000	±18,000	37,000	±8,000	90,000	±15,000	54,000	±5,000
Livestock	45,000	±8,000	47,000	±11,000	38,000	1±±4,000	58,000	±22,000	47,000	±7,000
Forest	8,000	±2,000	8,000	±6,000	5,000	±3,000	5,000	±2,000	7,000	±1,000
Hunting	1,000	-	7,000	±4,000	3,000	±2,000	12,000	±5,000	5,000	±1,000
Total	165,000	18,000	631,000	±72,000	729,000	±96,000	925,000	±132,000	557,000	±44,000

Table 28 Per capita cash income (LAK/month) in 2UR villages (Source: 2014 Baseline Socio- Economic Survey)

	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
Employment	100%	100%	100%	100%	100%
Business	100%	100%	100%	100%	100%
Other	100%	100%	100%	100%	100%
Fishing	2%	31%	39%	32%	31%
Agriculture	20%	35%	23%	40%	30%
Livestock	80%	76%	67%	81%	77%
Forest	42%	27%	26%	25%	33%
Hunting	33%	29%	38%	52%	38%
Total	45%	60%	66%	71%	63%

* Assumption is made that employment, business & other income are mostly cash income, as these were not split into cash & non-cash in the SES questionnaire.

Table 29 Cash income (in percentage) in 2UR villages (Source: 2014 Baseline Socio-Economic Survey)

74. Household incomes are not equally distributed, and typically a small percentage of the population have much higher incomes than the rest. This is also the case for Zone 2UR.
75. Ban Pou [Hmong] has a very narrow wealth distribution and most households (72%) are clustered in the poorest group: 10% of Pou [Hmong] households even reported incomes of less than 125,000 LAK/person/month. There are no wealthy households. In other villages there is a long “tail” of a few households with very high incomes.

Per capita income (million LAK/month)	Pou[Hmong]	Pou[LaoLoum]	Piengta	Hatsamkhone	Total
0-0.4	72%	14%	15%	12%	34%
0.4- 0.8	22%	27%	27%	32%	27%
0.8- 1.2	4%	31%	25%	17%	17%
1.2- 1.6	2%	14%	14%	17%	10%
1.6- 2.0	0%	0%	6%	8%	3%
2.0- 2.4	0%	8%	5%	6%	4%
2.4- 2.8	0%	2%	1%	3%	1%
3.2- 3.6	0%	5%	2%	1%	2%
3.6- 4,2	0%	0%	2%	0%	1%
>4.2	0%	0%	1%	5%	1%
TOTAL (%)	100%	100%	100%	100%	100%
TOTAL (households)	121	59	84	78	342

Table 430 Per capita income Distribution in 2UR (Source: Baseline Socio Economic Survey, 2014)

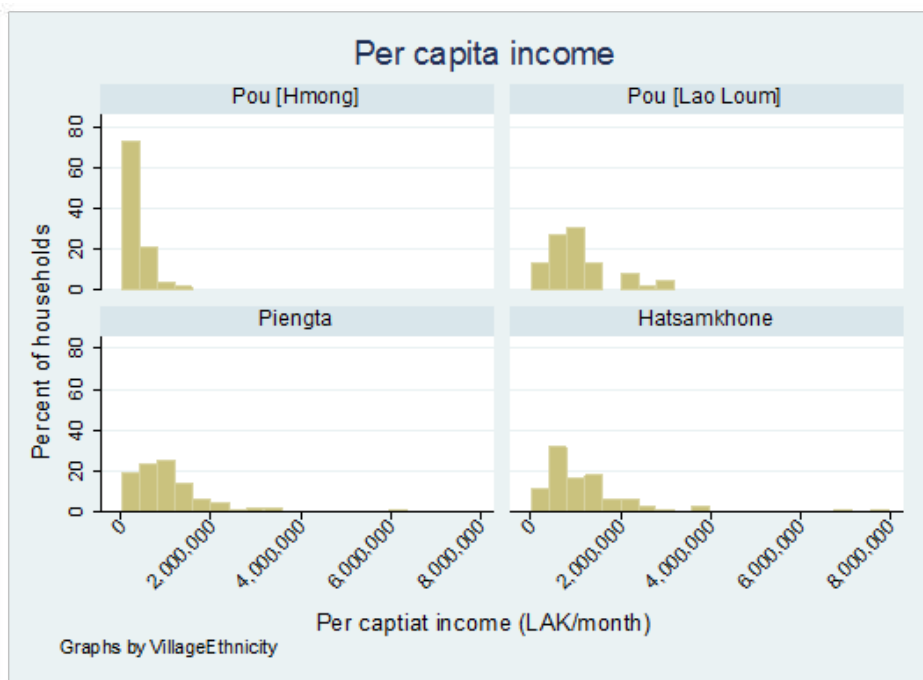


Figure 5 Income Distribution in 2UR (Source: Baseline Socio Economic Survey, 2014)

1.13 Agriculture and Horticulture Land Use

76. A total of 75% of adults over the age of 18 years in 2UR (with up to 82% in Hmong community of Ban Pou) identified their main occupation as farmer. The second group is the one of students and only 4.6% identified themselves as government workers. The percentage of government workers is much higher in all Lao Loum communities than in the Hmong community of Ban Pou (only 0.8%).

Main occupation (in %)	Pou [Hmong]	Pou [LaoLoum]	Piengta	Hatsamkhone	Total
Farmer	82%	72%	74%	69%	75%
School Student	10%	8%	9%	15%	11%
Too old/Retired	3.4%	7.3%	5.6%	4.8%	5.0%
GOV worker	0.8%	7.7%	5.2%	6.5%	4.6%
Home duties	2.5%	2.4%	0.8%	2.8%	2.1%
Non-farm Labourer	0.0%	1.0%	1.5%	1.0%	0.8%
University/Tertiary	0.6%	0.5%	2.2%	0.0%	0.8%
Trader	0.0%	0.0%	1.5%	0.7%	0.5%
Farm Labourer	0.8%	0.0%	0.0%	0.0%	0.3%
Other (specify)	0.0%	0.5%	0.4%	0.3%	0.3%
Child, < school age	0.0%	1.0%	0.0%	0.0%	0.2%

Table 531 Households' main occupation in 2UR Villages. (Source: 2014 Baseline Socio-Economic Survey)

77. The land ownership and land use of the three villages in Zone 2UR (as per 2011 field survey) are presented in Table 32.
78. Privately held lands account for only slightly more than 6% of the total land area of these villages. These privately held lands are almost all agricultural. About 30% of the privately held lands in all four communities are paddy fields. 17% of the privately held lands are upland rice fields, and 47% of the privately held lands are other cultivated areas.

Type of land use (ha)	Piengta	Hatsamkhone	Pou	Total
1. Private Land				
1.1 Residential area	5.51	9.88	18.94	34.33
1.2 Paddy field	68.19	78.44	130.1	276.73
1.3 Upland rice field	24.074	37.29	93.78	155.14
1.4 Other cultivated land	125.95	126.05	172.58	424.58
1.5 Other private land use	4	3	7	14
Total	227.73	254.66	422.4	904.78
1.6 Fish Ponds (unit)	0	3	7	10
2. Public Land				
2.1 School Land	1	1.5	1.5	4
2.2 Temple Land	0	0	0.5	0.5
2.3 Village Office Land	0	0	0	0
2.4 Health Centre Land	0.5	0.42	0.71	1.63
2.5 Cemetery land	2	3	2	7
2.6 Grazing area	41.9	2.5	6.15	50.55
2.7 Pond/water body	0	0	0	0
2.8 Other public land use	23.7	26.3	35.4	85.4
Total	69.1	33.72	46.26	149.08
3 Forest and others				
3.1 Community-managed production forest	245	857	2,050	3,152
3.2 Community-managed reserved forest	253	637	694	1,584
3.3 Other Forest				
Protection forest	5423	540	657.5	6,620.5
Unstocked forest	363	365	882	1,610
Buffer zone	41.9	2.5	6.15	50.55
Total	6,325.90	2,401.50	4,289.65	13,017.10
Total Land Use				14,070.91

Table 32 Land Use Patterns of 2UR Villages (Source: Field Survey 2011)

79. Forest land makes up more than 90% of village land in each of the three villages, however, the nature of the forest land differs between each village. In Piengta, 82% of village land is protection forest. In Ban Pou and Hatsamkhone a much smaller percentage (20% and 14% respectively) is classified as protection forest and a larger percentage of village land is

classified as community production forest (32% and 43% respectively).

80. Table 33 presents the area of rice cultivation in each community, by each type of rice field: paddy and swidden or upland fields. Paddy fields make up approximately one third of total cultivation in each village, whereas swidden cultivation makes up 11-24% of cultivation. Ban Pou has the highest level of swidden, with the Hmong community within this village being more reliant on swidden cultivation than other communities.

Village Name	Paddy Field Cultivation (ha)	Paddy Field / Overall Cultivation Area (%)	Swidden Cultivation (ha)	Swidden Field / Overall Cultivation Area (%)
<i>Upper section of the reservoir area</i>				
Piengta	68.19	31.25	24.074	11.03
Hatsamkhone	78.44	32.44	37.291	15.42
Pou	130.10	32.81	93.786	23.66

Table 33 Area of Rice Cultivation of each Type and Area of Rice Cultivation in Comparison to Other Agricultural Activities (Source: Field Survey 2011)

1.14 Rice Sufficiency

81. An assessment of rice-self-sufficiency in 2011 showed that the majority of households (80%) are able to produce enough rice to meet their needs for the year (Table 35). There are significant differences between villages, with Ban Pou¹ having the lowest level of rice self-sufficiency (71%) and Hatsamkhone (92%) the highest. There are several coping strategies applied by villagers including local rice banks, as indicated by villagers in Ban Hatsamkhone.

82.

Village	No. of HH	No. of HHs interviewed	Sufficient Year Round	Insufficient for 2 to 4 months	Insufficient for 5 to 6 months	Insufficient for 7 to 8 months
<i>Upper section of the reservoir area</i>						
Piengta	82	79	87%	9%	2%	2%
Hatsamkhone	74	73	92%	6%	1%	1%
Pou	172	145	71%	15%	9%	5%
TOTAL	328	297	80%	11%	5%	3%

Table 34 Rice Sufficiency Production Rates of Households on a Yearly Basis (Source: Field Survey 2011)

83. The Baseline Socio Economic Survey was undertaken in October-November 2014, just prior

¹ The 2011 field survey did not differentiate between the Hmong and Lao Loum sub-villages.

to the annual rice harvest. At that time, households in 2UR reported eating rice about 7 days/week (mean value) (Table 43).

	Pou [Hmong] (days/week)		Pou [Lao Loum] (days/week)		Piengta (days/week)		Hatsamkhone (days/week)	
	mean	se	mean	se	mean	se	mean	se
Sticky rice	2.2	±0.3	6.9	±0.1	6.6	±0.1	6.8	±0.1
Plain rice	5.3	±0.3	0.6	±0.2	0.7	±0.2	0.5	±0.2
Fish	2.4	±0.2	4.7	±0.3	3.9	±0.3	4.1	±0.2
Pork	1.5	±0.1	1.2	±0.2	1.0	±0.1	2.5	±0.3
Poultry	1.4	±0.1	2.9	±0.3	3.1	±0.3	2.4	±0.2
Wild Animals	0.4	±0.1	0.6	±0.2	0.5	±0.1	1.2	±0.2
Beef	0.5	±0.1	0.7	±0.2	1.3	±0.2	0.8	±0.1
Wild Birds	0.2	±0.1	0.3	±0.1	0.3	±0.1	0.4	±0.1
Buffalo	0.0	±0.0	0.4	±0.1	0.8	±0.2	0.2	±0.1

Table 35 Mean consumption days/week for key food (Source: 2014 Baseline Socio-Economic Survey)

84. The Project’s vulnerability officer regularly monitors claims of rice insufficiency to understand which households are most poor and vulnerable. The incidence and causes of any food insufficiency will be closely monitored and addressed through the livelihood support program.

1.15 Livestock

85. Livestock is an important income and savings source. All households raise a variety of animals, including large and small livestock (Table 36). For large livestock with fenced grazing areas farther away, villagers have formed livestock groups, organizing the supervision of livestock in these remote grazing areas. This livelihood activity is reported by PAPs as a favoured livelihood activity.
86. Importance of large livestock and pigs is however much lower in Piengta, which may seem contradictory when looking at the respective grazing areas of the 3 villages, with Piengta area representing 80% of the total grazing area according to the 2011 field survey (refer to Table 32).
87. Median per capita income from livestock is similar in all communities but representing 15% for Hmong community of Ban Pou, 3 times the one of other communities, and 77% of livestock is part of the cash income (Table 70)

	Village	Buffalo	Cattle	Pig	Duck	Chicken	TOTAL	Large Livestock
Percent households owning livestock	Pou [Hmong]	13%	66%	69%	60%	98%	98%	60%
	Pou [Lao Loum]	15%	61%	68%	93%	100%	100%	93%
	Piengta	11%	20%	38%	81%	99%	100%	81%
	Hatsamkhone	12%	53%	49%	72%	100%	100%	72%
Average number owned	Pou [Hmong]	0.5	3.9	2.6	4.9	18.5	30.6	4.4
	Pou [Lao Loum]	0.6	5.1	2.9	12.3	30.2	51.1	5.8
	Piengta	0.1	0.8	0.8	11.9	25.1	38.8	0.9
	Hatsamkhone	0.5	3.2	1.6	6.0	26.2	37.5	3.7
Mean per capita value (million kip)	Pou [Hmong]	0.5±0.1	2.4±0.3	0.2±0	0.05±0	0.1±0	3.4±0	3±0.3
	Pou [Lao Loum]	0.7±0.2	4±0.7	0.3±0	0.1±0	0.2±0	5.4±0.8	4.7±0.8
	Piengta	0.2±0.1	0.7±0.2	0.1±0	0.2±0	0.2±0	1.4±0.2	0.9±0.2
	Hatsamkhone	0.7±0.3	2.5±0.5	0.1±0	0.1±0	0.2±0	3.7±0.6	3.2±0.6

Table 36 Livestock in 2UR (Source: 2014 Baseline Socio-Economic Survey)

1.16 Fisheries

88. The Nam Ngiep River as well as larger tributaries and smaller streams are an important fisheries resource, with many meals including some fish, either fresh or preserved for the 2UR villages.
89. Fisheries are an important element of nutrition for people from 2UR. Analysis of the 2014 Baseline Socio Economic Survey shows that households in 2UR consume fresh fish about 4 days/ week in most villages (Table 35), but with a total consumption of only 1.8 kg/ per person/ month (Table 19), lower than other impacted zones. The Hmong community of Ban Pou have lower than average fish consumption with consumed 2.4 days/week of fish on average with a total of 1.1 kg/ per person/ month (Table 18).
90. The Survey found the total income from fishing was approximately 233,000 kip/person/ month which constitute 26% of total income. Cash income from fisheries amounted to 26% of total (cash + imputed) income (Table 70)
91. As elsewhere in the area, river fishing is the task of the men. They use cast nets, fishnet, and sometimes fishhooks. While most of the fish they catch is for home consumption, some surplus is on occasion sold at the market like in Ban Thaviengxay. Women and older persons use scoop nets in areas where they can wade, to scoop small fry and aquatic products such as snails, frogs, etc.

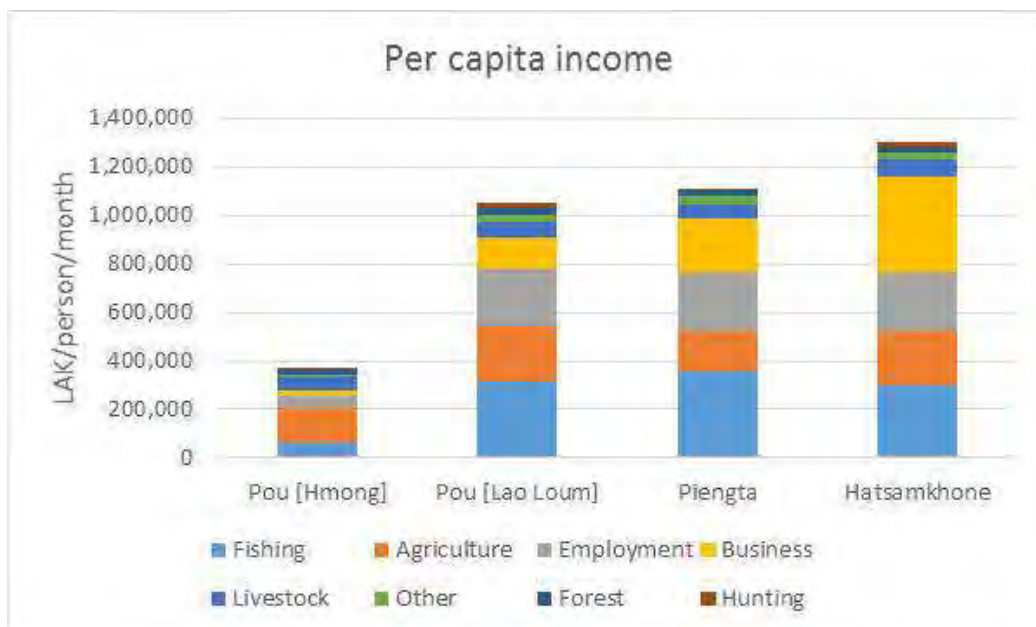
92. The Project implements a long term fish catch monitoring program to complement this SES assessment and better understand seasonal variation in fisheries, fishing environments and fishing gears. These data are not yet available but will be reported annually. They will feed the Fisheries Co-Management Programme for the reservoir fisheries development that will need to partially offset the loss of the current fishing grounds together with a Project-supported programme of capture fisheries in constructed ponds if of interest to PAPs.

1.17 Forest Utilization

93. While Non-Timber Forest Products have been an important livelihood activity in 2UR, PAPs reported already during the 2011 survey that in recent years NTFP collection had become more and more difficult due to overconsumption in the nearby forests. Forests have become a less important factor for most households' livelihoods and this is confirmed by the Baseline SES that found that forest based incomes (NTFP, timber and hunting) provided a total per capita income of only 34,000 LAK/ month and constituted less than 4% of total income and only 2.2% of cash income (refer to Table 70)

1.18 Other Sources of Income

94. Household income in 2UR comes mainly from fisheries, agriculture (crops and livestock) but also from employment and business (20% each) and Forest resource (NTFP, timber and hunting). The Hmong community of Ban Pou has a different profile with a much higher income from agriculture and a livestock income (15%) higher than the one of employment and business (14% and 6% respectively) (see Table 70)



1.19 Primary Production and Off-Farm Income

95. Income can be divided between primary production and off-farm income. Primary production includes income from agriculture, livestock, forests and fishing. Off farm income includes employment, business income, and other income which includes, land rental, interest payments, and remittances. Primary production includes both cash income and the imputed value of self-consumed production. Off-farm income is largely cash income. Off-farm income is an important method of reducing vulnerability and poverty but, in rural settings, is also highly dependent on the strength of farm sector.
96. As expected, primary production accounts for the majority of income contributing 57% of total income in Zone 2UR and off-farm income accounts for the remaining 43%. There is a large range in the importance of off-farm income between villages, with off-farm income accounting for only 22% of total income in Ban Pou [Hmong] and over 51% of off-farm income in Hatsamkhone.

1.20 Household Expenditure and Consumption

97. Consumption has been pioneered by the World Bank Living Standards Measurement Studies program as the key indicator of household living standards since the program's inception in the 1980's. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household living standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:
- consumption has a direct relation to the total "utility" or welfare level of a household;
 - consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
 - consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and
 - households are thought to be less reluctant to share information about expenditure than income
98. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:
- Not all consumption adds to wellbeing of the household
 - Consumption of durable items is spread over many years
 - Purchase of high values items may inappropriately bias consumption upwards
 - Goods and services produced and consumed by the family are not directly valued through a purchase

- Consumption of some items may be supported by increasing debt.
99. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an “annual use value” for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being / standard of living of the household.
100. The 2014 Baseline Socio Economic Survey divided consumption into:
1. Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 2. Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 3. Durable Items such as minor household goods and furniture; and
 4. Use value of major assets such as cars, motorcycles, major household items etc.
101. Mean per capita consumption in 2UR in late 2014 is estimated to be approximately 701,000 kip/month (Table 37). Food is the biggest source of consumption accounting for 64% of total consumption (Table 38). Cash expenditure on food accounts for 30% of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc.).
102. Mean consumption for Ban Pou [Hmong] is very low (397±18k LAK/person/month) compared to other villages (>820k LAK person/month). Ban Pou [Hmong] also spend more on food as a percentage of total consumption (70%) than other villages (<64%) – this is also typical for poorer households and villages.
103. Cash expenditure amounts to 49% of total consumption, which is less than for Zone 3 (Hatsaykham). The percentage of consumption obtained by cash expenditure generally increases with increasing wealth, and conversely the proportion of food consumption in the total generally decreases with increasing wealth.

Consumption	Pou [Hmong] (LAK/person/month)		Pou [Lao Loum] (LAK/person/month)		Piengta (LAK/person/month)		Hatsamkhone (LAK/person/month)		Total (LAK/person/month)	
	mean	se	mean	se	mean	se	mean	se	mean	se
Food	277,000	±11,000	602,000	±40,000	569,000	±33,000	485,000	±19,000	452,000	±14,000
Cash Food	101,000	±8,000	317,000	±35,000	291,000	±26,000	228,000	±18,000	214,000	±11,000
Consumables	95,000	±9,000	230,000	±29,000	181,000	±14,000	214,000	±21,000	167,000	±9,000
Durables	22,000	±4,000	100,000	±17,000	106,000	±23,000	117,000	±20,000	78,000	±8,000
Asset Use	2,000	±0	3,000	±1,000	7,000	±2,000	8,000	±2,000	5,000	±1,000
Total	397,000	±18,000	935,000	±65,000	863,000	±48,000	824,000	±40,000	701,000	±23,000

Table 37 Household consumption (LAK/ person/ month) in 2UR (Source: Baseline Socioeconomic Survey, 2014)

Consumption	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	mean	se	mean	Se	mean	se	mean	Se	mean	se
Food	70%	±3%	64%	±4%	66%	±4%	59%	±2%	64%	±2%
Cash Food	25%	±2%	34%	±4%	34%	±3%	28%	±2%	30%	±2%
Consumables	24%	±2%	25%	±3%	21%	±2%	26%	±3%	24%	±1%
Durables	6%	±1%	11%	±2%	12%	±3%	14%	±2%	11%	±1%
Asset Use	0%	±0%	0%	±0%	1%	±0%	1%	±0%	1%	±0%
Total	100%	±5%	100%	±7%	100%	±6%	100%	±5%	100%	±3%

Table 38 Household consumption by village (by percentage of Total) in 2UR (Source: Baseline Socioeconomic Survey, 2014)

104. Household consumption is more normally distributed than income, and the majority of households have per capita consumption rates of between 0 and 1.0 million LAK/month (Table 39). There are however, significant differences between villages: 83% of household in Ban Pou [Hmong] have per capita consumption less than 500,000 kip/person/month whereas in the other villages it is typically only 20%. Piengta has a relatively low level of per capita consumption with a narrow distribution

105.

Per capita consumption (million LAK/month)	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
0 - 0.5	83%	22%	19%	22%	43%
0.5 - 1	15%	44%	54%	53%	38%
1 - 1.5	2%	22%	15%	22%	13%
1.5 - 2	1%	5%	11%	4%	5%
2 - 2.5	0%	7%	1%	0%	1%
TOTAL	100%	100%	100%	100%	100%
Total households.	121	59	84	78	342

Table 39 Frequency distribution of household consumption in 2UR villages (Source: Baseline Socio Economic Survey, 2014)

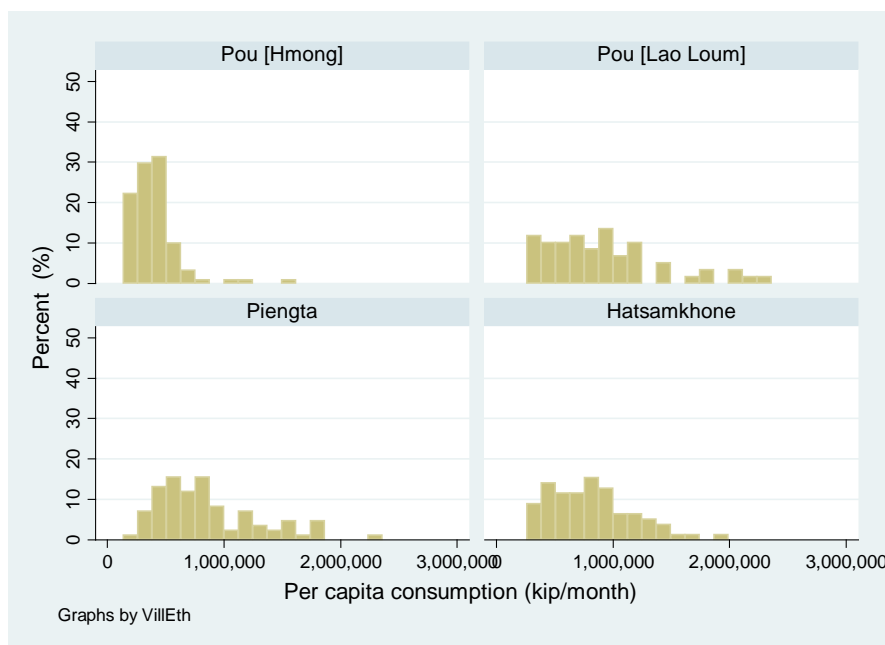


Figure 7: Distribution of Per Capita Consumption (Source: Baseline Socio Economic Survey, 2014)

106. The components of food consumption have also been estimated. Meat has the highest monetary value of monthly consumption, followed by staples and fish (Table 40). There are significant differences between villages with Ban Pou [Hmong] having a relatively low consumption of meat and fish (in kip) compared to the other communities in Zone 2UR.

107.

	Impute value of goods produced and consumed within the household unit (LAK/person/month)									
	Pou [Hmong]		Pou [Lao Loum]		Piengta		Hatsamkhone		Total	
	mean	se	mean	se	mean	se	mean	se	mean	se
Meat	72,000	±5,000	175,000	15,000	199,000	±22,000	135,000	±9,000	135,000	±7,000
Staples	78,000	±3,000	94,000	±4,000	82,000	±3,000	85,000	±3,000	83,000	±2,000
Fish	31,000	±3,000	81,000	±8,000	75,000	±7,000	76,000	±6,000	61,000	±3,000
Other	23,000	±2,000	66,000	±7,000	69,000	±7,000	55,000	±6,000	49,000	±3,000
Vegetables	23,000	±1,000	29,000	±2,000	28,000	±2,000	29,000	±2,000	27,000	±1,000
Alcohol	5,000	±1,000	49,000	±9,000	42,000	±9,000	20,000	±4,000	25,000	±3,000
Fruit	17,000	±1,000	26,000	±3,000	23,000	±2,000	31,000	±2,000	23,000	±1,000
Milk Eggs	7,000	±1,000	22,000	±2,000	21,000	±2,000	23,000	±3,000	17,000	±1,000
Tobacco	3,000	0	12,000	±1,000	12,000	±1,000	7,000	±1,000	8,000	±1,000
TOTAL	258,000		554,000		552,000		461,000		428,000	

Table 640 Imputed consumption values (LAK) per person per month (Source: 2014 Baseline Socio-Economic Survey)

1.21 Poverty

108. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social, health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics.
109. The current estimate of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 LAK per capita /month (US\$28.75 at current rate of exchange). It is based on the inflation of the 2010 poverty line to 2014 prices (Table 41). Poverty lines also include measurements typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at the moment as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line ²
January 2010	96.45	180,000
October 2014	124.9	~233,000

Table 7 Estimated poverty line for study area.

110. A total of 342 households out of 352 households were assessed in the 3 communities in 2014. A total of 14 households or about 4% of the population were classified as potentially poor on our estimate of the current poverty line (233,000 LAK/person/month). See Table 42.
111. This poverty evaluation is likely to be valid at a statistical level for the population (i.e. it is a reliable estimate of the overall percentage of household living in poverty) – however, it only provides an initial guide for evaluation individual households since it is largely based on “average calorific requirements” and subject to some measurement error.
112. All poor households live in Ban Pou [Hmong] where 12% of the households lived below the poverty. A further 9 households or 3% of households lived just above the poverty line in the same community.

Poverty level	Pou [Hmong]	Pou [Lao Loum]	Piengta	Hatsamkhone	Total
Non Poor	81%	100%	100%	100%	93%
Near Poor	7%	0%	0%	0%	3%
Poor	12%	0%	0%	0%	4%
Total	121	59	84	78	342

Table 42 households’ poverty percentage in 2UR (Source: Baseline Socioeconomic Survey, 2014).

² GoL Decree on Poverty Criteria and Development Criteria 2012-2015, No. 201/GO, April 25, 2012

1.22 Vulnerable Households

113. The vulnerability-assessment for 2UR identified 27 vulnerable households with a total population of 124 people. The reasons for their vulnerability are diverse and include the presence of physically or mentally impaired household members, low income, and 4 female headed household

Source of vulnerability	<i>Piengta</i>		<i>Hatsamkhone</i>		<i>Pou</i>	
	HHs	Residents of vulnerable HH	HHs	Residents of vulnerable HH	HHs	Residents of vulnerable HH
Intellectually impaired	2	10	1	4	0	0
Low income and physical disability	1	4	5	23	5	32
Female headed household	2	3	0		2	8
Households living below the poverty line	0	0	2	13	4	20
Elderly	2	5	1	2	0	10
TOTAL	7	22	9	42	11	60

Table 43 Vulnerable Households in 2UR villages (Source: Vulnerable household database, 2016)

114. Vulnerable households are entitled to project support under different programs, the SDP programs including but not limited to Health, Education, Gender and if land is impacted, the compensation and livelihood restoration measures.

CHAPTER 2 - Zone 2LR Socioeconomic Profile

2.1 Demography and Population Changes

115. The 4 villages in Zone 2LR were established by Hmong families after the end of the war in the eighties and nineties, migrating from various areas of Xaysomboun and Xieng Khouang provinces. These families have relationships and relatives upstream in Zone 2UR, downstream in Hatsaykham and also in Hom District and beyond in Xaysomboun Province. The migration was guided by GoL's policies to eradicate slash-and-burn and to sedentarise Hmong in lowland areas.



Figure 8 Ban Houaypamom

116. A new census (August 2014) and baseline socio-economic survey (October - November 2014) of the population were conducted in 2014 to determine total population, expected losses and to integrate DP perspectives and concerns in the planned social and economic development activities. Survey results and Asset Registration show that the number of households has increased from 384 in 2011 to 481 households in 2014, and the total affected population have increased from 2,735 to 3,197 (Table 6). The age and gender structure of the population is shown in Table 45.

Village Name	HH	Population 2011		HH	Population 2014		Annual Population Growth Rate
		(Total)	(Fem.)		(Total)	(Fem.)	
Houaypamom	37	254	122	44	311	149	7%
Sopphuane	58	416	206	77	495	248	6%
Sopyouak	126	916	439	173	1,101	534	6%
Namyouak	163	1149	564	187	1,290	626	4%
	384	2735	1331	481	3,197	1,557	5%

Table 44 Population Profile of Zone 2LR in 2011 and 2014 (Source: Census 2014)

Age (year)	Male	Female	Total
0-9	36%	32%	34%
10-19	26%	27%	26%
20-29	13%	15%	14%
30-39	10%	10%	10%
40-49	6%	7%	7%
50-59	5%	5%	5%
60+	4%	4%	4%
Total	100%	100%	100%

Table 45 Age and Gender Structure of 2LR villages (Baseline Socio Economic Survey, 2014)

117. Significant points for the resettlement action plan are as follows:

- Around 60% of the population is under age 19.
- There is no significant difference in the age structure for each gender within the zone or within each village.
- Population growth rate is approximately 5% per annum. A continuation of the current population growth rate will result in the doubling of the population of 2LR within 15 years.

2.2 Ethnicity

118. A total of 99.6% of households belong to the Hmong ethnic group with only 2 households living in Sopyouak identified as Lao Loum. No other ethnicities live in 2LR villages.

2.3 House Style

119. The majority of dwellings in 2LR villages are traditional Hmong structures of one storey built on rammed earth floor with the kitchen separate from the main house. Housing materials are of bamboo for the poorer households, and wood and sometimes brick for more prosperous households, with palm and rush roof roofing. Some elevated Lao Loum-style houses with wooden and bamboo matting construction for bedrooms have been adopted, while kitchens of Hmong type remain the same. The adoption of Lao Loum style dwellings by some households suggests that at least some of the population are prepared to adopt new technologies where they are seen to be advantageous.

120. There are significant difference in the nature of the dwellings between the four villages but there does not seem to be a coherent difference in quality of dwellings between villages:

- More than 78% of dwellings in each village have wooden or brick walls.
- Houaypamom has a high percentage of metal sheeting roof, probably because it's light weight is an advantage in transportation. Houaypamom also has a low

percentage of traditional wooden roofs, which may relate to availability and transport.

WALL MATERIAL						
Village	Brick	Wood	Bamboo	Leaves	Other	TOTAL
Houaypamom	9%	74%	16%	0%	0%	100%
Sopphuane	4%	74%	22%	0%	0%	100%
Sopyouak	2%	82%	16%	0%	0%	100%
Namyouak	4%	87%	8%	1%	0%	100%
ROOFING MATERIAL						
Village	Tiles	Metal sheet	Wood	Leaves	Other	
Houaypamom	35%	51%	7%	5%	2%	100%
Sopphuane	56%	17%	21%	4%	3%	100%
Namyouak	40%	34%	23%	2%	1%	100%
Sopyouak	29%	37%	30%	2%	3%	100%
Total	38%	34%	24%	2%	2%	100%

Table 46 Housing construction material, 2LR villages (Source: 2014 Baseline Socio Economic Survey)



Figure 9 Typical House Styles in Khum Hatsaykham

2.4 Social Organization and Cultural Relations

121. Villages are the lowest level of government administration in the Lao PDR. Villages are administered by a Village Chief who is supported by a deputy and village council. Villages are combined into districts, which are combined to form provinces, finally resulting into the national level administration. Ministries on the national level have counterpart organisations on the provincial and district level. These public institutions are supported by mass organizations with structures at all administrative levels these mass organisation include the Front for National Construction, the Lao Women Union, and the Lao Youth Union. (Table 47).

	Number of members per village
--	-------------------------------

	Houaypamom	Sopphuane	Sopyouak	Namyouak
Lao Women's Union	45	42	14	33
Lao Youth Union	68	55	30	38
Lao Workers' Union	66	20	8	23

Table 47 Membership of mass organizations in 2LR villages (Source: Field Survey 2008)

122. DPs are also integrated in family, social and cultural relations within and between villages. These include informal, but influential, elders' councils at the village level which have an essential say in the development of the community.
123. Hmong households in 2LR villages are also identified and linked by clan systems, which connect them with villagers from Hatsaykham in Zone 3, Ban Pou in the upper reservoir area and other villages in Hom District. These linkages extend further to Hmong communities in the rest of the country as well as abroad, which allows them to mobilize economic, cultural, political and social resources to support the communities in their communication with the Project. It also enables information about experiences in other hydropower projects to be widely shared and circulated.
124. Social Organization and Cultural Relations follow the pattern discussed in Chapter 7 of the REDP. Hmong groups are divided into patrilineal clans (*xeem*) which are strictly exogamous, that is marriage outside the birth clan is compulsory. Polygyny is traditional but less observed nowadays than in the past. However, there are only 20 cases of polygamy out of a total of 481 households in 2LR (Table 48). Loyalty to one's clan is central and clan solidarity is very important, linking members to villages throughout the country and even abroad.

	Houaypamom	Sopphuane	Sopyouak	Namyouak
Number of polygynous households	3	6	5	6

Table 48 Polygynous households in 2LR villages (Source: Baseline Socioeconomic Survey, 2014)

125. The Hmong are believed to have their origins as an ethnic group in China and to have migrated into northern Southeast Asia during the 19th century. There are 19 Hmong clans currently living in Lao PDR and they are generally group-oriented, with interests of the group coming before the interests of the individual, and clan leaders in each village representing the interests of the village. In the project impacted areas, there are four main clans: Yang, Vang, Xiong, and Lor, although there are some persons from clans such as Pialouang, Moua, Lee, Her and Vue who have married into these clans. Family members are under the authority and direction of the male-headed clans and household, usually the

oldest male. Sons will automatically inherit family property and all other assets, and generally receive the highest levels of formal education. For this reason, male elders represent village households in all discussions, particularly with outsiders, and it is unusual for any person or family to contradict elders in public meetings.

126. Hmong villages aim to be self-sufficient and autonomous with limited interaction with other ethnic groups. Of special importance is the historical as well as continuing clan-based relation to the village of Hatsaykham, whose people originate from the Zone 2LR. This relationship led to the request from affected households of Hatsaykham to resettle together with DPs from 2LR rather than follow the original proposal, which was to move the village closer to the centre of their current administrative unit, Hat Gniun.

2.5 Infrastructure and services

127. Community infrastructure in the villages of Zone 2LR is limited. Overview of it is listed in below.

Items	Village			
	<i>Houaypamom</i>	<i>Sopphuane</i>	<i>Sopyouak</i>	<i>Namyouak</i>
1. Infrastructure service				
Electricity	Pico-hydro and Solar Power			
Drinking water source Quantity/Quality	Nam Ngiep Nam Noi	Water Pipe Nam Ngiep Houay Phuane	Water Pipes Nam Ngiep Nam Youak	Water Pipe Nam Ngiep Nam Youak
Water use source Quantity/Quality	Water Pipes Nam Ngiep Nam Noi	Water Pipe Nam Ngiep Houay Phuane	Underground water Water Pipe Nam Ngiep / Nam Youak	Water Pipe Nam Ngiep Nam Youak
Transportation	Road access via a laterite road from Hom District via Phalaveck. Troublesome during wet season; waterway is limited within the vicinity because of islets and rapids			
2. Social Welfare				
Pre Primary	-			
Primary School	1	1	1	1
Secondary School	-	-	-	1
Temple	-			
Health Centre	-	-	1	-
Hospital	-			
Pharmacy	-			
Cemetery	1	1	1	1
Grocery	2	2	Available - not specified number	Available - not specified number

Table 849 Infrastructure of 2LR villages (Source: field visits 2014)

128. The main road access is a gravel (laterite) road from Hom District via Ban Phalaveck which is difficult to pass during the rainy season. The lanes and paths within the villages are compacted earth, and these become quite muddy in wet season. In 2014-15 NNP1 improved the bridge in Sopyouak. Their main waterway for transportation is the Nam Ngiep River, though parts of the river are difficult to travel because of rapids and rock outcrops in the rivers. Houaypamom has no road access.
129. None of the villages in this zone have grid electricity and the most common sources of electricity are Solar and Micro hydro (Table 7). 43% of households in Sopphuane have no electricity.

Type of Electricity	Houaypamom	Sopphuane	Sopyouak	Namyouak
Solar	79%	32%	51%	28%
Micro hydro	9%	18%	10%	39%
Generator	0%	3%	7%	14%
Rechargeable batteries	0%	4%	3%	1%
Other	0%	0%	0%	0.55%
Grid	0%	0%	0%	0%
No Electricity	12%	43%	29%	17%
Total	100%	100%	100%	100%

Table 50 Electricity infrastructure of 2LR villages (Source: Baseline Socio Economic Survey, 2014)

130. Drinking water comes from simple gravity flow water systems which transport source water from mountain streams or from wells. Water for other domestic uses is from the Nam Ngiep or its tributaries with associated water quality issues, or from wells. Sufficient water from the Gravity Flow water Supply system (GFS) is not available throughout the year. Details of household drinking water use from the 2014 baseline socio-economic survey are provided in Table 8 and Table 9. It should be noted that Houaypamom primarily uses surface water and rainwater in wet season and only surface water in dry season. In 2014/15 NNP1 repaired the water supply systems for Sopyouak and Namyouak.

Water Source in Wet Season	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
GFS	5%	94%	96%	100%	89%
River, Stream, Lake,	51%	5%	1%	0%	6%
Rainwater	44%	0%	0%	0%	4%
Protected Well	0%	0%	3%	0%	1%
Protected Spring	0%	1%	0%	0%	0%
Unprotected Spring	0%	0%	1%	0%	0%
TOTAL	100%	100%	100%	100%	100%

Table 951 Drinking water sources of 2LR villages in wet season (Source: Baseline Socio Economic Survey, 2014)

Water Source in Dry season	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
GFS	9%	94%	98%	100%	90%
River, Stream, Lake,	91%	5%	0%	0%	9%
Protected Well	0%	0	2%	0%	1%
Protected Spring	0%	1%	0%	0%	0%
Unprotected Spring	0%	0	1%	0%	0%
TOTAL	100%	100%	100%	100%	100%

Table 1052 Drinking water sources of 2LR villages in dry season
(Source: Baseline Socio Economic Survey, 2014)

131. The availability of sanitation/toilets varies from village to village. Availability is very low in Houaypamom (12%) but high in Namyouak (71%). Almost all toilets are pour flush (99.6%) and 100% of toilets are used when owned (Table 4).

Village	Have toilet	Type of toilet		Use of toilet
		Pour Flush	Pit Latrine	
Houaypamom	12%	100%	0%	100%
Sopphuane	23%	100%	0%	100%
Sopyouak	42%	99%	1%	100%
Namyouak	71%	100%	0%	100%
TOTAL	47%	99.6%	0%	100%

Table 1153 Sanitation in 2LR villages (Source: Baseline Socio Economic Survey, 2014)

132. All four the villages have primary schools – however, Ban Houaypamom only has grade 1 to 3 of primary school so not a full primary school. Children from there have to go to the school at Ban Sopphuane some 6 km away by boat to attend the higher grades of primary school. The school at Ban Sopphuane is not adequate, with relatively poor construction and insufficient materials and supplies.
133. Ban Namyouak also has a lower secondary school but teaching supplies and materials are insufficient. In 2014-15 the Project repaired, improved or built several structures prior to resettlement::
- 3 classrooms for primary school built in Sopyouak
 - 3 classrooms built for the secondary school in Namyouak
 - Sopphuane primary school improved
134. Ban Sopyouak has a health centre which is readily accessible by the residents of Ban Namyouak. None of the communities have temples or pharmacies.
135. All villages have small shops. These are typically single rooms or add-ons to people’s houses where they sell soaps, shampoos and detergents, toothpaste, and a variety of packaged and canned goods. Each community has more than one of these.

2.6 School Attendance

136. The table below provides the Primary Age Enrolment (PAE) in the 4 villages. There is no significant difference in PAE by gender, overall or in any single village. There is no significant difference in female enrolment between villages. There is a significant difference in male and total enrolment between villages: Sopphuane has the lowest enrolment of males and the lowest overall enrolment.

Village	Male	Female	Total
Houaypamom	85%	81%	83%
Sopphuane	71%	84%	77%
Sopyouak	92%	94%	93%
Namyouak	91%	92%	92%
Total	88%	90%	89%

Table 1254 Primary age (6-10 years) enrolment in 2LR villages (Source: Baseline Socio Economic Survey, 2014)

137. Secondary Age Enrolment (SAE) in the 4 villages has significant differences between villages overall with Houaypamom having very low SAE. There is no significant difference in Lower Secondary Enrolment by gender overall, however there are differences within individual villages:

- Houaypamom has very low female SAE.
- Namyouak has lower male SAE.

Village	Male	Female	Total
Houaypamom	56%	16%	35%
Sopphuane	75%	68%	71%
Sopyouak	65%	69%	67%
Namyouak	66%	81%	74%
Total	66%	69%	68%

Table 1355 Percent of students of lower secondary age (11-15 years) in 2LR villages that are enrolled in Lower Secondary education (Source: Baseline Socio Economic Survey, 2014)

138. Table 56 provides the mean age of student in Grade 5 (completion of primary school). As a reference the mean age Lao Loum in Grade 5 from all other project zones is =10.4±0.1years. Overall Hmong students are slightly older when they finish primary school (10.8±0.2).

Grade	Houaypamom			Sopphuane			Namyouak			Sopyouak			Total			
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	
5	Mean	11.6	7	11.1	10.7	11.7	11.3	10.7	10.6	10.7	10.6	10.6	10.6	10.8	10.8	10.8
	Se	0.9	-	0.9	0.6	0.7	0.5	0.2	0.7	0.4	0.3	0.3	0.2	0.2	0.4	0.2

Table 1456 Mean age by Grade 5 in 2LR villages (Source: Baseline Socio Economic Survey, 2014)

2.7 Adult Education and Literacy

139. Literacy is a challenge for rural communities and also for the Project's communication efforts in Zone 2LR.
140. Highest school grade completed by adults of more than 18 years is illustrated in Figure 11.

Overall 13% of adult males have no formal education but 41% of females have no formal education. In total, 51% of adult men have some post primary education, but only 21% of adult women.

- 141. Educational achievement by adults is strongly controlled by age. The youngest generation of male adults (20-29 years) in 2LR have received 9 years of schooling on average, but this number falls to 4.5 years for males 50-59 years. Females have significantly fewer years of formal education in all age groups. Young female adults have 5 years of formal education on average but females 50-59 years have only 1 year of formal education (Table 58).
- 142. The length of formal education is particularly low in Houaypamom (Table 59).

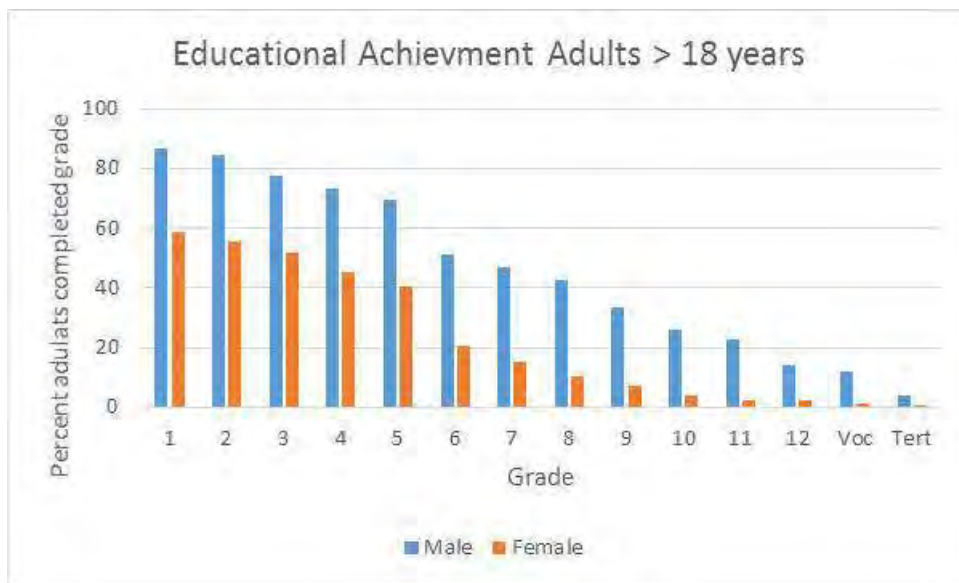


Figure 10 Educational achievement of adults (>=18 years). Primary school includes grades 1-5.

Age Group (years)	MALE		FEMALE		TOTAL	
	Mean	Se	Mean	Se	Mean	Se
20-29	8.9	0.3	5	0.2	6.8	0.2
30-39	6.6	0.4	2.8	0.3	4.8	0.3
40-49	5	0.5	1.5	0.2	3.1	0.3
50-59	4.5	0.5	1.1	0.3	2.7	0.3
60+	2.8	0.5	0.1	0	1.4	0.3

Table 1557 Mean Years of formal education by age and gender (Source: Baseline Socio Economic Survey, 2014)

Village	Male (years formal education)		Female (years formal education)		TOTAL (years formal education)	
	Mean	Se	Mean	Se	Mean	Se
Houaypamom	4.8	0.5	1.8	0.3	3.3	0.3
Sopphuane	5.8	0.5	1.9	0.3	3.7	0.3
Namyouak	7	0.3	3.2	0.2	5	0.2
Sopyouak	6.8	0.3	3.3	0.3	4.9	0.2

Table 58 Mean years of formal education by village (Source: Baseline Socio Economic Survey, 2014)

143. There is a significant difference in Lao language proficiency by age and gender with older people and particularly older women having the lowest fluency (Table 59). There is also a significant difference in fluency between villages (males, females, and combined), with Sopphuane having the lowest levels of fluency (Table 60). Overall 72% of adult women speak Lao compared to 88% of men.

Age Group (years)	Male	Female	All
10-19	80%	80%	80%
20-29	95%	80%	87%
30-39	93%	69%	81%
40-49	90%	57%	72%
50-59	94%	53%	73%
60+	84%	48%	66%
Total	88%	72%	80%

Table 59 Lao fluency by age and gender (Source: Baseline Socio Economic Survey, 2014)

Village	Male	Female	All
Houaypamom	84%	62%	73%
Sopphuane	72%	51%	61%
Sopyouak	93%	83%	88%
Namyouak	90%	73%	82%
Total	88%	72%	80%

Table 60 Lao fluency by village and gender (Source: Baseline Socio Economic Survey, 2014)

144. Adult literacy is correlated with age, gender and village. Education and literacy are generally lower for women: only 26% of adult women in 2LR villages are fully literate compared to 62% of men. The percentage of literacy is particularly low for older women (>40years). Sopphuane has lowest literacy levels for both males and female adults: overall only 28% of adults are literate, with 48% of men and only 9% of women being fully literate.

Age Group (years)	Male	Female	All
20-29	81%	47%	63%
30-39	62%	23%	43%
40-49	52%	12%	31%
50-59	55%	15%	35%
60+	29%	0%	14%
Total	62%	26%	44%

Table 61 Literacy by age and gender for Zone 2LR (Source: Baseline Socio Economic Survey, 2014)

Village	Male	Female	All
Houaypamom	46%	13%	30%
Sopphuane	48%	9%	28%
Namyouak	64%	32%	48%
Sopyouak	72%	31%	50%
Total	62%	26%	44%

Table 62 Literacy by village and gender for Zone 2LR (Source: Baseline Socio Economic Survey, 2014)

145. The Project has already started adult literacy classes in Zone 2LR in response to an expressed desire from the villages to improve adult literacy (see section 9.4.4).

2.8 Diet and Nutrition

146. The nutritional status of a person is a function of the nature and quantity of food intake (diet), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.
147. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anaemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in health-threatening conditions like wasting, obesity and metabolic syndrome and lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption is an increasing problem in the developing world.
148. Estimated food intake per person in 2LR villages (Baseline Socio Economic Survey, 2014) appears relatively good with more than 18 kg of rice and about 25 kg of staples consumed per person per month and a total intake of nearly 5 kg of meat and fish/person/month (This is total weight and includes non-edible parts and rice/staples provided to animals).

Village		Per Capita Food Consumption per month				
		Total Rice (kg)	Total Staples (kg)	Fish (kg)	Meat (kg)	Poultry (birds)
Houaypamom	mean	18.4	23.6	4.5	1.6	1.4
	se (mean)	1.0	1.3	0.6	0.2	0.2
Sopphuane	mean	19.1	23.8	3.9	1.8	1.7
	se (mean)	0.9	1.3	0.4	0.2	0.2
Namyouak	mean	19.4	26.0	3.6	1.9	1.8
	se (mean)	0.5	0.8	0.2	0.1	0.2
Sopyouak	mean	18.2	23.9	4.0	1.5	1.9
	se (mean)	0.5	0.8	0.3	0.1	0.1
Total	mean	18.8	24.6	3.9	1.7	1.8
	se (mean)	0.3	0.5	0.2	0.1	0.1

Table 1663 Per capita food consumption for Zone 2LR (Source: Baseline Socio Economic Survey, 2014)

149. Fish consumption in Zone 2LR is high – nearly 4 kg/person/month and is the highest of all zones (see Table 19). These data underline the critical importance of fish in diet (and hence imputed income).
150. Per capita Meat consumption is also high (1.7kg /month) – slightly above average for whole area (1.5kg/month) (note this is a minimum and does not include poultry which was counted by the bird rather than by kilograms which are more difficult to estimate).

ZONE	Fish Consumption		Meat Consumption	
	Kg/person/ month		Kg/person/ month	
	Mean	Se	Mean	Se
Z1 Catchment	1.5	0.1	1.1	0.1
Z2 Upper Reservoir	1.8	0.1	1.4	0.1
Z2 Lower Reservoir	3.9	0.2	1.7	0.1
Reference Village 1	1.3	0.1	0.6	0.1
Z3 Hatsaykham	2.2	0.3	2.8	0.3
Z4 Downstream	2.7	0.2	1.4	0.1
Z5 Hosts	3.1	0.3	2.1	0.2
Reference Village 2	3.0	0.2	1.5	0.1

Table 1764 Fish and meat consumption for all zones (Source: Baseline Socio Economic Survey, 2014)

151. The 2014 Health Survey used 2 simple indicators of the nutritional status of the 2LRpopulation:
3. Child anthropometric measurements and
 4. Anaemia levels amongst women of child bearing age.
152. Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition

and recurrent infections, such as diarrhoea and helminthiasis (parasitic infections), in early childhood. Anaemia is low levels of red blood cells due to insufficient iron. It causes tiredness, inability to work and affects child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.

153. The baseline health survey for 2LR shows that the apparently adequate levels of food consumption are not translated into health outcomes. Child stunting and anaemia in women are high but close to the overall average for the socio-economic survey. High levels of child stunting (45%) and anaemia in 2LR women (29%) and particularly in Houaypamom (50%) are likely to be the result of a combination of the historical use of unsafe water supply (Houaypamom uses only surface water in dry season), no household sanitation, open defecation and poor hygiene leading to high rates of diarrhoea and parasitic infections, in turn contributing to poor overall nutritional status. Other factors that may be important are lack of access to health services, inequitable distribution of food within the household (women and children), significant drudgery workloads, as well as early and frequent pregnancies for women.

Name	Anaemia (women 25-45yrs)*	Stunting children < 5 years	Condom use (women 25-45yrs)
Houaypamom	50%	48%	0%
Soppuane	17%	35%	0%
Sopyouak	25%	46%	13%
Namyouak	28%	50%	4%
Total	29%	45%	6%

Table 65 Nutritional indicators and condom use for 2LR villages
(Source: Baseline Health Survey, 2014)

154. Contraceptive use (6%) is very low compared to the overall average for the socio-economic survey (40%). Population growth rate amongst the Hmong population is likely to be high and presents a challenge for the sustainability of the resettlement village.

2.9 Health and Health Services

155. Most of the people in these 4 villages practice animism, so whenever anyone gets sick or has other health problems, they often seek treatment by traditional animist practices or medicines. There is only one health centre at Ban Sopyouak. The Health staff in the health centre are Hmong and from Ban Sopyouak. Villagers with more serious health conditions have to travel to the district centre at Ban Phalaveck in Hom district, where there is a district hospital (with the majority of the hospital staff being Hmong), or to a major hospital at Vientiane. The trip to Ban Phalaveck takes several hours by car and during rainy season the road may be impassable.

156. The 2014 Baseline Socio-Economic Survey provides some information on treatment seeking behaviour and health access. Health services utilised varies greatly between villages. Houaypamom, accessible only by boat, has the lowest rate of seeking health treatment, Sopyouak has the highest.

Village	Health issues disrupt normal activities	Seek treatment if ill
Houaypamom	14%	90%
Namyouak	17%	94%
Sopphuane	16%	99%
Sopyouak	23%	99%
Total	18%	96%

Table 1866 Seeking treatment if ill (Source: Baseline Socio-Economic Survey, 2014)

157. Zone 2LR villages use various health facilities for seeking treatment (Table 68). There is clearly an opportunity effect with Sopyouak villagers making a high use of Public hospital/clinic (the Health Centre) in Sopyouak compared to the other villages.

	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
Public hospital/Clinic	49%	47%	70%	42%	55%
Pharmacy/Shop	40%	42%	30%	47%	39%
Village Health Volunteer	7%	7%	9%	12%	10%
Private clinic/doctor	7%	1%	1%	4%	3%
Traditional Healer	5%	3%	1%	3%	3%
Mobile Clinic/MCH	2%	0%	1%	3%	2%
Other	0%	8%	0%	1%	2%
Total	110%	109%	113%	112%	11%2

Table 1967 Health facilities used by 2LR villages (Source: Baseline Socio-Economic Survey, 2014)

158. Table 68 lists the health issues recorded by the Sopyouak Health Centre during 2015. Angina³, gastritis, diarrhoea, and cold/flu diseases are the most prevalent health complaints reported.

³ Angina pectoris, commonly known as angina, is the sensation of chest pain, pressure, or squeezing, often due to ischemia of the heart muscle from obstruction or spasm of the coronary arteries. [1] While angina pectoris can derive from anemia, abnormal heart rhythms and heart failure, its main cause is coronary artery disease. The high incidence of angina suggests over-diagnosis.

Health Complaint	Namyouak		Sopyouak		Sopphuane		Houaypamom	
	Patients	Percent village population	Patients	Percent village population	Patients	Percent village population	Patients	Percent village Population
Angina	25	1.94%	89	8.07%	20	4.04%	14	0.50%
Cold/Flu	58	4.50%	28	2.54%	10	2.02%	5	0%
Diarrhoea	4	0.31%	40	3.62%	15	3.03%	5	1.60%
Gastritis	24	1.80%	5	0.45%	1	0%	0	0%
Eye pain	5	0.38%	10	0.90%	0	0%	0	0%
Neuralgia	5	0.38%	8	0.72%	0	0%	0	0%
Vertigo	5	0.38%	2	0.28%	1	0.20%	0	0%
Fatigue	2	0.15%	5	0.45%	0	0%	1	0.32%
Ear infection	0	0%	8	0.72%	0	0%	0	0%
Bronchitis	0	0%	6	0.54%	0	0%	0	0%
Dysentery	2	0.15%	13	1%	0	0%	0	0%
Back pain	2	0.15%	2	0.18%	1	0.20%	0	0%
Vaginal discharge*	1	0.07%	2	0.18%	0	0%	1	0.32%
Burn	0	0%	2	0.18%	0	0%	0	0%
Rheumatism	0	0%	1	0.09%	0	0%	0	0%
Button	0	0	0	0	0	0	0	0
Wound	0	0%	0	0%	0	0%	0	0%
Other	9	0.70%	66	5.98%	6	1.2%	1	0.32%
Population checked	142	11.05%	289	26.22%	54	11.11%	27	8.68%
Total population	1,285		1,102		495		311	

* Incidence of vaginal discharge is for total number of females.

Table 2068 Summary of outpatients' health data from January to October 2015 in Sopyouak Health Centre (Source: Sopyouak Health Centre)

2.10 Gender Issues and Status of Women

159. Gender dimensions of concern in the project area which also apply to Zone 2LR include:

- land rights; most land and housing are formally or informally under male control and patrilineal heritage line. This is addressed by all replacement land and housing registered and titled in the joint names of husband and wife. Where a man has more than one wife, the second family will be separately titled in the name of the wife and a male family member of her choice (e.g. eldest son)
- financial management; where compensation money may be handed only to a male household head, there is higher risk of poor subsequent investment. The Project has

instituted bank accounts in the joint names of husband and wife, with prior financial training provided to understand how to deposit and withdraw funds. All acknowledgement of receipts or withdrawals must have the joint signatures or thumbprints of both husband and wife. This compensation procedure was instituted for roads and TL land acquisition, and has proved very popular, particularly with women

- hard work; women have multiple responsibilities taking care of the house, cooking, caring for the sick, elderly and children, gender-specific agricultural tasks (e.g. weeding, hoeing, fetching water, land clearance, harvesting, etc.), and income generating work. Replacement housing will integrate labour saving devices such as accessible domestic water supply, electricity, etc. to reduce the drudgery component of these responsibilities
- health; reproductive and maternal health is poor with comparatively high levels of anaemia, and continued laborious work throughout pregnancy. Sanitation is poor, and improved water and sanitation facilities will be provided in replacement housing, and training given in their use. The health program is outlined in more detail in the SDP.
- education; less formal education due to early inclusion into domestic work, and less ability to understand written documents particularly if the first language is not Lao. Improved educational facilities will be provided in Houay Soup, with permanent teacher presence and teacher housing. Adult literacy and basic numeracy classes, particularly for women, will also be implemented for all those interested to participate.
- communication; typically external agencies and government extension staff tend to talk only to male village representatives and in Lao language, especially where the culture is patriarchal and patrilineal, as with Hmong. The Project has made particular effort to employ Hmong men and women as fieldworkers. All communication with 2LR DPs is in Hmong language. Women's meetings are held separately from those of men, and women's preferences for various types of training are given precedence
- ethnicity; ethnic minority women are proportionately less familiar with Lao language and therefore less likely to be informed of their rights. See above point.

160. 2LR Hmong communities are strongly patriarchal. Family members are under the authority and direction of the male-headed household, usually the oldest male. Sons will automatically inherit family property and all other assets and are often the ones to receive a formal education. Hmong women normally do not represent the family status and may not be included in meetings. Even if they participate, women rarely voice their opinions. Both a Hmong man and woman are considered adults only after they have produced children. Hmong woman only gain prestige in the family by giving birth to a boy.

161. Separate consultation meetings with female villagers resulted in the following gender issues being identified:

- A high percentage of females have no formal education and many did not complete

primary school

- Early marriage (15 to 16 years) and early and frequent pregnancies
- High demand of physical labour including raising of children and care of livestock, as well as most housework and tending gardens
- Informally no property rights for females recognized
- No traditional right to divorce for females
- Husbands generally as lone decision makers;
- Few opportunities for financial independence or to learn new livelihood activities such as weaving, tailoring, and food preservation techniques
- Health problems such as diarrhoea, womb pain, body ache; distance to Hom district hospital is a further health-related issue and previous access available only during the dry season

2.11 Information and Services

162. Zone 2LR has recently (2015) gained direct access to national mobile phone networks in Namyouak and Sopyouak. Houaypamom and Sopphuane remain without coverage. Mobile phone ownership is already high, especially in Sopyouak and Namyouak with easier connection (Table 69). Other electrical asset ownership is already significant although there is no grid connection. It is expected that 2LR households are likely to rapidly accumulate a range of electrical assets once provided with grid connection in Houay Soup.
163. Not surprisingly Houaypamom has a high ownership of boat and boat engines and Namyouak and Sopyouak, with significant paddy fields areas, have a higher ownership of hand tractors.

	Houaypamom	Sopphuane	Sopyouak	Namyouak	Total
Mobile phones/ other phones	67%	62%	92%	92%	85%
Motorcycles /scooters	74%	94%	84%	83%	84%
DVD Player	28%	32%	37%	36%	35%
Tape players/ CD players/ radio	42%	40%	33%	34%	35%
Hand Tractor	12%	13%	31%	37%	29%
Wardrobe	14%	22%	30%	29%	27%
Boat	63%	45%	21%	8%	24%
Bicycles	7%	10%	11%	9%	10%
Boat motor	72%	51%	11%	1%	19%
Cameras, video cameras	2%	6%	10%	10%	9%
Car or truck	0%	5%	8%	5%	6%
Televisions	7%	9%	7%	9%	8%
Generator	7%	10%	5%	9%	8%
Glass Fronted Cabinet	5%	1%	2%	2%	2%
Satellite dish	7%	1%	2%	2%	2%
Couch	0%	0%	1%	2%	1%
Refrigerators /freezers	0%	1%	1%	1%	1%
Electric rice cooker	0%	4%	1%	1%	1%
Water Dispenser	0%	0%	0%	0%	0%
Washing Machines	0%	0%	0%	0%	0%
Water Pump	0%	1%	0%	1%	0%

Table 69 Ownership of assets by households in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

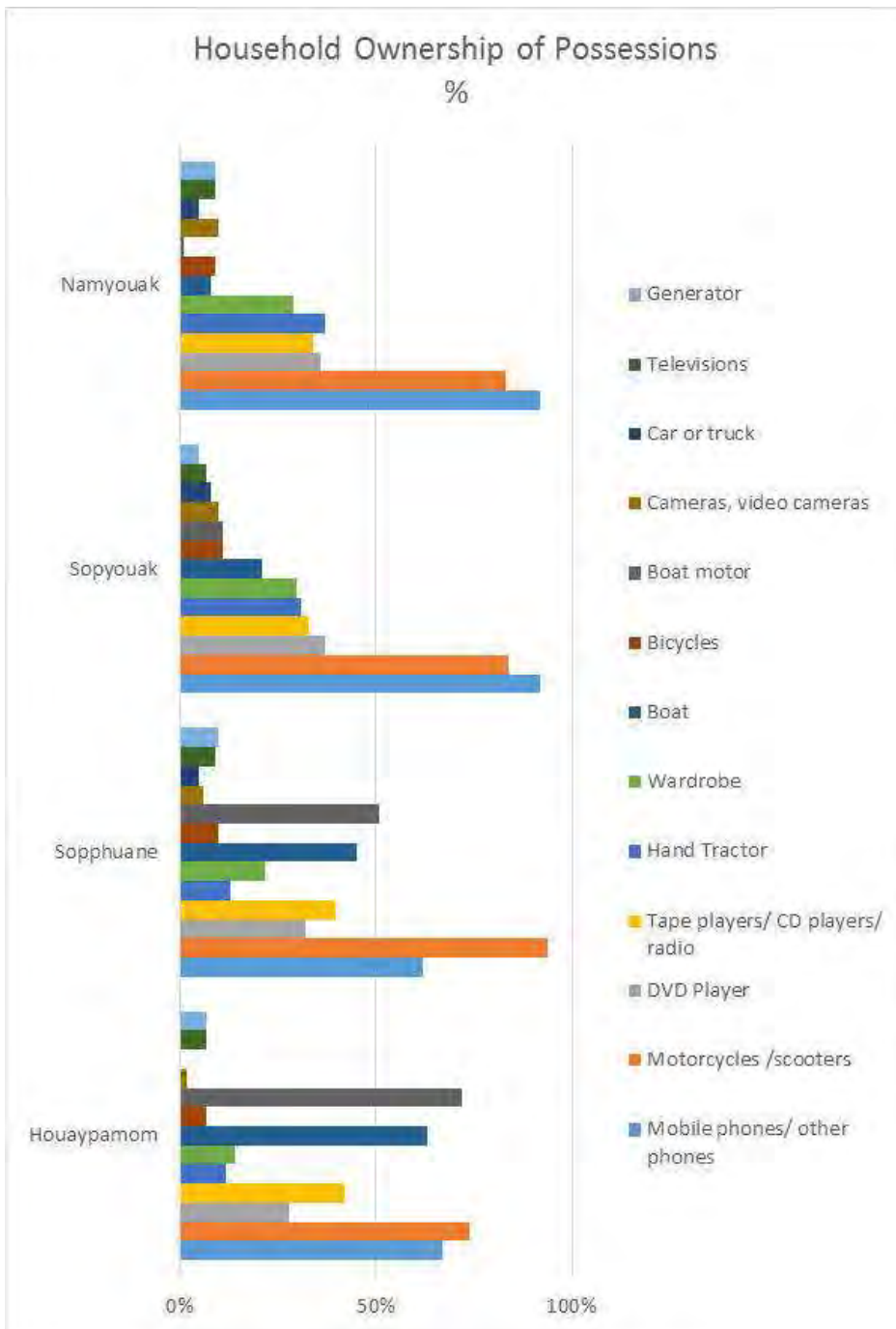


Figure 11 Ownership of assets by households in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

2.12 Income

164. Total income is expressed as income per person per month for the household. Total income is the sum of income from all sources for all household members; it includes wages and

salaries, pensions, interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food).

165. The 2014 Baseline Socio Economic Survey found households in 2LR reported a mean per capita income of 1.07 million LAK/month, with approximately 55% of this income occurring as cash income. There are significant differences between villages and it is also worth noting the importance of fishing in the income with on the contrary a rather low off-farm income. Fishing represents also an important part of cash income in Houaypamom and Sopphuane.

	Houaypamom		Sopphuane		Namyouak		Sopyouak		Total	
	Mean	Se	Mean	Se	Mean	Se	Mean	Se	Mean	Se
Employment	41,000	14,000	66,000	17,000	100,000	19,000	104,000	15,000	90,000	10,000
Business	18,000	14,000	18,000	9,000	38,000	11,000	58,000	22,000	40,000	9,000
Other	12,000	4,000	19,000	7,000	10,000	2,000	41,000	17,000	23,000	6,000
Agriculture	245,000	25,000	279,000	27,000	267,000	20,000	365,000	23,000	302,000	13,000
Livestock	34,000	11,000	52,000	11,000	95,000	11,000	126,000	17,000	93,000	8,000
Forest	69,000	21,000	106,000	21,000	106,000	16,000	204,000	32,000	138,000	14,000
Hunting	36,000	7,000	63,000	13,000	38,000	6,000	30,000	4,000	39,000	4,000
Fishing	282,000	63,000	455,000	86,000	325,000	36,000	320,000	36,000	341,000	24,000
TOTAL	736,000	72,000	1,057,000	116,000	978,000	63,000	1,250,000	81,000	1,066,000	43,000
Off farm income	71,000	21,000	103,000	19,000	148,000	22,000	204,000	30,000	153,000	14,000

Table 70 Per capita total income (LAK/month) in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total
	Mean	Mean	Mean	Mean	Mean
Employment	6%	6%	10%	8%	8%
Business	2%	2%	4%	5%	4%
Other	2%	2%	1%	3%	2%
Agriculture	33%	26%	27%	29%	28%
Livestock	5%	5%	10%	10%	9%
Forest	9%	10%	11%	16%	13%
Hunting	5%	6%	4%	2%	4%
Fishing	38%	43%	33%	26%	32%
TOTAL	100%	100%	100%	100%	100%

Off farm income	10%	10%	15%	16%	14%
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Table 71 Total income (in percentage) in 2LR villages (Source: 2014 Baseline Socio- Economic Survey)

166. Household incomes are not equably distributed, and typically a small percentage of the population have much higher incomes than the rest. This is also the case for 2LR, where more than 50% of households have per capita incomes of less than 800,000 LAK per month and 11% of households have declared incomes > 2.0 million LAK / month (Table 72 and Figure 13).

Per capita income (million LAK/month)	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total
0-0.4	28%	25%	21%	17%	21%
0.4- 0.8	40%	27%	36%	24%	30%
0.8- 1.2	19%	18%	18%	20%	19%
1.2- 1.6	9%	13%	10%	11%	11%
1.6- 2.0	2%	5%	6%	11%	7%
2.0- 2.4	0%	5%	1%	7%	3%
2.4- 2.8	2%	3%	2%	1%	2%
3.2- 3.6	0%	0%	2%	3%	2%
3.6- 4.2	0%	1%	2%	3%	2%
>4.2	0%	3%	2%	3%	2%
Total n	100%	100%	100%	100%	100%
Total HHs	43	77	181	168	469

Table 72 Income Distribution in 2LR (Source: Baseline Socio Economic Survey, 2014)

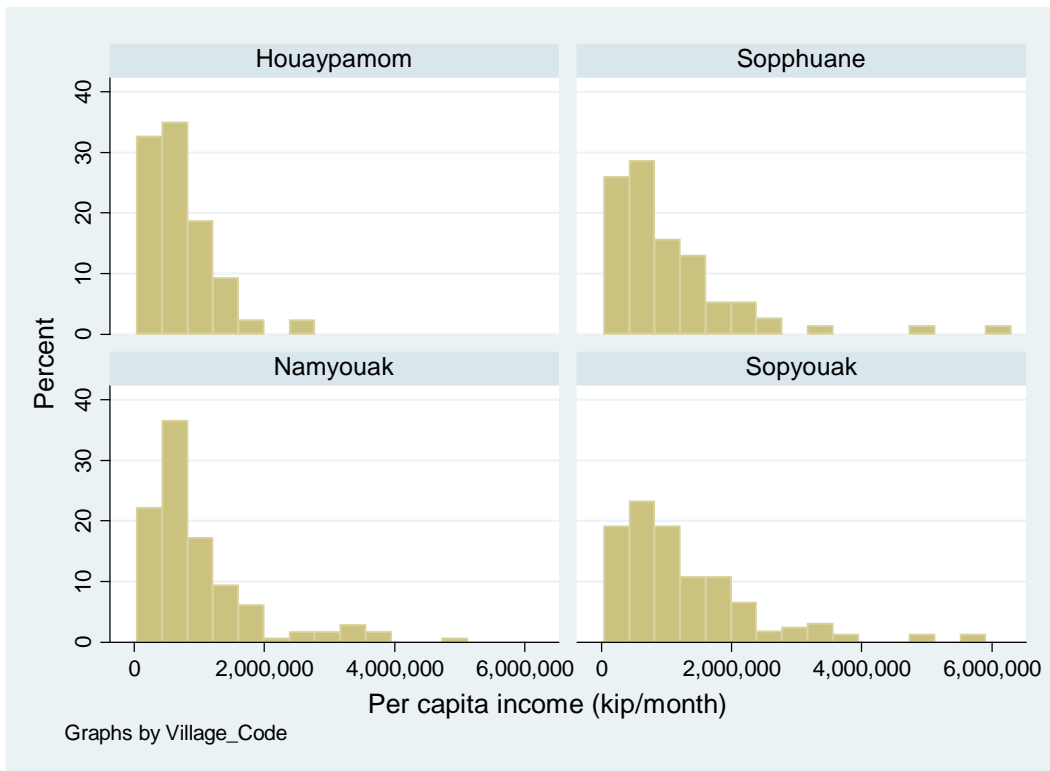


Figure 12 Income Distribution in 2LR (Source: Baseline Socio Economic Survey, 2014)

Rural households in the Lao PDR typically utilize a wide variety of livelihoods, with income diversity often adding to a household’s resilience, particularly for poor households.

There are small differences in the average number of income sources for households between the 4 villages of Zone 2LR. Households in Sopyouak reported an average of 5.4 ± 0.1 income sources whereas the other villages report 5.0-5.2 sources. A small proportion of households have a limited range of household incomes: 7% reported 3 income sources or less, and 24% reported 4 income sources or less.

No of income sources declared in the last year	Houaypamom	Sopphuane	Namyouak	Sopyouak	TOTAL
2	0%	3%	1%	0%	1%
3	7%	10%	4%	5%	6%

4	28%	16%	19%	13%	17%
5	26%	38%	36%	33%	34%
6	28%	25%	31%	37%	32%
7	12%	6%	8%	12%	9%
8	0%	3%	1%	1%	1%
Total	100%	100%	100%	100%	100%
Mean number of income sources	5.1±0.2	5.0±0.1	5.2±0.1	5.4±0.1	5.2±0.1
Total (households)	43	77	181	168	469

Table 2173 Diversity of income sources in Zone 2LR. The survey identified 8 possible incomes sources (Employment, Business, Fishing, Agriculture, Livestock, Forests, Hunting and Other)

2.13 Agriculture and Horticulture Land Use

167. A total of 75% of adults over the age of 18 years in 2LR (with up to 88% in Houaypamom) identified their main occupation as farmer. Students are the second most common occupation (adults > 15 years) and only 5% identified themselves as government workers.
168. Land ownership and land use of the four villages in Zone 2LR is presented in Table 82. Privately held lands account for approximately one third of the total land area of the communities. These privately held lands are almost all agricultural. About 7% of the privately held lands in all four communities are paddy fields and 14 % of the privately held lands are upland rice fields.
- 169.

No.	Village/ Land type	Developed land with planted grass and fence (Ha)	Digging Fish pond/Fish pond with stream (Ha)	Fallow rice field (Ha)	Garden land (Ha)	Garden land for industrial plantation (Ha)	Land at the edge of paddy rice field (Ha)	Land development with natural glass and fence (Ha)	Plowed upland field (Ha)	Rain-fed rice paddy rice field (Ha)	Residential/ Housing land (Ha)	Rotational shifting cultivation (Ha)	Total Area (Ha)
1	Houaypamom	10.19	0.31	1.62	38.15	0.31	9.85	152.11	0.61	20.16	8.21	60.86	302.36
2	Namyouak	13.86	2.70	9.29	73.35	14.07	31.41	141.89		62.95	20.54	16.47	386.53
3	Sopphuane	-	2.20	6.80	98.57	10.25	14.72	119.86		31.56	11.01	99.36	394.33
4	Sopyouak	67.08	6.82	30.92	196.08	134.15	83.52	601.16	0.37	67.00	29.30	181.41	1,397.81
Total		91.13	12.02	48.61	406.15	158.79	139.50	1,015.02	0.99	181.66	69.06	358.11	2,481.03

Table 2274 Land acquisition of 2LR Villages, in ha. (Source: Asset registration 2016)

170. All 4 villages have some common/communal property (Table 75). All 4 villages have cemetery lands and also community grasslands.
171. In all 4 communities, 56% of the total forest land is community managed production forest, with the largest proportion of such forest in Ban Sopyouak and Namyouak, (nearly 64% in both), community managed reserved forest accounts 20% of the total forest area.

Item	Village				Total
	Sopphuane	Sopyouak	Namyouak	Houaypamom	
2. Public Properties					
2.1 School Land	0.8	1.2	1.6	0.5	4.1
2.2 Temple Land	0.0	0.0	0.0	0.0	0
2.3 Village Office Land	0.0	0.0	0.0	0.0	0
2.4 Cemetery Land	1.9	3.6	3.5	1.5	10.5
2.5 Village Health Centre Land	0	0	0	0	0
2.6 Community Grass Land	24.0	125.0	97.0	17.0	263
Total Public Land	26.7	129.8	102.1	19.0	277.6
3. Forest and others					
3.1 Production forest	483.0	750.0	852.0	425.0	2,510.0
3.2 Reserved forest	126.0	311.0	336.0	121.0	894.0
3.3 Other forest					
Protection Forest					
Un-stocked forest	104.0	210.0	218.0	81.0	613.0
Buffer zone	39.0	198.0	210.0	30.0	477.0
Total Forest Land	752.0	1,469.0	1,616.0	657.0	4,494.0
Total Land					7,507.96

Table 2375 Land Use Patterns of Villages in Zone 2LR – community land, in ha.
(Source: Field Survey 2008)

172. Agriculture land use in the project area is currently based primarily upon rain fed rice cultivation, other field crop cultivation, livestock rearing and vegetable gardens. The size of family land holdings varies per land type and village. Holdings in Sopyouak tend to be larger than in the other communities
- 173.

No	Land plot size of Rainfed Paddy Rice Field	No. of HH/Village				Total
		Houaypamom	Namyouak	Sopphuane	Sopyouak	
1	<0.8 ha.	16	41	16	20	93
2	0.8 - 1.6 ha.	7	33	8	31	79
3	1.7 - 2.4 ha.	2	3	4	10	19
4	More than 2.4 ha			2	1	3
Total:		25	77	30	62	194

Table 2476 Number of households with rainfed paddy rice fields land plots by 4 category of size of (Asset registration 2016)

No	Land plot size of Rotational Shifting Cultivation	No. of HH/Village				Total
		Houaypamom	Namyouak	Sopphuane	Sopyouak	
1	<0.8 ha.	9	29	27	28	93
2	0.8 - 1.6 ha.	14	5	15	30	64
3	1.7 - 2.4 ha.	5	2	8	26	41
4	More than 2.4 ha	9		14	23	46
Total:		37	36	64	107	244

Table 77 Number of households with rotational shifting cultivation field plots by 4 category of size (Asset registration 2016).

174. Table 78 presents the area of rice cultivation in each community, by each type of rice field: paddy and swidden or upland fields. The ratio of paddy fields to upland rice fields tend to be about 1 to 1 in Ban Houaypamom, 3 to 4 in Ban Sopphuane, 4 to 3 in Ban Sopyouak and 2 to 3 in Ban Namyouak.

No.	Village	Rain-fed rice paddy rice field (Ha)	Rain-fed rice paddy rice field /Total Cultivation Area (%)	Rotational shifting cultivation (Ha)	Rotational shifting cultivation / Total Cultivation Area (%)
1	Houaypamom	20.16	6.67%	60.86	20.13%
2	Namyouak	62.95	16.29%	16.47	4.26%
3	Sopphuane	31.56	8.00%	99.36	25.20%
4	Sopyouak	67.00	4.79%	181.41	12.98%
Total		181.66	7.32%	358.11	14.43%

Table 25 Area of Rice Cultivation of each Type and Area of Rice Cultivation in Comparison to Other Agricultural Activities (Source: Asset registration 2016)

175. The average yields for rice range from a low of 2.1 ton/ha for upland rice in swidden fields in Ban Sopphuane to a high of 3.8 ton/ha for lowland rice in rain fed paddy fields in Ban Houaypamom. Differences in yields among the communities are rather slight (Table 79).

Village	Paddy Cultivation (ton/ha)	Swidden Cultivation (ton/ha)
Houaypamom	2.6 - 3.8	2.3 - 2.7
Sopphuane	2.4 - 3.7	2.1 - 2.7
Sopyouak	2.9 - 3.6	2.2 - 3.1
Namyouak	2.8 - 3.5	2.4 - 3.0
Average	2.7 - 3.7	2.2 - 2.9

Table 2679 Comparison Yield of Rice Production (Source: Field Survey 2008)

2.14 Rice Sufficiency

176. An assessment of rice-self-sufficiency in 2011 showed that most households are able to produce enough rice to meet their needs for the year. Between 3 to 14% of the villagers have shortfalls of self-produced rice for up to 2 - 4 months of the year, as shown in Table 80 below. These households either buy or exchange in kind the additional rice they need.

Village	Number of Households	Sufficient Year Round	Insufficient for 2 to 4 months	Insufficient for 5 to 6 months	Insufficient for 7 to 8 months
Houaypamom	37	86.5%	13.5%	0%	0%
Sopphuane	58	87.9%	8.6%	3.44%	0%
Sopyouak	126	94.4%	3.2%	0%	2.38%
Namyouak	163	92.6%	7.4%	0%	0%

Table 80 Rice Sufficiency Production Rates of Households on a Yearly Basis (Source: Field Survey 2011)

177. The Baseline Socio Economic Survey was undertaken in October-November 2014, just prior to the annual rice harvest. At that time, households in 2LR reported eating plain rice 6.1 to 6.8 days/week (min and max village mean values)

Food type	Frequency of Food Consumption (days/week)			
	Houaypamom	Sopphuane	Namyouak	Sopyouak
Plain Rice consumption	6.8	6.8	6.5	6.1
Fish	4.5	4.6	4.3	4.8
Pork	1.2	1.1	1.3	1.0
Poultry	1.7	1.4	1.8	2.0
Wild birds	0.9	1.1	1.1	1.1
Wild game	1.3	1.6	1.4	1.1

Table 81 Mean consumption days/week for key food (Source: 2014 Baseline Socio-Economic Survey)

178. The Project's vulnerability officer regularly monitors claims of rice insufficiency to

understand which households are most poor and vulnerable. In the period immediately following relocation, food insecurity will not be an immediate issue due to the planned Rice Supplement Program. However, such a program is not a long term sustainable option; therefore the incidence and causes of any food insufficiency will be closely monitored and addressed through the livelihood support program.

2.15 Livestock

179. Almost all households raise a variety of animals. Chickens, ducks and pigs roam around the houses. Some larger pigs are kept in pens. Other large animals such as water buffaloes, cows and goats are usually left to roam or herded during the day before being brought back to stay near the house at night. Grazing areas are increasingly fenced. The animals are raised both for domestic consumption and for sale. Smaller livestock are an important source of protein.
180. Livestock is an important socioeconomic factor with most households owning some animals, and some households having a large number of large animals. Table 82 provides an overview.
181. While livestock ownership is common within the villages, income⁴ from this source is relatively small, providing only 9% of total income and 13% of cash income. Livestock do, however, provide an important source of savings. Table 84 shows that large livestock (buffalo and cattle) is the principle component of animal value in 2LR. Cows are the most important in terms of total value with an average of 6.2 animals per household providing an average value of 34 million kip/household. Cattle are the next most important in terms of value, though more important in terms of numbers.

182.

Village name	Buffalo	Cow	Pig	Chicken	Duck	Large Livestock
Houaypamom	7%	60%	58%	100%	37	60
Sopphuane	16%	65%	70%	88%	21	68
Namyouak	33%	86%	83%	94	38	90
Sopyouak	45%	79%	82%	95	29	85
Total	32%	78%	78%	94	32	81

Table 2782 Percent households with livestock ownership 2LR (Source: Baseline Socio Economic Survey, 2014)

Village name	Buffalo	Cow	Pig	Chicken	Duck	Large Livestock
Houaypamom	0.3	2.4	2.3	28.3	3.4	2.7

⁴ The cash value of animal and meat sold plus the imputed value of self-consumption)

Village name	Buffalo	Cow	Pig	Chicken	Duck	Large Livestock
Sopphuane	0.7	3.2	4.7	18.6	1.3	3.9
Namyouak	1.8	7.7	4.7	28.9	2.7	9.4
Sopyouak	2.4	6.9	3.5	32.9	2.7	9.3
Total	1.7	6.2	4	28.5	2.5	7.9

Table 83 Mean number of animals owned per household. Chicken ownership is a cropped mean to account for extreme outliers. (Source: Baseline Socio Economic Survey, 2014)

Village name	Buffalo	Cow	Pig	Chicken	Duck	Total	Total Value (x1000 LAK)
Houaypamom	11%	73%	7%	8%	1%	100%	2,400±400
Sopphuane	22%	61%	12%	4%	0%	100%	3,600±500
Namyouak	25%	67%	5%	3%	0%	100%	8,600±600
Sopyouak	34%	58%	3%	3%	0%	100%	8,800±700
Total	28%	63%	5%	3%	0%	100%	7,300±400

Table 84 Per capita value of livestock. Chicken ownership is a cropped mean to account for extreme outliers. (Source: Baseline Socio Economic Survey, 2014)



Figure 13 Poultry promotion at 2LR

2.16 Fisheries

183. The Nam Ngiep River as well as larger tributaries and smaller streams are an important fisheries resource, with almost every meal including some fish, either fresh or preserved.
184. Fisheries are an essential element of nutrition for people from 2LR. Analysis of the 2014 Baseline Socio Economic Survey shows that households in 2LR consume fresh fish an average of 4.3 to 4.8 days/ week depending on the village (Table 35), with a total consumption of about 3.9 kg/per person/month (Table 64).
185. The Baseline Survey found total income (cash and imputed) from fishing was approximately 340,000 kip/person/ month which constitutes 32% of total income. Cash income from fisheries amounted to 25% of total income (Table 72).
186. As elsewhere in the area, river fishing is the task of the men. They use gill net, hook and line and cast nets as the three top gears. While most of the fish they catch is for home consumption, some surplus is on occasion sold at the market. Some villagers also mention that they sell dried fish along the road. In low laying areas women and older persons often contribute significantly to the household fishing, through the use of scoop nets in areas where they can wade, to scoop small fry and collect aquatic products such as snails, frogs, etc. However, in Zone 2LR, there is limited suitable habitat (wetlands) available for this kind of fishing, which can be seen in the fishing gear used and the participation of women in fishing days. The negative impact of no longer being able to do this kind of fishing is therefore limited after resettlement.
187. The Project implements a long term fish catch monitoring program to complement this SES assessment and better understand seasonal variation in fisheries, fishing environments and fishing gears. The survey results will also be used to inform and monitor the Fisheries Co-Management Program for the reservoir. Fisheries development in the reservoir and fish capture program in constructed ponds will be needed to offset the loss of the current fishing grounds.

2.17 Forest Utilization

188. Most households claim that forests are an important factor in their livelihoods. The Baseline Socio Economic Survey (2014) found that forest based incomes (NTFP, timber and hunting) provided a total per capita income of 177,000 kip/ month and constituted 17% of total income and 20% of cash income (refer to Table 71 and Table 72).
189. Villagers largely make use of the surrounding community forests. Most houses are still built from wood and bamboo from the forests and grasses from the fields. Food is cooked with firewood gathered from the forests. Many kinds of food, such as mushrooms, bamboo shoots, vegetables, and herbs are gathered from the forests, while women gather plants for dyeing cloth and for medicinal purposes.

190. Hunting is an important tradition in the communities as well as livelihood activity for people from 2LR, with men out of contact for days in the forest to hunting birds and animals. Villagers hunt, partly for own consumption and partly for sale. Hunting in 2LR is a continuing livelihood activity and the local shops sell ammunition for small guns. While it will be possible for hunters to return to non-inundated forests of 2LR they will also utilize new areas, crossing the mountain next to the resettlement site, within the new resettlement site and potentially over the river on the side of the host communities. Hunting will therefore have to be carefully regulated and managed to avoid resource conflicts.
191. Villagers plant fruit trees and other economic or commercial trees in the forests, including rubber trees in the last years and this trend is ongoing. The Project will undertake community tree plantation in allocated regeneration and protected forest areas of Houay Soup.
192. A number of commercial trees (rubber trees) planted by 2LR villagers above FSL will remain after reservoir impoundment and the Project plan to re-establish access to these plantations through the operation of a commercially operated boat service on the reservoir.
193. Commercial tree and rubber plantation in the resettlement village of Houay Soup are also a potential source of income in the future given the good road access to Houay Soup and the proximity to Paksan, a major trading centre.
194. The products from fruit trees are mostly for domestic consumption. During visits to local markets and markets in nearby towns, nearly all the fruits sold in the market were from the local forests. Commercially grown fruits tend to be imported from China or Thailand. Local fruit selling is very seasonally dependent.

2.18 Other Sources of Income

195. Household income in 2LR comes mainly from fisheries, agriculture (crops and livestock) and Forest resource (NTFP, timber and hunting). Employment and business income remain rather low (14% of total income with “other” and 26% of cash income) according to the 2014 Baseline Socio Economic Survey (see Table 71 and Table 72). Business income is difficult to estimate because of the variation in the nature of businesses and because most business are run almost entirely without record keeping.

2.19 Primary Production and Off-Farm Income

196. Income can be divided between primary production and off-farm income. Primary production includes income from agriculture, livestock, forests and fishing. Off farm income includes employment, business income, and other income such as land rental, interest payments, and remittances. Primary production includes both cash income from sales and the imputed value of self-consumed production. Off-farm income is largely cash

income. Off-farm income is an important method of reducing vulnerability and poverty but, in rural settings, is also highly dependent on the strength of farm sector.

197. As expected, primary production accounts for the majority of income contributing 86% of total income. Off-farm income accounts for only 14% of the total household income but is important to many households because of the cash income it provides (26% of total cash income, mostly from employment).

2.20 Household Expenditure and Consumption

198. Household consumption is the amount of goods and services consumed by a household. Household consumption has been pioneered by the World Bank Living Standards Measurement Studies program as the key indicator of poverty and household living standards since the program's inception in the 1980's. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household living standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:

- consumption has a direct relation to the total "utility" or welfare level of a household;
- consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
- consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and
- households are thought to be less reluctant to share information about expenditure than income

199. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:

- Not all consumption adds to wellbeing of the household
- Consumption of durable items is spread over many years
- Purchase of high values items may inappropriately bias consumption upwards
- Goods and services produced and consumed by the family are not directly valued through a purchase
- Consumption of some items may be supported by increasing debt.

200. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an "annual use value" for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being / standard of living of the household.

201. The 2014 Baseline Socio Economic Survey divided consumption into:

5. Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 6. Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 7. Durable Items such as minor household goods and furniture; and
 8. Use value of major assets such as cars, motorcycles, major household items etc.
202. Mean per capita consumption in 2LR in late 2014 is estimated to be approximately 790,000 kip/month (Table 85 and Table 86). Food is the biggest source of consumption accounting for 69% of total consumption (Table 85 and Table 86). Cash expenditure on food accounts for 27% of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc.).
203. Houaypamom and Sopphuane have the lowest cash expenditure on food but there is no significant difference in consumption between villages.
204. Cash expenditure amounts to 49% of total consumption, which is less than for Zone 3 (Hatsaykham). The percentage of consumption obtained by cash expenditure generally increases with increasing wealth, and conversely the proportion of food consumption in the total generally decreases with increasing wealth.

	Houaypamom		Sopphuane		Namyouak		Sopyouak		Total	
	mean	±se	mean	±se	mean	±se	mean	±se	mean	±se
Food (total)	572,000	±49,000	513,000	±34,000	549,000	±20,000	557,000	±22,000	548,000	±13,000
Food (cash)	116,000	±23,000	103,000	±17,000	160,000	±12,000	161,000	±13,000	147,000	±8,000
Consumables	160,000	±19,000	150,000	±35,000	168,000	±11,000	193,000	±18,000	173,000	±10,000
Durables	48,000	±16,000	60,000	±11,000	54,000	±7,000	75,000	±15,000	62,000	±6,000
Asset Use	3,000	±1,000	6,000	±3,000	4,000	±1,000	10,000	±4,000	7,000	±1,000
Total	783,000	±65,000	730,000	±59,000	776,000	±28,000	835,000	±45,000	790,000	±23,000

Table 85 Household consumption (LAK/person/month) in 2LR (Source: Baseline Socioeconomic Survey, 2014)

	Houaypamom		Sopphuane		Namyouak		Sopyouak		Total	
	mean	±se	mean	±se	mean	±se	mean	±se	mean	±se
Food	73%	±6%	70%	±5%	±71%	±3%	67%	±3%	69%	±2%
Cash Food	15%	±3%	14%	±2%	±21%	±2%	19%	±2%	19%	±1%
Consumables	20%	±2%	21%	±5%	±22%	±1%	23%	±2%	22%	±1%
Durables	6%	±2%	8%	±1%	±7%	±1%	9%	±2%	8%	±1%
Asset Use	0%	±0%	1%	±0%	±1%	±0%	1%	±0%	1%	±0%
Total	100%		100%		100%		100%		100%	

Table 86 Household consumption by village (by percentage of Total) in 2LR (Source: Baseline Socioeconomic Survey, 2014)

205. Household consumption is more normally distributed than income. The majority of households (77% in Sopyouak & Namyouak to 84% in Houaypamom) have per capita consumption rates of less than 1.0 million LAK/month (Table 87).

Per capita income (million LAK/month)	Houaypamom		Sopphuane		Sopyouak		Namyouak	
	Number of HHs	Percent	Number of HHs	Percent	Number of HHs	Percent	Number of HHs	Percent
0 - 0.5	9	21%	27	35%	32	19%	50	28%
0.5 - 1	27	63%	36	47%	97	58%	88	49%
1 - 1.5	4	9%	10	13%	27	16%	33	18%
1.5 - 2	1	2%	1	1%	5	3%	9	5%
2 - 2.5	2	5%	3	4%	7	4%	1	1%
Total	43	100%	77	100%	168	100%	181	100%

Table 87 Frequency distribution of household consumption in 2LR villages
(Source: Baseline Socio Economic Survey, 2014)

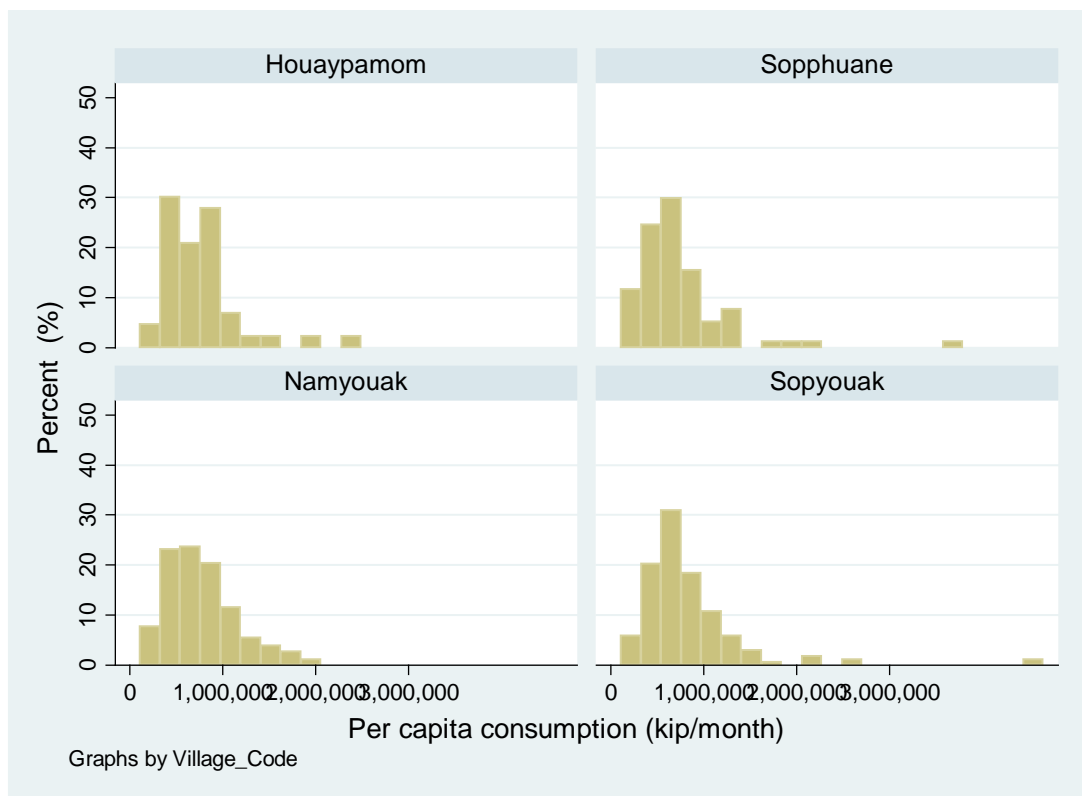


Figure 14: Distribution of Per Capita Consumption (Source: Baseline Socio Economic Survey, 2014)

206. The components of food consumption have also been estimated. Meat has the highest monetary value of monthly consumption, followed closely by staples and fish (Table 88).

	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total	
	mean	mean	mean	mean	mean	se
Staples	115,000	125,000	124,000	124,000	123,000	4,000
Fish	102,000	153,000	104,000	110,000	114,000	10,000
Meat	105,000	125,000	128,000	127,000	125,000	5,000
Milk Eggs	8,000	10,000	20,000	25,000	19,000	1,000
Vegetables	57,000	34,000	48,000	48,000	47,000	2,000
Fruit	44,000	41,000	33,000	27,000	33,000	1,000
Other	28,000	39,000	47,000	50,000	45,000	2,000
Alcohol	27,000	10,000	7,000	14,000	11,000	2,000
Tobacco	9,000	5,000	3,000	4,000	4,000	1,000
TOTAL	496,000	543,000	513,000	529,000	522,000	

Table 2888 Imputed Consumption Values (LAK) per Person per Month (Source: SES AR 2014)

2.21 Poverty

207. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social, health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics. .
208. The current estimate of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 kip per capita /month (US\$28.75 at current rate of exchange). It is based on the inflation of the 2010 poverty line to 2014 prices). Poverty lines also include measurements typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at the moment as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line ⁵
January 2010	95	180,000
October 2014	123.4	230,000

*

Table 2989 Estimated poverty line for study area. (Expressed to the nearest 10,000 LAK)

209. A total of 469⁶ households out of the total 481 households were assessed in the 4 villages. A

⁵ GoL Decree on Poverty Criteria and Development Criteria 2012-2015, No. 201/GO, April 25, 2012

⁶ 469 Households were interviewed for the socio economic survey. The remaining 12 households could not be interviewed, because they were temporary absent from their home; refused to

total of 9 households or about 2% of the population were classified as poor on our estimate of the current poverty line (230,000 kip/person/month). See Table 90.

210. This poverty evaluation is likely to be valid at a statistical level for the population (i.e. it is a reliable estimate of the overall percentage of household living in poverty) – however, it only provides an initial guide for evaluation individual households since it is largely based on “average calorific requirements” and subject to some measurement error.
211. The estimate of the number of households living in poverty is relatively insensitive to increases in the poverty line above our estimate since only one household was classified as “near poor” (230,000-250,000 LAK/ month).

Village	Houaypamom	Sopphuane	Namyouak	Sopyouak	Total
Above Poverty Line	100%	95%	98%	99%	98%
Near Poor	0.0%	0.0%	0.6%	0.0%	0.2%
Poor	0%	5.2%	1.7%	1.2%	1.9%
Total number households	43	77	181	168	469

Table 3090 households’ poverty percentage in 2LR (Source: Baseline Socioeconomic Survey, 2014).

2.22 Vulnerable Households

212. Vulnerable households are households that may fall into poverty as the result of external stresses such as resettlement. The vulnerability assessment also included identification of households with special needs.
213. The vulnerability-assessment for 2LR identified 66 potentially vulnerable households with a total population of 418 people. The reasons for their vulnerability are diverse and include the presence of physically or mentally impaired household members, drug addicts, low income, and 6 female headed household (Table 91 below).

participated in the survey or otherwise unavailable to be interviewed.

Source of vulnerability	<i>Houaypamom</i>		<i>Sopphuane</i>		<i>Sopyouak</i>		<i>Namyouak</i>	
	HHs	Residents of vulnerable HH	H Hs	Residents of vulnerable HH	HHs	Residents of vulnerable HH	HHs	Residents of vulnerable HH
Intellectually impaired	1	4	1	7	5	26	7	57
Low income and physical disability	4	12	3	27	6	45	6	40
Female headed household	0		2	2	3	19	1	1
Low income	0		3	19	0		4	37
Drug addict	4	20	3	13	5	49	5	34
Elderly	0		0		2	4	1	2
<u>TOTAL</u>	<u>9</u>	<u>36</u>	<u>12</u>	<u>68</u>	<u>21</u>	<u>143</u>	<u>24</u>	<u>171</u>

Table 91 Vulnerable Households in 2LR villages (Source: 2015 field visits)

While the vulnerable households overlap with households experiencing rice insufficiency, special attention will be paid by the Project to the specific kinds and causes of vulnerability, and it will extend transitional assistance, and provide additional health support. For households having persons with physical disabilities, care will be taken to ensure the replacement housing is easily accessible.

CHAPTER 3 - Zone 3 Socioeconomic Profile

3.1 Demography and Population Changes

214. Hatsaykham village (Figure 16) was founded in 1993 by 13 Hmong families from the Wang and Xiong clans, migrating from Phou Hong area near Phou Katha. These families have relationships and relatives upstream including in Zone 2LR. The migration was guided by GoL's policies to eradicate slash-and-burn and to sedentarise Hmong in lowland areas. The village is administratively amalgamated with Hat Gniun, a Lao Loum village located a few kilometres away.

215.



Figure 15 Khum Hatsaykham

216. A new census (August) and baseline socio-economic survey (October - November) were conducted in 2014 with every household of the village, to determine expected losses and to integrate DP perspectives and concerns in the planned social and economic development activities. Hatsaykham was also part of the Socioeconomic Survey along the Access Road and 230kV-T/L. Survey results show the original 13 families of earlier surveys have now expanded to 39 households with a total affected population of 289 people (Table 100). The population structure is shown in Table 101.

Item	Village
	Hatsaykham (sub-Village of Ban Hat Gniun)
Population Structure (people)	289
Household Number	39
Male (people)	146
Female (people)	143
Size of Household(people/HH.)	7.41
Ethnicity	Hmong: 274 Lao Loum: 15

Table 92 Population Profile of Zone 3 (Census survey, Aug. 2014)

Remark: in the 2011 survey, all DPs of Hatsaykham declared themselves Hmong

Age	Male	%	Female	%	Total	%	M:F Ratio
<5	28	19.18%	30	20.98%	58	20.07%	0.93
5-10	26	17.81%	22	15.38%	48	16.61%	1.18
11-15	15	10.27%	24	16.78%	39	13.49%	0.63
16-20	21	14.38%	14	9.79%	35	12.11%	1.50
21-25	14	9.59%	16	11.19%	30	10.38%	0.88
26-30	12	8.22%	7	4.90%	19	6.57%	1.71
31-40	15	10.27%	12	8.39%	27	9.34%	1.25
41-50	5	3.42%	6	4.20%	11	3.81%	0.83
51-60	6	4.11%	5	3.50%	11	3.81%	1.20
>61	4	2.74%	7	4.90%	11	3.81%	0.57
Total	146	100%	143	100%	289	100%	1.02

Table 93 Age and Gender Structure of Hatsaykham (Census survey, Aug. 2014)

217. Compared census results from 2007 with the Census of 2011 and the Confirmation Survey of 2014, show a population increase from 165 to 289, i.e. an annual population growth of more than 8%. Significant points for the resettlement action plan are as follows:

- Around half the population is under age 15 and females slightly exceed males in this age group.
- A continuation of the current population growth rate will result in the doubling of the population of Hatsaykham within 9 years. The population of affected villages in zone 2LR are believed to have a similar growth rate (these villages have a similar percentage of the population under 15)

3.2 Ethnicity

218. A total of 95% of villagers belong to the Hmong ethnic group and no household solely consists of people of Lao Loum ethnicity. Three families are of mixed ethnicity due to intermarriage. No other ethnicities other than Hmong or Lao Loum live in Hatsaykham.

3.3 House Style

219. The majority of dwellings in Hatsaykham are traditional Hmong structures of one storey built on rammed soil with the kitchen separate from the main house. Housing materials are of bamboo for the poorer households, and wood for more prosperous households, with palm and rush roof roofing (Figure 16). Some elevated Lao Loum-style houses with wooden and bamboo matting construction for bedrooms have been adopted, while kitchens of Hmong type remain the same. The adoption of Lao Loum style by some households suggests that at least some of the population are prepared to adopt new technologies where they are seen to be advantageous. Household preferences have been taken into account when designing replacement housing in Houaysoup (see Chapter 8).



Hmong Style with Kitchen Space



Hmong Style Main House



Hmong Style Kitchen House



Lao Loum Style Main House with Hmong Style Kitchen Space

Figure 16 Typical House Styles in Khum Hatsaykham

Wall Material	Percent households	Roof Material	Percent households
Wood	54%	Corrugated metal	67%
Bamboo	41%	Tiles/sheet tile	15%
Brick	5%	Leaf/rush matting	10%
		Other	8%
Total	100	Total	100

Table 94 Housing construction material, Hatsaykham (Source: 2014 Baseline Socio Economic Survey)

3.4 Social Organization and Cultural Relations

220. DPs in Zone 3 are integrated into a diverse and complex network of social organizations and cultural relations. A key element is the public administration of Lao PDR. People are resident in villages, headed by a Village Chief. In the case of Zone 3, the Village Chief is Lao Loum and based in Hat Gniun. The Deputy Chief is Hmong and based in Hatsaykham. Villages are combined into kumbans and at the next level into districts, which again form provinces, finally resulting in the national community of Lao PDR. On relocation to Houaysoup and with the arrival of the 2LR households, the district authorities intend to recognise the new village and appoint its own administration.
221. Ministries at national level are represented at provincial and district levels. Essential for this project are the Ministry of Energy and Mines (MEM), the Ministry of National Resources and Environment (MoNRE), the Ministry of Agriculture and Forestry (MAF), and also the Ministries of Health (MoH), Education (MoE), and of Information and Culture (MIC). These public institutions are supported by mass organizations with structures at all levels, including the Front for National Construction, the Lao Women's Union (LWU), and the Lao Youth Union.
222. Next to these public institutions, DPs are integrated into further social and cultural relations within and between villages. These include at village level informal, but influential, elders' councils, which have an essential say in the development of a community. Different communities may be amalgamated into one administrative unit, even though culturally and geographically distinct, as in Hatsaykham's pre-relocation circumstances.
223. Hmong households in Hatsaykham are identified and linked by clan systems, which connect them with villagers from the upper and lower reservoir area. These linkages extend further to Hmong communities in the rest of the country as well as abroad, which allows them to mobilize economic, cultural, political and social resources to support the communities in their communication with the Project. It also enables information about experiences in other

hydropower projects to be widely shared and circulated.

224. Recent Lao history has encouraged further social networks between local and central level, which have to be taken into account when addressing stakeholders. While for the older generation, the liberation war is an essential factor in the evolution of such networks, for the young generation, modern communication as well as work and education in urban areas have extended social networks, providing them with additional social and cultural resources and influencing their development, preferences and life choices. With the recent electrification of the villages in zone 3, a further influx of technology can be expected, with possible changing patterns of livelihoods expectations.
225. Social Organization and Cultural Relations follow the pattern discussed in Chapter 7 of the REDP. Hmong groups are divided into patrilineal clans (*xeem*) which are strictly exogamous, that is marriage outside the birth clan is compulsory. Polygyny is traditional but less observed nowadays than in the past (no polygynous households occur in Hatsaykham). Loyalty to one's clan is central and clan solidarity is very important, linking members to villages throughout the country and even abroad.
226. The Hmong are believed to have their origins in China and to have migrated into northern Southeast Asia during the 19th century. There are 19 Hmong clans currently living in Lao PDR and they are generally group-oriented, with interests of the group coming before the interests of the individual, and clan leaders in each village representing the interests of the village. In the project impacted areas, there are four main clans: Yang, Vang, Xiong, and Lor, although there are some persons from clans such as Pialouang, Moua, Lee, Her and Vue who have married into these clans. In Hatsaykham hamlet, the Xiong clan leads other clans socially and politically. Family members are under the authority and direction of the male-headed clans and household, usually the oldest male. Sons will automatically inherit family property and all other assets, and are often the ones to receive formal education. For this reason, male elders represent village households in all discussions, particularly with outsiders, and it is unusual for any person or family to contradict elders in public meetings.
227. Hmong villages aim to be self-sufficient and autonomous with limited interaction with other ethnic groups. Of special importance is the historical as well as continuing clan-based relation to the villages of 2LR, where people from the Zone 3 village originate. This relationship led to the request from affected households to resettle together with DPs from 2LR rather than follow the original proposal, which was to move the village closer to the centre of their current administrative unit, Hat Gniun.

3.5 Infrastructure

228. Infrastructure and services in Khum Hatsaykham were basic prior to the start of the project. Water for drinking and household use came from the Nam Ngiep or the adjacent Houay Say tributary. In June 2014 the Project installed three boreholes with hand

pumps as a temporary measure until relocation. Sufficient water is available from these boreholes throughout the year and the quality is considered good. The Baseline Socio-Economic Survey (2014) found that 29 households were using the hand pumps for drinking water in the dry season, 3 households stated they used bottled water and 2 household continued to use river water. Electricity reached the village in 2013, and the Project enabled every household to install electricity meters and to link up to the grid.

229. With the exception of a school for 1 to 3 grades, public services are available only in the main village of Hat Gniun. There are some privately owned small shops, similar to those in other villages, where soaps, detergents, and other daily household goods can be purchased. Business has been quite good with construction workers.
230. As elsewhere in Laos, a significant number of villagers are members of village-based mass organisations such as the LWU, Lao Youth Union, and Lao Workers’ Union.

Items	Existing Condition
1. Infrastructure / service	
Electricity	Available; electricity meters subsidized by the Project
Drinking water source	Boreholes with hand pumps, Nam Ngiiep, Houay Say
Water use source	Boreholes with hand pumps, Nam Ngiiep, Houay Say
Transport/ Communication Problem	All-season/all-weather road by the Project Dirt roads within villages Boats with engine Mobile phone available
2. Social Welfare	
Market	None
Pre Primary/Nursery	None
Primary School	Grade1-3 (2014/15: Grade 1-2); at Ban Hat Gniun for Grade 4-5
Temple	None
Health Centre	None
Cemetery	1.2 ha
Grocery	Available
3. Private and Public Organization (number of members)	
Lao Women’s Union	30
Lao Youth Union	52

Items	Existing Condition
Lao Workers' Union	7

Table 95 Infrastructure of Hatsaykham (Source: field visits 2014;)

3.6 School Attendance

231. Historically, school attendance in Hatsaykham has been poor as it is often not a high priority for households, particularly when they must struggle to find enough to eat, and families are unlikely to have seen the impact of education in improving their daily life. This is especially so for girls who are expected to help in household chores. Traditionally, Hmong girls are supposed to work at home and education is not considered important for them. Education is more accessible to Lao Loum communities, given that Lao language is the medium of education, especially at higher levels. With the increasing importance of off-farm activities, formal education has become more valuable and nation-wide the general awareness of this importance is rising.
232. Khum Hatsaykham has a newly established school with Grades 1 to 2 (2014/15 reduced to grade 2), and with one teacher on service. To continue their studies beyond Grade 2, the children have to travel 4 kilometres to Ban Hat Gniun.
233. Historically, school enrolment and attendance rates were low, particularly during main agricultural seasons due to the need for children's labour. The poor road access to Hat Gniun was also a deterrent to continued education, and those children who did continue in school either stayed overnight at Ban Hat Gniun or had to commute by boat. The regular absence of the assigned teacher also reduced the number of school days for the children.
234. The Project has now organized a school bus system for primary school children, guaranteeing safe and reliable transport to school. It will be handed over to the community after a year of operation if villagers would like to continue it. It brings children from Hatsaykham and other villages to Hat Gniun in the morning and brings them back in the evening.
235. The Baseline Socio Economic Survey (2014) was undertaken after the introduction of the new school bus system and the start of monitoring school attendance by the NNP1 Education Team. Primary age enrolment is now > 90%, with enrolment rates slightly higher for girls than boys. Boys appear to be enrolled in the first year of primary school later than girls. Hmong children in Hatsaykham are not all able to speak the Lao language when they start school: 6 of the 17 children in Hatsaykham aged 5 or 6 years could not speak Lao well and one child could not speak Lao at all. The combination of Lao as a second language and the historical lack of emphasis on education has resulted in children from Hatsaykham progressing through primary at a relatively slow rate: the average age of children in Grade 5 in Hatsaykham was 14 years (Baseline Socio Economic Survey, 2014). Secondary enrolment

is also relatively low with only 55% of children of Lower Secondary age enrolled. Enrolment in Lower Secondary School was similar for males and females.

School Enrolment	Zone 3 Hatsaykham
Primary enrolment	
MALE	90%
FEMALE	94%
Mean age in grade 5 (10.5years)	14 years
Secondary enrolment	
MALE	54%
FEMALE	55%

Table 96 School enrolment 2014 (data source: Baseline Socio Economic Survey)

3.7 Education and Literacy

236. The Baseline Socio Economic Survey indicated only 15% of adults had no formal education, 68% had primary education or higher, a further 17% had lower secondary of higher. Women have relatively high rates of primary education compared to men but are less likely to go on to higher education: 61% of women have completed primary education or higher, but 79% of men have completed primary education or higher.

Years of Education	Completed Grade	Male		Female		Total	
		#	percent	Number	percent	Number	Percent
0		6	8%	16	22%	22	15%
1		0	0%	1	1%	1	1%
2		1	1%	3	4%	4	3%
3		1	1%	2	3%	3	2%
4		5	7%	5	7%	10	7%
5	Primary	22	31%	32	44%	54	38%
6		5	7%	2	3%	7	5%
7		3	4%	0	0%	3	2%
8		4	6%	5	7%	9	6%
9	Lower Secondary	7	10%	4	6%	11	8%
11		7	10%	0	0%	7	5%
12	Upper Secondary	6	8%	1	1%	7	5%
	Tertiary	3	4%		0%		0%
	Vocational	2	3%	0	0%	2	1%

Table 97 Adult Education Profiles of Zone 3 (Hatsaykham) Affected People (Source: Socioeconomic Baseline Survey 2014)

237. Total years of schooling, literacy and the ability to speak the Lao language are related to age. The youngest generation of adults (20-29 years) in Hatsaykham have received 6.5 years of schooling on average, and while 96% of this group speaks Lao, only 49% are fully literate in the Lao language. Older age groups have lower levels of education and literacy. Elders over 60 years of age have received 3 years of education on average, 55% speak Lao and only 33% are fully literate in the Lao language.
238. Education and literacy are generally lower for women: only 24% of adult women in Hatsaykham were fully literate compared to 64% of men, and 80% of adult women spoke Lao compared to 95% of men.
239. The Project has already started adult literacy classes in Zone 3 in response to an expressed desire from the village to improve adult literacy.

Age Group	Number in age groups	Mean years of schooling	Se(mean)	Literate	Speak Lao
20-29yrs	53	6.5	± 0.6	49%	96%
30-39yrs	28	5.1	±0.6	44%	96%
40-49yrs	10	4	±1.2	40%	67%
50-59yrs	16	3.9	±1	44%	79%
60+yrs	12	3	±1	33%	55%

Table 98 Years of education and literacy by age group for adults in Hatsaykham (data source: Baseline Socio Economic Survey, 2014).

3.8 Diet and Nutrition

240. The nutritional status of a person is a function of the nature and quantity of food intake (diet), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.
241. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anaemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in health-threatening conditions like wasting, obesity and metabolic syndrome and lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption is an increasing problem in the developing world.
242. Estimated food intake per person in Hatsaykham (Baseline Socio Economic Survey, 2014) appears relatively good with nearly 18kg of staples consumed per person per month and a total intake of about 6kg of meat and fish/person/month (This is total weight and includes non-edible parts).

FOOD	Days per week	Amount	Unit
Staples	7	17.9	Kg/person/month
Fish and Eels	4.7	2.2	Kg/person/month
Chicken/Duck etc	2.7	1.2	bird/person/month
Pork	3.2	1.1	Kg/person/month.
Wild Animals	2.3	0.8	Kg/person/month.
Beef	1.6	0.6	Kg/person/month.
Wild Birds	1.4	0.4	bird/person/month
Dried or preserved whole fish	2	0.3	Kg/person/month.
Buffalo	1	0.3	Kg/person/month.
Land/Water insects	0.4	0.1	Kg/person/month.

Table 99 Food intake for Hatsaykham (data source Baseline Socio Economic Survey, 2014)

243. The 2014 Health Survey used 2 simple approaches to the measurement of the nutritional status of Hatsaykham:

5. Child anthropometric measurements and
6. Anaemia levels amongst women of child bearing age.

Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition and recurrent infections, such as diarrhoea and helminthiasis (parasitic infections), in early childhood. Anaemia is low levels of red blood cells due to insufficient iron. It causes tiredness, inability to work and affects child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.

Nutritional Indicator	Value
Stunting children under 5	54%
Anaemia in women 25-45 years	30%

Table 100 Nutritional indicators for Hatsaykham (data source Baseline Health Survey 2014)

247. The baseline health survey for Hatsaykham shows that apparently adequate levels of food consumption have not been translated into health outcomes. High levels of child stunting (54%) and anaemia in Hatsaykham women (30%) are likely to be the result of a combination of the historical use of unsafe water supply, no household sanitation, open defecation and poor hygiene leading to high rates of diarrhoea and parasitic infections, in turn contributing to poor overall nutritional status. Other factors that may be important are lack of access to

health services, inequitable distribution of food within the household (women and children), significant drudgery workloads, as well as early and frequent pregnancies for women.

3.9 Health and Health Services

248. The Hmong of Khum Hatsaykham practice animism. When people become ill, they may first turn to local spiritual healers and traditional medicines. When illness becomes more serious, they resort to modern health facilities in the district of Bolikhan or the provincial hospital at Pakxan. With the upgrade of the road to Hatsaykham by the Project, access to Bolikhan district hospital (45 minutes by motorbike or car) and Pakxan Provincial Hospital (90 minutes by motorbike or car) is now possible year-round. Previously, road access to Bolikhan was difficult during rainy season and Pakxan mainly reachable first by boat and then by car, and taking much longer.
249. Table 101 lists the illnesses identified by the Bolikhan District Health department during a health check conducted in March 2015 in Khum Hatsaykham. The health checks were voluntary, and a total of 246 persons presented for the check out of a total population of 292 (84% sample). Gastritis and neuralgia are the most prevalent health complaints reported. Gastritis, diarrhoea, dysentery, bronchitis and cold/flu diseases are seasonal and temperature-dependent with levels of rainfall and humidity playing an important role in their occurrence. Lack of sanitation facilities is a further aggravating factor for gastritis type diseases.

Health Complaint	Patients	Percent population
Gastritis	22	9%
Neuralgia	21	9%
Cold/Flu	10	4%
Back pain	10	4%
Vertigo	7	2.8%
Angina	7	2.8%
Vaginal discharge*	6	1.0%
Fatigue	5	2.0%
Eye pain	5	2.0%
Diarrhoea	3	1.2%
Dysentery	3	1.2%
Bronchitis	3	1.2%
Ear infection	1	0.4%
Wound	1	0.4%
Rheumatism	1	0.4%
Burn	1	0.4%
Population checked	246	84%
Total population	292	

* Prevalence of vaginal discharge is for total number of females.

Table 101 Health complaints reported in Zone 3 (Source: Health Checking, Mar. 2015)

3.10 Gender Issues and Status of Women

250. Gender dimensions of concern in the project area which also apply to Zone 3 include:

- land rights; most land and housing are formally or informally under male control and patrilineal heritage line. This is addressed by all replacement land and housing registered and titled in the joint names of husband and wife. Where a man has more than one wife, the second family will be separately titled in the name of the wife and a male family member of her choice (e.g. eldest son)
- financial management; where compensation money may be handed only to a male household head, there is higher risk of poor subsequent investment. The Project has instituted bank accounts in the joint names of husband and wife, with prior financial training provided to understand how to deposit and withdraw funds. All acknowledgement of receipts or withdrawals must have the joint signatures or thumbprints of both husband and wife. This compensation procedure was instituted for roads and TL land acquisition, and has proved very popular, particularly with women

- hard work; women have multiple responsibilities taking care of the house, cooking, caring for the sick, elderly and children, gender-specific agricultural tasks (e.g. weeding, hoeing, fetching water, land clearance, harvesting, etc.), and income generating work. Replacement housing will integrate labour saving devices such as accessible domestic water supply, electricity, etc. to reduce the drudgery component of these responsibilities
- health; reproductive and maternal health is poor with comparatively high levels of anaemia, and continued laborious work throughout pregnancy. Sanitation is poor, and improved water and sanitation facilities will be provided in replacement housing, and training given in their use. The health program is outlined in more detail in the SDP
- education; less formal education due to early inclusion into domestic work, and less ability to understand written documents particularly if the first language is not Lao. The Project is already running a bus service to enable children to access the higher school in Hat Gniun. Improved educational facilities will be provided in Houaysoup, with permanent teacher presence and teacher housing. Adult literacy and basic numeracy classes, particularly for women, will also be implemented for all those interested to participate.
- communication; typically external agencies and government extension staff tend to talk only to male village representatives and in Lao language, especially where the culture is patriarchal and patrilineal, as with Hmong. The Project has made particular effort to employ Hmong men and women as fieldworkers. All communication with Hatsaykham DPs is in Hmong language. Women's meetings are held separately from those of men, and women's preferences for various types of training are given precedence
- ethnicity; ethnic minority women are proportionately less familiar with Lao language and therefore less likely to be informed of their rights. See above point

251. Hatsaykham's Hmong community is strongly patriarchal. Family members are under the authority and direction of the male-headed household, usually the oldest male. Sons will automatically inherit family property and all other assets and are often the ones to receive a formal education. Hmong women normally do not represent the family status and may not be included in meetings. Even if they participate, women rarely voice their opinions. Both a Hmong man and woman are considered adults only after they have produced children. Hmong woman only gain prestige in the family by giving birth to a boy.

252. Separate consultation meetings with female villagers resulted in the following gender issues being identified:

- Around 24 % of females have no formal education and around 25 % did not complete primary school
- Early marriage (15 to 16 years) and early and frequent pregnancies
- High demand of physical labour including raising of children and care of livestock,

as well as most housework and tending gardens

- Informally no property rights for females recognized
- No traditional right to divorce for females
- Husbands generally as lone decision makers;
- Few opportunities for financial independence or to learn new livelihood activities such as weaving, tailoring, and food preservation techniques
- Health problems such as diarrhoea, womb pain, body ache; distance to Pakxan hospital is a further health-related issue and previous access available only during the dry season

3.11 Information and Services

253. Hatsaykham has access to national mobile phone networks, and now that electricity has reached the village, to television coverage also. Television also communicates information to the villages from national stations, as well as Thai, Chinese, and Vietnamese stations. Via satellite dishes, other international stations can be reached.

254. Provision of electricity and compensation payments in 2014 (for access road impacts) has led to rapid acquisition of electrical goods. In 2015, a total of 97% of households reported owning a mobile phone and 85% own a TV. Ownership of labour saving devices is also rising: 82% of households own an electrical rice-cooker and 44% a refrigerator / freezer.

Item	Household owning asset.
Mobile phones/other	97%
Televisions	85%
Electric rice cooker	82%
Satellite dish	72%
Tape players/CD	54%
DVD Player	49%
Refrigerators/freezers	44%
Water Dispenser	8%
Cameras, video cameras	8%

Table 102 Ownership of electrical goods by household in Hatsaykham (data source: 2014 Baseline Socio Economic Survey)

255. Improved transportation and widespread ownership of motorbikes, together with electrification and a captive market of several thousand construction workers, have contributed to increased diversification of the Hatsaykham economy.

256. The 2014 Baseline Socio Economic Survey found that 85% of households own a motorcycle and 21% of households a car/truck. Boat ownership (36%) was high, and 18% of households

owned a hand tractor.

Item	Household owning asset.
Motorcycles/scooters	85%
Boat	36%
Boat motor	31%
Water Pump	28%
Car or truck	21%
Hand Tractor	18%

Table 103 Ownership of productive assets by household (data source: 2014 Baseline Socio Economic Survey)

3.12 Income

257. Total income is expressed as income per person per month for the household. Total income is the sum of income from all sources for all household members; it includes wages and salaries, pensions, interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food).
258. The 2014 Baseline Socio Economic Survey (2014) represents the most comprehensive and reliable estimate of household income in Hatsaykham and largely supersedes the results of the Road Access Socio Economic Survey (2014).
259. The Baseline Socio Economic Survey (2014) found households in Hatsaykham reported a mean per capita income of 1.06 million kip/month, with approximately 63% of this income occurring as cash income, which is similar to the estimate of total incomes made in the Road Access socio-economic survey (1.1 million kip/month).

Hatsaykham	Total Income (LAK/person/month)	Percent of total income	Mean Cash (LAK/person/month)	Percent of total cash income	Have cash income Percent Households
Fishing	462,362	43%	195,086	31%	49
Forest	181,252	17%	175,401	28%	56
Agriculture	167,211	16%	31,612	5%	44
Employment	95,380	9%	95,380	15%	85
Livestock	63,823	6%	51,641	8%	54
Business	47,639	4%	47,639	8%	21
Hunting	41,442	4%	26,376	4%	41
Other	5,928	1%	5,928	1%	13
Total	1,065,037	100%	629,063	100%	95

Table 104 Income Per Person Per Month (Source: Baseline Socio Economic Survey 2015)

260. Household incomes are not equably distributed, and typically a small percentage of the population have much higher incomes than the rest. This is also the case for Hatsaykham, where 32 households (40%) have per capita incomes of less than 800,000 kip per month⁷ and 2 households (6%) have declared incomes > 2.4 million kip / month.

Per capita income (million LAK/month)	Number of households.	Percent
0-0.8	17	44%
0.8- 1.6	14	36%
1.6- 2.4	6	15%
2.4- 3.2	1	3%
3.2- 4.0	1	3%
Total	39	100%

Table 31 Income Distribution in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

3.13 Agriculture and Horticulture Land Use

261. A total of 91% of adults over the age of 18 years in Hatsaykham identified their main

⁷ Lowest per capita income was 133,000 kip/month.

occupation as farmer. While farming activities are likely to consume the majority of people's time, and hold an important place in their cultural identity, the cash and imputed value of farming activities (Agriculture and Livestock) is only the second highest source of income for the village, providing only 22% of total income and 13% of cash income. The importance of farming, particularly agriculture, should not be underestimated however, as having rice in the rice store after harvest is an important starting point for the forthcoming year's activities. Additionally, livestock provide an important fallback or coping mechanism to deal with internal and external shocks to the household (e.g. ill health, floods, agricultural pests etc.)

262. Table 10 presents the patterns of land use in Khum Hatsaykham. As with the other villages upstream from the dam site, about 60% of the total village land is forest area and officially state owned, though villagers consider it part of their overall village resources and use it accordingly to extract non-timber forest products (NTFPs), for hunting, and livestock grazing. Thirty five percent (35%) of the total land area of the village has private tenure claims. Ninety four percent of this land (or 32% of the total village land area) is claimed agricultural land. Sixty eight percent (68%) of privately held agricultural land is for rice production, the large majority being for rain fed upland rice land, not too different from the ratio found in other communities upstream from the dam site. Only about 2% of the total land area is claimed as residential.
263. Six percent (6%) of the total land area is considered public or common property. Most of that is public grassland for grazing. The other public properties are a cemetery and school land.
264. Much of the forest land is used or managed by the community. About 40% of the total area and 52% of forest land is community and conservation forest. Another 22% of the total area and about 29% of the forest land is production forest. 11% of total area is un-stocked forest.

Land Use	Hectares	%
<i>Private Properties</i>		
Upland rice fields (Temporary or Permanent)	140.6	12%
Grazing Land (Private) with Land DPer and tax payment	52.5	5%
Upland Garden Field - Short term crop	36.5	3%
Paddy fields	30.7	3%
Rubber and other production tree plantation land	29.6	3%
River Bank Gardens	28.1	3%
Residential land	22.9	2%
Timber Plantation Land	17.4	2%
Fruit tree plantation Land	15.7	1%
Fallow field	13.5	1%
Fish Ponds	1.8	0.20%
Total Private Properties	389.3	35.20%
<i>Public Properties</i>		
Grass Land	67	5.9%
Cemetery land	1.20	0.1%
School Land	0.70	0.06%
Total Public Properties	68.9	6.06%
<i>Forest and Others</i>		
Community Forest	244	21.6%
Production forest	193	17.1%
Conservation Forest	107	9.5%
Un - stocked forest	97	8.6%
Buffer Zone	25	2.2%
Other land use	4.60	0.4%
Total Forest Land	670.6	59.4%
Total	1128.86	100.00

Table 106 Land Use Pattern of Zone 3, Khum Hatsaykham (Source: private properties from self-declarations in SES Access Road 2014; public land from Field Survey 2011)

265. The scope of land acquisition is outlined in the next chapter. Agricultural land which is not impacted will not be compensated as DPs will be able to continue to use it. Given that the new residential area of the resettlement site will be just around 1.5 kilometres distant from the current residential area, the maximum additional distance to non-impacted agricultural land is another 1.5 km and readily accessible.

3.14 Rice Sufficiency

266. An assessment of rice self-sufficiency in 2011 showed that 64 per cent of the villagers grow enough rice themselves to consume for more than 10 months of a year round. The remaining rice requirements are purchases or acquired by exchange. These households do not suffer any rice insufficiency.
267. The Baseline Socio Economic Survey was undertaken in October 2014, just prior to the annual rice harvest. At that time, households in Hatsaykham reported eating plain rice 5.2 days/week and glutinous rice 3.6 days per week. A cross-tabulation indicated no household consumed rice less than 7 days/week. The majority of households reported purchasing plain rice (85% of households) and sticky rice (77% of households).
268. The Access Road Socio Economic Survey (2014) found that all households except one now have enough rice to eat for 12 months of the year. The Project's vulnerability officer regularly monitors claims of rice insufficiency to understand which households are most poor and vulnerable. In the period immediately following relocation, food insecurity will not be an immediate issue due to the planned Rice Supplement Program. However, such a program is not a long term sustainable option; therefore the incidence and causes of any food insufficiency will be closely monitored and addressed through the livelihoods support program.

3.15 Livestock

269. Almost all households raise a variety of animals. Chickens, ducks and pigs roam around the houses. Some larger pigs are kept in pens. Other large animals such as water buffaloes, cows and goats are usually left to roam or herded during the day before being brought back to stay near the house at night. Grazing areas are increasingly fenced. The animals are raised both for domestic consumption and for sale. Smaller livestock are an important source of protein.
270. While livestock ownership is common within the village (Table 107), income⁸ from this source is relatively small, providing only 6% of total income and 8% of cash income. Livestock do, however, provide an important source of savings with large livestock (buffalo and cattle) the principle component of animal value in Hatsaykham. Buffalo are the most important in terms of total value with an average of 4.5 animals per household providing an average value of 34 million kip/household. Cattle are the next most important in terms of value, though more important in terms of numbers. All but one household in Hatsaykham reported owning livestock; 30 out of the 39 households reported owning large livestock (cow or buffalo) with one household owning 58 buffalo. The median per capita value of livestock

⁸ The cash value of animal and meat sold plus the imputed value of self-consumption)

owned in Hatsaykham was estimated to be 8.9 million kip (US\$1,100).

271. Comparison of livestock data from the socioeconomic survey (2014) with data from the Baseline Socio Economic Survey (2014) suggests there has been a significant increase in ownership, from 166 to 209 cattle and from 166 to 177 Buffalo. Compensation for land acquired for the access road was paid between these two surveys, and this may be one factor behind the increase. The Project's Social Management Office (SMO) has an ongoing livestock program which includes monitoring numbers, and trends in livestock ownership will be followed closely during relocation.

	Number	Average/ all household	Percent households owning	Mean value/hh
Buffalo	177	4.5	59%	34,000,000
Cattle	209	5.4	56%	23,400,000
Pig	291	7.5	85%	3,700,000
Chickens	829*	25*	89%	1,000,000
Ducks	20%	1.6	20%	100,000
TOTAL			97%	62,200,000

Table 107 Livestock ownership in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

3.16 Fisheries

272. Fisheries are an essential element of nutrition for people from Hatsaykham. Analysis of the Baseline Socio Economic Survey (2014) shows that households in Hatsaykham consume fresh fish an average of 4.7 days/ week, with a total consumption of about 2.2kg/per person/month.
273. The Survey found income from fishing was approximately 460,000 kip/person/ month which constitutes 43% of total income. Forty nine percent of household in Hatsaykham said they sold fish for cash, and cash income from fisheries amounted to just under a third of total cash income (31%).
274. The Nam Ngiep River as well as larger tributaries and smaller streams are an important fisheries resource, with almost every meal including some fish, either fresh or preserved for the villages close to the dam site.
275. The Project also implements a fish-catch-monitoring program to complement this assessment providing an indication of seasonal variation in fisheries, fishing environments and fishing gear. These data are not yet available but will be reported annually.
276. As elsewhere in the area, river fishing is the task of the men. They use cast nets, fishnet, and sometimes fishhooks. While most of the fish they catch is for home consumption, some surplus is on occasion sold at the market, at Ban Somseun or at Pakxan. Some villagers also

mention that they sell dried fish along the road. Women and older persons use scoop nets in areas where they can wade, to scoop small fry and aquatic products such as snails, frogs, etc.

277. Construction of the dam will result in changes to water flow regime of the Nam Ngiep, with much higher flows occurring during the dry-season. These changes will potentially reduce the average fish-catch per household as a result of changes to the number and species composition of fish in the river, and the higher flow velocities and varying water level increasing the difficulty of fishing. These reductions in incomes may, to some extent, be offset by the increased fishing opportunities in the reservoir and a Project-supported program of capture fisheries in constructed ponds.

3.17 Forest Utilization

278. Most households claim that forests are an important factor in their livelihoods. The Baseline Survey found that forest based incomes (NTFP, timber and hunting) provided a total per capita income of 223,000 kip/ month and constituted 21% of total income and 32% of cash income.
279. Villagers largely make use of the surrounding community forests. Houses are still built from wood and bamboo from the forests and grasses from the fields. Food is cooked with firewood gathered from the forests. Many kinds of food, such as mushrooms, bamboo shoots, vegetables, and herbs are gathered from the forests, while women gather plants for dyeing cloth and for medicinal purposes.
280. Villagers plant fruit trees and other economic or commercial trees, though few households in Hatsaykham have started planting commercial trees, such as teak (*Tectonagrandis*), auri (*Acacia auriculiformis*), eucalyptus (hybrid for pulp), and Agar wood (*Aquilaria* spp.). The Project will undertake community tree plantation in allocated regeneration and protected forest areas of Houaysoup.
281. Fruit trees are mostly for domestic consumption. During visits to local markets and markets in nearby towns, nearly all the fruits sold in the market were from the local forests. Commercially grown fruits tend to be imported from China or Thailand. Local fruit selling is very seasonally dependent.
282. Commercial tree and rubber plantation are also a potential source of income in the future given the improved road access to the villages of zone 3 and 5 and proximity to Pakxan, a major trading centre. Commercial trees and rubber income is relatively minor at the moment with only one household in Hatsaykham recording an income from rubber in the 2015 Baseline Survey (though more households stated they were growing rubber, they did not declare an income.)
283. NTFPs are not an important source of cash income but are used for home consumption, complementing other food. Analysis of data from the Access Road Survey finds that timber

products are increasing in importance for household income.

	NTFPs collected per year in kgs			
	Winding bark and bamboo	Resin	Eatable NTFPs: (Shoots, Vegetable, Mushrooms)	Flowers and herbs
Total	4,652	3,270	7,746	203
Average per household	122.4	86.1	203.8	5.3

Table 108 NTFP Collection (Source: SES Access Road 2014)

3.18 Hunting

284. Hunting is an important tradition as well as livelihood activity for people from Hatsaykham, with men out of contact for days to spend time in the forest to hunt birds and animals. Villagers are hunting in forests around the villages, partly for own consumption, partly for sale. The NNP1 Environmental Management Office (EMO) together with public authorities are responsible for controlling NNP1 workers from hunting and restricting trade of hunting goods according to the national and international regulations. All workers have to sign a code of conduct which includes prohibition of hunting.

3.19 Other Sources of Income

285. Household income in Khum Hatsaykham comes mainly from fisheries, agriculture (crops and livestock) and Forest resource (NTFP, timber and hunting). Other important source of income is employment and business income. A total of 85% of all households in Hatsaykham reported some form of paid employment and this constituted 9% of total income and 15% of cash income (Source: Baseline Socio Economic Survey, 2014). Business income is difficult to estimate because of the variation in the nature of businesses and because most business are run almost entirely without record keeping. Data from the Baseline Socio Economic Survey (2014) indicated that 21% of household in Hatsaykham run some form of small business and this had contributed 4% of total income, and 8% of cash incomes.

3.20 Primary Production and Off-Farm Income

286. Income can be divided between primary production and off-farm income. Primary production includes income from agriculture, livestock, forests and fishing. Off farm income includes employment, business income, and other income which includes, land rental, interest payments, and remittances. Primary production includes both cash income and the imputed value of self-consumed production. Off-farm income is largely cash income. Off-farm income is an important method of reducing vulnerability and poverty but, in rural settings, is also highly dependent on the strength of farm sector.

287. As expected, primary production accounts for the majority of income contributing 86% of total income. Off-farm income accounts for only 14% of the total household income but is important to many households because of the cash income it provides (24% of total cash income, mostly from employment).

Hatsaykham	Total Income	Mean Cash
	(LAK/person/month)	
Fishing	462,362	195,086
Forest	181,252	175,401
Agriculture	167,211	31,612
Livestock	63,823	51,641
Hunting	41,442	26,376
Total Primary Production	916,090	480,116
Percent Total	86%	76%
Employment	95,380	95,380
Business	47,639	47,639
Other	5,928	5,928
Off Farm Income	148,947	148,947
Percent Total	14%	24%
Total	1,065,037	629,063

Table 109 Total income and cash income from primary production and off-farm income (Source:2014 Baseline Socio Economic Survey)

3.21 Household Expenditure and Consumption

288. Consumption has been pioneered by the World Bank Living Standards Measurement Studies program as the key indicator of household living standards since the program's inception in the 1980's. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household living standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:

- consumption has a direct relation to the total "utility" or welfare level of a household;
- consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
- consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and

- households are thought to be less reluctant to share information about expenditure than income
289. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:
- Not all consumption adds to wellbeing of the household
 - Consumption of durable items is spread over many years
 - Purchase of high values items may inappropriately bias consumption upwards
 - Goods and services produced and consumed by the family are not directly valued through a purchase
 - Consumption of some items may be supported by increasing debt.
290. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an “annual use value” for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being / standard of living of the household.
291. The Baseline Socio Economic Survey (2014) divided consumption into
9. Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 10. Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 11. Durable Items such as minor household goods and furniture; and
 12. Use value of major assets such as cars, motorcycles, major household items etc.
292. Mean per capita consumption in Hatsaykham in 2014 was estimated to be approximately 1.2 million kip/month (Source: Baseline Socio Economic Survey, 2014). Food was the biggest source of consumption accounting for 61% of total consumption. Cash expenditure on food accounts for 58% of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc.).
293. Cash expenditure amounts to 74% of total consumption. The percentage of consumption obtained by cash expenditure generally increases with increasing wealth, and conversely the proportion of food consumption in the total generally decreases with increasing wealth.

	Mean Per Capita consumption (LAK/month)	Se (mean)	Percent total
Food (Total)	709,284	50,383	61%
Food (Cash)	412,001	42,035	36%
Consumables	319,429	36,877	28%
Durables	93,634	14,509	8%
Major Assets*	32,119	11,409	3%
Total	1,566,467	155,213	100%

Table 110 Household consumption in Hatsaykham

294. Household consumption is more normally distributed than income, and the majority of households (74%) have per capita consumption rates of between 500,000 and 1.5 million LAK/month.

Per capita consumption (million LAK/month)	Households	Percent
0-0.5	2	5%
0.5 - 1.0	13	33%
1.0 - 1.5	16	41%
1.5 - 2.0	5	13%
2.0 - 2.5	3	8%

Table 111 Frequency distribution of household consumption in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

295. The components of food consumption have also been estimated. Meat has the highest monetary value of monthly consumption, followed by cereals (mainly rice). The consumption of alcohol, beer, and cigarettes has also become important factors, as are candies and sweets. The monetary value of the fruit and vegetables consumed is low.

FOOD TYPE	Per capita consumptions (LAK/month)
Meat	197,000
Cereals/Tubers	117,000
Other Food (Salt, spices, MSG, etc)	112,000
Fish OAA	95,000
Beer and Cigarettes	63,000
Vegetables	50,000
Fruit	46,000
Eggs Milk	44,000

Table 112 Imputed Consumption Values per Person per Month (Source: Socio Economic Survey 2014)

3.22 Poverty

296. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social, health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics. Both methods have been used in Hatsaykham.
297. The current estimate of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 kip per capita /month (US\$28.75 at current rate of exchange), see Table 113 for the calculation. Poverty lines also include measurements typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at the moment as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line ⁹
January 2010	96.45	180,000
October 2014	124*	230,000

Table 113 Estimated poverty line for study area.

* The CPI value for October 2014 is an extrapolation and will be updated when the data is available.

⁹ GoL Decree on Poverty Criteria and Development Criteria 2012-2015, No. 201/GO, April 25, 2012

298. None of the households in Hatsaykham was classified as poor on the basis of household consumption. The lowest per capita consumption recorded in Hatsaykham was 340,000 kip/month which is approximately nearly 50% higher than the current national estimate of the poverty line.
299. Historically, Hatsaykham was, on a community level, poorer than other REDP villages according to the 2011 assessment, but clearly changes in household well being are now beginning to emerge with better access to markets and improved provision of infrastructure and following compensation for land acquired for the access road to the dam. Increased income and consumption, also increases inequalities between households in the village, because while most villagers can now rely on a strengthened economic structure (indicated for example by the livestock data presented above) a few households in the community remain vulnerable to falling back into poverty despite strong economic development.

3.23 Vulnerable Households

300. The Project follows Lao and ADB standards regarding vulnerable household, putting them into the Project context. Four types of vulnerability are addressed by the overall design of the social programs:
- Indigenous People/Ethnic Groups. These form the majority of DPs in the PIZ overall. Some households in Hatsaykham affected by relocation to Houaysoup are classified as vulnerable.
 - The issue of DPs without legal title to land or property is addressed by acknowledging customary rights to lands and compensating accordingly.
 - Women are among the most vulnerable in remote areas. Should any vulnerable household be further identified during ground clearance and construction, they will be eligible for the specific measures in the Project GAP. For example cash compensation is transferred into joint bank accounts in the names of both the male and female heads of households.
 - Households below poverty line (currently 200,000LAK per person per month¹⁰) will be brought above poverty line in compliance with the poverty elimination test outlined in the Concession Agreement along the Livelihood and Income Restoration Plan outlined in the REDP (Section 4.22.2).
301. Additionally to these categories of vulnerability, the Project uses the following context-adapted definition of vulnerable groups other than the groups discussed above, based on outlined national and international standards:
302. Vulnerable Households are households who might suffer disproportionately from the loss of

¹⁰ At exchange rates as of this REDP-U3 update, this amounts to US\$25.

fixed and movable assets, other assets, and production base; or face the risk of being marginalized from the effects of resettlement; and specifically include:

- Single female headed households with dependents and low income;
- Households whose members are socially stigmatized as a result of traditional or cultural bias inside the community
- Households living in poverty with not enough labour to make use of general pro-poor activities outlined above;
- Landless households with no alternative sustainable income from regular employment or businesses
- Elderly households with no means of support
- Households with disabled or invalid persons;
- Households with members with severe and long-term diseases having a substantial impact on the households productivity and/or expenditure
- Households with members of households addicted to substance abuse.

303. . The Project follows Lao and ADB standards regarding vulnerable household, putting them into the Project context. Four types of vulnerability are addressed by the overall design of the social programs:

- Indigenous People/Ethnic Groups. These form the majority of DPs in the PIZ overall. Some households in Hatsaykham affected by relocation to Houaysoup are classified as vulnerable.
- The issue of DPs without legal title to land or property is addressed by acknowledging customary rights to lands and compensating accordingly.
- Women are among the most vulnerable in remote areas. Should any vulnerable household be further identified during ground clearance and construction, they will be eligible for the specific measures in the Project GAP. For example cash compensation is transferred into joint bank accounts in the names of both the male and female heads of households.
- Households below poverty line (currently 200,000LAK per person per month¹¹) will be brought above poverty line in compliance with the poverty elimination test outlined in the Concession Agreement along the Livelihood and Income Restoration Plan outlined in the REDP (Section 4.22.2).

304. Additionally to these categories of vulnerability, the Project uses the following context-adapted definition of vulnerable groups other than the groups discussed above, based on outlined national and international standards:

305. Vulnerable Households are households who might suffer disproportionately from the loss of

¹¹ At exchange rates as of this REDP-U3 update, this amounts to US\$25.

fixed and movable assets, other assets, and production base; or face the risk of being marginalized from the effects of resettlement; and specifically include:

- Single female headed households with dependents and low income;
- Households whose members are socially stigmatized as a result of traditional or cultural bias inside the community
- Households living in poverty with not enough labour to make use of general pro-poor activities outlined above;
- Landless households with no alternative sustainable income from regular employment or businesses
- Elderly households with no means of support
- Households with disabled or invalid persons;
- Households with members with severe and long-term diseases having a substantial impact on the households productivity and/or expenditure
- Households with members of households addicted to substance abuse.

306. A vulnerability check-list was attached to the Asset Registration Form to screen all impacted households on a first step, before the Project's vulnerability officer is engaged to identify vulnerable households and implement specific mitigation measures together with the DPs. The Project's social monitoring team supported the vulnerability officer in this task. Also, all other Project staff (above all the Asset Registration and the Community Relations staff) are trained to identify potential vulnerability and inform the vulnerability officer, so that she can investigate further.

307. The vulnerability-assessment for Hatsaykham identified 8 potentially vulnerable households with a total population of 46 people. The reasons for their vulnerability are diverse and include the presence of physically or mentally impaired household members, low income, and 1 female headed household.

Source of vulnerability	Households	Residents of vulnerable household
Intellectually impaired	2	14
Low income and physical disability	1	9
Female headed household	1	8
Low income	1	7
Drug addict	1	5
Elderly	1	2
Orphan	1	1
TOTAL	8	46

Table 114 Vulnerable Households in Hatsaykham (Source: GoL Document 165, dated 23/07/2015, confirming the number of vulnerable households in Hatsaykham)

308. While the vulnerable households overlap with households experiencing rice insufficiency, special attention will be paid by the Project to the specific kinds and causes of vulnerability, and it will extend transitional assistance, and provide additional health support. For households having persons with physical disabilities, care will be taken to ensure the replacement housing is easily accessible. Each vulnerable household has also participated in at least one livelihood development activity to date.

CHAPTER 4 - Zone 5 Socioeconomic Profile

309. The data used in this report is based on three surveys:
- **Socio Economic Survey Access Road 2014** – a socio economic survey, landholder, DP and asset registration survey for the widening of the access road. Undertaken from March to April 2014.
 - **Confirmation Survey 2014** - Household, DP, landholder and asset registration survey of Zones 2UR, 2LR, 3 and 5 undertaken in stages throughout 2014. The data has been entered into the resettler and compensation database which registers all Project Affected Persons/DPs in the above project zones, their land holdings and relevant assets including non-residential buildings and perennial crops liable for compensation. The Compensation Database currently (December 2015) records 127 households in Zone 5 for the purposes of compensation and asset registration.
 - **Baseline Socio Economic Survey 2014** – a household socio economic survey of households Zones 1, 2LR, 2UR, 3, 4 and 5. The survey is based on the list of households collected during the Confirmation Survey 2014 as of October 2014. The survey design included a census of all households available for interview in Zones 2UR, 2LR, 3 and 5 and a statistically based sample of households in Zone 1 and 4. The survey also included a sample of 2 reference populations unaffected by the project. A total of 124 households were interviewed in Zone 5.
310. The three surveys were carried out at different dates in 2014 and used slightly different methods/survey instruments. The confirmation survey has subsequently been updated to provide a final list of households eligible for compensation. The total population of each zone and other data collected in the 3 surveys will differ slightly because of the different methods and the changing nature of the population. Note that Confirmation Survey (2104) is the “master dataset” for the purposes of compensation and assistance and forms an unchanging baseline reference point.
311. This report has used data from each of these surveys where the data collected is the most appropriate for the question at hand.

4.1 Demography and Population Changes

312. The population of Ban Hat Gniun is 393 people in 72 households, with an average household size of 5.5; all are ethnically Lao Loum (Table 7). Ban Thahuea has a population of 265 people in 50 households, with an average household size of 5.3. Some 88% of the population of Thahuea identify themselves as Lao Loum, with the remaining 12% (6 households) identifying as Khmu.

Community	Households	Population	Females	Affected Households	Ethnicities
Ban Hat Gniun	72	393	171	65	Lao
Ban Thahuea	55	300	145	0	Lao, Khmu
Ban Somseun	221	1207	602	26	Lao
Total	348	1900	918	91	

Table115: Population profile of Ban Hat Gniun & Thahuea (Source: Confirmation Survey 2014)

313. As presented in the overall REDP (4.2.4), data for Hat Gniun and Thahuea show a slight reduction in population numbers from 2007/8 to 2011, but an updated census and baseline Socio Economic Survey (SES - also termed in the CA as a Confirmation Survey) in 2014 shows a population increase of 5.9% in Hat Gniun and 13.6% in Thahuea over the last three years.



Figure 17 : Typical House of Lao Loum, Ban Hat Gniun

4.2 Social Organization

314. Unlike the Hmong villages of Zone 2LR and Zone 3, Lao Loum communities in Zone 5 do not follow a clan system. Nonetheless, families form important internal organizations with socioeconomic functions. There is particularly strong community cohesiveness in Thahuea.
315. Migration from the village for work and study in Pakxan and further afield has expanded

rural-urban connections. These connections have been further strengthened due to the spread of modern electronic communications.

316. Villages in Lao are the final level of government administration, headed by a Village Chief who is supported by a deputy and village council. Villages are combined into districts, which are combined to form provinces, finally resulting into the national community of the Lao PDR. Ministries on the national level have embodiments on the provincial and district level. These public institutions are supported by mass organizations with structures at all administrative levels: the Front for National Construction, the Lao Women Union, and the Lao Youth Union.
317. Ban Hat Gniun is the administrative village center for Hatsaykham. The Village Chief is Lao Loum and based in Hat Gniun, while the Deputy Chief is Hmong and based in Hatsaykham. Hat Gniun village authorities are therefore represented in discussions related both to Hatsaykham compensation and relocation plans, as well as in those related solely to Hat Gniun host programs. On relocation to Houaysoup and with the arrival of the 2LR households, the district authorities intend to recognise the new village of Houaysoup and to appoint its own administration.
318. **Physical Cultural Resources.** No physical resources of archaeological and cultural significance have been identified in Hat Gniun and Thahuea as impacted by the Project.

4.3 Infrastructure

319. Ban Hat Gniun, Ban Thahuea and Ban Somseun can be accessed by road or river. The two host villages are 15 and 17 km by unsealed road from Ban Nonsomboun which is located 3 km from Bolikhan on the sealed road from Pakxan (22 km). The main access road to the villages is passable by cars and motorbikes in all seasons due to upgrade of the access road by the Project in 2014/15. The Nam Ngiep River provides additional access from downstream communities by boat.
320. Ninety eight percent of households surveyed in Ban Hat Gniun and Ban Thahuea were connected to the electrical grid system in 2014 (Baseline Socio Economic Survey, 2014). Before the provision of grid electricity the villages relied on small river-powered generators (micro-hydro) that produced electricity for a few lamps or TVs among a small number of households. The Project subsidized installation fees.

Items	Hat Gniun	Thahuea
1. Infrastructure		
Electricity	Yes	Yes
Drinking water source	Underground water	Stream and Underground water
Access road	Gravel Road	Gravel Road
River navigation	Nam Ngiep	Nam Ngiep, Nam Xao
2. Social Welfare		
Market	No	No
Pre Primary / Nursery	No	No
Primary School	Yes	Yes (to 3rd grade only)
Temple	Yes	Yes
Health Centre	No	No
Cemetery	Yes	Yes
Grocery	Yes	Yes
Water supply	Yes	Yes
Underground water well	Yes	Yes
3. Private and Public Organization		
LWU	Yes	Yes
LY	Yes	Yes

Table116: Infrastructure of Ban Hat Gniun and Ban Thahuea (Source: Field Surveys 2014)

321. Hat Gniun has a gravity fed water system (GFS) recently constructed by the Project, with two thirds of households in 2014 using the GFS for drinking water in both wet and dry seasons (Table 117). The remaining 34% of households stated that they used bottled water for their main source of drinking water. Both GFS and bottled water are considered improved water sources, and should remain relatively free from contamination if basic sanitation procedures are followed.
322. In contrast, in the village of Thahuea, 26% of households use surface water for their main source of drinking water in the dry season, though this drops to only 6% in the wet season. Two thirds of households in Thahuea use bottled water for drinking in both the wet and dry seasons.
323. The Project has in November 2015 provided an improved domestic water supply system for both Hat Gniun and Thahuea.

Water Supply	Hat Gniun		Thahuea	
	Wet	Dry	Wet	Dry
GFS	66%	66%	0%	0%
Bottled Water	34%	34%	67%	65%
Tube Water	0%	0%	9%	7%
Protected Well	0%	0%	2%	2%
River, Stream, Lake,	0%	0%	6%	26%
Rainwater	0%	0%	17%	0%

Table117: Sources of drinking water in Ban Hat Gniun and Ban Thahuea (Source: Baseline Socio Economic Survey 2014)

4.4 School Attendance

324. Availability of educational facilities has had a direct impact on school attendance levels. Ban Hat Gniun has a school with 4 teachers providing all 5 levels of primary education. It also serves students from the two nearby communities of Ban Thahuea and Khum Hatsaykham for Grades 4 and 5. The school has only one building in fair condition, but no housing for teachers or other support facilities. Access to the Hat Gniun School is via the main access road to the construction site, and the children typically walked several miles along this road morning and evening. The Project started a daily bus service a year ago from both Thahuea and Hatsaykham to take children to and from the Hat Gniun School to increase the safety of children from these villages who were at risk from construction traffic, and whose school attendance dropped during the rainy season.
325. Primary age enrolment is currently quite high, with 100% primary age enrolment in Hat Gniun and 84% primary age enrolment in Thahuea (Baseline Socio Economic Survey, 2014). Enrolment is determined more by location than ethnicity with all Khmu students in Thahuea enrolled in primary school. The improved access via the daily school bus service from Thahuea and Hatsaykham to Hat Gniun has also increase enrolment from both villages.
326. Traditionally, girls normally work at home from young age and education was not considered important, particularly for girls from non-Lao ethnic groups. However, currently there is no difference in male (90%) and female (90%) primary age enrolment (Baseline Socio Economic Survey, 2014) and girls from Zone 5 are receiving a basic education.
327. The closest secondary school to Zone 5 villages is located in Bolikhan, the district capital, approximately 22 km from Thahuea. Historically, travel to the secondary school was difficult because of the isolation of the villages and poor quality of the access road.
328. Secondary age enrollment is calculated as the percentage of children of secondary school age (11-15 years inclusive) who are enrolled in secondary school. There are 42 secondary age students in Hat Gniun and Thahuea, of whom 17 (42%) are enrolled.

329. There are only 14 girls of secondary age in the two villages included in the survey (compared to 28 boys). Female enrolment (50%) is higher than male enrolment (36%) but the difference is not statistically significant because of the small size of the secondary age population.

4.5 Literacy

330. Eighty five percent of adults in Hat Gniun have completed primary school, however only 16% have completed any post-primary education (Table 118). Thahuea shows a slightly lower rate of formal education, with 78% having completed primary education and 15% having completed any post primary education.

331. Women generally have fewer years of education than males in both villages. Eleven percent of women have no formal education compared to 3% of men, 89% of males have completed primary school compared to only 74% of women.

Maximum Level of Education	Hat Gniun			Thahuea			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
No formal education	2%	6%	4%	4%	17%	10%	3%	11%	7%
Some primary	8%	15%	11%	9%	15%	12%	8%	15%	11%
Completed Primary	72%	66%	69%	67%	60%	64%	70%	63%	67%
Completed Lower Secondary	12%	8%	10%	16%	5%	11%	13%	7%	10%
Completed Upper Secondary	4%	3%	4%	2%	2%	2%	3%	3%	3%
Tertiary Educated	2%	2%	2%	1%	0%	1%	2%	1%	2%
Vocational/Other	0%	0%	0%	1%	0%	1%	0%	0%	0%
# respondents completed education	127	99	226	81	81	162	208	180	388

Table 118: Adult Education profile of DPs of Ban Hat Gniun and Thahuea (Source: BSES 2014)

4.6 Diet and Nutrition

332. Nutritional status is a function of the nature and quantity of food intake (diet), the levels and types of diseases and infections, lifestyle, calorific requirements of the person, reproductive status and history, and the ability of the person to assimilate and absorb nutrients.

333. Poor nutritional status (low nutrition) may have an injurious impact on health, as can some pre- and post-birth customary practices, causing deficiency diseases such as blindness, anemia, scurvy, osteoporosis, preterm birth, stillbirth, poor intellectual development as well as reduced growth (stunting). Poor diet (excess consumption) may also result in health-threatening conditions like wasting, obesity and metabolic syndrome and lead to common chronic systemic diseases as cardiovascular disease and diabetes. The combination of low nutrition and over consumption is an increasing problem in the developing world.
334. Estimated food intake per person in Hat Gniun and Thahuea (data from Baseline Socio Economic Survey, 2014) appears relatively good. Staples are consumed 7 days per week in both villages, with nearly 15 kg of staples consumed per person per month in Hat Gniun and 14 kg/person/month consumed in Thahuea. Fish consumption is common with households eating fish about 4.8 days/ week with a total consumption of 3.5 kg /person /month in Hat Gniun and 2.5 kg /person /month in Thahuea. Meat consumption is also significant with pork and poultry being the most commonly consumed.

FOOD	Hat Gniun		Thahuea		Unit
	Days per week	Amount	Days per week	Amount	
Staples	7	16±1	7	14±1	Kg/person/month
Fish and Eels	4.8	3.5±0.4	4.7	2.5±0.3	Kg/person/month
Chicken/Duck etc	1.9	1.2±0.2	1.4	0.9±0.1	bird/person/month
Pork	2.4	1.2±0.1	2.0	0.7±0.1	Kg/person/month
Beef	1.4	0.9±0.1	1.2	0.5±0.1	Kg/person/month
Wild Animals	0.8	0.3±0.1	0.5	0.2±0.1	Kg/person/month
Buffalo	0.5	0.3±0.1	0.3	0.2±0.1	bird/person/month
Wild Birds	0.3	0.1±0.1	0.3	0.2±0.1	Kg/person/month
Goat	0	0	0.1	0.1±0.03	Kg/person/month

Table 119 Food intake for Hat Gniun and Thahuea (data source Baseline Socio Economic Survey, 2014)

4.7 Health

335. There is no health center in either village or nearby. A village health volunteer is responsible for a standard health and medicine kit provided for each village and responsible for distributing medicines to treat common illnesses. Patients requiring more care need to go to the health center at Ban Houykhoun, the district hospital in Bolikhan, or the provincial hospital in Pakxan, about 20 kilometers away. The upgraded road has reduced the travel time to the health services in Pakxan to less than one hour and enabled year-round access.
336. The targets of the seventh national development plan for 2011 to 2015 gives an indication of the main public health issues facing most rural villages. The targets are:
- To decrease maternal mortality ratio to not more than 260 per 100,000 live births;
 - To decrease the infant mortality to 45 per 1,000 live births;
 - To decrease under-five child mortality ratio to 70 per 1,000 live births;
 - 80% of total population to have access to potable water;
 - 60% of total population to have and use latrines.
 - To decrease the proportion of underweight children age under five years to 20%;
 - To decrease the proportion of stunted children under five years to 34%;
337. The 2014 Health Survey used 2 simple approaches to the measurement of the health and nutritional status of project affected people:
- Child anthropometric measurements and
 - Anemia levels amongst women of child bearing age.
- Stunting (low height for age) is a primary manifestation of long term / chronic malnutrition and recurrent infections, such as diarrhea and helminthiasis (parasitic infections), in early childhood. Anemia is low levels of red blood cells (RBCs) in the blood due to not enough iron. It causes tiredness, inability to work and impacts on child development. It is caused by insufficient iron intake (diet), loss of blood, and parasite infections.
338. The project has not collected data on infant and child mortality, malaria, TB and other serious health issues in Zone 5, because initial surveys revealed that incidence of these diseases are too low for the project to collect meaningful data.
339. Both stunting and anemia in Hat Gniun and Thahuea are lower than in the adjacent village of Hatsaykham (Table 120) but both still need to be reduced. Nutrition data suggest apparently adequate levels of food consumption recorded in both villages have not been fully translated into health outcomes. Child stunting and anemia in women are likely to be the result of a combination of the historical use of unsafe water supply, open defecation and poor hygiene leading to high rates of diarrhea and parasite infections leading to poor overall nutritional status. Other factors that may be important are lack of access to health services, inequitable distribution of food within the household (women and children), as well as early and frequent pregnancies for the women.

Name	Stunting children under 5 years	Anemia in women 25 - 45 years
Hat Gniun	32%	21%
Thahuea	35%	24%
Hatsaykham	54%	30%

Table 120: Key Health Indicators (Source: Health Survey Data 2014)

342. Potential serious threats to long-term health status in the Project area are ongoing malnutrition and the increase of sexually transmitted infections as a consequence of more sex workers attracted by the construction workers in infrastructure and mining activities in the area. This risk is being mitigated by the activities outlined in the Social Management Action Plan, implemented by the project (available on the company and ADB website).
343. The Project will establish health and education infrastructure in the resettlement site. The villages of Hat Gniun and Thahuea will have access to these facilities and thus profit from benefit sharing. Both villages are also being supplied with improved water supplies (GFS). Clean water and sanitation practices are promoted through the Project's Public Health Action Plan (PHAP), as outlined in the SDP.

4.8 Gender Issues

From focus group meetings with both men and women, the following specific gender issues have been raised by Zone 5 communities as relevant:

- Few possibilities for higher employment positions for women
- Interest in alternative cash income opportunities and technical training
- Women's heavier burden of fetching clean water is a problem

344. The Project has developed strategies to respond to these concerns as well as other gender issues, as described in Section 4.4 of this document and in the SDP (Gender Action Plan - GAP)

4.9 Information and Services

345. Both villages of Zone 5 have access to national mobile phone networks and ownership of phones is almost universal by household (Table 121). With access to the national grid, television ownership has become almost universal and this will also open up information access to a broader world. Apart from that, the service sector remains weak. With the influx of people due to the Project, some services have already increased, for example the opening of new restaurants. While this enhances socioeconomic development, it has also may lead to

some social disturbances. Social mitigation measures are outlined in the SDP and their implementation progress described in Chapter 4.

Item	Hat Gniun	Thahuea	Hatsaykham
	Percent households owning item (%)		
Mobile phones/other phones	99	94	97
Televisions	93	91	85
Satellite dish	91	91	72
Wardrobe	83	81	85
Refrigerators/freezers	80	76	44
Electric rice cooker	79	61	82
Motorcycles/scooters	60	67	85
Boat motor	56	24	31
Boat	51	43	36
Tape players/CD players/radio	44	46	54
DVD Player	31	24	49
Bicycles	29	13	41
Car or truck	13	4	21
Hand Tractor	13	52	18
Water Dispenser	10	9	8
Water Pump	10	54	28

Table 121 Ownership of household goods (data source: 2014 Baseline Socio Economic Survey)

4.10 Income

346. Total income is expressed as income per person per month for the household. Total income is the sum of income from all sources for all household members, including wages and salaries, pensions, bank interest, transfers, entrepreneurial income from household businesses, and income from agriculture, fisheries and forest. Total income includes both cash income and the imputed value of in-kind income (the value of goods produced and consumed directly by the household, and the value of in-kind payments for work, e.g. food).
347. The 2014 Baseline Socio Economic Survey represents the most comprehensive and reliable estimate of household income in Hat Gniun and Thahuea and income data largely supersedes the results of the Access Road Socio Economic Survey (2014). The Baseline SES 2014 found a mean per capita income of 1.15 million kip/month in Hat Gniun but a mean

income of only 919,000 kip/month in Thahuea (Table 130).

Village	Number of households in survey	Mean net income (LAK/person/month)	± Se ¹²	Median net income (LAK/person/month)
Hat Gniun	70	1,155,000	109,000	919,000
Thahuea	54	898,000	141,000	585,000

Table 122: Income per Person per Month (Source: Baseline Socio Economic Survey 2014)

352. Household incomes are not normally distributed and typically a small percentage of the population has much higher incomes than the rest (Table 123). This is the case for both Hat Gniun and Thahuea.

Per capita income (million LAK/month)	Hat Gniun		Thahuea	
	# House holds	% House holds	#House holds	%Households
0-0.8	29	41%	34	6
0.8- 1.6	24	34%	14	2
1.6- 2.4	12	17%	2	4
2.4- 3.2	3	4%	2	4
3.2- 4.0	2	3%	2	4
Total	70	100%	54	1

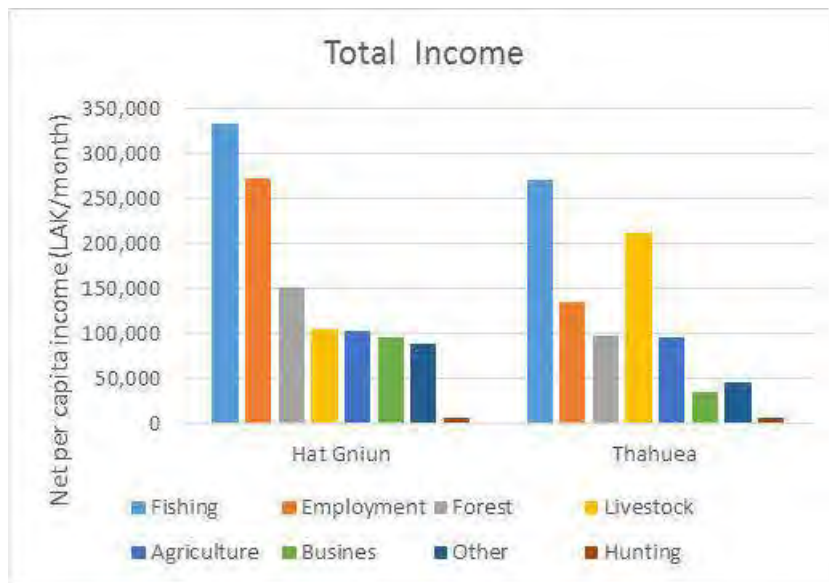
Table 123 Income distribution in Zone 5 host villages (Source: Baseline Socio Economic Survey, 2014)

4.11 Income Sources

353. Rural households typically obtain both cash and “in-kind” income from a wide variety of sources. This makes it difficult for both the researcher and the household to fully evaluate the relative importance of different sources of household income, particularly as different types of income may be subject to substantially different biases. Factors which bias income estimates include recall bias (i.e. difficulty of remembering exact figures for previous months or years) and reluctance to reveal incomes to outsiders (income that may be subject to tax or is illegal).

¹² Se is the standard error. It is a measure of the accuracy of the estimate of the mean.

354. The two villages of Zone 5 have a different balance in their income sources as well as different average incomes (Table 124). Hat Gniun, the wealthier village, obtains much more income from fishing and employment than Thahuea, which relies more heavily on livestock incomes.



355.

Figure 18: Composition of income by source for Hat Gniun and Thahuea (Source: Baseline Socio Economic Survey 2014)

356. Cash income is an increasingly important component of total income for rural households as it is needed for many transactions such as health expenditure, school costs, purchasing of consumer items etc. The proportion of cash income that a household obtains also provides some indication of the degree to which the individual household or village has transitioned from a subsistence to the free-market or cash economy. The village of Hat Gniun obtains both a higher cash income (750,000 LAK / person / month) than Thahuea (500,000 LAK/ person / month) and cash income also constitutes a higher proportion of the total: 65% of total income for Hat Gniun as opposed to 56% for Thahuea.

Source	Total per capita income (LAK/month)		Percent of total income		Cash per capita income (LAK/month)		Percent cash income		Has Cash Income (% households)	
	Hat Gniun	Thahuea	Hat Gniun	Thahuea	Hat Gniun	Thahuea	Hat Gniun	Thahuea	Hat Gniun	Thahuea
Fishing	333,274	271,226	29%	30%	101,607	35,998	30%	13%	31%	26%
Employment	273,241	135,010	24%	15%	273,241	135,010	100%	100%	91%	83%
Forest	150,185	97,633	13%	11%	80,265	48,917	53%	50%	53%	46%
Livestock	105,205	211,591	9%	24%	95,768	193,689	91%	92%	47%	54%
Agriculture	103,527	94,706	9%	11%	15,118	4,696	15%	5%	34%	22%
Business	94,711	35,432	8%	4%	94,711	35,432	100%	100%	26%	13%
Other	87,716	45,710	8%	5%	87,716	45,710	100%	100%	49%	37%
Hunting	6,890	6,731	1%	1%	1,778	1,865	26%	28%	13%	9%
Total	1,154,749	898,039	100%	100%	750,204	501,317	65%	56%	100%	98%

Table 124: Income per Person per Month (Source: Baseline Socio Economic Survey 2014)

4.12 Agriculture and Horticulture

357. People of Ban Hat Gniun and Ban Thahuea make use of the flat valley on the left bank of Nam Ngiiep River as their main productive land. This land is not affected by the Project, with the exception of some small areas acquired for upgrading the access roads. Of the total land use, 61% is classified as agricultural area, 2.6% as residential area, and 36% forest land. While most villagers did not provide much information on their upland crops lands, from observation, much of the un-stocked forest land is in fact used for upland crops.

Land Use(ha)	Ban Hat Gniun	Ban Thahuea
<i>Private properties</i>		
Residential area	13	8
Rice field	10	20
Other cultivation	152	310
Total	175	338
<i>Public properties</i>		
Cemetery land	1.0	N/A
<i>Forest and others</i>	213	79
Total Land	389	417

Table 125 : Land Use Patterns of Ban Hat Gniun and Ban Thahuea (Source: Field Survey 2011)

358. A total of 75% of adults over the age of 18 years in Hat Gniun, and 85% of adults in Thahuea, identify their main occupation as farmer. While farming activities are likely to consume the majority of people's time, and hold an important place in cultural identity, the cash and imputed value of farming activities (Agriculture and Livestock) is only the second highest source of income for the village, providing 18% of total income in Hat Gniun but 34% in Thahuea.
359. The importance of farming, particularly arable agriculture, should not be underestimated however, as having rice in store after harvest provides an important starting point for the forthcoming year's activities. Additionally, livestock provide an important fallback or coping mechanism to deal with internal and external shocks to the household (e.g. ill health, floods, agricultural pests etc.)
360. Rice is the principal crop for both villages, with maize, sugar cane, cassava, banana, and pineapple also grown. Most households have small herb and vegetable gardens grown on stands with flat beds constructed at a high enough level to protect the plants from their animals. Vegetables are grown around the homestead and seasonally along the riverbank. Riverbank gardens, use and productivity, have been assessed and included in the updated asset register.

Villagers surround the vegetable plots with woven bamboo fences to demarcate use boundaries and to keep out animals. Because of considerable river bank erosion, seasonal cultivation sites tend to shift from year to year.

361. Most crops are grown for home consumption, with some surplus sold: cash sales constitute 15% of total crop income in Hat Gniun and 5% in Thahuea.

4.13 Rice Self Sufficiency

362. The 2014 Baseline Socio Economic Survey found that rice was consumed at least 7 days/week by all households. The average consumption of staples (rice, cassava, maize etc) in October was 15.5 ± 0.7 kg per month in Hat Gniun and 14.0 ± 0.6 kg per month for Thahuea. Average consumption of staples for both villages are lower than the value previously reported for Hatsaykham (18 ± 1 kg/month). However, total income for Hat Gniun is similar to that reported for Hatsaykham and levels of stunting and anemia are also lower. The existing data therefore suggest that the lower levels of consumption of staples is not part of a systematic pattern of higher poverty levels in these villages but this will be subject to further monitoring and verification.
363. Food and rice consumption are monitored in each village every 6 months using a simple consumption monitoring survey tool. This survey, combined with repeated Socio Economic Surveys will provide the project with a detailed record of the changing patterns of food consumption throughout the relocation and post-resettlement period.

4.14 Forest Utilization

364. The villagers make use of many of the surrounding natural resources, in particular the community forests and rivers. Houses are built from wood and bamboo, and roofed with grasses from the fields. Their food is cooked with firewood gathered from the forests. Many kinds of non-timber forest products (NTFPs), such as mushrooms, bamboo shoots, vegetables, and herbs are gathered. Villagers have planted fruit and other economically valuable trees. Farmers have started recently planting commercial species such as teak (*Tectonagrandis*), auri (*Acacia auriculiformis*), eucalyptus (hybrid for pulp), and Agar wood (*Aquilaria spp.*).
365. Fruit trees are mostly for domestic consumption. During visits to local markets and in nearby towns, nearly all seasonal fruits sold in the market were from local forests. Commercially grown fruits tend to be from China or Thailand. One exception is pineapple, grown for sale in fairly large numbers by some households.
366. The 2014 Baseline SES evaluates cash and in-kind income obtained from forests. This included

hunting, the collection of NTFPs, and collection of timber. Forests provide a significant source of income for both villages: Hat Gniun obtained 13% of its total income from Timber and NTFPs, and Thahuea obtained 11% of total income. These are important sources of cash income which constitute approximately 50% of admitted total forest income in both villages.

367. Substantial amounts of rough sawn timber are stored in and around houses at Thahuea. The extent to which this timber was obtained legally could not be determined, but it has the potential to contribute a significant proportion of income. The extent to which income from timber collection is under-reported is unclear.

4.15 Hunting

368. Villagers hunt regularly, partly for own consumption, partly for sale, even though until now limited access to markets reduced the possibilities for the latter. The NNP1 Environmental Management Office (EMO), together with public authorities, is responsible for ensuring that no NNP1 workers are hunting in the area and that trade of hunting goods is restricted according to national and international regulations.
369. The Baseline SES found that less than 1% of total average income was obtained from hunting in both villages, and less than 30% of hunting income was obtained as cash income.

4.16 Fisheries

370. The Nam Ngiep River, as well as its tributaries, are important sources of income and nutrition. Fresh fish was consumed on 5 days out of seven in both villages with a total per capita consumption of 3.6 ± 0.4 kg /month in Hat Gniun and 2.5 ± 0.3 kg/month in Thahuea. Also, other aquatic species such as shrimps, frogs, snails, etc. are collected and form part of the daily diet. None of the households fish for commercial purposes.
371. Fishing is important from the perspective of income, but the significance of fishing as income has probably been underestimated in the past by both the DPs and by the project team. The Baseline SES (2014) found that fishing constituted 30% of total per capita income. However, the majority of the fish caught is consumed within the household: 30% of fishing income in Nam Ngiep was in cash, and sales contributed only 13% of total fishing income in Thahuea. The majority of sales are made to friends and neighbors within the village, though there is now an expanding opportunity to make sales to a larger external market.
372. A fish-catch monitoring program for all significantly affected villages has been started. The monitoring program commenced in 2015 and results are not yet available. Once the resettlement site is established and after COD, usage of reservoir fisheries will become a shared

resource between Houaysoup DPs and the host communities, and a co-management plan will be prepared and implemented.

4.17 Livestock

373. Raising livestock is almost ubiquitous in rural Laos, and chickens, ducks and pigs roam around the houses. Some larger pigs are kept in pens. Other large animals such as water buffaloes, cows and goats are usually left to roam or herded during the day before being brought back to stay near the house at night. Animals are raised both for domestic consumption and for sale, with smaller livestock in particular an important source of protein, though second to fish.

	Village	Buffalo	Cattle	Pig	Large	TOTAL
Percent household s owning livestock	Hat Gniun	43%	43%	30%	71%	
	Thahuea	37%	63%	72%	76%	
Average number owned	Hat Gniun	2.3	2.9	1	5.2	
	Thahuea	2.3	5.7	1.6	7.9	
Mean per capita value (million kip)	Hat Gniun	5±1	3.2±0.6	0.1±0.01	8±1	9±1
	Thahuea	5±1	6 ±1	0.2±0.01	11±2	12±2

Table 126: Livestock ownership in Hatsaykham (Source: Baseline Socio Economic Survey, 2014)

374. Ownership of large livestock is common but not universal: approximately 70% of households in both village own large livestock (Table 126) with Thahuea having a greater focus on cattle than buffalo; 63% of household in Thahuea own cattle with an average holding of 5.7 head/household, compared to Hat Gniun where only 43% of households own cattle with an average holding of 2.9 head/household.

375. While livestock ownership is common within Hat Gniun and Thahuea, income¹³ from livestock is relatively minor. In Hat Gniun, livestock provides only 9% of mean per capita income of

¹³ The cash value of animal and meat sold plus the imputed value of self-consumption

which the majority is cash income (91%). Livestock is substantially more important in the poorer village of Thahuea where it contributes 24% of total per capita income with 92% of that income consisting of cash income. Thus livestock is a largely cash livelihood with most income derived from the sale of large livestock. Subsistence livestock income (self-consumption) is of limited economic importance and is restricted to the consumption of a few small animals (pigs, chickens etc.). Consumption of even small amounts of meat is, however, of potentially greater significance in terms of nutrition, particularly anemia in women and children.

376. Livestock also provide an important source of savings (Table 126). The average per capita value of household livestock in Households is 9 million kip/person in Hat Gniun and 12 million kip/person in Thahuea. While livestock assets are not as safe or as liquid as other forms of savings, they do form an important reserve for households in times of stress or difficulty, though it should be noted that large livestock constitute the majority of the value of savings and a significant percentage of households do not own large livestock.

4.18 Employment

377. Salaries and wages have become an important component of income in Zone 5, particularly in daily wage labor for construction activities related to the Project. Employment is relatively more common and lucrative in Hat Gniun than in Thahuea.
378. In Hat Gniun, employment was the second biggest source of total income after fishing, and the largest source of cash income (Table 122). Employment of some form was almost universal with 91% of households reporting employment income and 65% of households reporting 2 or more members with employment income in the last year (Baseline Socio Economic Survey, 2014).
379. Employment in Thahuea is also important. Employment was the third largest source of total income after fishing and livestock and the second largest source of cash income after livestock. Employment in Thahuea is also very common with 83% of households reporting employment income and 53% of households reporting 2 or more members with employment income in the last year (Baseline Socio Economic Survey, 2014).
380. Both villages in Zone 5 are located close to the main construction site and may therefore benefit from employment in the construction phase of the project. The degree to which this happens depends on a number of factors including skills, availability, alternative opportunities, and contacts with employers. The Baseline Socio Economic Survey undertaken in late 2104, shortly after construction commenced, found that 14% of households in Hat Gniun and 20% of households in Thahuea reported income from the NNP1 project (either directly or indirectly).

4.19 Business Income

381. Most villages and communities support a number of small businesses. These are often small shops but may include a wider variety of shops and business in larger communities.
382. Business income was reported by 26% of households in Hat Gniun but constituted only 8% of average incomes. In Thahuea, only 13% of households reported a business income and business constituted only 4% of average income.

4.20 Other Income

383. Not all income can be neatly categorized. Income such as interest, rents, remittances, and incomes from milling rice etc. were categorized under the general heading of “other income”. Compensation payments, and money obtained from the sales of assets such as cars, motorcycles etc. are not categorized as income.
384. In Hat Gniun, other income sources contributed 8% of total income and in Thahuea they contributed 5% of total income. Thus they represent a small but important source of income, particularly cash for households.

4.21 Household Expenditure

385. Consumption has been pioneered by the World Bank Living Standards Measurement Studies (LSMS) program as the key indicator of household living standards since the program’s inception in the 1980’s. The Lao Expenditure and Consumption Surveys (LECS) are an LSMS style household survey undertaken every 5 years since 1998. They provide an invaluable long-term record of changes in household living standards and poverty in the Lao PDR.
386. Household consumption, which includes cash expenditure and the imputed value of self-produced and consumed goods, has a number of important advantages as an indicator of household living standards and poverty, particularly in a developing country context. Advantages of a consumption based metric include:
- consumption has a direct relation to the total “utility” or welfare level of a household;
 - consumption is generally easier to measure than income, particularly in rural contexts where much of income is in the form of self-consumed goods that are difficult to value;
 - consumption is thought to be less temporally variable than income, as households use formal and informal borrowing and saving so that they can consume at a relatively constant rate despite fluctuations in income; and
 - households are thought to be less reluctant to share information about expenditure than income

387. In order to accurately reflect the wellbeing of a household, the construction of a consumption based indicator must account for the following:
- Not all consumption adds to wellbeing of the household
 - Consumption of durable items is spread over many years
 - Purchase of high values items may inappropriately bias consumption upwards
 - Goods and services produced and consumed by the family are not directly valued through a purchase
 - Consumption of some items may be supported by increasing debt.
388. A consumption aggregate does not include necessary expenditure / investments in income making activities (e.g. cost of seed, investment in fencing, purchase of livestock etc.) and generally uses an “annual use value” for major purchases. The use value of an item is equivalent to the annual write down of the value of the item. Thus the consumption aggregate does not include all expenditure and is not expected to balance exactly with income but does indicate the week to week well-being /standard of living of the household.
389. The Baseline Socio Economic Survey (2014) divided consumption into:
- Food consumption, cash expenditure and the imputed value of self-produced food consumed by the household.
 - Consumables including clothes, footwear, personal items, phone, medical and educational expenses.
 - Durable Items such as minor household goods and furniture; and
 - Use value of major assets such as cars, motorcycles, major household items etc.
390. Mean per capita consumption in Hat Gniun in 2014 was estimated to be approximately 1.2 million kip/month (Source: Baseline Socio Economic Survey, 2014). Food was the biggest source of consumption accounting for 64% of total consumption (Table 135). Cash expenditure on food account for approximately two thirds of total food consumption, though this value probably represents a maximum as the survey was undertaken in October/November 2014 just prior to harvest, when most households had already consumed their self-produced staples (rice, cassava etc).
391. Mean per capita consumption in Thahuea in 2014 was 0.85 million kip/month (Source: Baseline Socio Economic Survey, 2014) which is about 70% of mean consumption in Hat Gniun. Food was the biggest source of consumption accounting for 66% of total consumption (Table 135). Cash expenditure on food accounts for 56% of total food consumption.

	Hat Gniun			Thahuea		
	Mean per capita consumption (LAK/month)	Se	Percent Total Consumption	Mean per capita consumption (LAK/month)	Se	Percent Total Consumption
Food	761,000	44,000	64%	562,000	39,000	66%
Food(cash)	517,000	42,000	44%	313,000	33,000	37%
Consumables	290,000	59,000	24%	149,000	13,000	18%
Durables	116,000	20,000	10%	120,000	29,000	14%
Asset Depreciation	17,000	4,000	1%	16,000	4,000	2%
Total	1,185,000	85,000	100%	847,000	63,000	100%

Table 127 Average Expenditures per Person per Month (Source: Baseline Socio Economic Survey 2014)

392. Household consumption is more normally distributed than income. The Baseline Socio Economic Survey (2014) indicates that Ban Gniun is wealthier than Thahuea. Ban Gniun only has 6% of households with a total per capita consumption less than 500,000 LAK /month whereas Thahuea has 24% of households with consumption less than 500,000 LAK/month.
393. Thahuea also lacks the same proportion of wealthy households: 19% of households in Hat Gniun have per capita consumption > 1.5 million LAK/month whereas Thahuea has only 8%.

Per capita consumption (LAK/month)	Ban Gniun		Thahuea	
	Households	Percent	Households	Percent
0-0.5 million	4	6	13	24
0.5 - 1.0 million	29	41	23	43
1.0 - 1.5 million	24	34	14	26
1.5 - 2.0 million	7	10	3	6
>2.0 million	6	9	1	2

Table 128: Frequency distribution of household consumption in Hat Gniun and Thahuea (source: Baseline Socio Economic Survey, 2014)

4.22 Poverty

394. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Poverty is a multifaceted concept, which includes economic, social,

health, environment and political elements. Poverty may be defined qualitatively by participatory methods, and quantitatively using proxy metrics. Both methods have been used in Zone 5.

395. One household in Hat Gniun has been classified as poor through participatory poverty assessment following GoL guidelines. This household also meets a number of vulnerability categories. In these cases, livelihood activity programs alone will not be sufficient to improve their condition, but the specific kinds of vulnerability need addressing. Suggestions have been elicited from both these households as well as from village authorities, and the Project has integrated these into Project activities, as described below.
396. The current estimate (quantitative) of the Lao Rural Poverty Line for October 2014 (the start of the survey period) is approximately 230,000 kip per capita /month (Table 129). Poverty lines are typically based on a minimum calorific intake per person plus an allowance for other necessities such as clothing, shelter, medicine and education. The current estimate of the poverty line requires an inflation adjustment for over 5 years, and should be considered, at present as an approximate guide only.

Date	CPI (central zone)	Rural Poverty Line
January 2010	96.45	180,000
October 2014	124*	230,000

Table 129 Estimated poverty line for study area.

* The CPI value for October 2014 is an extrapolation and will be updated when data are available.

397. Quantitatively, one household in Thahuea with a mean per capita consumption of 217,000 LAK/month was classified as poor, but one other household had per capita consumption of 280,000 LAK/month, and should also be considered near poor.
398. The lowest per capita consumption recorded in Hat Gniun was 396,000 kip/month which is approximately nearly 50% higher than the current estimate of the poverty line.

4.23 Vulnerability

399. Households in Zone 5 currently classified as vulnerable are listed in Table 130. A qualitative analysis of each household situation has been conducted by the Project's Vulnerability Officer, so that special attention can be paid to specific kinds of vulnerability. Recommendations from

consultations include: (i) extending food assistance beyond the time specified in the CA, (ii) alternative livelihood options, and (iii) health support.

Village	No. of vulnerable HHs*	No. of vulnerable people	Orphan (living alone)	Elderly	Disabled (mentally & physically)	Absolutely Poor	Other (Widower)	Impacted by land acquisition for HSRA
Hat Gniun	8	10	0	0	8	1	1	2
Thahuea	5	5	1	1	3	0	0	0
Total	13	15	1	1	11	1	1	2

Table 130: Vulnerable person profile of each village in Zone 5 (Source: Vulnerability Report2015)

**Remark: Individual HHs might be found with several indicators of vulnerability*