Initial Environmental Examination

April 2014

Lao People's Democratic Republic: Greater Mekong Subregion Tourism Infrastructure for Inclusive Growth Project

Oudomxay, Luang Prabang and Khammouane Provinces

Prepared by the Ministry of Information, Culture and Tourism, Lao People's Democratic Republic, for the Asian Development Bank

CURRENCY EQUIVALENTS

(January 2014)

Currency Unit	–	kip K
R1.00	=	$0.00012
$1.00	=	K8,300

ABBREVIATIONS

DOH	-	Department of Heritage
DAF	-	Department of Agriculture, Forestry, and Fisheries
EA	-	environmental assessment
EIA	-	environment impact assessment
ECC	-	environmental compliance certificate
ECO	-	environmental control officer
EMP	-	environment monitoring plan
ESIA	-	environment and social impact assessment
EA	-	executing agency
GMS	-	Greater Mekong Subregion
IA	-	implementing agency
IEE	-	initial environmental examination
IUCN	-	International Union for Conservation of Nature
Lao PDR	-	Lao People's Democratic Republic
LWU	-	Lao Women's Union
MAF	-	Ministry of Agriculture, Forestry and Fisheries
MICT	-	Ministry of Information, Culture and Tourism
MOF	-	Ministry of Finance
MONRE	-	Ministry of Natural Resources and Environment
MPWT	-	Ministry of Public Works and Transport
MRC	-	Mekong River Commission
NBSAP	-	National Biodiversity Strategy and Action Plan
NPA	-	national protected area
O&M	-	operation and maintenance
PIU	-	project implementation unit
PCU	-	project coordination unit
PPP	-	public-private partnership
REA	-	rapid environment assessment
TSS	-	total suspended solids
UXO	-	unexploded ordnance
WREA	-	Water Resources and Environment Agency

WEIGHTS AND MEASURES

km:	kilometer
kg:	kilogram
ha:	hectare
mm:	millimeter

NOTES

In this report, "$" refers to US dollars unless otherwise stated.

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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EXECUTIVE SUMMARY

The provinces of Champasak, Khammouane, Luang Prabang and Oudomxay are the locations for the Greater Mekong Subregion (GMS) Tourism Infrastructure for Inclusive Growth Project (the project) in the Lao PDR. Cambodia, the Lao PDR and Viet Nam are the three countries that form the project. The provincial subprojects in all three countries are comprised of infrastructure and environmental improvement investments that have the inclusive goal of increasing and improving tourism and associated socioeconomic development at select locations. The development of tourism to enhance pro-poor employment is an objective of the GMS Strategic Framework 2012–2022, GMS Tourism Sector Strategy 2005–2015, and the current poverty reduction strategies of the participating countries.

The initial environmental examination (IEE) presented herein addresses infrastructure subprojects of Khammouane, Luang Prabang and Oudomxay in Lao PDR. The IEEs of the provincial subprojects of Cambodia and Viet Nam have been prepared under separate covers.

Project Summary

The project in Lao PDR is an ADB Category B project at the feasibility design phase, and is defined by the following subproject activities of Outputs 1 and 2 of the project Outputs and 3 and 4 of the project are not addressed by the IEE.

Subproject	Province
Output 1: Last Mile Tourism Access Infrastructure Improved	
Xang Cave Access Improvements	Khammouane
Chomphet Heritage District Access Improvements	Luang Prabang
Ban Xang Hai - Tham Ting Caves Access Improvements	Luang Prabang
Chom Ong Cave Access Improvements	Oudomxay
Output 2: Environmental Services in Cross Border Tourism Centers Improved	
That Sikhottabong Environmental Improvement	Khammouane

The subprojects of the *Last Mile Tourism Access Infrastructure Improved* output consist of an array of small infrastructure and environmental improvements at established tourist sites that will improve the environmental conditions at the tourist sites, and the overall quality of the tourism experience. The goal is to increase the number of tourists that visit each site. Example subproject activities include upgraded access roads and passenger piers, new parking lots, improved walkways and paths, minor improvements to solid waste and sanitation systems, construction of new and improved cultural information buildings and vendor kiosks, rest areas for tourists, and information boards and signage.

The subprojects of the *Environmental Services in Cross Border Tourism Centers Improved* output are defined by larger scale improvements to sanitation and solid waste management systems such as wastewater collection and treatment systems and solid waste collection and transfer systems along with similar infrastructure improvements of Output 1.

Potential Impacts

The initial environmental examination of the subprojects of the project in Lao PDR indicates that potential environmental impacts are largely restricted to the construction phase of the subproject components. The common construction-related disturbances such as noise, dust, erosion, sedimentation, solid and liquid waste pollution, worker camp issues, reduced access, increased

vehicle and boat traffic and traffic disruptions, increased risk of worker and public injury can be managed with standard construction practices and management guidelines (e.g., IFC/World Bank 2007).

The construction-phase activities of the Chomphet Heritage District Access Improvements subproject near Luang Prabang will require careful implementation due to the subproject being located inside the core zone of the UNESCO World Heritage Site (WHS). To manage the sensitivity of the WHS, the mitigations prescribed by the environmental management plan (EMP) for the subproject will need to be integrated with the development guidelines that have been established by the Department of Heritage for the WHS. The integration of the EMP with the WHS guidelines will occur easily via the collaboration of the detailed design phase of the subproject with the Department of World Heritage (DWH) in Luang Prabang. The initial meeting with the DWH at the UNESCO office in Luang Prabang during the feasibility study set the groundwork for the future collaboration.

The subprojects in Oudomxay and Luang Prabang are not near national protected areas. The two subprojects in Khammouane are the nearest to protected areas which are the National Biodiversity Conservation Areas (NBCA) of Nakai-Nam Theun and Phou Hin Poun. However, both NBCAs are not close enough to the subproject areas to be at risk of being negatively affected by either subproject.

There are no known rare or endangered wildlife species in the subproject areas, or critical habitat. However, a re-review of sensitive ecological and cultural property in relation to the finalized subproject activities and sites should occur at the detailed design stage as specified by the EMP for the subprojects.

An unexpected potential impact of upgrading the road to Ban Xang Hai and Ban Pak Ou concerns the elephants of the local elephant camp using the road to take tourists for rides. The issue centers on creating a road surface (i.e., the proposed DBST surface) that could become too hot for the feet of the elephants, and exposing the elephants to greater risk of collisions with larger vehicles driving faster on the upgraded road. To address this potential impact the detailed design consultant must consult *Elephant Asia* a local nongovernment organization, for guidance on how to upgrade the road without increasing the risk of injury to the elephants that use the road.

The subproject caves (i.e., Xang, and Chom Ong are located inside protected forests. This means that the planned upgrades to existing paths and walkways etc at the caves cannot result in removal of trees, or damage to cave wildlife or geology. These potential impacts will be easily avoided because only upgrades to existing cave facilities will be undertaken.

To ensure the internal cave environments are not negatively affected, a cave specialist will be retained to assist with the detailed designs to ensure that the planned installations of new and upgraded elevated walkways and lighting systems in the caves do not negatively affect resident wildlife and the unique geology of the caves.

Potential long-term environmental impacts of the subprojects concern sustainable operation and maintenance (O&M) of the improved sanitation and solid waste systems that will be established at the sites. The new public toilet blocks that will be coupled to active baffled reactor (ABR) septic systems provide a relative simple and effective technology for sanitation in remote, high density tourist areas. However, the toilets and the ABR systems must be regularly maintained with septage from the ABR systems routinely removed and disposed in government approved

disposal areas. Improperly maintained sanitation systems could cause pollution of land and nearby surfaces waters as well as creating negative aesthetics at the tourist sites.

Similarly, improved solid waste management ranging from provision of simple garbage bins to construction of solid waste transfer stations and material recovery facilities also must be operated and maintained according to specification. Otherwise a solid waste and litter pollution problem could be created quickly as a response to the objective increase in tourist visits to the sites.

The stakeholder consultations and household and village level interviews underscored the need for effective management of construction-phase impacts such as noise, dust, traffic disruptions, and worker and public safety. Follow-up meetings with the consulted stakeholders to disclose the IEE and EMPs, and to address any further subproject issues, are required at the detailed design phase.

Potential induced impacts of increased tourism in the subproject areas is creation of pollution from solid and domestic waste that occurs from related tourism outside the catchment areas of the improved solid waste and wastewater collection and treatment systems of the subprojects. An increase in the number of tourists that visit a subproject area normally results in greater consumption of goods and resources which can put greater strain on key amenities such as the cleanliness of local environment and community. An increase in the number of tourists in subproject area could lead to social issues stemming from the interaction of local and foreign cultures.

A potential induced impact of tourism development which is very difficult to prevent is lateral independent commercial and urban development that develops to serve and benefit from the tourism created by the project. Increased tourism development at all subproject areas can easily become the seed for much greater and non-sustainable growth in both tourism and urban development in the subproject areas. Indirect induced tourism-socioeconomic growth is usually broader geographically and more difficult to manage with respect to impacts on environmental resources because of the different parties and interests involved, and lack of accountability.

Conclusions

The IEE concludes that the feasibility design of the subprojects combined with available information on affected environments is sufficient to identify the scope of potential environmental impacts of the project. Providing that significant changes do not occur to the design of one or more of the subproject components, and that required supplementary sensitive receptor data, and final design information identified above is provided, that further detailed environmental impact assessment (EIA) of the project is not required.

The separate EMPs developed for the provincial subprojects provide impacts mitigation plans, environmental monitoring plans, indicative costs for EMP implementation, and specify the institutional responsibilities and capacity needs for the environmental management of the subprojects. The IEE recommends that the EMPs be reviewed and updated at the detailed design phase of the subprojects to ensure that they fully address the final subproject designs.

I. INTRODUCTION

A. Background to IEE

1. The Greater Mekong Sub Region (GMS) Tourism Infrastructure for Inclusive Growth Project (the project) is a multisector tourism development project situated in Lao PDR, Cambodia, and Viet Nam. The project is comprised of transport-related and environmental infrastructure investment subprojects in twelve provinces of the three participating countries. The subprojects of the provinces Oudomxay, Luang Prabang, and Khammouane of Lao PDR are the focus of the IEE presented herein.

2. The objective of the project is to accelerate inclusive tourism growth in the targeted areas of the GMS. Inclusive growth is defined by local social and economic growth from tourism development that is environmentally sustainable. The development of tourism to enhance pro-poor employment serves the GMS Strategic Framework 2012–2022, GMS Tourism Sector Strategy 2005–2015, and the current poverty reduction strategies of the participating countries. The GMS Tourism Sector Assessment, Strategy, and Roadmap indicate that ADB's assistance to the tourism sector will focus on:

1) Improving last-mile tourism access infrastructure and sanitation in secondary destinations;
2) Capacity building for public officials and local communities; and
3) Promoting multi-country tour circuits.

3. The project is included in the targeted countries of ADB's Country Partnership Strategies which emphasize the need to improve rural transport infrastructure, expand municipal infrastructure and services, and promote small and medium-sized enterprises to boost the poor's access to economic opportunities. The country subprojects of the project form the four outputs defined as follows:

Output 1: *Last Mile Tourism Access Infrastructure Improved* which include new and upgraded roads, piers, and associated tourism support facilities;
Output 2: *Environmental Services in Cross Border Tourism Centers Improved* which includes wastewater treatment facilities and landfills;
Output 3: *Institutional Capacity to Promote Inclusive Tourism Growth Strengthened*
Output 4: *Effective Project Implementation and Knowledge Management*.

4. Output 1 and Output 2 are derived from small infrastructure investments, whereas Outputs 3 & 4 are derived from "softer" development initiatives such as tourism planning & management, development of public-private partnerships, and counterpart capacity development and training in tourism. The focus of the IEE provided herein is the infrastructure investments in Outputs 1 and 2.

5. Figure 1 shows the provinces of the project in Lao PDR. The provincial subprojects that will lead to Outputs 1 and 2 are listed in Table 1.

Figure 1: Project Provinces in Lao PDR

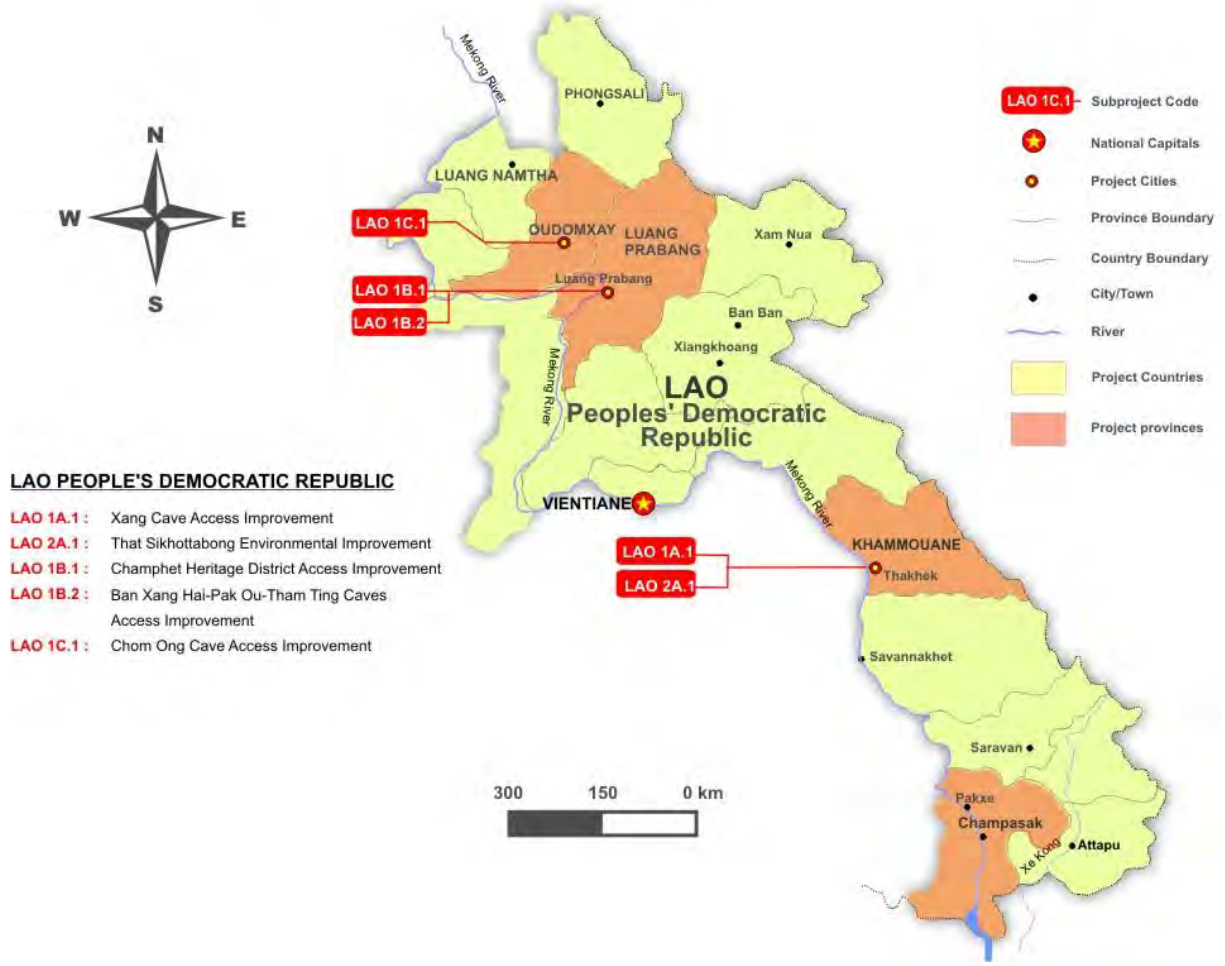


Table 1: Subprojects leading to Outputs 1 and 2 of Lao PDR

Subproject	Province
Output 1: Last Mile Tourism Access Infrastructure Improved	
Xang Cave Access Improvements	Khammouane
Chomphet Heritage District Access Improvements	Luang Prabang
Ban Xang Hai - Tham Ting Caves Access Improvements	Luang Prabang
Chom Ong Cave Access Improvements	Oudomxay
Output 2: Environmental Services in Cross Border Tourism Centers Improved	
That Sikhottabong Environmental Improvement	Khammouane

B. Assessment Context

6. The project is classified as an Environmental Category B pursuant to requirements of the ADB's safeguard policy[1] and recent good practice sourcebook guidance.[2] The subprojects of in

[1] ADB. 2009. Safeguard Policy Statement, ADB Policy Paper.
[2] ADB, 2012, Environmental Safeguards, A Good Practice Sourcebook, Draft.

Lao PDR were originally screened to meet criteria for the Cat B condition.[3] A category B project will have potential adverse impacts that are less adverse than those of a category A project, are site-specific, largely reversible, and can be mitigated with an environmental management plan.[4]

1. Feasibility Design

7. The IEE was prepared for the Lao PDR subprojects in the feasibility design stage of using available data and information on sensitive ecological and cultural receptors that exist at the different subproject sites. The detailed designs for the subprojects will follow approval of the project in Lao PDR. During the detailed design phase the environmental management plans (EMP) that will be prepared for the subprojects will be updated where necessary to meet the final detailed designs of the subprojects.

2. Existing Impact Footprints

8. The subprojects by design are located in existing tourist destinations with the goal of increasing tourist visitation at the sites. The subproject activities will upgrade *existing* tourist facilities such as access roads, small tourist reception buildings, and solid and wastewater management. Thus, the environmental impact footprints of tourism development are already at the subproject areas. The subprojects will not be creating *new* impact footprints from new tourist sites.

9. However, the established tourist destinations – and impact footprints - are located in areas of ecological and cultural significance and importance. Thus, the challenge is to improve the tourist destinations through small infrastructure and environmental developments without significantly enlarging the tourist impact footprints.

10. The government of Lao PDR requires that an Environmental Assessment (EA) be conducted for the subprojects as dictated by the national EIA regulatory framework and guidelines summarized below.

C. Structure of report

11. The IEE is structured by provinces not by project outputs as introduced above in order to minimize redundancy of supporting information. Moreover, the structure by provincial subprojects is consistent with, and supports the individual provincial EMPS that have been prepared based on the results of the IEE.

II. POLICY, LEGAL, AND REGULATORY FRAMEWORK

A. National Environmental Laws, Strategies, and Policies

12. Lao PDR's national framework for the governance of environmental matters includes a comprehensive set of environmental and natural resources related laws and regulations. Several government agencies are involved in environmental management.

[3] Subproject selection criteria reproduced from project TA Paper in Annex 1
[4] Footnote 2, pg 19.

13. In 2011 the Ministry for Natural Resources and the Environment (MONRE) was created by merging the Water Resource and Environment Administration (WREA) with departments of the National Land Management Authority (NLMA) and portfolios of other ministries including the Geology Department, and the Forest Conservation and Divisions within the Ministry of Agriculture and Forestry (MAF). The policies, laws relevant to environmental protection are listed below.

14. Detailed descriptions of the laws, policies, and regulations related to environmental protection, including the national environmental assessment procedure are found in Annex 2.

1. Laws

- Law on Environmental Protection No. 02/99/NA (1999)
- Law on Industry No. 01/99/NA (1999)
- Law on Hygiene, Prevention and Health Promotion No.01/NA (2001)
- Law on Water and Water Resources (1996)
- Law on Land (2003)
- Law on Roads (1999)
- Law on Forestry (2007)
- Law on Cultural, Historical and Natural Heritage (2005)
- Law on Fisheries (2010)

2. Strategies, Plans, Policy

- The 7th National Social and Economic Development Plan (NSEDP) (2011-2015)
- National Forestry Strategy to 2020 (FS2020)
- National Biodiversity Strategy to 2020 & Action Plan to 2010 (NBSAP*)*
- Urban Master Plan (2001) No. 58/PM
- National Water Resources Strategy and Action Plan [draft]
- Strategy on Climate Change (2010)
- National Adaptation Programme of Action to Climate Change (NAPA) (2009)
- Strategic plan on disaster risk management in Lao PDR (2020, 2010) and Action Plan (2003-2005)

3. International Agreements

15. The Lao Government is party to international multilateral environmental agreements. Agreements pertaining to the project are listed below.

- World Heritage Convention (WHC), March 20, 1987
- Framework Convention on Climate Change (FCCC), 4 January 4, 1995
- Agreement on The Cooperation for The Sustainable Development of The Mekong River Basin (Mekong Agreement), April 5, 1995
- Convention on Biological Diversity (CBD), September 20, 1996
- Montreal Protocol on Substances that Deplete the Ozone Layer, August 21, 1998
- Persistent Organic Pollutants (POPs), March 5, 2002
- ASEAN Agreement on Transboundary Haze Pollution, June 10, 2002
- Plant Protection Agreement for the Asian and Pacific Region, March 17, 1960

4. Environmental Standards & Criteria

16. National standards and criteria exist for drinking water quality, surface and groundwater quality, soil quality for agriculture, air quality and noise level standards, and wastewater discharge standards for BOD, NH_3-N, TSS, and pH. Specific standards are also available for certain chemical use by factories. The existing standards are found in the National Environmental Standard Order No. 2734/PMU-WREA (2009)

B. National Forest Management Types

17. Some components of the subprojects are located inside or adjacent to forested areas. The three primary forest types or categories with respect to forest preservation and development are defined below[5].

1. Protection Forests

18. Protection forests are forests classified for the function of environmental protection defined by water resources, river banks, road sides, preventing soil erosion, protecting soil quality, strategic areas for national defense, and protection from natural disasters.

a. Activity Restrictions

19. Protected forests are further stratified into *total protected zones* and *controlled use zones.* The *total protected zone* is usually steep sloped, contains water resources including forests along rivers, roads and other areas with high risk of environmental degradation. These areas must be protected from activities such as crop rotation, cutting, or burning, tree removal, housing construction, extraction of soil, stones, or mining

20. The *controlled use zone* is the forest area without a perceived high risk of environment impacts. These areas must be protected similar to the total protection zone, but people are allowed to use wood and forest products according to the management plan. For example Article 5 of the Forestry Law would apply which indirectly encourages the utilization of forests for research, tourism and recreational purposes.

2. Conservation or Reserved Forests[6]

21. Conservation forests are forests classified for the purposes of conserving nature, preserving plant and animal species, forest ecosystems and other valuable sites of natural, historical, cultural, tourism, environmental, educational and scientific research experiments. Conservation forests exist at the national, provincial, district and village levels.

a. Activity Restrictions

22. Similar to protected forests, conservation forests are divided into zones defined by *total protection zones, controlled use zones, corridor zones and buffer zones.* The *total protection zone* is the forest area that is main habitat, feeding and breeding place for various wild animals and it is the place of diverse and dense vegetation. In this zone, it is

[5] From Law of Forests (2007)
[6] Conservation forests commonly referred as reserved forests during discussions with agencies and village heads

strictly prohibited to conduct any forestry activity, to harvest any forest products, including unauthorized entry in this zone. Examples are core zones of national parks or nature reserves.

23. The c*ontrolled use zone* is the forest area adjacent or close to the total protection zone. These areas must be protected similar to the *total protection zone,* but people are allowed to use wood and forest products according to local management plan.

24. The *corridor zones* are managed areas for preserving tracts of forest to provide passage for animals between two conservation forests or between a conservation forest and another category of forest to preserve existing biodiversity and to increase the general wildlife population. In this zone, it is prohibited to cut trees, conduct forestry activities or any other activity that may obstruct or destroy the passage for the animals. The *buffer zones* are managed areas for preventing any encroachment and destruction in the conservation forest.

3. Production Forests

25. Production forests are natural forests and planted forests that are actively utilized for wood production, and for wood and forestry product-related livelihoods to satisfy the requirements of national socio-economic development and people's living.

26. Two other managed forest categories which reflect the overall goal of the Government of forest restoration through community based forest management are *Regeneration Forests* and *Degraded Forests*[7].

4. Regeneration Forest

27. Regeneration forest is young fallow forest classified for the purpose of regeneration and maintenance so that it increases in maturity toward a stage of natural equilibrium.

5. Degraded Forests

28. Degraded forest has been heavily damaged to the extent that land is barren without trees. The forest is classified for tree planting and/or allocation to individuals and organizations for tree planting, permanent agriculture and livestock production, or for other purposes.

C. National Environmental Assessment Procedure & Directives

29. Pursuant to the Environmental Protection Law (1999), development projects and operations that have or will have the potential to affect the environment shall require environmental assessment in accordance with the regulations of WREA.[8] WREA is responsible for environmental management and monitoring, and the issuance of an Environmental Compliance Certificate (ECC) as per the Regulation on Environment Assessment No: 1770/WREA (3/10/2000).

30. A Development Project Responsible Agency (DPRA) carries out the initial environmental assessment in accordance with the Regulation. The DPRA screens the project to determine

[7] From NAFRI, 2007
[8] WREA now incorporated in the new MONRE

whether the initial environmental assessment must be expanded into an IEE as specified in Article 9 of the Regulation. A more in depth Environmental Impact Assessment (EIA) may be required if this is shown to be needed following a review of the IEE, as specified in Articles 11, 12, 13, and 14 of this Regulation. A detailed description of the national environmental assessment procedure for Lao PDR is found in Annex 2.

31. Key directives and regulations for environmental assessment in Lao PDR are as follows:

- Decree of Environmental Impact Assessment (no. 112/PM, February 2010, see below)
- Regulation on Environment Assessment No: 1770/WREA (3/10/2000)
- Manual of Environmental Impact Assessment Procedures for Road Projects in the Lao PDR (1997).
- Regulation and Guidelines for the Environmental Assessment of Road Projects (1999), MPWT.
- Environmental Impact Assessment for Industry and Processing Handicraft Order No. 1222/MIH (2005)

32. The technical and procedural aspects of above regulations and directives were recently combined into the UNDP-UNEP supported and MONRE-sponsored Environmental Impact Assessment Guidelines for Lao PDR (2012), which has been followed by the *draft* IEE guidelines (2013).[9] The 2012 EIA and 2013 draft IEE guidelines support the recently promulgated Decree of Environmental Impact Assessment (2010).

33. The IEE requirements of the ADB SPS (2009) more than satisfy the current draft IEE guidelines for Lao PDR. Briefly, similar to SPS process, a project is assigned the requirement for either an IEE or EIA depending on project size or complexity. The Lao PDR EIA and IEE process by design is essentially the same but differs by the required level of investigation, and that an EIA requires a formal Scoping and TOR for the EIA be prepared similar to World Bank EIA process. The Lao and ADB IEE follow the same major steps and consist of the same major components. However, the scope of the follow-up environmental and social management plan differs. The EMP of the ADB IEE equals the scope of the ESMMP[10] required of the Lao PDR EIA. Thus, while similar in process the ADB IEE provides more comprehensive assessment and follow-up management.

34. The Lao PDR's environmental assessment process does not dictate a formal timeline for the approval process for a project IEE/EIA, only the series of process steps. MONRE confirmed that there is not a formal timeline for the preparation and approval of an IEE or EIA[11], but that the normal timeline for the approval of an IEE or EIA as well as a RP and IPP after documents submission to MONRE is approximately 45 days.

D. ADB Safeguard Policy

35. The ADB Safeguard Policy Statement and Sourcebook (ADB 2009, 2012) clarifies the rationale, scope and content of an EA and is supported by technical guidelines (e.g., Environmental Assessment Guidelines 2003). Projects are initially screened to determine the level of assessment that is required according to the following three environmental categories: Category A for projects that normally cause significant or major environmental impacts that are

[9] MONRE 2012, 2013
[10] Environmental & Social Management and Monitoring Plan
[11] 4-Nov-13. Mr. Sakounsit, Mekong Secretariat, MONRE, during kickoff meeting of fact finding mission, Vientiane

irreversible, diverse or unprecedented such as hydroelectric dams (an Environmental Impact Assessment is required); Category B projects which have potential adverse impacts that are less adverse than those of category A, which are site-specific, largely reversible, and for which mitigation measures can be designed more readily than for category A projects (an Initial Environmental Examination is required); and Category C projects that are likely to have minimal or no negative environmental impacts. An environmental assessment for Category C projects is not required but environmental implications need to be reviewed.

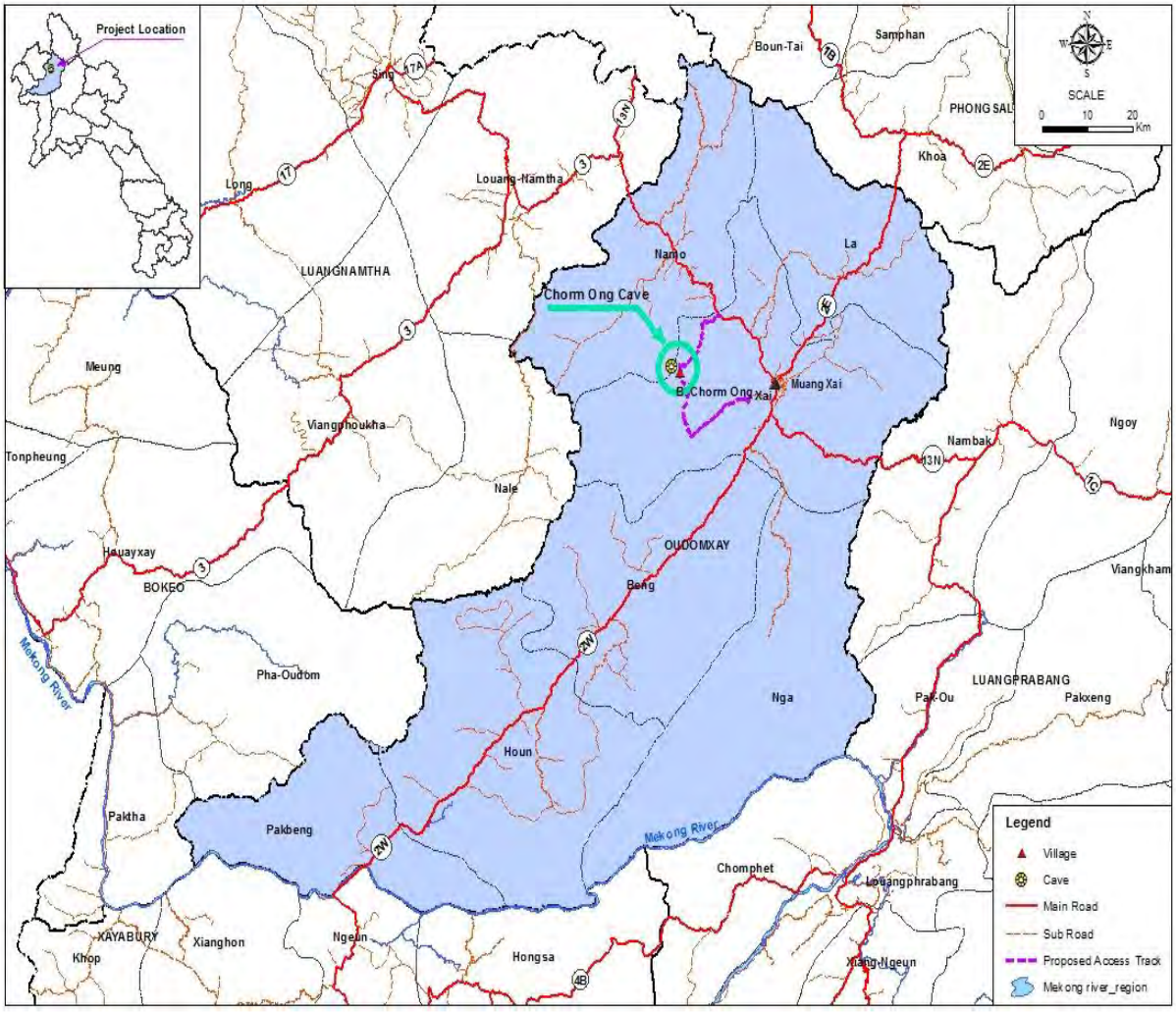
III. DESCRIPTION OF SUBPROJECTS

36. The descriptions of the subprojects provided below reflect agreement between ADB and the Ministry of Information, Culture and Tourism on project scope as of November 2013.

A. Oudomxay Province

37. The location of the single subproject of Output 1 in Oudomxay province is identified in Figure 2.

Figure 2: Chom Ong cave and access road (dashed line) in Oudomxay province



Output 1: Last Mile Tourism-Related Access Improvements

1. Chom Ong Access Road Improvements

a. Subproject description

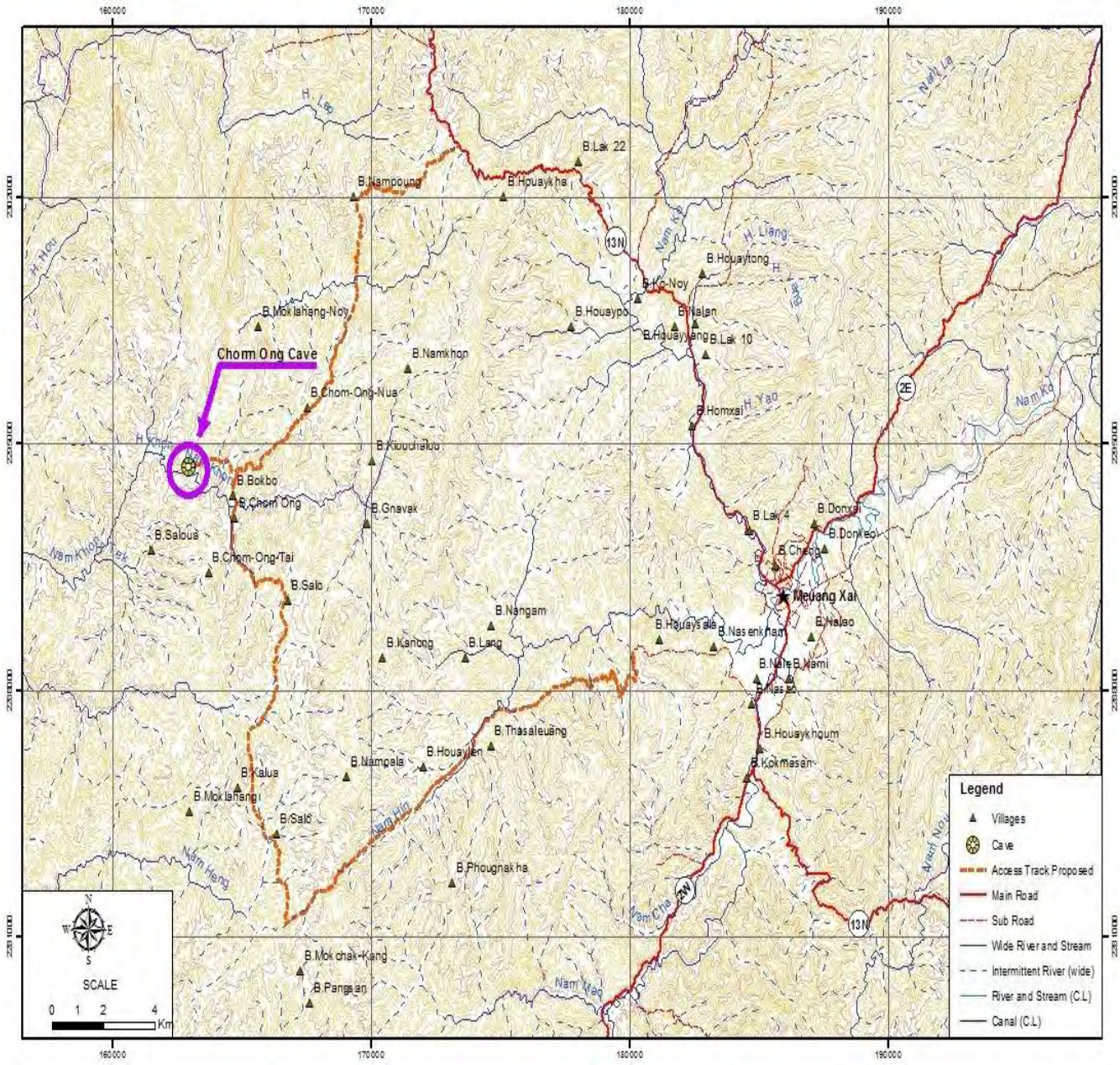
38. The Chom Ong Cave is located in Xay District approximately 40 km northwest of Oudomxay town and about 5 km from Chom Ong village. Vehicular approach to the cave is by rural road (approximately 63 km) that loops around Oudomxay town to link to Highway No. 13 at a junction 24 km north of the city or at another junction about 3 km to the south. The cave including the small tourist gathering place at the cave entrance is located in protected forest.

39. The existing access roads to the cave traverse a mix of agricultural land, production forest, and small villages including Chom Ong village. There are no known rare or endangered wildlife in the area, or ecological protected areas such as national parks or nature reserves. Table 2 summarizes the activities of the subproject and Figure 3 shows the location of the access road in relation to the cave.

Table 2: Summary of components of Chom Ong Cave Access Improvements

Activity	General Specifications
Upgrade existing main looping rural access road to the turn off to the cave access road.	• 54 km X 5-6m • DPWT completed upgrade design • bridges, culverts, bank stabilization • DBST surface
Upgrade existing short access road to cave	• 3 km X 3-4m • DBST surface • including 30 m bridge • existing DPWT contract • not in protected forest
Construct new vehicle car park	• 2,000 m^2 • sealed • not in protected forest
Upgrade access path from vehicle park through tourism reception center to cave entrance	• 500m
Construction of new tourist information / reception center, ticket kiosk, souvenir, food & beverage outlets	
Construction of new public toilets	• with ABR septic system
Landscaped public open space to include sheltered riverside picnic areas	
Install new network of illuminated raised walking paths inside the cave to include handrails and other safety features	• A suitable lighting system will be installed to minimize the negative environmental impact of cave illumination.
Improved solid waste management system to include rubbish bins in strategic locations	

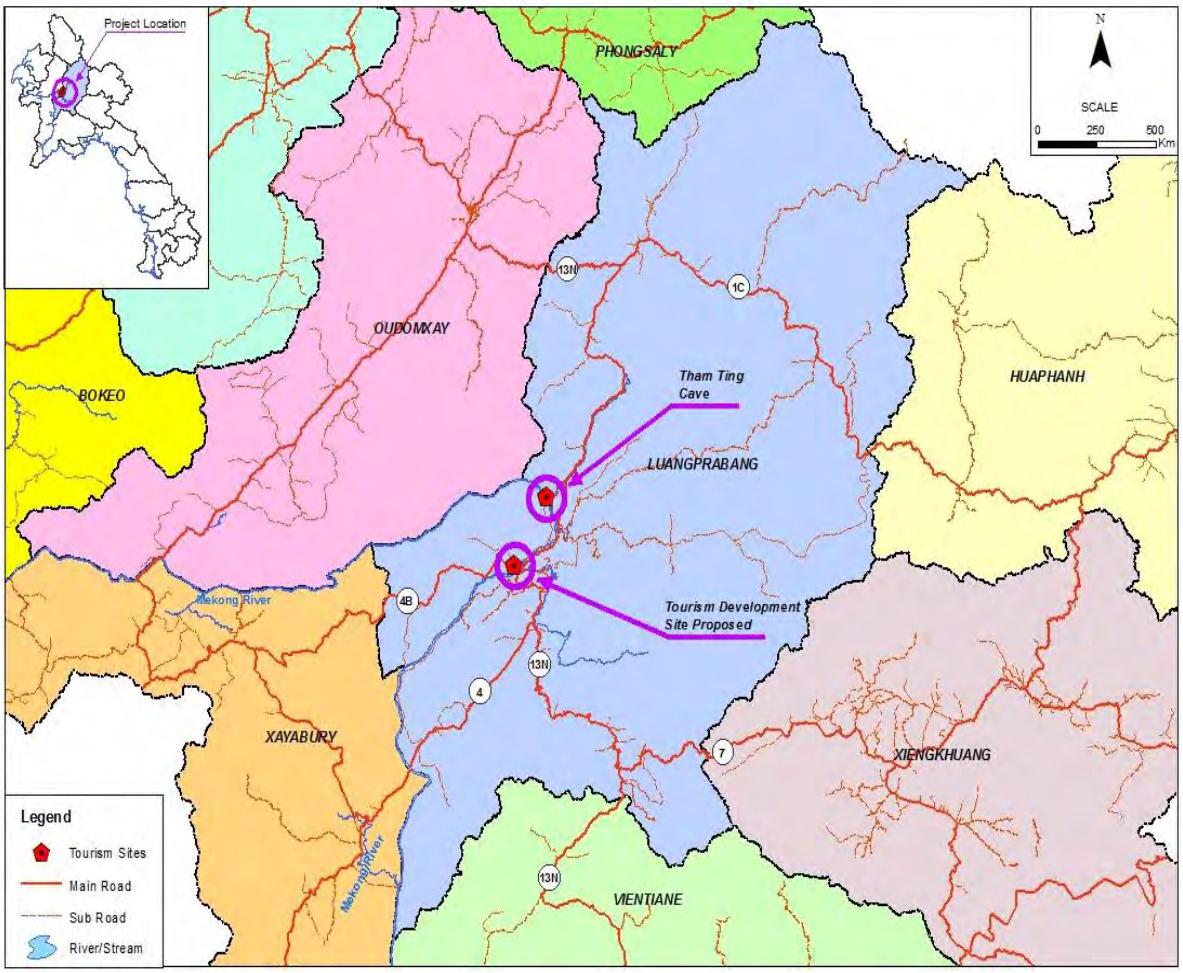
Figure 3: Chom Ong Cave showing access roads to be upgraded (dashed line)



B. Luang Prabang Province

40. The locations of the two subprojects of Output 1 in Luang Prabang province are identified in Figure 4.

Figure 4: Subprojects in Luang Prabang province



Output 1: Last Mile Tourism Infrastructure Improvements

1. Chomphet Heritage District Access Improvements

a. Subproject description

41. Chomphet Heritage District is located on the western bank of the Mekong River directly opposite Luang Prabang town, and is part of the Luang Prabang UNESCO World Heritage Site. The District is accessed from Luang Prabang by vehicle and passenger ferries which run to jetties located below Xieng Mene village (Figure 5).

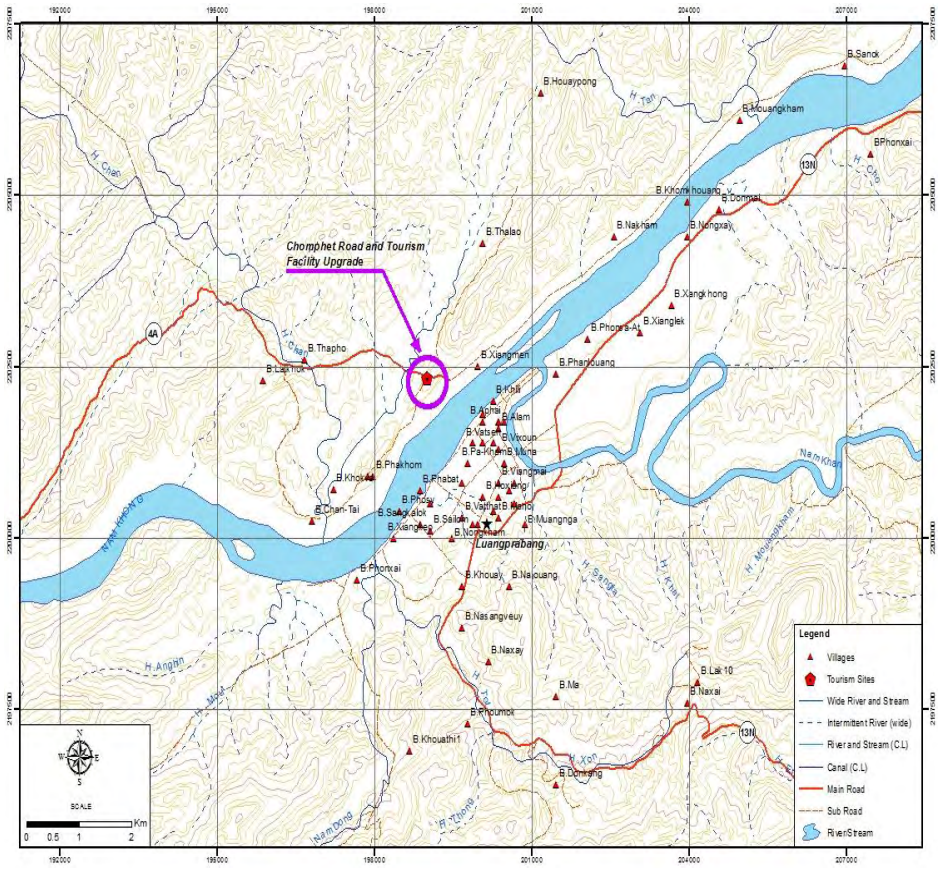
42. The subproject is located inside the urban sub-zone core zone of the Heritage site. All development in the core zone is governed by guidelines set down by UNESCO in conjunction with the Department of Heritage of Luang Prabang to protect the ecological and architectural ecological environments of the Heritage site.

43. The subproject activities will occur in the villages of Ban Xieng Mene and Ban Chan Neua. Subproject activities are summarized in Table 3.

Table 3: Summary of components of Chomphet Heritage District Access Improvements

Activity	General Specifications
In Ban Xieng Mene:	
Upgrade existing Mekong river vehicle ferry terminal ramp	• 250m X 10m • concrete • with drainage and embankment retention
Rehabilitate existing concrete paths and steps to passenger pier at the river	
Construct new tourism information kiosk	
Upgrade of existing village road	• 250m X 6m • to DBST standard • roadside drainage
Construct new walking paths	• 2.2 km
Construct 2 new public toilet blocks	• with ABR system
Upgrade other walking trails	
Rehabilitate 5 concrete river landings & steps to temples north of the village	
In Ban Chan Neua:	
Upgrade existing small passenger pier & footpaths	• 500 m
Construct new vehicle parking area	• 1,000 m^2
Install new vendor kiosks	
Install new public toilet blocks	• with ABR system
Install directional signage and information boards	
Install rubbish bins	

Figure 5: Location of Chomphet Heritage District Access Improvements



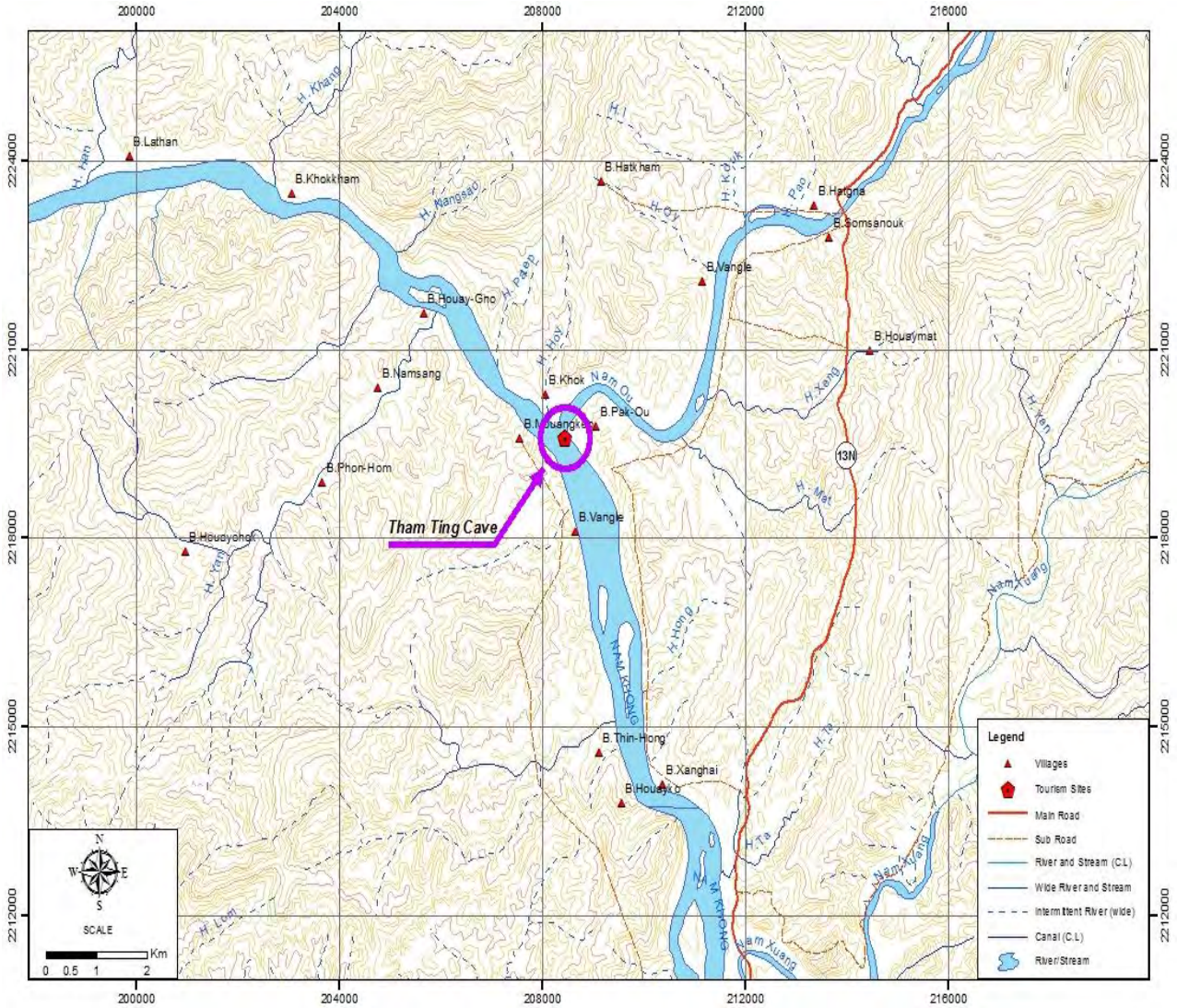
2. Ban Xang Hai – Pak Ou - Tham Ting Caves Access Improvements

a. Subproject description

44. The Tham Ting Caves are 30 km upstream from Luang Prabang on the west bank of the Mekong river. Access to the caves is either by passenger boat from Luang Prabang; or via Highway 13 north from Luang Prabang to a secondary rural road to Ban Pak Ou on the eastern bank of the Mekong River to the ferry service across the Mekong to the caves (Figure 6).

45. The rural road forms a 17 km loop with junctions to Highway 13 at approximately 20 km and 30 km north of Luang Prabang. In addition Pak Ou the road provides access to four other villages including Xang Hai noted for three elephant camps for tourists. Pak Ou lies about 1.0 km off of the loop road and reached by a secondary access road. The docks and passenger boats at Pak Ou and at Xang Hai are accessed by steps and footpaths down from the village to the river.

Figure 6: Location of Ban Xang Hai - Tham Ting Caves Access Improvements



46. The subproject area does not exist near an ecological protected area, and no rare or endangered terrestrial wildlife inhabit the area. The land use along the access roads is predominantly agriculture interspersed with production forest. The only components of the subproject that are located in protected forest are the Tham Ting caves across the Mekong river from Ban Pak Ou. The area of the protected forest was not determined; however, both caves are situated in village protected forest at the shore of the river. As indicated above the road between Pak Ou and Xang Hai villages is used by operators of elephant camps which provide elephant rides to tourists. The section of the Mekong River between the Pak Ou and the Tham Ting caves supports the active fishery of the area. The passenger boats to and from the caves and Pak Ou traverse through the set day-set gill nets that are suspended with floats.

47. The subproject activities will occur along the access road to Ban Pak Ou and Ban Xang Hai villages, inside the two villages, and at the Xang cave across the Mekong River. Subproject activities are summarized in Table 4.

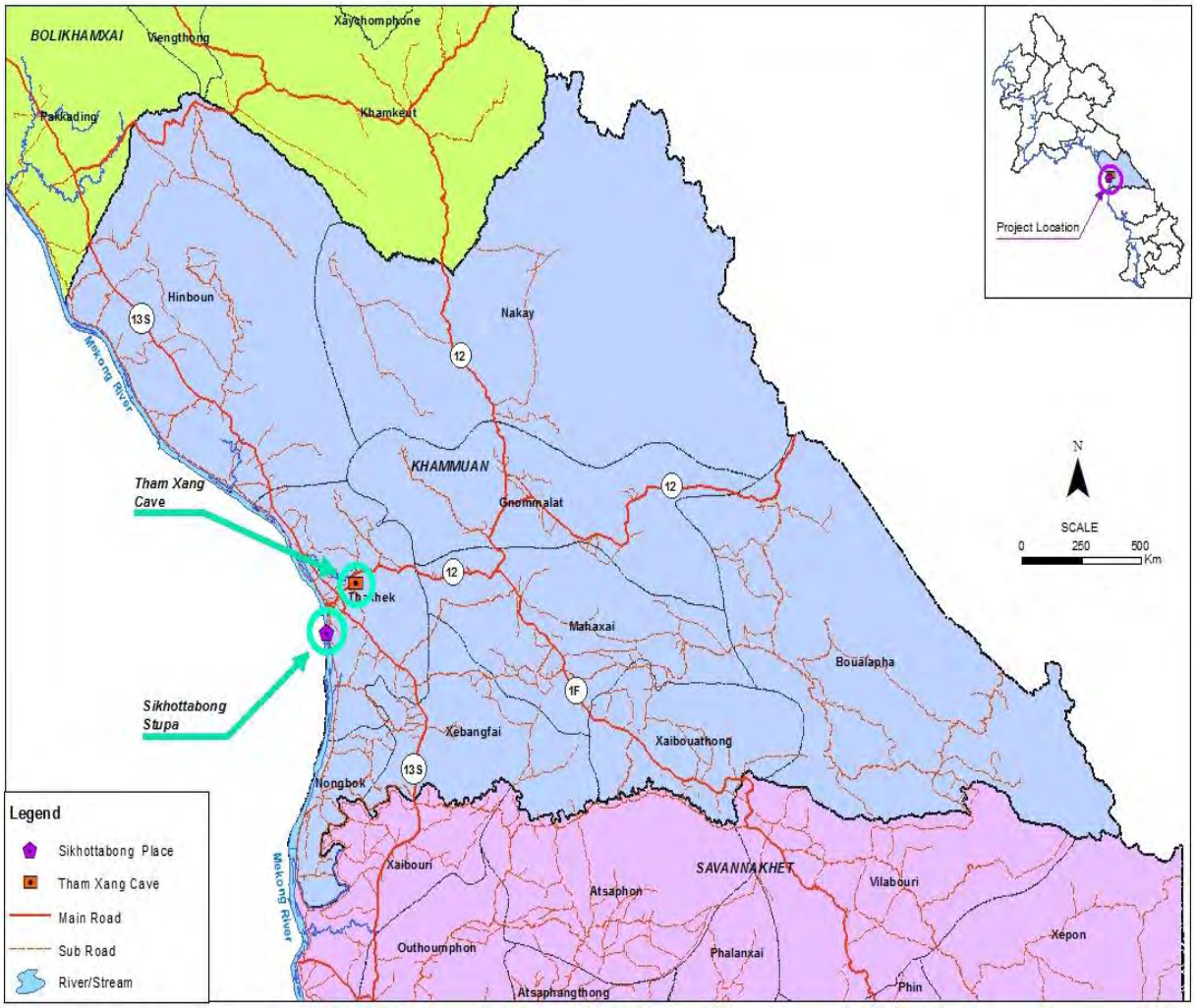
Table 4: Ban Xang Hai - Tham Ting Caves Access Improvements

Activity	General Specifications
Upgrade Xang Hai – Pak Ou access road	• 10 km X 5–6 m carriageway • DBST surface standard • with viewing lay-bys • roadside drainage and culverts
In Ban Xang Hai:	
Upgrade existing footpaths and drainage network	• 1 km
Construct new parking area	• 4,000 m^2
Rehabilitate existing concrete steps to 3 passenger piers	
Supply 3 new fabricated modular steel floating pontoons	• with handrails and other safety features
Construct new tourist information kiosk	
Install new toilet blocks	• with ABR system
Install rubbish bins	
Install directional signage and information boards	
In Ban Pak Ou:	
Construct new parking area	• 4,000 m^2 • with toilet blocks
Upgrade existing internal roads/footpaths with	• 500 m • sealed gravel surface
Install rubbish bins	
Install directional signage and information boards	
At Tham Ting Cave:	
Supply 2 new modular floating pontoons	• with handrails and other safety features
Construct new ticket kiosks	
Rehabilitate existing concrete steps and footpaths to lower and upper caves,	
Provide new electricity supply and lighting to caves	
Upgrade existing public toilet blocks	
Upgrade existing souvenir/handicraft kiosks at the upper cave	
Install rubbish bins	
Install signage and information boards	

C. Khammouane Province

48. The locations of the subprojects of Output 1 and Output 2 in Khammouane province are shown in Figure 7.

Figure 7: Location of subprojects in Khammouane province



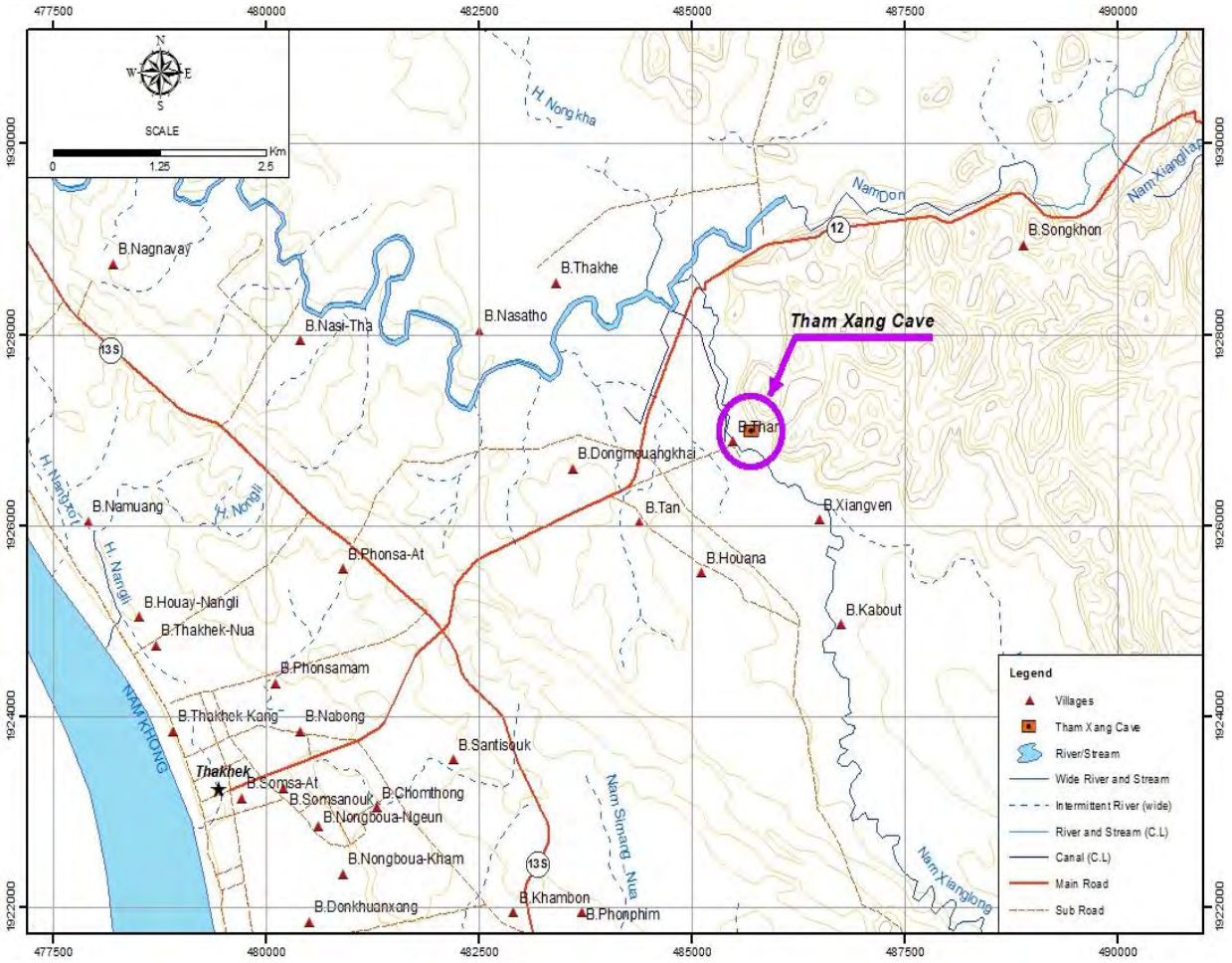
Output 1: Last Mile Tourism-Related Access Infrastructure Improvements

1. Xang Cave Access Improvements

a. Subproject description

49. The Xang Cave lies approximately 6 km east of Thakhek town in Thakhek District. Main access to the site is via National Highway 12 followed by a secondary unpaved road (1.7 km) to Ban Tham village (Figure 8). The initial 1.3 km of the unpaved road runs along a raised embankment through farmland and crossing one small bridge. From Ban Tham village the access road continues for 2.0 km to Ban Xang Vaen. Access to the cave is from Ban Tham along a motorable track (0.40 km) which crosses a small river. The track and adjacent parts of the village are reportedly flooded during the rainy season.

Figure 8: Location of Xang Cave Access Improvements



50. Similar to the Chom Ong cave Xang cave is located in protected forest with the tourist gathering area located in the village. The access road traverses mostly farmland with intermittent scrub forest clumps. According to the village head the small river near the cave entrance does not support fish populations. However, as verified by the DONRE, the river being a tributary of the adjacent Mekong River provides habitat to the flood plain migration of fish during the rainy season.

51. The subproject area does not support terrestrial rare or endangered wildlife species, or is near an ecological protected area such as a national park of nature reserve. The Xang Cave is both archeological and religious significant due to interesting rock formations (one in the form of an elephant), and the Buddhist shrines and other "ancient artifacts". A high percentage of visitors are Lao and Thai who visit to pray.

52. The subproject activities will occur along the access road to Xang cave, in the two villages beside the cave, and at the cave itself. Subproject activities are summarized in Table 5.

Table 5: Xang Cave Access Improvements

Activity	General Specifications
Upgrade existing access road to Xang Cave and nearby Xiang Vaen village	• 4.0 km X 6.0 m • DBST surface • existing bridge only concrete decking required
Construct new secondary access road	• 500m • 100m footbridge • 20 ford crossing with box culverts
Construct 2 new vehicle parks at Xang cave entrance Xiang Vaen village	• 4,000 m^2 , 1,000 m^2 • gravel surface
Construct new multi-purpose tourist information & reception center near cave entrance	• utilize existing structure
Construction of new public toilet blocks	• with ABR system
Construction of new vendor kiosks with landscaping	
Upgrade existing steps and footpaths to cave	• with handrails
Improve existing cave lighting system	
Install rubbish bins at key locations	
Placement of signage and information boards	

Output 2: Environmental Services in Cross Border Tourism Centerss Improved

2. That Sikhottabong Environmental Improvement

a. Subproject description

53. The 29-meter-high That Sikhottabong Stupa is one of Lao PDR's most sacred religious sites. It was originally built by the Sikhottabong Empire to keep relics of Lord Buddha around the 6th century. The stupa lies approximately 5 km south of the town center of Thakhek and is located in a walled compound of 5 ha in a compound of other religious and cultural buildings. The compound is bounded between the east bank of the Mekong River and National Highway 11 to the west.

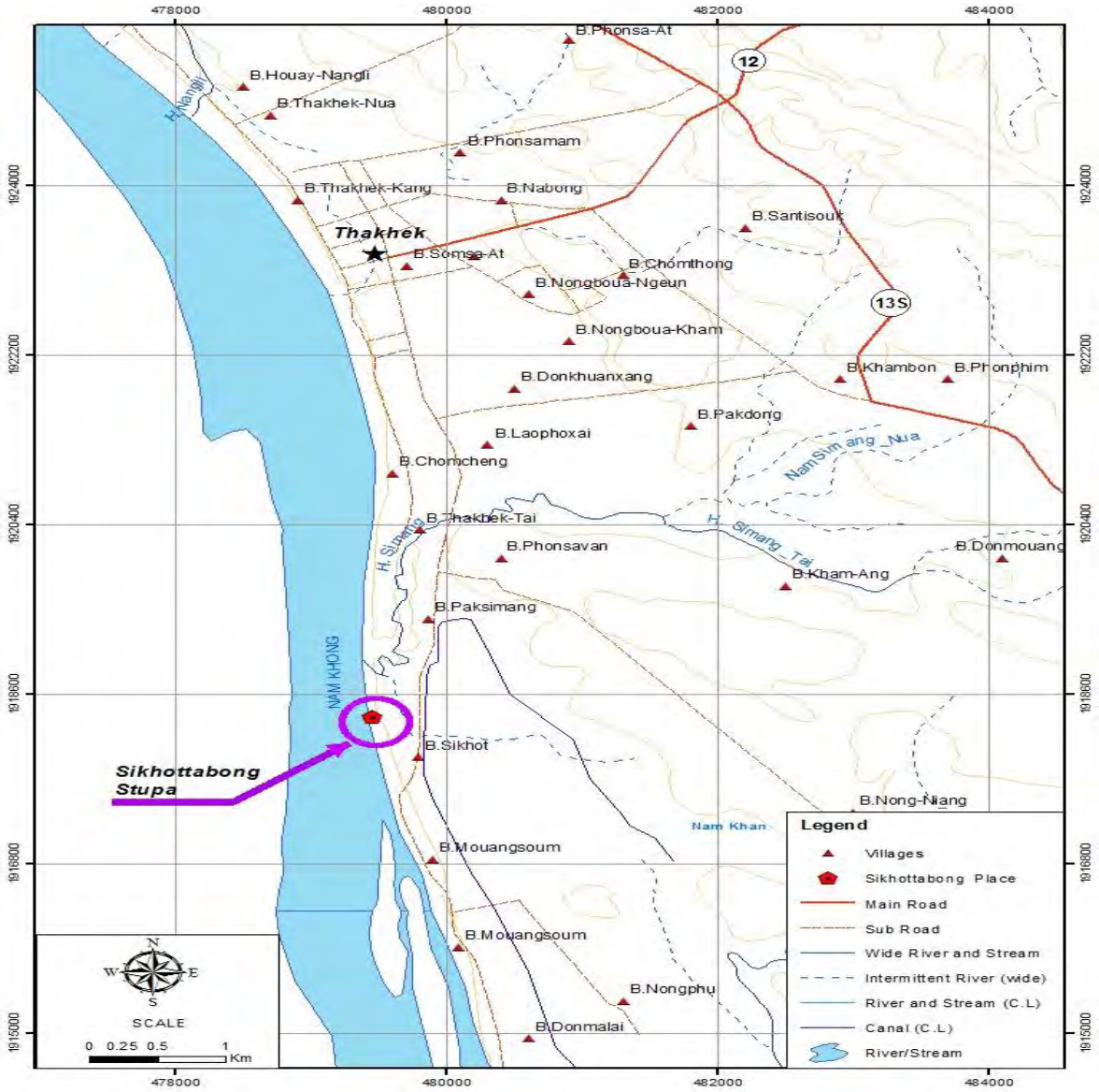
Figure 9). The subproject activities that will occur inside the Stupa compound are summarized in Table 6.

Table 6: Sikhottabong Stupa Environmental Improvements

Activity	General Specifications
Upgrade existing internal road network in compound	• 2 km • sealed gravel
Rehabilitate existing internal road bridges	
Upgrade existing vehicle park	• 4,000 m^2 • sealed gravel surface
Construction of 20 new public toilets	• with ABR septic system
Rehabilitate existing 2 storey structure to a tourist reception and information center	• exhibition area and interpretation facilities
Construct new food and beverage kiosks	
Installation of new souvenir, food and beverage stalls	
Develop hard and soft landscape features	• to create public green space for residents and tourists
Construct a new solid waste transfer station	• with small MRF

Activity	General Specifications
Install rubbish bins	
Placement of new signage and information boards	

Figure 9: Location of Sikhottabong Stupa Environmental Improvements



IV. DESCRIPTION OF SUBPROJECT ENVIRONMENTS

54. The description of the affected environments focuses on the site-specific environmental features that could be affected by the subprojects in the five provinces, or the environmental features that could possibly influence the successful implementation and operation of the completed subprojects. However, additional baseline information for the provincial subprojects is provided as required for assessment context.

55. The environmental baseline information provided herein was obtained primarily from existing reports provided by the provincial environment agencies including the DONREs, and Fisheries sections of the Departments of Agriculture and Fisheries (DAF). Discussions with their counterparts in Vientiane provided additional information at the national level supplemented from the literature where available. The description of affected environments focuses on natural features and land use. The potentially affected social, economic, and demographic features of the subprojects is provided in detail in the social impact reporting for the project.

A. Lao PDR

56. Lao PDR is situated in the centre of the South East Asian peninsula between 13°54' and 22°30'N and between 100°05' and 106°38'E. It is surrounded by Cambodia, Peoples Republic of China (PRC), Myanmar, Thailand and Vietnam, and covers an area of 236,800 km^2. The country extends approximately 1,000 km at its longest length in a northwest to southeast direction.

57. The upper half of the country is broader than the south with a maximum width of about 470 km. Topography is predominantly mountainous with cultivated floodplains along some reaches of the Mekong River and its larger tributaries. Almost 80 per cent of the land surface is hilly and mountainous. Lao PDR is a landlocked with more than 40 per cent of it consisting of stocked forests.[12]

B. Oudomxay Province

58. Oudomxay Province covers an area of 15,370 km^2. The provincial borders are defined by Peoples Republic of China (PRC) to the north, Phongsali province to the northeast, Luang Prabang province to the east and southeast, Xaignabouli province to the south and southwest, Bokeo province to the west, and Luang Namtha province to the northwest.[13] The subproject site is located in the north central area of the province. Oudomxay is mountainous with elevation ranging between 300–1,800 m above sea level.

1. Physiography

59. Three types of physiography exist in Lao PDR [14] which is defined by:

60. Northern Highlands. Consist of severe mountainous terrain between 500-2000m with only 6% of the area with a slope of under 20% with half of the terrain exceeding 50% slope. Soils are characterized with low pH with low water retention, and low fertility.

61. Annamite Range. The Annamite range is mountainous topography between 500-2000m. The soil type is similar to the Northern Highlands.

62. Mekong Plain. The Mekong Plain is characterized by the alluvial plain of Mekong river and the major tributaries. Thus, the area is relatively flat with some alluvial deposits being acidic and shallow. The newer alluvial soils of the floodplain are more fertile.

[12] Lao PDR MONRE, 2012.
[13] S. Thaovakithawon, 2013 Draft Report.
[14] Modified from ICEM, 2003

2. Climate

63. The climate of Lao PDR is strongly influenced by the annual monsoon cycle, with the wet SW monsoon from April to October bringing around 90 percent of annual rainfall. During the dry season from November to March, some months may be completely devoid of rainfall over much of the country. Annual rainfall is about 1,900–2,600 mm. Average temperature in February and March is between 18 and 19 °C. From April to May average temperatures exceed 31 °C. The mountainous topography results in wide regional differences in seasonal temperatures and rainfall. The climate of Oudomxay is summarized in Table 7.

Table 7: Summary of Weather Statistics for Oudomxay[15]

Month	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Precipitation (mm)	Wind velocity (km/s)
January	18.3	26.2	14.5	55.0	6
February	22.5	30.4	12.2	2.0	6
March	26.2	31.0	14.4	12.5	8
April	28.6	32.4	18.1	121.8	18
May	28.4	32.4	18.4	254.7	15
June	29.4	29.9	22.4	204.7	8
July	28.2	29.5	21.5	357.3	6
August	27.6	30.4	21.6	467.9	6
September	26.2	30.5	20.3	72.7	4
October	24.5	30.3	18.9	54.9	5
November	23.5	29.5	18.3	69.5	5
December	17.5	27.5	13.7	1.1	4
Average	**25.07**	**30**	**17.85**	**139.5**	**7.85**

3. Forest & land resources

a. Land & Forests

64. Oudomxay province is approximately 1,537,000 ha in area which is allocated to 1,306,400 ha of upland areas and 230,600 ha of lowlands[16]. Almost the entire province is forested with remaining approximately 19,600 ha for agricultural land cover, and 23,900 ha for other land cover. Land use for agricultural and forestry include rice, corn, rubber, eucalyptus tree, forest products.

65. Forested land in Oudomxay province is occupies approximately 1,493,500 ha which covers 97.2% of all areas of the province.[17] The forests of the province are divided among three major management regimes defined by: 1) provincial and district Reserved [Conserved] forests covering 121,500 ha; 2) Productive forests of 220,695 ha; and 3) Protected forests which cover approximately 58,160 ha. Other forests include remaining approximately 87,845 ha.

66. In 2006 forest was allocated for people to manage in 464 villages as a means to increase sustainable livelihoods. Additionally, the provincial government is promoting local and foreign investors to develop plantation forest. Such tree plantations occupy 13,950 hectares which has steadily increased in area. Eucalyptus and rubber are common plantation species.

[15] Modified from S. Thaovakithawon, 2013 Draft Report
[16] DONRE, 2009. Environmental Management Plan for Oudomxay province.
[17] Footnote 9

67. The plantation forests are a strategy to offset the steady decline of natural forests decline due to expansion in agriculture, and logging. The trend of increasing plantation forests and shrink natural forests is negatively affecting natural wildlife habitat and biodiversity while the forest product industries such as furniture manufacturing increases in Lao PDR increases. The replacement of natural forests with fast growing species like Eucalyptus results in the loss of water in catchment basins.

4. Biodiversity

68. Biodiversity in Oudomxay is still considered to be high. The provincial forests support tiger, elephant, deer, muntjak deer, bear, boa, turtle, *Amyda catelageane,* wild boar and many other animals. Plant diversity is also rich with such varieties as agar wood, *Phyllanthus Milabilis*, hopea, ironwood (Maidengnam), honey orchid, rattan, *Debrenaesia hypoleuca*, bamboo, mushroom, herbs and other species.

69. The natural habitats of Oudomxay province have provided natural and beautiful tourism areas which seeded socioeconomic development. However, the flora and fauna of the province is incompletely documented requiring more surveys to be conducted. The issue is species diversity is declining with development before the original biodiversity of the province has been fully documented. Rare and endangered species such as the tiger, elephant, bison, deer, some of birds, e.g., peacock are becoming increasingly threatened due to the loss of habitat and the illegal wild animal trade. All these species are recognized by IUCN, and are included in the CITES[18] list for Lao PDR.

5. Hydrology

70. Oudomxay province has good water resources in three primary watersheds defined by the Nam Ou river basin which flows in a northwestern direction, the Nambeng catchment which drains southerly to the Mekong River, and the Namtha basin. The surface water resources are comprised of approximately 60 small and large rivers.

71. The network of rivers is major driver of the socioeconomy of the province through support of agricultural production, fisheries, and livestock husbandry. The significant rivers are the Nambeng, Namkor, Namgna, Namphak, Namgnao, Namnouan, Namxae, Namkham, Namphao, Namheng and Namhin. In addition to agriculture and fisheries the water resources of the country provide hydropower and drinking water supplies. Currently 1,724 irrigation systems exist which feed 9,951 ha of rice paddy, 3 hydropower dams with total 1,430kW generation for urban and rural users.

6. Features of Subproject Area

72. The 38 km of access road to the Chom Ong cave that will be upgraded consists of an approximately 17 km section extending south from National Highway 13, and a 21 km section extending north from National Highway 13 (Figure 3). The two road sections join at the intersection with the short (3 km) stretch of access road that extends north to the future car park at the cave. The short 3 km section to the cave was being opened by the DPWT during the feasibility study (Figure 11).

[18] Convention on International Trade of Endangered Species,

73. Field observations and interviews of DONRE staff in Oudomxay during the feasibility study mission confirmed that the 54 km of roads crosses agricultural lands, scrub forest, a few streams (Figure 10), as well as 8 villages. No drainage canals were identified in the area. The shoulders of the road beyond the surface to be improved are either used for agriculture or are steep and have been left to grow over with scrub vegetation from the initial road development and past road repairs. No critical habitat, or rare and endangered wildlife exists along the RoW of the access road. During the feasibility and fact finding missions it was noted that traffic along the road was light and generally dominated by motorbikes and trucks carrying corn.

74. Being a remote, rural area of the Lao PDR the air quality was qualitatively good. Noise and dust was limited to the light vehicle traffic along the roads, and from sound generated from the village activities. No quantitative air quality data were available by the DONRE for the area. Similarly, the DONRE was not able to provide water quality data for the few streams the roads traverse. During the feasibility and fact finding missions the DICTs and DPWT were not yet able to specify where road construction camps would be located along the access roads; however there are vast amounts of suitable public land available for camps and materials storage areas. The information will be updated and finalized during project implementation to inform the detailed civil works design.

75. It is anticipated that the substantial cut and fill operations that will be needed along the predominantly steep slopes of the existing road (Figures 10 and 11) will minimize the requirement for borrow pits for the road upgrades. For sections of the upgraded road where fill cannot be transferred from adjacent cut sections, fist, the feasibility of utilizing existing DONRE-approved borrow pits and limestone quarries situated near the start of each road section will be used. Otherwise, pits/quarries will be established at locations approved by DPWT and DONRE. Similarly, locations for future disposal sites for construction spoil were not identified by DPWT, but if needed, will be sited in DONRE and DPWT– approved locations.

Figure 10: Sections of 54 km access road to Chom Ong cave

Figure 11: The last 3 km of access road to Chom Ong cave being opened 6/13.

Figure 12: Chom Ong Cave, Tourist Reception Area, & Future Car Park at Edge of Forest

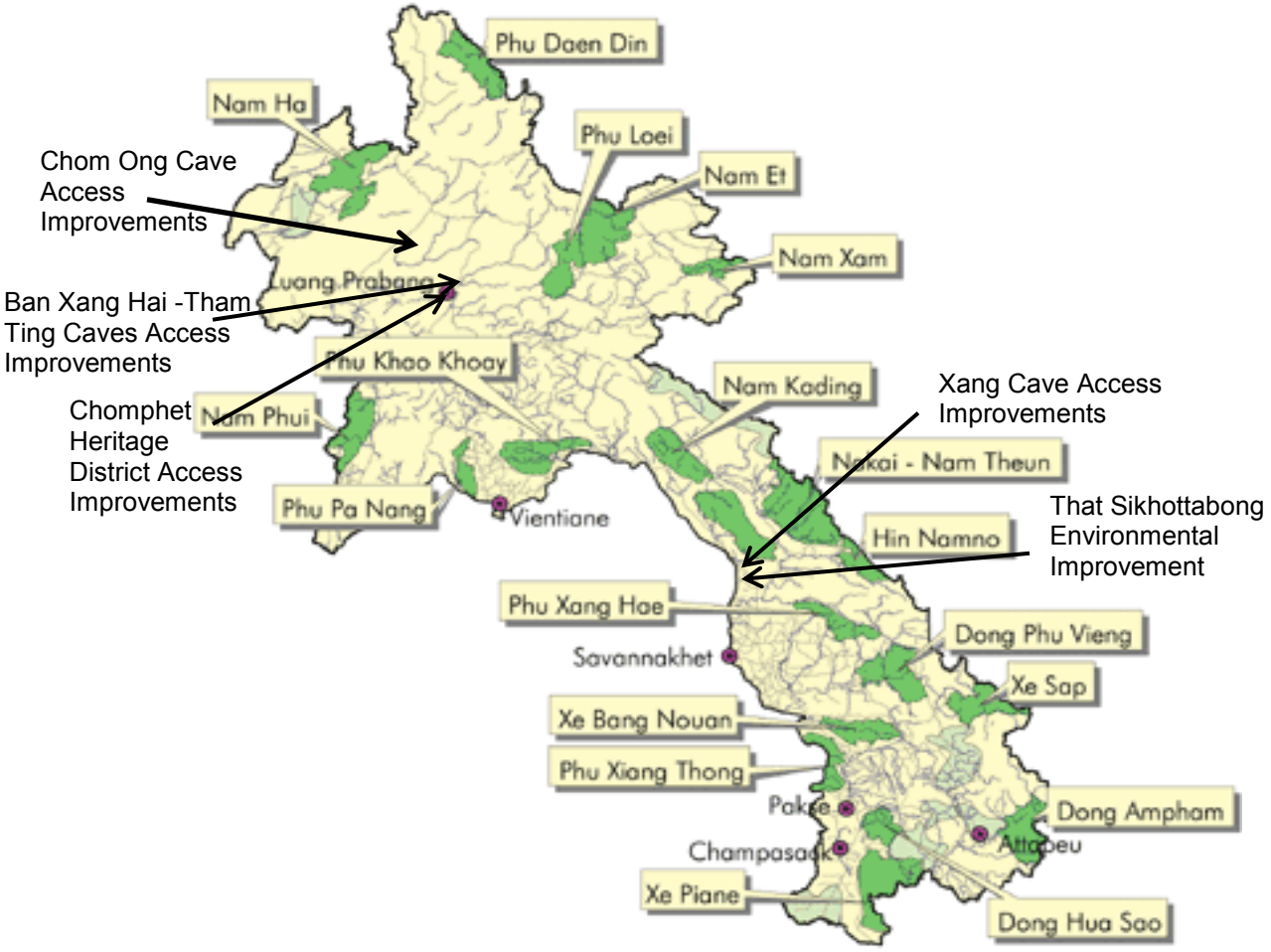

76. The Chom Ong cave and reception area is located inside protected forest.[19] To support the objectives of wildlife and biodiversity conservation, the general directive[20] is that trees are not be cut or damaged in protected forests. The reception area currently includes a building for lunch, information board, and a single pour-flush toilet, and a lighting system that extends partway into the cave (Figure 12). The future car park for the cave and all access roads that will be upgraded will be located outside the protected forest in agricultural lands.

a. Protected Areas and Rare and Endangered Wildlife

77. No rare or endangered wildlife are known to inhabit the access road corridors. Similarly, no known rare or endangered wildlife inhabit the protected forest and cave reception area. The access roads and Chom Ong cave are not near any national protected areas (Figure 13).

[19] Chom Ong Village Leader, 2013
[20] Articles 22-24, Law of Forests (2009)

Figure 13: National protected areas of LAO PDR [21]



7. Other Development in Area

78. There are no other developments in the area of the Chom Ong cave and along the access road. The only developments in this fully rural area are the established small villages situated along the road including the Chom Ong village just south of the cave.

C. Luang Prabang Province

79. The province of Luang Prabang is the second largest in northern Lao PDR. It borders Oudomxay, Phongsali, Xieng Khouang, Vientiane, Xayabouli and Sam Neua provinces. Luang Prabang province consists of 11 districts defined by Luang Prabang, Xiengngeun, Pakxeng, Chomphet, Pakou, Phonxay, Phoukhoun, Viengkham, Ngoi, Nambak and Nan.[22]

80. Consistent with the rest of the country, Luang Prabang is mountainous with the minimum and maximum elevations being 247 m at Pak Khan near Luang Prabang city, and 1,600 m at Phou Soi. Total land area is approximately 19,150 km^2.

[21] Modified from ICEM, 2003
[22] NAFRI, 2000

1. Climate

81. Similar to Oudomxay, the climate of Luang Prabang is influenced by the annual monsoon with three seasons defined by winter, summer, and raining seasons. Typical summer temperatures range about 28 to 32°C with winter period ranging from 18 to 21°C. Characteristically, severe thunder storms rarely happen in the region while heavy rainfall is common. Table 8 summarizes some climate metrics for the Luang Prabang province.

Table 8: Summary Statistics for Weather in Luang Prabang 2012[23]

Month	Average Temperature (°C)	Maximum Temperature (°C)	Minimum Temperature (°C)	Precipitation (mm)	Wind velocity (km/s)
January	18.3	29.2	16.5	45.2	3.5
February	23.5	30.4	16.8	2.1	3.5
March	25.25	33.7	19.8	10.4	5.8
April	26.9	34.5	21	80.4	5.7
May	28.4	35.4	22.4	240	4.5
June	27.1	33.4	25.4	206	6.4
July	28.4	32.5	24.5	346	3.5
August	28.2	31.4	23.6	355	4.6
September	27.2	30.8	22.3	74	5.4
October	27.5	30.3	21.5	50	3.5
November	24.6	29.5	20.3	48	4.4
December	22.5	26.5	17.4	1.6	3.5
Average	**25.7**	**31.4**	**20.9**	**121.6**	**4.5**

2. Topography & Resources

82. Luang Prabang shares the rugged terrain of the rest of the country. The subproject areas in Luang Prabang province are located Luang Prabang town, and just upstream on the Mekong river in Pak Ou district. The range of altitude in the area is approximately 333 to 1,300m. At this point the Mekong River meanders widely with the Nam Khane and Nam Ou which are two main tributaries which flow swiftly through tall and narrow mountain cuts.

83. The northern expanse of the Mekong basin accounts for about 24% of the total area and provides 15 to 20% of the water that eventually flows into the Mekong River. The steep and narrow flow patterns of the Northern Mekong River causes tremendous soil erosion that contributes approximately 50% of the sediment load to the river.

3. Agriculture & Fisheries

84. Agricultural land accounts for 87,500 ha, of which 59,200 ha are temporary crops and 28,400 ha is fallow land. The most common farming systems are swidden systems in various forms such as subsistence swidden farming, double cropping swidden, and annual/perennial swidden farming (Chazee, 1999). Hunting, gathering, and also as this report shows, fishing, are the second most important activities[24].

85. Swidden, or shifting cultivation is the method farming on previously burned off forest land. Productivity lasts for 1-3 years before the soil becomes exhausted and the crop has to

[23] Modified from S. Thaovakithawon, 2013 Draft Report
[24] NAFRI & MRC, 2000

shift to another area. Shifting cultivation is popular in the mountain areas of northern Lao PDR with little alluvial plain but has consumed much of the natural forest. No more than 10% of primary forest remains intact and 1/4 of the rest is now being cultivated with shrub bamboos after the land was deserted. Three to four parcels of land per family are cultivated in turn because cultivation farming is started again after burning three-year-old fallow cycle.

86. In 1996 the estimated indigenous fishery production was 700 tons/yr. This estimate is believed to only account for a few of the large fisheries operations and does not account for total fish consumption or abundance that would be derived from the smaller subsistence-level fisheries. The fisheries survey of 2000[25] estimated fishery production to be between 13 to 20 times higher.

87. The area of rivers in Luang Prabang province is estimated at 13,000 ha. However, recent GIS data available (MRC) estimates the province to have aquatic resources supported by 1,053 km of major rivers, 7,284 km of medium rivers, and 17,722 km of small rivers and streams. The major rivers are all tributaries of the Mekong River, including the Nam Ou, Nam Khan and Nam Seung.

88. The few floodplain areas support approximately 8,800 ha of wet season lowland rice fields. Parts of the estimated 40,700 ha of wet season upland rice fields also provide habitat for fish and aquatic animals which are exploited extensively. The recent watershed classification conducted by the MRC has indicated that 80% of the province comprises watersheds that are notably steep, without trees, and thus prone to serious soil erosion. Though not quantified well, visual observations show clearly that water quality in the tributaries and ultimately the main stem Mekong River are experiencing significant soil erosion. Anecdotal evidence indicates that the currently declining fish population in the rivers including the Mekong basin over the last 5-10 years is a result of:

1. Slash and burn practices causes soil erosion that reduces the volume of water in the rivers and streams;
2. Soil erosion during the rainy wet season degrades aquatic wildlife habitat; and
3. Use of dynamite and chemicals to catch fish.

4. Pak Ou District

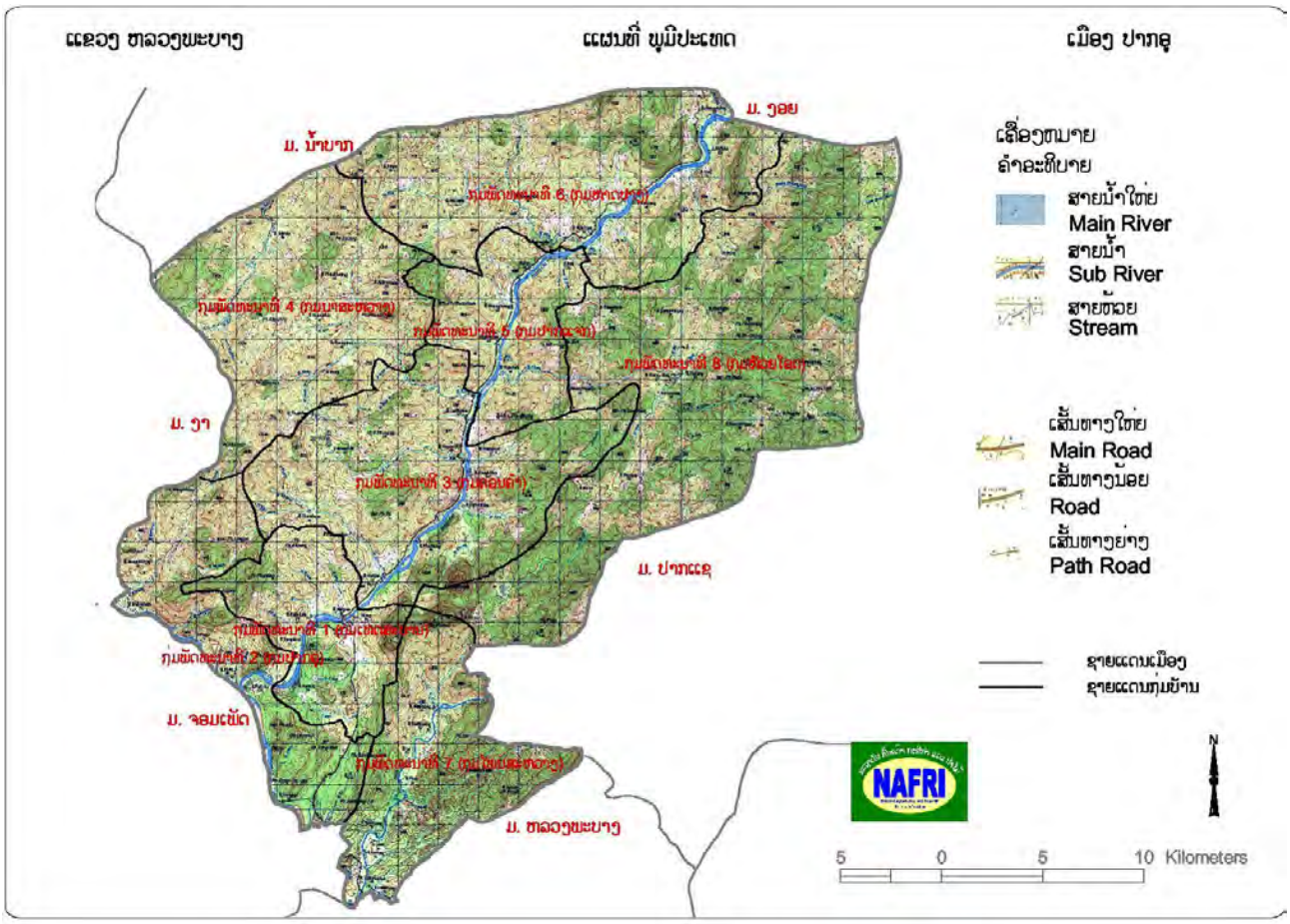
89. The Ban Xang - Tham Ting Caves Access Improvements subproject is located in Pak Ou district. Pak Ou district occupies 88,350 hectares and shares boundaries with 6 other districts including capital city of Luang Prabang located approximately 32 kilometers south on the Mekong river[26]. Major tributaries of the Mekong traverse the remaining forested terrain of Pak Ou district (Figure 14).

a. Agricultural land use

90. Pak Ou district comprises uplands that cover over 2/3 of the district. Land use for agricultural production is sustainable, with the lowland areas consisting of rice paddy, and plantation forests such as teak, rubber, and oil plant. However, some people also use cleared forest for mixed and monoculture, as well as livestock rearing.

[25] Footnote 19
[26] DONRE, 2013. Environmental Management & Resources of Pak Ou District.

Figure 14: River systems and forested topography of Pak Ou district



91. Soils in Pak Ou suitable for agricultural production are limited. Almost all land consists of uphill land or stone valleys which slope van exceed 45%. Rice cultivation is focused on the flood plain of local rivers such as the rivers of Houaymat, Houaypao, Houaytheung, and Houayleuang.

92. The numerous rivers and streams in Pak district are suitable for commercial vegetable plantation, production which also used domestically. Vegetable growing areas are located streams and roads which is most developed along stream that flow through villages. Some villages of the district cultivate taro for commercial and domestic consumption.

b. Forest types of district

93. Pak Ou district is partially forested in the east side of the district. The forested areas include afforested production forest as well as some protected forest which is shared with the adjacent districts Pakxeng district and the northern Mad district. The Than Ting caves on the west bank of the Mekong River across from Pak Ou are located in protected forest. Production forests are located in Nam Ou district and Nambak districts. There are also reservation (conservation) forest areas in the areas of Phanak and Phatheung in Pak Ou municipality which still support some large animal species.

94. The production forest is maintained to assist with preservation of physical attributes such as catchment water supply. However, the forest trees are routinely cut by local community for construction materials, and to clear land for agriculture activities such as rice paddy. Forest burning is common especially for swidden agriculture. The smell of smoke is common in Pak Ou district.

a. Water resources

95. Pak Ou district is surface water rich. There are 3 rivers major flowing through Pak Ou district which are the Mekong, Ou, Namxeuang. The latter two rivers are tributaries of the Mekong. The baseflow of the major rivers are supported by many streams. The rivers provide a major resource to the local communities by providing drinking water, supporting the local fishery, and for irrigation.

96. Pak Ou district plans to harness the Nam Ou river for hydropower generation with a hydropower plant based in Khokkham village; and a hydropower plant on Namxeuang river based in Houakeng village. However, as indicated above many once annually flowing stream are now dry for many months a result of the effects of forest clearing on the water retention and budgets of the deforested catchments.

97. According to recent studies by the Mekong River Commission (MRC), the Mekong River's mean discharge at Luang Prabang is 3,900 cubic meters per second. This ranges from 1,100 cubic meters per second in the dry season (April), to 9,900 cubic meters per second in the rainy season (August).[27] The same reports note that water quality at the Luang Prabang monitoring station frequently exceeds guideline values for dissolved oxygen (i.e $\geq$ 6mg/l) ammonium (i.e. <0.05 mg/l), chemical oxygen demand, (i.e. <4 mg/l), and total phosphorus (i.e. <4 mg/l). Officials at the provincial DONRE agreed that these observed discharges were consistent with seasonal flows, with turbidity mainly determined by seasonal erosion augmented by up-basin agricultural activities. The Environmental Management Plans (EMP) for the two subproject sites requires water quality to be collected at detailed design phase to provide the baseline for environmental monitoring during the construction phase of both subprojects, in accordance with national water quality standards.[28]

a. Community Fisheries

98. Community-based fisheries have been established throughout Lao PDR.[29] The Mekong River at Pak Ou supports the largest gillnet fishery in the river from Pak Ou south to Luang Prabang and Chomphet districts,[30] and is well known regionally. The local fishery is used for domestic consumption, and for regional export for income. Tourist fishing is also good generator of revenue. Common fish species of the fishery are listed in Table 9.

99. Important fishing grounds in the subproject area exist in the Mekong River between Ban Pak Ou village and the Tham Ting Caves (Figure 6). The primary gear that is used are gillnets which are suspended by floats in the river. The Director of the Fisheries Section of the DAF in Luang Prabang confirmed that the numerous gill net floats oberved in the Mekong river at Ban Pak Ou was due to the area being the most active fishing ground.

[27] Mekong River Commission. 2008. *An Assessment of Water Quality in the Lowe Mekong Basin*. Vientiane
[28] National Environmental Standard Order No. 2734/PMU-WREA (2009)
[29] Fisheries Section of MAF, Vientiane, 2013
[30] Personal communication. Fisheries Section of Luang Prabang, 2013

b. Tham Ting Caves

100. The Tham Ting caves are located on the west bank of the Mekong river directly across from Ban Pak Ou village. The caves are in protected forest[31].

Table 9: Common Fishes of the Mekong River Fisheries at Pak Ou and Luang Prabang[32]

ລ/ດ	Lao PDR Name	Scientific Name	Common Name
1	ปาเคิ๋ง	*Mystus wyckioides*	Redtail catfish
2	ปาแข้	*Bagarlus bagarius*	Groonch
3	ปาจอก	*Cyclochellichthys furoatus*	Mekong Giant barb
4	ปาสะง้อ	*Micronema apagon*	Silver sheatfish
5	ปา ฆ็บ	*Belodontich trysdinema*	Twisted-Jaw sheatfish
6	ปาไน	*Cyprinus carpio*	Common-carp
7	ปาเพ้ย	*Morulus chrysophekadion*	Sailfin shark
8	ปาปาก	*Hypsibabusvernayi*	Silver barb carp
9	ปาผาไล	*Amphotistius Lao PDR sensis*	Laotian stingray
10	ปาหั้งน/ปาสา	*Tonsinensis*	unavailable
11	ปา ค้า	*Wallago attu*	Great wilke sheatfish
12	ปายอน	*Pangasius macronema*	Long barbells Pangasiud catfish
13	ปาสะกาง	*Pu ntioplites faicifer*	Sickle fin barb
14	ปา(ฆ็ม)สูด	*Hampala dispar*	Spotted hampala barb
15	ปาดังแดง	*Hemisilurus mekonggensis*	Not found
16	ปาก็ด	*Mystus nemurus*	Long whiskers catfish
17	ปาตอง	*Chitala ornate*	Clown featheback
18	ปาหลาด	*Mastacembeius armatus*	Tiretrack spiny eel
19	ปาบู่	*Oxyeieotris mamorata*	Marble goby
20	ปาแข้อไก้	*Botia lecontei*	Orangefin
21	ปาโจก	*Cosmochilus narmandi*	Grun Giant barb
22	ปามาง	*Poropuntius deauratus*	Snail eating barb
23	ปาบึกแข้า	*Osteochilus*	Giant biny-lip carp
24	ปาสะอี	*Mekonggina erytrospila*	Not found
25	ปาแดง	*Irrhinus molitorelle*	Mud carp

c. Protected Areas and Rare and Endangered Species

[31] Confirmed by MAF
[32] From MAF, Vientiane 2013

101. Similar to Oudomxay province there are no national protected areas in Luang Prabang province (Figure 13). Moreover, no rare or endangered wildlife, or critical habitat exists along the access roads to and through Ban Pak Ou village and Xang Hai village. No known rare or endangered wildlife or critical habitat exists in, and in the vicinity of the Tham Ting caves, or in that area of the Mekong River down to Chomphet district at Luang Prabang.

102. The only large animal species of significance in the Ban Pak Ou village area are the domesticated elephants that are used to take tourists for a ride through the area. Of particular note is the elephant tour operators use the access roads to Ban Pak Ou and Xang Hai villages.

d. Access road upgrade

103. Figure 15 shows example sections of the access road between Ban Pak Ou village and Xang Hai village including a the narrow section at Ban Pak Ou leading down to the Mekong River.Field observations and during the feasibility study mission confirmed that the road between Ban Pak Ou and Ban Xang Hai villages crosses agricultural lands, and scrub forest. No drainage canals were identified in the area. The shoulders of the road beyond the area to be resurfaced are either used for agriculture or have been left as second growth scrub forest. During the feasibility and fact finding missions it was noted that traffic along the road was light and generally dominated by motorbikes and some trucks and tourist elephants. While DPWT and DONRE did not specify the location of construction camps or materials storage areas, there is ample suitable, vacant public land available for these purposes at several intervals along the road alignment, which will be evaluated and approved by DONRE and DPWT (if needed) during IEE/EMP updating.

104. The air quality in the subproject area was qualitatively good. Noise and dust was limited to the light vehicle traffic along the roads, along with sound generated from the few homesteads along the road. Quantitative air quality data was available by the DONRE for the area.

105. While fill from cut operations at steep sections will generate fill for flat road sections, it is anticipated that some fill will be need to be sourced from borrow pits. Pak Ou district has several DONRE approved borrow-pits and limestone quarries situated within 10 km of the proposed road improvements that will be assessed for suitably during IEE/EMPs updating. If needed, additional borrow pits will be established at locations approved by DPWT and DONRE. A similar approach will be taken to determining locations for disposal sites for construction spoil, if needed.

106. Figure 16 shows the Tham Ting cave area on the Mekong River across from Ban Pak Ou village. Also included in Figure 16 are the existing tourist piers at the caves and at Ban Pak Ou and Ban Xang Hai. Not shown clearly in Figure 16 are the numerous gill net floats in the river between the piers of the Tham Ting caves and Ban Pak Ou.

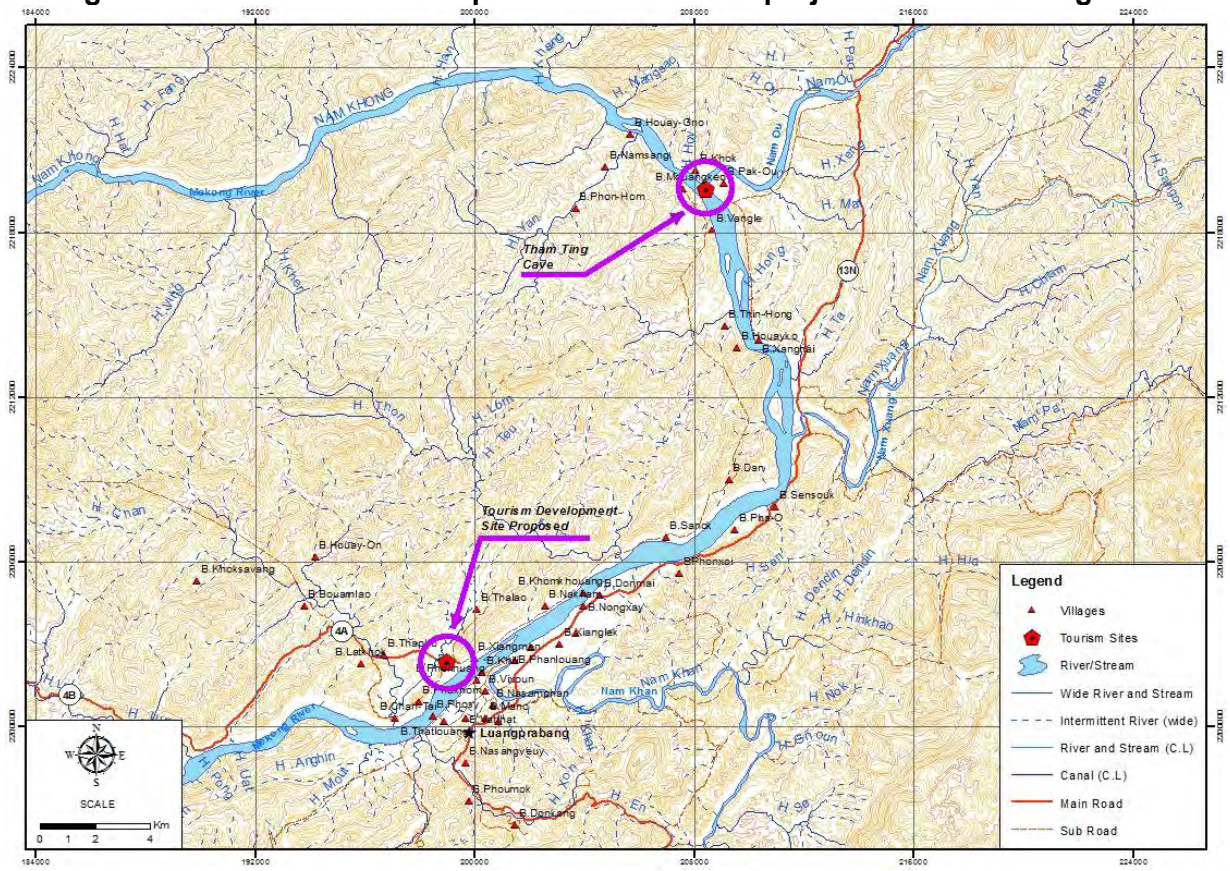
e. Other Development Activities in the Area

107. The Ban Pak Ou – Ban Xang Hai corridor along the Mekong River is rural with only the two villages and scattered homesteads in existence. Village activities include craft marketing, tourist restaurants, and the local fishery. A tourist elephant camp exists between Pak Ou and Xang Hai. Across the river, tourist visitation to the Tham Ting caves including passenger ferrying are the only activities in the area.

Figure 15: Road sections to Ban Pak Ou - Xang Hai villages, & path to Mekong River

Figure 16: Tham Ting caves and pier, and steps to 1 of 3 piers at Ban Xang Hai village

Figure 17: Locations of Chomphet and Pak Ou subprojects on the Mekong River



5. Xieng Mene Village, Chomphet District

a. Similarities of subprojects

108. Xieng Mene village is located 30 km downstream from the Ban Pak Ou and Ban Xang Hai villages on the west bank of the Mekong river directly across from Luang Prabang town (Figure 17). The Chomphet Heritage District Access Improvements subproject will be implemented in Xieng Mene village and the adjacent Chomphet Heritage district.

109. The activities of the subprojects in Ban Pak Ou-Ban Xang Hai and Ban Xieng Mene are similar. The subprojects will have the same type of passenger pier and landing upgrades defined by the installations of floating pier modules, upgrades to loading/unloading ramps, and associated facilities. Both subprojects will upgrade access to the sites. However, while Ban Pak Ou and Xang Hai villages will receive upgrades to multiple kilometer access roads, in Chomphet Heritage District only footpaths and a ferry landing will be upgraded.

110. Both subprojects shared the same original natural environments being less than 30 km apart on the west bank of the Mekong River. The sites share the same topography, original forest structure, current types of agriculture, and fish community and fisheries of the Mekong River. However, the two subproject areas differ due to the relatively large urban area of Luang Prabang compared to the rural villages of Ban Pak Ou and Xang Hai. There is less natural shoreline environment left in Chomphet district compared to Pak Ou district.

111. The single significant difference between the two subprojects with respect to managing the potential impacts of subproject development is the existence of the UNESCO Word Heritage Site in which the Chomphet Heritage District subproject is located. Specifically, the difference in the sites reflects: a) the amount of physical cultural property that is being conserved at Chomphet Heritage area; and b) that the entire World Heritage area is being managed as one cultural unit or theme.

b. Other development Activities in Area

112. The other primary activity in the subproject area is the ongoing development of the World Heritage Site across the Mekong River from the urban area heritage area of Luang Prabang. This includes conservation of natural areas, preservation of cultural and heritage property, and the propagation of the common WHS themes for architecture and landscape developments.

6. World Heritage Development Guidelines

113. The Department of Heritage (DOH) in Luang Prabang is a special group that is aligned with the provincial DICT. The DOH was formed to take responsibility for managing development in the WHS. A committee has been formed which consists of the DOH, DICT, DAF, DPWT, DONRE and other line departments. The mandate of the committee is to review development proposals or the WHS from both the government and private sectors to ensure they follow the terms of the development guidelines[33] that have been set down for the WHS. The Chomphet Heritage District Access Improvements subproject will need to be presented to the committee for review.

114. A meeting[34] was held with the DWH in Luang Prabang during project preparation to introduce the subproject activities in relation to the World Heritage area across the river in Chomphet District. Attending the meeting was a representative from UNESCO headquarters in Paris. The DICT was made aware of the guidelines for development in the WHS, and of the committee of different departments that will oversee subproject implementation the WHS.

115. The implementation of the subproject activities in the Chomphet Heritage District will need to follow the specific guidelines for the area.[35] The guidelines do not specify significantly different strategies for preventing or minimizing environmental impacts of development. Rather, the guidelines identify development directives and constraints with the view of the collective preservation of the entire World Heritage Site as a whole. For example, there are strict guidelines for changing the width of paths and roads, and altering buildings in the Heritage area in order to maintain the same style of architecture and building size throughout the site. The initial meeting with the DOH and UNESCO provided the basis for continued collaboration during the detailed design phase.

D. Khammoune Province

116. Khammoaune province is located southeast of the provinces of Oudomxay and Luang Prabang. The borders of the province are formed by Bolikhamxai and Savannakhet provinces to

[33] The Development Guidelines can be obtained from the World Heritage office in Luang Prabang
[34] Brief minutes if meeting found in Annex 3
[35] Specific development guidelines of the ZPP-Ub Protected Area of World Heritage Site of footnote 32

the north and south respectivel, by Viet Nam on the east, and by the Mekong River and Thailand on the west (Figure 1).

1. Land Resources

117. Khammouane province covers a total area of 16.315 km^2 or 6% of the total area of the country[36]. Mountainous areas extend 5.726 km^2 with flat highland areas covering 3,051 km^2 or about 19.0 % of the province. Flat lowland land areas encompass 7.538 km^2 or about 46.3% of the province.

118. Land is classified into 8 categories defined as follows: agricultural land, forest land, construction land, industrial land, transportation routes, and cultural sites, land for national defense and public security, and wetlands. There are approximately 200,000 hectares of farmland which consists of 80,000 ha of rice and 120,000 ha of secondary crops.

2. Water Resources.

119. Khammouane has abundant surface water resources. There are high-quality fresh water resources in sufficient supply to meet the demands of socio-economic development of the province. Specific development is agriculture as well as small and medium hydropower plant development. Total estimated freshwater availability is 66,000 m^3 per person compared to current consumption of 288 m^3 per person.

120. The majority of water use is for agriculture, aquaculture, and livestock. Water withdrawals required for hydroelectric development is expected to generate about 1,130 megawatts of electricity. The abundant resources provide enough water for the industrial sector, irrigation and domestic water supply. It is estimated that about 80% of the urban population will have access to clean water, while about 61% of the rural population of the province will have access to clean water.

121. There is evidence of decreasing quality of water in urban areas as a result of discharge of untreated wastewater from communities, hotels, hospitals, and commercial establishments. Surface water is also contaminated being from farming, processing industries, and mining activities. This has not been a major problem, but expected to become a serious concern in the future. Deterioration of natural water sources and reservoirs has occurred as a result of sedimentation, soil disturbance and erosion of rivers and streams receiving

3. Forest Resources

122. Forest cover within the province is estimated to be at 812,600 ha representing 47% of the total land area of the province of which 248,763 ha is accessible and 563,837 ha of limited access. Forests are classified into the following five categories: protected forest, conservation forest, production forest, regeneration forest, and degraded or un-stocked forest.

123. There are three National Biodiversity Conservation Areas (NBCA), four provincial forest protection areas, and twelve district forest conservation areas established in the province (Figure 18). As a result Khammouane has 717,675 ha reserved forest. Forest resources play a key role in the province's revenue generation, and are a focal point for subsistence and additional income generation for rural inhabitants.

[36] DONRE, 2-13. Provincial Action Plan 2011-2015

124. Over the past 10 years forest area has declined by 8.1% as a result of land conversion for agriculture and livestock, forest fire, slash and burn and shifting cultivation practices, improper and excess logging, land clearance for infrastructure development, industrial plants, hydropower plants, and improper exploitation or harvest of forest products over the natural growth rate.

4. Biodiversity

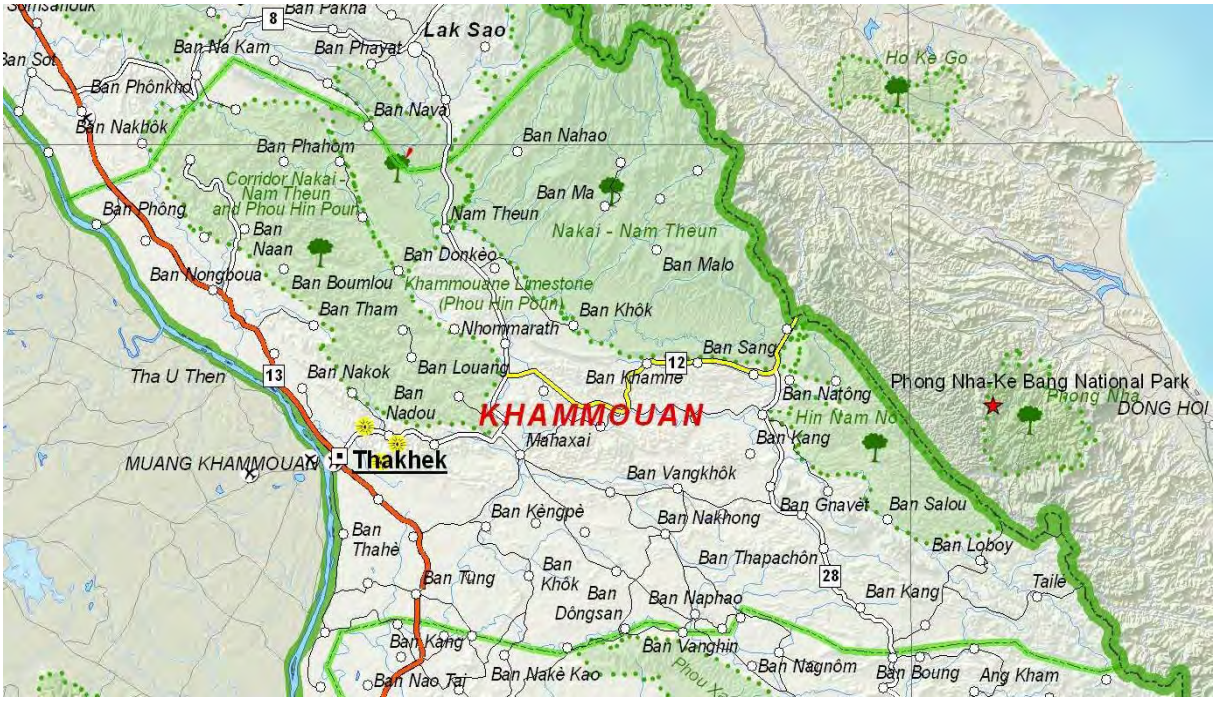
125. Khammouane province is one of the most biodiversity-rich provinces of the country. It supports three NBCAs as follows: Nakai-Nam Theun NBCA, Phou Hin Poun NBCA, and Hin Nam Nor NBCA, which represent 40% of the total area of the province (Figure 18). The NBCAs provide cultural and social value, as well as value for study and scientific research, and are equivalent to Protected Areas.

126. The NBCAs support at least 8,100 species of wildlife including 128 species of reptiles and amphibians, 160 species of birds, and 113 species of mammals. There are 87 families of fish found in the province. There are 1,300 species of wildlife habituating in primary sanctuaries. However, part of this biodiversity has been destroyed similar to the original forest resources of the province. Many species of plants, wildlife and aquatic animals are at risk and endangered.

5. Thakhek Area

127. Thakhek is the capital city of Khammouane province. The town is located on the east bank of the Mekong river cross from Thailand. The town was built on the floodplain of the Mekong River which provides the characteristic flat terrain of the area. Land use in the area including the two subpojects areas is primarily agriculture with light commercial property near Thakhek town.

Figure 18: Three protected areas of Khammouane province (green shade)



a. Climate

128. Similar to other regions of Lao PDR , the climate of Thakhek and environs is dominated by the tropical monsoon with distinct rainy and dry seasons. Seasonal temperature and precipitation for Thakhek is summarized in Table 10.

Table 10: Annual temperture and prcipitation for Thakhehk Khammoune province

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C	29	31	33	34	33	31	29	30	30	31	30	28	30.8
Average low °C	13	17	19	22	24	24	24	24	23	20	18	14	20.2
Precipitation mm	3	28	41							64	10	8	

b. Xang Cave Access Improvements

129. The Xang cave is located 6km northeast of Thakhek, just south of national highway 12 and approximately 10 km southwest of the Phou Hin Poun NBCA (Figure 13 and Figure 18). The cave is located on the northern boundary of Ban Tham village just inside protected forest (

Figure 19).

130. The tourist reception area at the front of the cave (Figure 20) is located on agricultural land and village property. The village and surrounding area is located on the Mekong River flood plain. No rare or endangered wildlife are known to inhabit the area including the cave.

Figure 19 shows a section of access road to Ban Tham village that will be upgraded, and the stream in front of the cave that will be forded with the access road upgrades. The access road from Thakhek runs through agriculture land. Figure 20 shows the face of the cave showing the tourist reception area.

131.Field observations confirmed that the flat access road to the Ban Tham village and Xang Cave crosses agricultural lands and a stream before entering the village, and then a second stream just before the cave (Figure 19). During the feasibility and fact finding missions it was noted that traffic along the road was light and comprised mainly of motorbikes of village residents.

132. The air quality was qualitatively good. Noise and dust was limited to the light vehicle traffic along the roads, and from sound generated from the few homesteads along the road and in the village. Quantitative air quality data was available by the DoNRE in Thakhek for the area.

133. Given the project road length is 4 km and it is situated less than 5 km Thakhek town where there is significant ongoing construction activity, establishment of borrow pits, spoil disposal (if any), or quarry areas will not be required. There are large limestone quarries and borrow pits situated less than 10 km from the proposed construction site. Similarly, there is ample public, vacant land available alongside the road alignment to establish what would be a very small construction camp/materials storage area, which would be evaluated and approved by DONRE and DPWT during IEE/EMP updating.

Figure 19: Access road & stream crossing.

Figure 20: Cave frontage & existing tourist structure.

a. That Sikhottabong Environmental Improvement

134. The Sikhotabong Stupa cultural site is located on the east bank of the Mekong river 5 km south of the town Thakhek. The Stupa is situated within a walled 5 ha compound with other religious and cultural buildings which is bordered by the Mekong river to the west and national highway 11 to the east. The topography and land use around the Stupa compound is the same as that for the area in front of the Xang cave. The Stupa compound is not located in protected forest, conservation forest, or a protected area. No rare or endangered wildlife are known to inhabit the Stupa area.

135. Figure 21 shown the grounds of the main stupa and adjacent religious building.

Figure 21: Main Stupa building

6. Other Developments in the Subproject Area

136. The peri-urban and rural areas of Thakhek are located outside of the walls of the Stupa compound. Only cultural activities and toursm occur inside the compound. The Xang Cave including the access road are located in fully agricultural lands with scattered homesteads sourounding the site.

Figure 22: Aerial view of Stupa compound with main building (mid left of photo)

E. Assessment of Information and Data

1. Availability of data and information

137. The availability of information and data on environmental conditions from Lao PDR's environment agencies is not well established. Almost all the information in IEE was obtained from externally published reports from the internet. Mapping of important features such as protected forests was either not available or the resolution of the drawings were too course to be of use.

138. However, the compiled information and data on the environments affected by the subprojects was adequate for the IEE. Given the context of the subproject activities being situated in existing tourist destinations, and the insight obtained from interviews of provincial resources agencies, the data and information provided a solid basis for a good initial examination. The EMP will identify where consideration should be given for additional original data, or existing data confirmation.

V. PUBLIC CONSULTATION

139. A stakeholder consultation strategy was developed to meet the requirements of meaningful consultation as stipulated by the SPS (2009). The strategy embodied the principles of meaningful engagement, transparency, participation, and inclusiveness to ensure that affected and marginalized groups such as women, and the poor, were given equal opportunities to participate in the design of the project. The stakeholder consultations on environment issues built upon the parallel social impact assessment of the various subprojects

140. The approach to stakeholder consultations for environmental concerns or issues associated with the subprojects in Lao PDR consisted of the following three avenues of inquiry and data collection:

1) As part of the household and village leader interviews conducted by the social development team;
2) Separate group consultations with provincial agencies and other stakeholders conducted by social development team with an additional survey assistant hired during the interim mission; and
3) Individual interviews conducted by the international environmental specialist with provincial and national environmental management agencies.

A. Identification of Stakeholders

141. Stakeholders were identified and engaged in a participatory manner. Stakeholder communication to date has focused on institutional stakeholders, affected communities, and persons directly affected by proposed subproject interventions. Project stakeholders include:

- Institutional stakeholders including the (i) project EAs and PIUs (ii) provincial and national agencies; private sector groups, chambers of commerce and potential participants in private public partnerships (PPP) for management of tourists sites;
- Mass organizations such as the Lao Women's Union (LWU) and the Lao Front for National Construction (LFNC) which provided input for the design of the various subproject interventions, and which might participate in implementation of measures and interventions;
- Communities living along the subproject areas who will benefit from the project, and who have an interest in identifying measures to enhance or maximize the benefits, communities within the subproject area who may be directly and/or adversely affected, and who have an interest in the identification and implementation of measures to avoid or minimize negative impacts;
- Vulnerable and/or marginalized groups who have an interest in the identification and implementation of measures that support and promote their involvement and participation in the project; and
- Other institutions or individuals with a vested interest in the outcomes and/or impacts of the project.

B. Discussion Guide

142. Five questions and information requests (Table 11)) were posed to stakeholders to guide discussions of the individual and grouped stakeholders.

143. To help orient the discussions of environmental issues and concerns of subprojects a list of environmental components (Table 12) was introduced to the stakeholders ahead of the question & answer period. The stakeholders were encouraged to add their own components of environment to the discussions.

Table 11: Guiding Questions and Information Requests for Stakeholder Consultations

1. What will be the benefits of the subproject?

   Please list benefits of project.

2. Do you have any environmental concerns with the subproject?

   Please list environmental concerns of project.

3. Do you any have environmental concerns with the **construction activities** of the subproject?

   Please list environmental concerns of construction phase activities.

4. Do you have environmental concerns with the **completed operation phase** of the completed subproject?

   Please list environmental concerns of the operation of completed subproject.

5. Do you think the subproject design or operation should be changed to prevent negative environmental, or community impacts?

   Please list changes to subproject that you think will prevent or reduce negative environmental, or community impacts?

Table 12: Example environmental components used to guide stakeholder discussions.

• drinking water quality & availability • surface water quality and quantity • groundwater quality & quantity • air quality • climate • land and soil quality • coastal zone, ocean, rivers, reservoirs, • trees, other vegetation, • terrestrial resources e.g., minerals, salt beds, geology	• terrestrial & aquatic animals, e.g., fish, birds, small mammals ecological protected areas (e.g., national parks, wildlife sanctuaries), • land & coastal zone uses (e.g., agriculture, fisheries, forestry, navigation, aquaculture, commercial, other), • public safety, • public movement & access • physical cultural values (e.g., pagodas, cemeteries, monuments)

C. Summary of Public Consultation

144. The public and stakeholder consultations for environmental issues associated with the subprojects in the three provinces were held with the parallel social surveys and social impacts assessment of the subprojects. Annex 4 provides a record of consultations, with participants, venue, and dates.

145. The stakeholder consultations showed overall positive support for the project. Tables Table 13 Table 15 summarize the comments and concerns of individual households and village heads; district, provincial and private sector stakeholders conducted in focus groups lead by national discussion leaders; and from provincial environment agencies obtained in interviews conducted by the international environment specialist.

146. Also summarized in Tables Table 13 - 15 is how the EMPs for the five provinces will respond to the environmental issues and concerns that were raised by stakeholders. The follow-up stakeholder consultations that may be required during detailed design phase will begin with a review of the issues and mitigations initially identified by the stakeholders.

Table 13: Summary of dominant stakeholder views of the subproject in Oudomxay

<table>
<tr><th colspan="3">Improved Chom Ong Cave Access Improvements & Facilities</th></tr>
<tr><td colspan="3">Benefits identified by stakeholders:
• Facilitate greater access,
• Increase income for family & village
• Facilitate commerce, trade, business
• Sale of agricultural products in time
• Easier and quicker access to the hospital
• Increase price for the agricultural products
• Children can have access to higher education
• Increase number of tourists / tourism development
• Village clean, village development
• Facilitate movement of goods</td></tr>
<tr><td colspan="2"></td><td>Project Response[37]</td></tr>
<tr><td>Construction phase issues</td><td>• Loss of trees;
• Waste from the construction material;
• Pollution, dust and noise from the construction activities;
• Truck traffic causing increased risk of public injury particularly children
• Reduced and impeded access and travel along road due to construction traffic
• Environmental damage
• Wildlife would be negatively affected
• Construction worker camp waste and garbage
• Soil erosion and river sedimentation
• Solid and hazardous waste
• Land use and production affected</td><td>• The EMP for the Oudomxay subproject prescribes specific mitigation sub-plans for example forest management including consultation with forestry department.
• A sub-plan for common civil works disturbances caused by the road upgrades to Chom Ong cave such as dust (e.g., regular wetting) and noise pollution, erosion & sedimentation management of traffic, waste management, and traffic safety, and management of solid and hazardous waste.
• Sub-plan for worker camp management also is provided; and
• Environment and wildlife protection</td></tr>
</table>

[37] Views of stakeholders are addressed in EMPs

		is central to EMP
Operational phase issues (comparatively few)	• Issues of dust, noise, and problems associated with the increased traffic (e.g., increased risk of accidents) on the completed upgraded access roads. • Environmental damage • Increase in solid waste	• The completed upgraded double bituminous surface treatment (DBST) access road will minimize the production of dust. • The EMP calls for enforced posted speed limits on the upgraded sections of access road • Operational noise is addressed in EMP with the specification for DPWT to enforce with spot checks that vehicles using the roads are in good working condition • Capacity development and training of DICT for environmental management is an integral part of EMP.
Stakeholder suggested impact mitigation measures	• Water the road and drive slowly as possible • Barricade unsafe zone at all the time • All heavy equipment should be operated only during work hour • Each worksite should designate proper place for all wastes • Establish camp rules/ regulations • All hazardous waste stored at designated safe place • Children need to accompanied by adult • Install traffic signs • Establish awareness raising program • Install adequate drainage along roads • Install rubbish bins	

Table 14: Summary of stakeholder views of the subprojects in Luang Prabang

Ban Xang Hai – Tham Ting Cave Access Improvements Chomphet Heritage District Access Improvements		
Benefits identified by stakeholders: • Transportation convenience and increased road safety • Convenient increase in trade • Poverty reduction for villagers • Increase work and income • Village improvement/development • Lifestyle improvement • Increase in tourists		
		Project Response
Construction phase issues	• Dust and noise from the construction activities;	• The EMP for the two subprojects in Luang Prabang prescribes

	• Unsafe traffic caused by construction vehicles causing increased risk of public injury particularly of children • Reduced and impeded access and travel along road due to construction traffic • Soil erosion and river sedimentation • Property damage	mitigation sub-plans for common civil works disturbances caused by the road upgrades between Ban Xang Hai and Ban Pak Ou such as dust (e.g., regular wetting) and noise pollution, erosion & sedimentation management of traffic, and traffic safety, and management of solid and hazardous waste. • Traffic management includes provision of alternate access lanes • Expected property loss/damage is addressed explicitly during pre-construction phase, and followed through construction phases via grievance redress mechanism
Operational phase issues (comparatively few)	• Issues of dust, noise, and problems associated with the increased traffic (e.g., increased risk of accidents) on the completed upgraded access road b/n Ban Xang Hai and Ban Pak Ou. • Flooding • Bad construction work • Property damage	• Improved drainage is explicit in design of subproject components • The EMP calls for enforced posted speed limits on the upgraded sections of access road • The completed upgraded double bituminous surface treatment (DBST) access road will minimize the production of dust. • Operational noise is addressed in EMP with the specification for DPWT to enforce with spot checks that vehicles using the roads are in good working condition • The grievance redress mechanism of EMP provides means to address property damage
Stakeholder suggested impact mitigation measures	• Ensure designs are suitable for conditions and follow regulations • Posted information for tourists • Disclose detailed designs to villages • Water the road and drive slowly as possible • Accompany by adult to and from school • Install adequate drainage • Build retaining concrete wall • Install barricade where needed • Water the road and reduce speeds • Children need accompany by adult	

Table 15: Summary of stakeholder views of the subprojects in Khammouane

Xang Cave Access Improvements That Sikhottabong Environmental Improvement
Benefits identified by stakeholders: • Transportation convenience

• Increase income and living conditions • Facilitate trade • No dust in the street & cleaner village/house • Improved environment/nature • Village improvement/development • Increase tourists • More educated community		
		Project Response
Construction phase issues	• Dust and noise from the construction activities • Unsafe traffic caused by construction vehicles causing increased risk of public injury particularly of children • Increased traffic accidents • Flooding • Reduced access and travel along road due to construction traffic • Soil erosion and river sedimentation • Erosion of riverbanks	• The EMP for the 2 Khammouane subprojects prescribes mitigation sub-plans for common civil works disturbances caused by road upgrades such as dust (e.g., regular wetting) and noise pollution, erosion & sedimentation management of traffic, and traffic safety, and management of solid and hazardous waste. • Improved drainage to prevent flooding is integral to the designs of both subprojects
Operational phase issues (few issues)	• Issues of dust, noise, and problems associated with the increased traffic on the completed upgraded access roads. • Safety on upgraded roads • Environmental damage and pollution • Non-compliance with regulations	• The completed upgraded double bituminous surface treatment (DBST) access road will minimize the production of dust. • The EMP calls for enforced posted speed limits on the upgraded sections of access road • Operational noise is addressed in EMP with the specification for DPWT to enforce with spot checks that vehicles using the roads are in good working condition • Capacity development and training of DICT/DPWT on environmental management by project and DONRE will occur
Stakeholder suggested impact mitigation measures	• Establish detours around road construction zones • Water the road and drive slowly as possible • Improved traffic control • Install sidewalks • Accompany by adult to and from school • Build retaining concrete wall • Better environmental management • Improve drainage • Impose and enforce strict regulations • Install barricade where needed • Water the road and reduce speeds • Children need accompany by adult	

VI. POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATIONS

147. The assessment of potential impacts of the subprojects is structured by province following the section: Descriptions of Subproject Environments as summarized below.

Subproject	Province
Output 1: Last Mile Tourism Access Infrastructure Improved	
Xang Cave Access Improvements	Khammouane
Chomphet Heritage District Access Improvements	Luang Prabang
Ban Xang Hai - Tham Ting Caves Access Improvements	Luang Prabang
Chom Ong Cave Access Improvements	Oudomxay
Output 2: Environmental Services in Cross Border Tourism Centers Improved	
That Sikhottabong Environmental Improvement	Khammouane

A. Subproject Benefits

148. The targeted benefits common to all subprojects are improved access and environmental conditions at the tourist sites leading to improved tourism which ultimately is increased tourist numbers and revenue. A more site-specific summary of subproject benefits is provided below. Detailed socioeconomic benefits of the subprojects to local and regional tourism are discussed under separate cover.

1. Chom Ong Cave Access Improvements

149. The road work to Chom Ong cave combined with the improvements to the cave facilities will enhance the overall tourist experience which should increase the number of tourists that the site can accommodate at any single occasion, and also in time should increase the annual number of tourists that visit the site.

150. It is expected that all residents of Ban Chom Ong village (pop. 730) and ten other villages in the area with a total population of 7,989 will directly benefit from the subproject as a result of the increased tourism activity and improved access to markets and social services.[38]

2. Ban Xang Hai -Tham Ting Caves Access Improvements

151. The combination of travel across or along the Mekong river to the Tham Ting cave coupled with the features of Ban Xang Hai and Ban Pak Ou villages today provide a unique tourist experience. The improvements to the roads facilities, and indireclty the features of the vilages will greatly improve the the area as a tourist destination.

152. The improved access road and facilities at the two villages are expected to directly benefit over 2,950 people that visit the Tham Ting caves and villages.

3. Chomphet Heritage District Access Improvements

153. The Heritage walk and the villages of Ban Xieng Mene and Ban Chan Neua have existed in the shadow of Luang Prabang across the Mekong River due to the extensive tourist

[38] Number of beneficiaries of all subproject sites determined by PPTA urban & tourist planners as vetted by PO

development and facilities that exist in the provincial capital. The subproject will increase the attraction of the World Heritage Site on the west bank of the Mekong River.

154. It is expected that the subproject will directly benefit 3,850 people living in Ban Xieng Mene, and Ban Chan Neua villages as well as the nearby settlements.

4. Xang Cave Access Improvements

155. Similar to the Chom Ong Cave, the improved access to the cave coupled with the expanded and improved tourist facilities will increase both the capacity and experience of tourists at the site. The subproject will directly benefit 1,933 people living in Ban Tham and Ban Xieng Vaen.

5. That Sikhottabong Environmental Improvement

156. The Sikhottabong Stupa is one of the most popular and valued cultural properties in Lao PDR. The cheriateg values of the compound indicates the cultural and tourist appeal of the site.

157. It is expected 35,000 residents of Thakhek and environs will benefit from expanded public green space, improved sanitation, and better traffic management at the site.

B. Subproject Impacts and Mitigations

1. Approach to Reporting Impacts & Mitigations

158. The assessment of the potential negative impacts of the subprojects is structured by the three development phases of the subprojects which are defined as: 1) Pre-construction preparation; 2) Construction; and 3) Post-construction operation. This reporting format is carried forward and structures the three EMPs that will be prepared for the three provinces.

159. The five subprojects in Lao PDR consist of common and subproject-specific activities, and thus common and specific potential impacts. In order to reduce redundant reporting, where possible the common activities, impacts & mitigations of subprojects are addressed together leaving separate discussions of the subproject-specific impacts & mitigations.

2. Pre-construction Phase

160. Negative impacts associated with the pre-construction phases of the sub-projects primarily concern the social issues of land acquisition and resettlement. At the time of writing the feasibility design stage of the project identified the following issues of land loss with the following subprojects.

a. Chomphet Heritage District Access Improvements, Luang Prabang province

- Non-permanent economic disruption of Xieng Mene market, Chomphet that will affect 21 affected households/shops.

b. Chom Ong Cave Access Improvements, Oudomxay province

- Small parcels of land, less than 10%, along access road to Chom Ong cave near parking area which will affect 6 households.

c. Xang Cave Access Improvements, Khammouane province

- Residential land required for road upgrades in Ban Tam village will require some garden land and trees which will affect 3 households.

161. The social impact assessment will be completed after the outstanding social surveys and assessment work is completed. However, it is anticipated that resettlement and land acquisition requirements will be small. Completed resettlement plans and compensation is found under separate covers.

d. Updating EMPs

162. The three provincial EMPs will need to be updated during the pre-construction phase to ensure they meet the safeguard requirements of the final detailed designs of the subprojects. This will involve finalization of mitigation sub-plans to manage potential impact areas such erosion, sedimentation of surface waters, noise, dust and air quality, spoil disposal, traffic, and worker and public safety at the project sites. The impact mitigations of the pre-construction phase are detailed in the EMPs.

163. Key impact mitigation measures of the pre-construction phase are:

1) Initiation of the applicable resettlement plans for each province;
2) Completion of detailed designs of the subprojects; and
3) Updating and initiation the provincial/subproject EMPs.

164. Updating the EMPs involves finalization of mitigation sub-plans for specific impact nodes such erosion, sedimentation of surface waters, noise, dust and air quality, spoil disposal, traffic, and worker and public safety at the project sites. Details of the mitigations of the pre-construction phase are provided in the EMPs.

3. Construction Phase

165. Activities common to all five subprojects are road upgrades & new car parks, and the improvements to facilities at the different tourist sites such as upgraded or new tourist reception buildings, walkways and paths, public toilets, and solid waste management.

a. Common potential impacts of subproject implementation

166. Potential environmental impacts of the subprojects are associated primarily with the short-term construction phase of the individual subprojects. Common impacts of construction will arise from civil construction works which will consist of for example, reduced and/or blocked public access, disrupted business and recreation, noise, dust and air pollution from NOx, SOx, and CO caused by increased truck traffic and heavy equipment use, soil and surface water pollution caused by equipment operation and maintenance, public and worker accidents, increased traffic accidents, land erosion and surface water sedimentation, drainage and flooding problems, solid and domestic waste from worker camps, social issues and community problems caused by migrant workers. These short-term impacts will occur at different levels of magnitude

depending on the activity at all construction areas of the infrastructure developments of the subprojects.

i. Common mitigation measures

167. Measures to mitigate and manage potential common impacts associated with the construction phase of the infrastructure developments are exemplified below. The mitigation measures are detailed further in the EMPs. The regulations on construction in Lao PDR are not well developed. The construction guidelines developed by the MOF.[39] When an appropriate regulation or guideline is missing the IFC/World Bank Environment, Health, and Safety Guidelines (2007) should be followed.

1) Care must be taken to ensure that sites for earthworks (e.g., excavations, trenches) that are suspected to have unexploded ordnance (UXO) should be surveyed by UXO Lao prior to construction. If such ordnance is detected clearing work will need to be commissioned prior to undertaking civil works.
2) Open excavations should be fenced, and trenches covered where public walkways or vehicles must cross.
3) A chance find management plan must be in place for cultural artifacts and property.
4) Regular use of wetting agents should be employed at construction sites to minimize dust.
5) All construction vehicles and equipment should be maintained in proper working order, and not operated at night if possible to minimize noise.
6) Speed limits should be posted and adhered to by construction vehicles.
7) Where possible construction vehicles should use different roads or dedicated lanes of roads shared by the public.
8) Trees and other vegetation at all construction sites and along road corridors should be protected with minimal removal. No tree removal in protected and conservation (preservation forests).
9) Present and past land use should be reviewed to assess whether excavated soils are contaminated spoil. Contaminated spoil should be disposed at nearest landfill, or a location approved by the provincial DONRE.
10) Berms and/or silt curtains should be constructed around all excavation/trench sites and along all surface waters to prevent soil erosion and surface water sedimentation.
11) Local workers should be used as much as possible to prevent or minimize influx of migrant workers, and incidence of social disease and community unrest.
12) Worker camps must have adequate domestic waste collection facilities and sufficient pit latrines that are located away from public areas and surface waters as per Law on Industry No. 01/99/NA (1999).
13) Dedicated fuel storage areas must be established away from public areas and marked clearly.
14) To minimize the impact of construction on the public, and workers national regulations guidelines for worker and public safety I the workplace should be followed. The IFC World Bank Environment, Health, and Safety Guidelines (2007) cited above that govern the safe and orderly operation of civil works should be followed if national directives are incomplete or absent.
15) The creation of new borrow pits must be approved by DONRE, and begin with a plan to restore the pit to the original state as possible with vegetation and fencing and signage to protect the public
16) Aggregates (e.g., sand, gravel, rock) that are transported by truck should be covered.

[39] (MOF, 2009) School Construction Guidelines

17) Prolonged use of temporary storage piles of fill should be avoided, or covered, or wetted regularly to prevent dust and erosion.
18) Sand or aggregate extraction from rivers should be done at DONRE-approved locations licensed areas only.
19) Storage of bulk fuel should be on covered concrete pads away from the public and worker camp. Fuel storage areas and tanks must be clearly marked, protected and lighted. Contractors should be required to have an emergency plan to handle fuel and oil spillage.

b. Subproject-specific construction impacts & mitigations

168. Listed below are potential construction-related impacts specific to some subprojects, or potential impacts that need to be highlighted for mitigation. Some of the generic impacts identified above are further detailed below were needed.

i. Chom Ong Cave Access Improvements

(i) Road works & car park

169. The upgrades to the access roads to the cave will increase the width of the carriageway along the entire 54 km. The widening of the road will directly affect roadside vegetation and agriculture in places. The short 3km road recently opened by the DPWT from the 54 km secondary road to the future car park in front of the cave reception area will also be widened which will end at the 2000 m^2 car park. DONRE has confirmed that the land through which the entire 54 km access road traverses is designated as agriculture or productive forest land. No protected forest exists along the road.

170. The sections of the road that pass through villages will not be widened as much as the openland areas, however, some village land may be required because roads are usually more narrower in villages due to expansion of homestead gardens etc. The car park will require land used for agriculture.

171. The 54 km loop road to cave is long will potentially result in the upgraded state of road being expensive to maintain, for example, to offset rainy season erosion. The second site visit in October/13 showed clearly the heavy damage to the road that had occurred during the rainy season that followed the interim mission in June.

Mitigations

172. Minimize loss and damage of roadside vegetation and agriculture by effecting road widening to minimum, and keeping heavy equipment off the shouder areas as much as possible. Similar care must be implemented in the villages.

173. To minimize the cost of O&M for the completed upgraded road, the design of the upgrades should include heavy erosion control engineering, and sustainable drainage.

174. The PWDT prepared an EIA[40] for their recent work on the access roads to the cave. An environmental Compliance Certificate (ECC) was issued by the DONRE allowing their road

[40] The translated EIA was not available.

work to proceed. Amongst other things, the ECC prescribes environmental mitigations that DPWT must implement.

(i) Cave facilities

175. The leader of Chom Ong village confirmed that the cave and reception area immediately in front of the cave are in protected forest. The DONRE in Oudomxay clarified that protected forests including surface waters (i.e., streams & rivers) are areas designated for the conservation of wildlife and biodiversity, and should be protected from development. Trees are not to be removed in protected areas. The DONRE could not provide written guidelines on management of protected forests in the province.

176. However, the land immediately south of the protected forest where the new car park will demarcate the end of the access road is in agriculture land. The car park area outside the protected forest is also where the new public toilets, ABR septic systems, and some of the new kiosks will be built.

177. The planned improved lighting and walkway to, and inside the cave could disturb the existing wildlife and geological formations of the cave. The newly discovered Chom Ong cave (2006) needs to special protection because the discovery and documentation of the natural resources of the cave has only just begun.[41]

Mitigations

178. The construction or upgrading of the tourist facilities inside the protected forest including the interior of the cave could negatively affect the protected forest area.[42] Strict care must be undertaken to not remove or damage existing trees and vegetation, or disturb the soil that would cause erosion and sedimentation of stream that runs through the cave reception area.

179. The subproject should only upgrade the existing tourist facilities inside the protected forest area. The existing pour flush toilet should be removed and covered over and be replaced with the new toilet blocks adjacent to the car park.

180. Cave development specialists[43] should be consulted at the detailed design phase to assist with the final designs for the cave lighting and walkways. There are numerous caves in Lao PDR that have been developed for tourists which have generated a small community of experts whom can assist with the optimal lighting and walkway designs that will not impinge on the ecology or geology of Chom Ong cave.

ii. Ban Xang Hai-Pak Ou -Tham Ting Caves Access Improvements

(i) Road works and car parks

181. The access road upgrades to, and through the Ban Xang and Ban Pak Ou villages will take some natural land, agriculture land, and village property. The similar mitigations for the road works to Chom Ong cave apply here.

[41] Northern Lao PDR -European Cave Project, 2010.
[42] e.g., Biswas 2012.
[43] Terms of reference for cave specialist, and other required specialists are provided in project PAM

182. A special consideration for the civil works of the road upgrades is the potential effect on the use of the roads by the tourist operators that provide elephant rides. Noise and movement of heavy equipment could startle or injure elephants as they move along the roads while carrying tourists. Careful consideration needs to be given to the type of road surface that is used to upgrade the road to ensure that the road does not become too hot for the soles of the elephants feet.

(i) Upgrades to Tham Ting passenger pier, cave facilities

183. Disturbance to the shoreline at Than Ting Cave, and water quality of the Mekong river caused by the installation of the floating pier modules at the cave should be minimal because the pre-built pier modules will be floated in place without requirement of the heavy civil works required to built piling installations of normal fixed piers or wharfs. Some erosion and sedimentation will occur which can be contained. The cabling of the piers to the shoreline should not cause sigificant disturbances.

184. Similarly, the installation of the floating pier modules at Ban Xang Hai should cause minimal short-term disturbances to the shoreline and water quality. The upgrades to the concrete steps leading down to the piers could cause erosion and sedimentation. There is potential for shoreline pollution from spent construction materials such as cement concrete and aggregates.

185. The civil works required to upgrade the steps and walkways to and around the Tham Ting Caves could result in shoreline sedimentation and and water pollution from discarded construction waste such as unused cement and paint.

186. The boat traffic and construction works that will be required to install the module piers, and upgrade the associated shoreline steps and walkways at Tham Ting caves will disrupt the active gill net fishery in the main stem Mekong River adjacent to the cave. The upgrades to the piers and Tham Ting cave facilities will also disrupt tourist visits to the sites. The vegetation of the protected forest surrounding the Tham Ting caves could be disturbed.

Mitigations

187. The local elephant tour companies need to be made aware well in advance of the locations and schedule of the road works. Alternate routes for the tourist elephant walks need to be established well before the onset of construction to keep the elephants and tourists away from the access roads during upgrading, and to keep the tourist elephant rides in business.

188. During the detailed design phase the nongovernment organization *Elephant Asia* should be contacted to determine the best way to design and implement the access road upgrades in order to not negatively affect the elephants in the area during construction and also during operation of the upgraded roads. For example, confirmation that the proposed DBST road surface will not become too hot for the feet of the elephants that use the road must be obtained. Similarly, the safest vehicle speed limits that should be imposed on the access road for elephant safety need to be determined.

189. To prevent shoreline and water pollution from construction materials and waste at the pier sites all construction materials should be off-loaded from transport barges, and stored well away from the water. A formal plan for the onshore storage, collection, and disposal of

constuction waste should be implemented. No construction waste should be left on site, and should be disposed in a DONRE-approved location.

190. The Director of the Fisheries Section of MAF indicated that the best time to do the pier and cave work is during the low flow season when fishing is suspended due to net fouling with aquatic weeds. The low flow – water level period is also best for pier module installations and upgrades to steps and walkways, and also coincides with the low season for tourists.

iii. Chomphet Heritage District Access Improvements

Impacts & Mitigations

191. The potential environmental impacts of subproject activities at Chomphet district are essentially the same as the impacts of the village-based activities in Ban Xang Hai-Pak Ou - Tham Ting Caves Access Improvements subproject, i.e., excluding the impacts associated with the extensive access road upgrades. The similar potential impacts can be mitigated in like manner.

192. The civil works required to upgrade the ferry pier and landing road at Ban Xieng Mene village could result in shoreline sedimentation and water pollution from discarded construction waste such as unused cement and paint. A formal plan for the onshore storage, collection, and disposal of constuction waste should be implemented. No construction waste should be left on site, and should be disposed in a DONRE-approved location.

193. The upgrades to footpaths, concrete steps, and local roads, and the development of tourist facilities will also generate the same potential impacts which can be mitigated with the same careful construction practices as summarized above.

UNESCO Development Guidelines and Heritage Committee

194. The normal construction management practices identified above for the prevention and mitigation of common construction-related impacts of the subproject must be campared to and supplemented where necessary with the existing UNESCO/Department of Heritage guidelines for development in the Luang Prabang WHS. At the detailed design stage the design consultant must collaborate with the multi-department committee that oversees development in the WHS to first convey the detailed subproject activities, and to then understand how to implement the subproject to meet UNESCO guidelines.

195. An example of where the current WHS guidelines and overall maintenance of the design theme of the WHS should be maintained is the planned upgrades to the path to the temples. The subproject must upgrade the end section of the path to the same specification as the initial section which defined by 3m width, raised brick curb on each side, with same coarse aggregate surface.

iv. Xang Cave Access Improvements

(ii) Road works

196. The upgrades to the access road to the cave will increase the width of the carriageway along the entire road. The widening of the road will directly affect roadside vegetation and agriculture. The DONRE confirmed that the land through which the access road traverses is

designated as agriculture or scrub productive forest land.[44] No protected forest exists along the road or in the villages of Ban Xieng Vaen and Ban Tham.

197. The sections of the road that pass through the villages will not be widened as much as the openland areas, however, some village land will be required because roads are usually more narrower in villages due to expansion of homestead gardens etc.

198. The construction of the ford and foot bridge across the small river in front of the cave could interfere with fish movement in the river. While the Ban Tam village head indicated that no fish existed in the river, the Fisheries Section of the MAF in Vientiane[45] confirmed that fish popuations from the adjacent Mekong River use the many small tributaries for annual flood plain migrations for feeding and spawing just before and during the rainy season.

Mitigations

199. Minimize loss and damage of roadside vegetation and agriculture by effecting road widening to minimum, and keeping heavy equipment off the shoulder areas as much as possible. Similar care must be implemented in the villages.

200. To avoid possiible interference with fish migrations through the river crossing components of the subproojct should be conducted during the dry season. This season also is best for doing the river crossing works. The bridging technology must not in any way block flow and fish migartion during all seasons,. It is recommended to use box culverts and/or install large lateral channels. Civil works in the stream bed should be contained to the smallest area possible to minimize loss and damage to existing aquatic habitat.

(ii) Cave facilities

201. The leader of Ban Tham village confirmed that the immediate cave area is in protected forest, but that the entire tourst reception area in front of the cave was located on village-agricultural land.[46] Protected forests are areas designated for the conservation of wildlife and biodiversity, and should be protected from development. Trees are not to be removed in protected areas. The DONRE in Thakhek could not provide written guidelines on maagement of protected forests in the province.

202. However, most of the tourist facility improvements will occur on the village/agriculture land in front of the cave including the new public toilets, ABR septic systems, and reception centre and kiosks. The planned improved lighting and walkways to, and inside the notably shallow cave could disturb existing wildlife and geological formations of the cave.

Mitigations

203. The upgrading tourist facilities inside the protected forest area at the cave must be conducted to ensure no tree removal or damage occurs. Minimal small vegetation should occur in order to not disturb the soil that could cause erosion and sedimenation of the adjacent stream. The subproject should attempt to only upgrade existing tourist facilities inside the protected forest of the cave area.

[44] Discussion with Mr. P. Khanthavong, DONRE in Thakhek June 17 /13
[45] Discussion with Mr. B. Viengsombath, Department of Livestock & Fisheries of MAF in Vientiane June 23 /13
[46] During meeting that was held with PPTA team and entire village in existing tourist building in front of cave, June 20/13

204. The procedures operate and maintain the upgraded solid and domestic waste collection and disposal systems as set down by the DPWT with support form the DICT must be adhered to, including monitoring. Similar to the Chom Ong cave, cave development specialists should be consulted at the detailed design phase to assist with the final designs for the cave lighting and walkways.

v. That Sikhottabong Environmental Improvement

205. The potential impacts of the construction phase of the subproject activities are summarized above. The required mitigation measures are also summarized above.

4. Operation Phase

206. The operation phase is defined when the construction of the subprojects is complete, and when the improved infrastructures and environmental facilities are in operation. Potential impacts of the operation phase of the individual subprojects are presented below.

a. Chom Ong Cave Access Improvements

207. The potentially significant impact of the targeted increase in tourist activity in the area is increased solid waste litter, and local pollution from the toilet blocks and ABR system that are not maintained properly. A potential impact of the upgraded access roads to the cave is an increase in traffic accidents and injuries arising from an increase in traffic of larger and faster vehicles using the roads.

Mitigations

208. Septage from the proposed ABR systems that support the new toilet blacks must be regularly removed from the chamber stage and disposed in nearby DONRE-approved landfill. The toilet facilities must be cleaned and maintained regularly. Similarly, the adquate number and placed solid waste bins must be emptied regularly. The DPWT with support from the DICT will take respnsibility for O&M of the upgraded soild and domestic waste sytems. The landfill has yet to be identified. These details will be finalized at detailed design stage when the final engineering designs are completed.

209. Enforced, posted speed limits, and road signage should be installed to control speed, and to assist drivers navigate the roads.

b. Ban Xang Hai -Tham Ting Caves Access Improvements

210. The potentially significant impact of the targeted increase in tourist activity in the cave and village area is increased solid waste litter, and local pollution from the toilet blocks and ABR systems. A potential impact of the upgraded access roads to Xang Hai and Ban Pa Ou villages is an increase in traffic accidents and injuries arising from an increase in traffic of larger and faster vehicles using the roads. Potential traffic accidents also include vehicle-elephant collisions.

211. A potential impact of the increased boat traffic on the Mekong River to/from the Tham Ting caves is an increase in boat accidents, and water pollution. The desired increase in boat traffic could also significantly interfere with the gill net fishery in the river.

Mitigations

212. Septage from the ABR systems that support the new toilet blacks must be regularly removed from the chamber stage and disposed in nearby DONRE-approved landfill. The toilet facilities must be cleaned and maintained regularly. Similarly, the adquate number and placed solid waste bins must be emptied regularly.

213. Enforced, posted speed limits, and road signage should be installed to control speed, and to assist drivers navigate the roads. Similarly, boat speed limits and cave traffic navigation lanes should be established, posted and enforced. Similarly, non-fishing boats should be kept away from the fishing grounds with the use of lanes and buoys. The enforcement agancy should be the DPWT. As indicated above *Elephat Asia* needs to be consulted to determine the safest vehicle speed limits for concurrent elephant traffic on the roads.

c. Chomphet Heritage District Access Improvements

214. A potentially significant impact of increased in tourist activity in Heritage District is increased solid waste litter, and local pollution from the toilet blocks and ABR systems.

215. Similar to upriver at the Tham Ting caves, a potential impact of the desired increase in boat traffic is an increase in boat accidents, and water pollution. The desired increase in boat traffic could also significantly interfere with the local fishery in the river.

Mitigations

216. The ABR systems that support the new toilet blacks must be regularly maintained. Septage must be routinely removed from the chamber stage and disposed in nearby DONRE-approved landfill. The toilet facilities must be cleaned and maintained regularly. Similarly, the adquate number and placed solid waste bins must be emptied regularly.

217. Enforced, posted speed limits, and road signage should be installed to control speed, and to assist drivers navigate the roads. Similarly, boat speed limits and passenger and car ferry navigation lanes should be established, posted and enforced. Similarly, non-fishing boats should be kept away from the fishing grounds with the use of lanes and buoys.

d. Xang Cave Access Improvements

218. The potentially significant impact of increased in tourism in the area is increased solid waste litter, and local pollution from the toilet blocks and ABR system. A potential impact of the upgraded access road to the cave is an increase in traffic accidents and injuries.

Mitigations

219. Septage from the ABR systems that support the new toilet blacks must be regularly removed from the chamber stage and disposed in nearby DONRE-approved landfill. The toilet facilities must be cleaned and maintained regularly. Similarly, the adquate number and placed solid waste bins must be emptied regularly.

220. Enforced, posted speed limits, and road signage should be installed to control speed, and to assist drivers navigate the roads.

e. That Sikhottabong Environmental Improvement

221. A potentially significant impact of increased in tourist activity in the area is increased solid waste litter originating from inadequately managed rubbish bins, from the solid waste transfer station. If not managed and emptied regularly, the transfer station could become a large point source of solid waste.

222. The new toilet blocks and ABR septic system could create pollution and aesthetic issues if the toilets and ABR system are not managed properly.

Mitigations

223. The ABR system that support the new toilet blacks must be maintained with regular septage removal. Septage must be routinely removed from the chamber stage and disposed in nearby DoNRE-approved landfill. The toilet facilities must be cleaned and maintained regularly. Similarly, the adquate number and placed solid waste bins must be emptied regularly.

5. Induced and Cumulative Impacts

224. The primary goal of the project to increase tourism and associated socioeconomic development in the subproject areas of the five provinces is complemented by the potential negative direct and indirect impacts of the increased tourism on the valued environmental components, community, and cultural physical resources that are the target objects of tourism development. The potential induced and cumulative impacts of the project are important factors that must be considered carefully.

225. A potential directly induced impact of increased tourism in the subproject areas is creation of increased pollution from solid and domestic waste outside the target areas addressed by the improvements to solid waste and wastewater collection and treatment of the subprojects.

226. More tourists to the subproject area can result in greater consumption of goods and resources which can put greater strain on key amenities such as the cleanliness of local environment and community. An increase in the number of tourists in subproject area could lead to social issues stemming from the interaction of local and foreign cultures. Moreover, the wildlife populations and natural geology of the Chom Ong, Xang and Tham Ting caves could be negatively affected by the increased presence and disturbance of tourists in and round the caves.[47,48]

227. A potential induced impact of tourism development which is extremely difficult to prevent and separate from the subproject activities is independent commercial and urban development that develops to serve and benefit the tourism created by the project. Increased tourism development at all subproject areas easily becomes the seed for much greater and non-sustainable growth in both tourism and urban development in the subproject areas. Indirect

[47] footnote 24
[48] Barciova et al. 2010

induced tourism-socioeconomic growth is usually broader geographically and more difficult to manage with respect to impacts on environmental resources because of the different parties & interests involved, and lack of accountability.

228. An example potential induced impact of the development of the tourist facilities and road at Chom Ong Cave is non target commercial development near the cave such as guest houses and restaurants being developed at the future car park area. Another potential impact is non-target access to the cave area by persons interested in, for example, exploiting NTFP. The mitigation for these potential impacts is restricted access to the cave area to those who work at the cave or who derive planned livelihoods from the cave with use of a gate where the last 2-3 km road leaves the main loop road.

6. Climate Change

229. The designs of the infrastructure and environmental improvement technologies at feasibility stage are climate change resilient. Climate change is defined here as the GCM-projected changes to the frequency and severity of rainfall events, local runoff and flooding events, and sea level rise. The access road upgrades all include later drainage to channel runoff and prevent erosion.

230. All structural facilities such as public toilets, buildings, and open public areas will be at grades that will be immune from flooding and excessive runoff. The pier technology that will be used on the Mekong River by design will not be affected by changes to the seasonal range in river levels in the river. Similarly, the bridge crossing technologies in Khammouane will be designed to accommodate changes to seasonal river flow regimens.

231. Consideration of climate change includes consideration of measures to reduce the contribution of the project to greenhouse gas production. Effort needs to be taken to reduce the carbon footprint of the project by ensuring for example that speed limits along upgraded roads are enforced, and passenger and cargo boats that use the pier are maintained in good working order. All lighting installed at the subprojects should use light bulbs that are energy efficient

VII. ANALYSIS OF ALTERNATIVES

232. The analysis of subproject alternatives in the three provinces focused primarily on subproject scope. A subproject component that was postponed due to environmental and cultural impact issues was the proposed upgraded access road to the That Sikhottabong in Khammouane province.

233. The no-project alternative would result in (i) continued development of pollution problems at the sites as a result of inadequate solid and domestic waste management; and (ii) increasing constraint of tourist visitation due to a lack of facilities to accommodate comfortably the real potential growth in tourism. Moreover, contributing to the effect of insufficient facilities capacity for tourist growth would be the effect of the negative aesthetics of the steadily increasing pollution at some sites.

VIII. INFORMATION DISCLOSURE AND PUBLIC GRIEVANCE MECHANISM

234. As described above the subproject components were introduced to affected stakeholders as part of the joint social-environment surveys and consultations. Verbal and visual presentations of the subprojects were provided to all stakeholders ahead of the facilitated consultation discussions.

235. The formal disclosure of information in the local language to affected persons and stakeholders that occurred during the development of the IEE is meant to form the beginning of continued information disclosure and stakeholder involvement as the project is implemented. As part of the stakeholder communication strategy developed for IEE regular information exchange meetings with stakeholders is required throughout implementation of the subprojects.

236. The IEE must be easily available to the stakeholders contacted during examination in written and verbal forms in the local language. The IEE should be available on the provincial DICT web sites, at DICT offices, district offices, and subproject sites. Similarly, all project reporting with specific reference to stakeholder consultation minutes, environmental monitoring, and reports on EMP implementation released by the EA/PCU should be available at the same offices and web sites. The IEE will also be available on the ADB web site. And after implementation of subprojects begins, all environmental and EMP reporting submitted by the EA/PCU will also be available on the ADB web site.

237. A well-defined grievance redress and resolution mechanism will be established to address all affected stakeholders grievances and complaints regarding environment, land acquisition, compensation and resettlement in a timely and satisfactory manner. Given the project's joint approach to consultation of the same mechanism will be used for issues of environmental impact or disturbance at any stage of the implementation of all subprojects. All stakeholders will be made fully aware of their rights, and the detailed procedures for filing grievances and an appeal process will be published through an effective public information campaign. The grievance redress mechanism and appeal procedures will also be explained in a project information booklet (PIB) that will be distributed to all stakeholders.

238. Stakeholders or persons affected by the subprojects are entitled to lodge complaints regarding any environmental issue or any aspect of the land acquisition and resettlement requirements such as, entitlements, rates and payment and procedures for resettlement and income restoration programs. Stakeholder complaints can be made verbally or in written form. In the case of verbal complaints, the committee on grievance will be responsible to make a written record during the first meeting with the stakeholders.

239. A Grievance Committee will be organized in villages comprising local leaders designated for such tasks. The designate officials shall exercise all efforts to settle affected stakeholder issues at the village level through appropriate community consultation. All meetings shall be recorded by the grievance committee and copies shall be provided to affected stakeholders. A copy of the minutes of meetings and actions undertaken shall be provided to the DICT, PIUs, DONREs, and ADB upon request.

240. The procedures for grievance redress are set out below. The procedure described below should apply easily to both social and environmental issues and be consistent with the legal process for resolution of disputes in Lao PDR, and exemplifies the desired collaboration among the different levels of government as recently described by Decision 7536/MONRE (2012).

i) Stage 1: Complaints from affected stakeholders for the first time shall be lodged verbally or in written form with the village head or commune leader. The complaints

shall be discussed with the affected stakeholder and the designated Head of Grievance Committee or members of the committee. It will be the responsibility of the Head of Grievance Committee to resolve the issue within 15 days from the date the complaint is received. All meetings shall be recorded and copies of the minutes of meetings will be provided to APs.

ii) Stage 2: If no understanding or amicable solution can be reached or if no response is received from the grievance committee within 15 days from filing the complaint, the affected stakeholder can elevate the case to the District Grievance Committee. The District Grievance Committee is expected to respond within 15 days upon receiving the affected stakeholder's appeal.

iii) Stage 3: If the affected stakeholder is not satisfied with the decision of the District Office, or in the absence of any response, the APs can appeal to the Provincial Grievance Committee (PGC). The PGC will review and issue a decision on the appeal within 30 days from the day the complaint is received.

iv) Stage 4: If the affected stakeholder is still not satisfied with the decision of the PGC or in the absence of any response within the stipulated time, the affected stakeholder's, as a last resort may submit his/her case to the provincial court. The court will address the appeal by written decision and submit copies to the respective entities which include the DICT, DONRE, DGC/PGC and the affected stakeholder. If however, the affected stakeholder is still not satisfied the court's decision, the case may be elevated to the provincial court. If however, the decision of the provincial court is still unsatisfactory to the affected stakeholder, the affected stakeholder may bring the complaints to the Higher Court.

241. The External Monitoring Organization (EMO) will be responsible for checking the procedures and resolutions of grievances and complaints. The EMO must have expertise and experience in social and environmental issues associated with infrastructure developments. The EMO may recommend further measures to be taken to redress unresolved grievances. The Project Supervising Consultants will provide the necessary training to improve grievance procedures and strategy for the grievance committee members when required.

242. The executing agency will shoulder all administrative and legal fees that will be incurred in the resolution of grievances and complaints if the affected stakeholder wins the case. Other costs incurred by legitimate complaints will also be refunded by the project if the affected stakeholder wins their case.

243. In cases where affected stakeholder does not have the writing skills or are unable to express their grievances verbally, affected stakeholder is encouraged to seek assistance from the recognized local groups, district DONRE staff, or NGO or other family members, village heads or community chiefs to have their grievances recorded in writing, and to have access any environmental or social surveys or valuation of assets, to ensure that where disputes do occur, all the details have been recorded accurately enabling all parties to be treated fairly. Throughout the grievance redress process, the responsible committee will ensure that the concerned affected stakeholder is provided with copies of complaints and decisions or resolutions reached.

244. If efforts to resolve disputes using the grievance procedures remain unresolved or unsatisfactory, affected stakeholder has the right to directly discuss their concerns or problems with the ADB Southeast Asia Department through the ADB Lao PDR Resident Mission (LRM). If APs are still not satisfied with the responses of LRM, they can directly contact the ADB Office of the Special Project Facilitator (OSPF).

IX. ENVIRONMENTAL MANAGEMENT PLANS

245. The environmental management plans for each province have been prepared, and are reported under separate covers.

XI. CONCLUSIONS AND RECOMMENDATION

246. The examination of the project in Lao PDR indicates that potential environmental impacts are largely restricted to the construction phase of the subproject components. The common construction-related disturbance of elevated dust, noise, traffic disruptions, erosion and sedimentation, and public and worker safety can be managed effectively with standard construction practices (e.g., World Bank 2007)..

247. Potential impacts on the sensitive cultural features of Chomphet Heritage District of Luang Prabang can be managed and mitigated by integrating the UNESCO development guidelines for the World Heritage Site into the EMP for the subproject

248. The stakeholder consultations and household and village level interviews underscored the need for effective management of noise, dust, traffic disruptions, and safety during the construction phase of the project. Follow-up meetings with the consulted stakeholders to address any construction-related issues are required.

249. In parallel with the preparation of the detailed designs a select re-review of the existence and sensitivity of valued ecological and cultural resources is needed to clarify potential impacts of the final detailed subproject designs. It is recommended that as part of the update of the EMPs at the detailed design stage, that supplementary data/information be reviewed.

250. The IEE concludes that the description of the feasibility design of the project combined with available information on the affected environment is sufficient to identify the scope of potential environmental impacts of the project. Providing that significant changes do not occur to the design of one or more of the project components, and that the supplementary sensitive receptor data, and final design information identified above is provided, that further detailed environmental impact assessment (EIA) of the project is not required.

251. The separate EMPs developed for the provincial subprojects provide impacts mitigation plans, environmental monitoring plans, and specify the institutional responsibilities and capacity needs for the environmental management of the subprojects. The IEE recommends that the EMPs be reviewed and updated at the detailed design phase to ensure that they address fully the final subproject designs.

XII. REFERENCES CITED

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ANNEX 1: CRITERIA FOR SELECTION OF SUBPROJECTS IN LAO PDR

No.	Criteria
1	SP should be located in undeveloped segment of a GMS corridor
2	SP should have good tourism and economic development potential
3	SP development should have clear regional dimensions
4	SP is prioritized in GMS Tourism Sector Strategy & national tourism strategies
5	Existing tourism access and environmental infrastructure of SP is unable to cope with rapidly growing tourism or is constraining tourism growth
6	Expected resettlement & environmental impacts of SP development are minor (i.e. Category B or lower) as summarized in REAs.
7	Key stakeholders, including local authorities and local communities endorse the sub project development
8	The indicative cost estimate for each sub project is at least US$3 million

ANNEX 2: DESCRIPTION OF POLICY, LEGAL, & EIA FRAMEWORK

A. Laws

Law on Environmental Protection No. 02/99/NA (1999): sets out the basic principles of environmental protection at Article 5, stating that all persons and organizations residing in the Lao PDR have an obligation to protect the environment. It does stipulate that those who generate an environmental impact are responsible for the resulting damage caused. Directs that environmental management and monitoring units be established at all levels of government, with responsibilities to include such things as: establishing and enforcing sector environmental plans; taking action to mitigate environmental damage; issuing orders to adjust, suspend, remove or close down activities that cause negative impacts. It states at Article 8(3) that development projects and operations that have or will have the potential to affect the environment shall submit an Environmental Impact Assessment (EIA) report in accordance with the regulations of WREA. WREA is responsible for environmental management and monitoring, and the issuance of an Environmental Compliance Certificate (ECC).

Law on Industry No. 01/99/NA (1999): indicates all businesses shall ensure the protection of the environment in accordance with the Environment Protection Law. Solid and liquid wastes shall be treated in accordance with the relevant MIH waste discharge regulations (Article 19).

Law on Hygiene, Prevention and Health Promotion No.01/NA (2001): focuses on controlling the elements of the environment which are dangerous or may be dangerous to the body, to mental health and social status of human (Article 2); promoting the investment in hygiene, prevention and health promotion (Article 5); community hygiene to be in place (Article 11); to ensure the building access to hygiene principles (Article 14); the care of working conditions for workers (Article 18); to ensure the cleanness of goods exposed, be far away from dirty sources, cemetery and rearing animal places (Article 22). All facilities to be in place particularly wastewater management, solid waste management systems and anti-fire management system.

Law on Water and Water Resources (1996): currently under revision specifies that the Government is responsible for the prevention of adverse impacts from water and all acts that cause the depletion of water; water resources must be managed and used according to centralized, comprehensive and integrated management principles and according to the 'allocation plan' which gives individuals and organizations the right to use water. The law includes several key points about regulating use and environmental impacts: Medium and large-scale use of water requires approval, registration and/or a contract. Large-scale use must be accompanied by a feasibility study, an ESIA and detailed measures to deal with the impact. The Law regulates 'Water Source Development activities', stating that these activities require approval from the relevant authorized agency and must comply with 'socio-economic and environmental development plans, the master plan, periodic development plans of each sector, and the construction plan for each approved project'. These must also ensure the preservation of water and prevent adverse impacts on the environment.

Law on Land (2003): is relevant to environmental and wetland management, as well as the management of the country's land resources. The Land Management Authorities are responsible for, among other things, coordinating with concerned sectors and local administrations to plan the use of land, to protect and develop land, and to define land areas for certain uses; they can allocate land use rights to lease or grant concessions, and withdraw the right to land use. Various articles allow for the lease or concession of land from the State. In terms of environmental protection, Article 6 obliges individuals and organizations to 'protect the

land to ensure that it is in a good condition'. It also states that land use shall not have a negative impact in the natural or social environment.

Law on Roads (1999): provides directives for transportation of hazardous materials via Lao PDR roads. Also designates weight limits on vehicles traveling on Lao PDR roads. It states that construction activities that the road contractor shall perform includes protection of the environment (Article 15); Ministry of Communications, Transport, Post and Construction (MCTPC – now Ministry of Public Works and Transport) is authorized to manage and use material from borrow pits, quarries, gravel, sand etc, from authorized locations (Article 18); Reasonable compensation must be paid to individuals whose land is expropriated for roads, relocation of replacement structures, and loss of trees and crops (Article 19); and it states that it is prohibited to construct within the road reserve (Article 21).

Law on Forestry (2007): while under revision defines distinct uses of forest or forest products (e.g. tourism, recreational sites, logging) and specifies which 'Forest Category' each 'use' may be conducted within. Those wishing to engage in 'business operations in the forest' must seek approval from the Forest and Forest Land Management Authority. Utilizing forests for business purposes 'shall avoid causing any negative impacts to forest and forest production areas, nature, the environment and society'. Degraded forestland and barren forestland can be used for other activities; the level of degradation is vaguely defined at Article 3 as forestland areas where forest has been heavily and continually damaged and degraded, causing a loss in the balance in organic matter, which means that the forest may not be able to regenerate naturally. The Law also defines buffer zones as the forest and forestlands from 100m to 500m in width surrounding protected areas.

Law on Cultural, Historical and Natural Heritage (2005): addresses a number of environmental protection issues. It states that socio-economic development shall proceed side by side with protection and conservation of the national heritage. It defines cultural, historical and natural heritage, noting that natural heritage may have scenic or ecological value. The Law also sets out zoning and measures for protection of heritage sites. Areas of national natural heritage shall be registered, especially those containing heritage of high value, such as biodiversity areas, conservation forests, wetlands, caves, and so on . Although it states that sources of biodiversity which have national natural heritage, e.g. wetlands, ponds and marshes, shall be administered by inspection and registration, as proposed by the concerned sectors. It also sets out regulations for protection of national heritage, such as the need to obtain prior approval for development in any national natural heritage area from the Ministry of Information and Culture (MIC) and other concerned sectors.

Law on Fisheries (2010): was developed specifically for the fisheries and aquaculture sector. The Food and Agriculture Organization (FAO) and other organizations carried out a "Legislative Review of Fisheries and Aquaculture in the Lao PDR to provide guidance to this process. The review noted that (in 2008) unlike in most countries, Lao PDR had not enacted a separate fisheries and aquaculture legislation and that the sector was regulated under the Forestry Law.

B. Strategies & Policies

The 7th National Social and Economic Development Plan (NSEDP) (2011-2015): seeks to define future directions for the development of Lao PDR. It includes mainly agriculture and forest, energy, mining and environmental protection and natural resource management. It provides the basis for sectoral and provincial plans, some framework for environmental protection/sustainability efforts; its stated aim is to "Ensure the sustainability of development by

emphasizing economic development with, cultural and social progress, preserving natural resources and protecting the environment"[49].

National Forestry Strategy to 2020 (FS2020): analyzes the status of the Lao PDR forest sector and provides targets and recommendations for its development. Importantly, it sets out the categories of forests: production forests; conservation forests; protection forests; regeneration forests; and degraded forests. Targets for the sector include: stabilization of shifting cultivation by 2005 and its eradication by 2010; improvement of forest cover and quality. It also notes the establishment of NPAs in order to protect natural areas and species of fauna and flora to ensure the balance of nature, and for protecting watersheds[50].

National Biodiversity Strategy to 2020 & Action Plan to 2010 (NBSAP*)*: aims to protect biodiversity resources and to ensure their sustainable use. It notes that implementation requires cooperation and coordination from all levels of government and society. Water resources are one of many issues addressed in NBSAP document. It states that "water resources such as ground water, lakes, rivers, streams and wetlands should remain clean and abundant, and where necessary, be improved, through their protection, conservation and sustainable use".

Urban Master Plan (2001) No. 58/PM: includes the land use plan, road network planning, drainage system planning, solid waste management system and building regulation. Most of the current urban development activities such as road network improvements, drainage structure rehabilitation and solid waste management.

National Water Resources Strategy and Action Plan [draft]: addresses water needs, and governance of basic subsistence water use. Developed in 2010, it provides the Government's direction and decision making for water resources management, summarized in nine major policy statements which address the major issues which face the water sector. It notes that increasing scarcity/competition is a driving need for development of the policy and that water is a valuable national asset, with economic as well as social and environmental values. Further, decision-making should be based on consultation and local involvement. The most relevant of the nine policy statements are: the development of IWRM plans for priority (sub) basins; allocation of water resources is to prioritize human and ecosystem needs where scarcity exists; the need for water quality protection; and efforts to reduce the impacts of flood, drought and climate change. The policy also forms the basis for drafting a five year strategy & action plan (2011-2015). In the action plan, 22 activities are identified under the nine policy statement areas51. There is no specific mention of wetlands in either document, although wetlands can be tied to other water issues, such as groundwater, water quality, and so on. The impact of prioritization of human needs in water allocation requires further discussion.

Strategy on Climate Change (2010): discusses global climate change, as well as the expected climate change and development situation for Lao PDR. This strategy sets out objectives and strategic directions for addressing climate change, with goals including reinforcing sustainable development, increasing the resilience of economy and natural resources, enhancing cooperation, and improving public awareness. This is followed by adaption and mitigation options in key strategic areas, such as agriculture, energy, water resources, health, and so on.

[49]Ministry of Planning and Investment. 2010. *7thNational Social and Economic Development Plan (2011-2015): Executive Summary* [Draft & unofficial translation].
[50]Prime Minister's Office. 2005. Forestry Strategy to the Year 2020 of the Lao PDR.
[51] WREA. July 2010. National Water Resources Strategy and Action Plan for the Years 2011 to 2015 [Draft].

National Adaptation Programme of Action to Climate Change (NAPA) (2009): references regional predictions of the potential impacts of climate change. It identifies urgent needs for adaptation, priority activities and potential barriers to implementation. Urgent needs for the water sector include: Awareness rising on water resource management; flood mapping and early warning systems; strengthening institutional capacity; surveying of underground water sources in drought-prone areas; multi-use reservoirs in drought-prone areas; conservation and development of major watersheds; flood protection barriers; improved navigation; and repairing infrastructure damaged in floods. The NAPA's emphasis for this sector is thus on flood, drought and disaster preparedness, with only broad mention of watershed conservation.

Strategic plan on disaster risk management in Lao PDR (2020, 2010) and Action Plan (2003-2005): sets out lessons learned from disaster experiences, a strategy and approach on disaster management, goals for 2005, 2010 and 2020, and implementation methods and budget. The natural disasters listed include flood, drought, landslides, fire, as well as disease. However, the role of environmental degradation & changing climate is also noted. There is recognition of previous emphasis on relief and mitigation, rather than prevention. The Strategy aims to: safeguard sustainable development; shift more to preparedness; build community capacity; and promote environmental protection.

C. National Environmental Assessment Procedure

According to the Environmental Protection Law (1999), development projects and operations that have or will have the potential to affect the environment shall submit an Environmental Impact Assessment (EIA) report in accordance with the regulations of WREA[52]. WREA is responsible for environmental management and monitoring, and the issuance of an Environmental Compliance Certificate (ECC). Details of the procedures mentioned in the Regulation on Environment Assessment No: 1770/WREA (3/10/2000) as below.

Each Development Project Responsible Agency (DPRA) must ensure that any development project in the Lao PDR carries out Environmental Assessment (EA) in accordance with the content determined in this Regulation, and any regulation of its own line ministry. The Environment Assessment must include at least a Project Description to enable DPRA to perform a project environment screening under Article 7 of this Regulation. If the project is not exempt under Article 8 of this Regulation, the EA must include an Initial Environment Examination (IEE) as specified in Article 9 of this Regulation. An Environmental Impact Assessment (EIA) may be required if this is shown to be needed following a review of the IEE, as specified in Articles 11, 12, 13, and 14 of this Regulation.

All project proposals that are submitted to the DPRA by a project owner, and all project proposals that are prepared by a DPRA must include a brief description of the project, including the following:

- Name of the Project owner.
- Type of project.
- Scope of the project.
- Project location.
- Intended product.
- Raw materials to be used.

[52] WREA now incorporated in the new MONRE

- Estimate of the quantity and quality of any solid, liquid, or air-borne wastes resulting from project construction or operation.
- Number and origin of project's intended labor force for construction and operation.
- Anticipated positive and negative environmental and social impacts of the project.
- Environmental mitigation measures that will be implemented during the project construction, operation and closure (if applicable)

The DPRA must circulate the project proposal document to relevant government sectors and local authorities, and must consider their comments in its environmental screening decision. Line ministries may request that additional information must be provided in the project description to support their internal review of the proposal.

Within 30 days of receiving a project description, the DPRA must complete the screening and explain the screening decision in writing to WREA in the case of national projects or to PWREO for local projects. Within 15 days of receiving the screening findings the respective environment office shall either notify the DPRA that it concurs with the decision, or shall instruct the DPRA to reconsider, taking into account relevant information or guidance. Within 7 days after receiving the record of decision from the respective environment office, the DPRA must notify the project owners of the result of the project screening to abide by the record of decision. The DPRA must also notify the Environmental Management and Monitoring Unit (EMMU) of the concerned line ministries or local administration authorities for information and monitoring purposes.

For those projects found by screening to be exempt from further EA, WREA will issue an environmental compliance certificate within 15 days after receiving the screening record of decision from DPRA. There are two types of certificate; one with conditions and one without conditions. Those projects determined to require further EA must proceed to IEE.

For foreign investment projects, the IEE report must be written in Lao and English. Line ministries in their internal EA guidelines may set additional requirements for the contents of IEE reports and the number of copies of reports that are to be submitted.

If the IEE report concludes that no EIA is needed, an EMP must be developed within the IEE report, which must have the following contents:

- Measures to prevent and minimize environmental impacts.
- Programs for environment control and monitoring.
- Responsibilities, organization, schedule and budget for implementation of the EMP and other issues that the DPRA may deem necessary for the protection of the environment.

During the IEE process, if it is found that the project needs an EIA, the IEE report must contain Terms of Reference for the subsequent EIA.

The IEE report and the IEE's EMP must receive approval from the DPRA before WREA can issue the environmental compliance certificate to the project owner. For projects requiring EIA, the project owner must, during the detailed design phase, prepare the detailed EMP based on the general EMP of the IEE already approved by WREA.

The project owner is directly responsible for the monitoring and evaluation of the EMP. The DPRAs in central level are responsible for the inspection of the implementation of the monitoring and evaluation for the project environment where projects are approved at the central level.

In order to ensure the effective implementation, the project must establish an environmental unit. The members of such unit may come from the company itself, hired staff, from an outside organization or be entities working on contractual basis.

The project owner of the Environmental Unit must establish monthly reports on project environmental monitoring to be sent to the concerned agencies, which include WREA, and the Environmental Management and Monitoring Units (EMMUs) of the concerned line ministries for information and supervision.

The WREA and the responsible line agency EMMU retain authority to directly control project activities, in order to ensure that project owners effectively carry out and regularly monitor their environmental protection duties.

National Environmental Standard Order No. 2734/PMU-WREA (2009), all projects should follow the national environmental standard which that links to water quality for drinking – the ground water and surface water (Article 4), also the quality of soil for agriculture, quality of air and noise to be met at control levels. All factories where wastewater discharge, the water quality can be measured and to ensure that BOD not over 40 mg/l, NH3-N not over 4 mg/l, TSS not over 40 mg/l and pH not over 9 mg/l. Specifically, various chemicals may be used for processing of some factories and that specific requires for certain chemical is set in this standard.

Manual of Environmental Impact Assessment Procedures for Road Projects in the Lao PDR (1997), MPWT. It serves as an interim document guiding EIA procedures for road projects, outlines potential impacts and suggests mitigation measures.

Regulation and Guidelines for the Environmental Assessment of Road Projects (1999), MPWT. It serves as interim document guiding incorporation of environmental protection into road project preparation; establishes a “Code of Sound Environmental Practice”.

Environmental Impact Assessment for Industry and Processing Handicraft Order No. 1222/MIH (2005), the projects which requires EIA, IEE and Environmental Management Plan depending on a project size, a quantity of products per day and a number of workers. At least IEE is required for the project with a capacity of products of ≥ 50 ton per day and ≥ 40 workers. In addition, the industrial and processing projects can be located unless official permission is issued and follow the guidelines for IEE/EIA processes (Article 5). Local communities and other stakeholders should be involved in all processes of IEE/EIA of projects (Article 9).

Law or Decree	Article	Relating To	Content
Constitution of the Lao PDR People's Democratic Republic (1991, amended 2003)	17	Environment in general	"All organizations and citizens must protect the environment and natural resources: land, underground, forests, fauna, water sources and atmosphere."
Environmental Protection Law (1999)	5	Environment in general	Conservation takes priority over mitigation and restoration. Socio-economic development planning must include planning for environmental protection
Environmental Protection Law (1999)	8	EIA Process	MONRE is main agency to issue regulations for EIA. People affected by projects, mass organizations, and local administrations are to be involved in the EIA process
	10	Responsibility of those engaged in development works	Those engaged in development works must adhere to safeguards, and to standards and regulations issued by GOL agencies
	14	Responsibility of those engaged in development works	Those engaged in development works must abide by laws on land, forests, water, etc.
	16	Responsibility toward cultural, historical, natural heritage sites	Those engaged in development works must abide by laws and regulations to protect such heritage sites
	22	Pollution control	All are responsible for control of pollution, and applying technologies appropriate to control such pollution
	23	Hazardous wastes / emissions	Restrictions to hazardous wastes and means to control such wastes and emissions
	28	Damage to environment	Those causing damage to environment are responsible for repair through appropriate GOL agencies
	38, 39	Local environmental management and monitoring	Stipulates responsibilities of local administrations (provinces, municipalities, special districts, districts) to establish environmental management and monitoring units
	40	Local environmental responsibilities	Stipulates responsibilities of village administrations to follow environmental regulations
Water and Water Resources Law (1996)	4	Rights to use water resources	Defines rights, obligations, and procedures to gain approval for use of water resources

Law or Decree	Article	Relating To	Content
	18	Permission for use	Stipulates that medium and large scale uses require feasibility studies, EIAs, and mitigation plans, before permission is granted for use of the resource
	22	Principles in water resource development management	Stipulates that water resource development must be consistent with national and sector plans, must ensure preservation of the natural beauty of the resources, and must protect against harmful effects of water
Water and Water Resources Law (1996)	25	Promotion of Watershed and Water Resource Protection for Hydropower Development	Stipulates that 'hydropower projects must be developed with due concern for environmental protection, flood protection, water supply, irrigation, navigation, fisheries and others."
	29	Water and water resource protection	Requires that water resources be protected from becoming spoilt, polluted, or drying up, and that forest and land resources be protected to help protect the water resources
Lao PDR Forestry Law (amended 2007)	5	Policy on forest and forest land	The GOL has the policy to preserve, regenerate, and develop forests and forest land to help preserve the environment, water resources, biodiversity, and people's livelihoods.
	9 to 13	Forest types	Classify the various types of forests according to use, including forests for village use
	26	Preservation of water resources in forest zones	Stipulates the preservation of water resources in forest zones for those areas where waterways originate and flow, including strict management and regulations to control logging, shifting cultivation, and destructive forest uses
	70	Conversion of forestland	Stipulates that forestland can be converted to other land type if it brings a high level of benefits to the nation and to livelihoods of the people, and is included in the national development plan
	71	Types of converted forestland	Stipulates that for uses such as dam construction, the timber and forest resources to be harvested in those areas are property of the State

Law or Decree	Article	Relating To	Content
Wildlife and Aquatic Law (2007)	31	Use for Household purposes	Allows use by village households of wildlife and aquatic species in the common and general category list in particular seasons or permitted areas, using tools or equipment that do not adversely affect habitats or compromise the species population.
	32	Customary Use	Allows use of wildlife or aquatic species in the common and general category list by village households for "necessary cultural beliefs."
	52	Prohibitions	Prohibits taking of wildlife, including parts of the animals, from their habitats; tormenting wildlife and aquatics; illegal catching, hunting, trading and possession; catching aquatic and hunting in conservation zones, in breeding season, or when pregnant; devastation of habitats and feeding zones.
Land Law (2003)	6	Protection of Land and Environment	Declares that all individuals and organizations are obliged to protect the land from degradation,
	14	Changes in Land Category	Land use can be changed if it does not cause social or environmental harm and if prior approval is obtained from the authorities.
Decree on Land Lease or Concession (2009)	39	Obligation of Person or Legal Entity Who Leases or Obtains Concession	The person or legal entity that leases land or obtains a concession is obligated, among other things, "not to cause any damage to the quality of land and negative impact to the natural environment and the society."
Road Law (1999)	15	Public Road Construction	Construction of public roads must include protection of the environment
Prime Ministerial Decree No. 112/PM on Environmental Impact Assessment (2010)		Stipulates the need for Environmental Impact Assessment	Stipulates rights of those affected by projects, and need for participation. Outlines the process of conducting the EIA, preparing environmental management and monitoring plans, social management and monitoring plans, issuing environmental compliance certificates, monitoring compliance with the various plans, establishing the institutional framework including grievance procedures.
Decree on Compensation and Resettlement of People Affected by Development Projects (2006)		Establish the procedures for compensation and resettlement for project affected people	Defines the principles, rules, and measures to mitigate adverse impacts and to compensate for damages that may result from involuntary acquisition or repossession of land and of fixed or movable assets, including changes in land use and restrictions to access of community or natural resources

ANNEX 3: MINUTES OF MEETING - WORLD HERITAGE & UNESCO

TA 8233 REG Tourism Infrastructure for Inclusive Growth
Interim Mission
UNESCO World Heritage Office
June 11, 2013
15:30

Location: Luang Prabang

Participants:

- Mr. Bounnhang Phongphichit, Director, Department of World Heritage
- Deputy Director, Department of World Heritage
- Mr. Michel Brodovitch, World Heritage Protection, UNESCO- Paris
- Mr. Don Meisner, GHD
- Mr. Rik Ponne, GHD

Purpose:

To present subproject, and understand rules and regulations for development in WHS in Luang Prabang, and obtain baseline information on core and buffer zones of WHS.

Notes on Meeting

- Mr. Brodovitch indicated clearly that in general he was not in favor of the objectives of the PPTA of local socioeconomic development along road and pathways in core zone of WHS because of the potential indirect impacts of increased development.
- Mr. Brodovitch showed maps of core zone and buffer zones, and confirmed there are rules and regulations for development in the zones and subzones of each.
- Mr. Brodovitch recounted the situation 1995 when the WHS and the ADB ended up in Japan over a difficulty with a drainage project that UNESCO believed violated WHS regulations. Decision went WHS's way.
- Mr. Brodovitch and the Deputy Director differed in their opinion on what is allowable in core and buffer zones.
- Mr. Bounnhang Phongphichit elaborated on the goals for the WHS, and indicated his previous position with DPWT has given him a good understanding and ability to manage development in the WHS.
- All line Departments including Heritage Department form a committee which rules on development proposals. The detailed subproject designs should also be submitted for committee review.
- Subsequent review of the WHS report showed the core subzones of ZPP-N (wetlands) and the Ua and Ub subzones for urban development. Subproject is located in subzone Ub

Decisions made:
Collaborate, and abide by development guidelines of WHS

Documents /information requested/received:
Soft copy of WHS report

ANNEX 4: PARTICIPANTS OF PUBLIC AND STAKEHOLDER CONSULTATIONS

Khammoune Provincial Workshop Consultation Provincial Level Consultation July 4, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
1	Mr. Dethsakda Soumphousy	Dept of Natural Resources	Chief of Natural Resources Division	5565-1172
2	Mr. Vanvinnalath	Dept of Planning&Investment	Technician	5678-9203
3	Mr. Suwana Panyavichit	Dept of Information&Culture	Head of District Administration Office	5678-9087
4	Mr. Thongkhoun Singthongmavong	Dept of Public Work	Deputy Officer	2232-4533
5	Mr. Sylerth Homboutsavong	Dept of Lao Nation Development	Vice President	5585-7844
6	Ms. Suthilom Sulivong	Dept Woman Union Associaton	Head of Dept	2217-7407
7	Ms. Keosaisy Pathana	Provincial Administrative Dept	Head of Dept	5565-1100
8	Mr. Bounkert Inthiphap	District Administrative Dept	Head Office	5935-3666
9	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
10	Mr. Panya Chanthalath	ICT	Head of Dept	2232-6444
11	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
Ban Tham Village Consultation 5/7/2013				
1	Mr. To Lee	Ban Tham Village	Vice Unit Leader	2349-5885

Khammoune Provincial Workshop Consultation Provincial Level Consultation July 4, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
2	Ms. Sengsee	Ban Tham Village	Villager	5376-0470
3	Ms.Taun	Ban Tham Village	Villager	5463-5347
4	Ms. Keo	Ban Tham Village	Villager	
5	Ms. Phet	Ban Tham Village	Villager	
6	Ms. Khai	Ban Tham Village	Villager	
7	Ms. Seekateng	Ban Tham Village	Villager	
8	Mrs. Sak	Ban Tham Village	Villager	
9	Mrs. Khan	Ban Tham Village	Head Women Union Association	9732-0502
10	Mrs. Oudon	Ban Tham Village	Villager	2218-3434
11	Ms. Keota	Ban Tham Village	Villager	
12	Mr. Khamchansaiyavong	Ban Tham Village	Head of household	5582-8725
13	Mr. Nouanta Kaenphavong	Ban Tham Village	Senior Committee member	9754-6476
14	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
15	Mr. Sysai T.	TA	Environment Surveyor	9888-3476
16	Mr. Boualop Dalasouk	Ban Tham Village	Village 2nd Chief	9733-0744
17	Mr. Khamthan	Ban Tham Village	Villager	9535-0942
18	Mr. So	Ban Tham Village	Villager	

Khammoune Provincial Workshop Consultation
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Order	Name	Department	Position	Phone No
19	Mr. Bountho	Ban Tham Village	Villager	
20	Mr. Khamva	Ban Tham Village	Villager	5912-9463
21	Mr. Khambang	Ban Tham Village	Villager	5545-0752
22	Mr. Sylakone Deedoungphan	Ban Tham Village	Village Chief	5663-6964
23	Mr. Bounmee	Ban Tham Village	Villager	
24	Ms. Oladee	Ban Tham Village	Villager	2216-9216
25	Ms. Soukee	Ban Tham Village	Villager	
26	Ms. Leung	Ban Tham Village	Villager	
27	Mr. Keolamphune	Ban Tham Village	Village Police	
28	Mr. Lama	Ban Tham Village	Villager	2218-0144
29	Mrs. Noy	Ban Tham Village	Villager	
30	Mr. Sa	Ban Tham Village	Village 2nd Chief	9525-2003
31	Mr. Khanthee	Ban Tham Village	Village 3rd Chief	6555-3623
32	Mr. Khamphai	Ban Tham Village	Villager	5680-6674
33	Mr. Than	Ban Tham Village	Villager	
34	Mr. Kanha Villaivan	Ban Tham Village	Head of Village's Police	2215-8494
35	Mr. Kone	Ban Tham Village	Villager	5545-1201

Khammoune Provincial Workshop Consultation Provincial Level Consultation July 4, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
Ban Xiengwene Village Consultation 6/7/2013				
1	Ms. Manivone Saiyasith	TA	Soci-Economic Specialist	2231-6392
2	Khamtai Minisone	Ban Xiengwene	Villager	030-92495
3	See Sengphachan	Ban Xiengwene	Villager	
4	Mr. Boulai Kongphachan	Ban Xiengwene	Villager	
5	Mr. Heung Bounglong	Ban Xiengwene	Villager	
6	Mr. Mong Seephong	Ban Xiengwene	Villager	5425-0622
7	Mr. Boualaphan Phengdy	Ban Xiengwene	Villager	
8	Mr. Bouasay Kongmany	Ban Xiengwene	Villager	
9	Mr. Tan Phoumphiengdy	Ban Xiengwene	Villager	
10	Mr. Khampheng Phoumphiengdy	Ban Xiengwene	Villager	
11	Mr. Aonta Phoumphiengdy	Ban Xiengwene	Villager	
12	Mr. Ngon-Oum Kongmany	Ban Xiengwene	Villager	
13	Mr. Phone	Ban Xiengwene	Villager	
14	Mr. Baideng	Ban Xiengwene	Villager	
15	Mr. Inn	Ban Xiengwene	Villager	5623-8692
16	Mr. Noyna	Ban Xiengwene	Villager	
17	Mr. Bounchan	Ban Xiengwene	Villager	
18	Mr. Phan	Ban Xiengwene	Villager	
19	Mr. Sysai T.	TA	Environment Surveyor	9888-3476

Khammoune Provincial Workshop Consultation Provincial Level Consultation July 4, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
20	Mr. Phaanya Chanthalath	ICT	Head Dept	2232-6444
Ban Chomcheng/Thakhek South Consultation 7/7/2013				
1	Mr. Sysai T.	TA	Environment Surveyor	9888-3476
2	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
3	Mr. Phaanya Chanthalath	ICT	Head of Dept	2232-6444
4	Mr. Samlan Saivongsa	Ban Chomcheng	2nd Village Chief	2210-5668
5	Mr. Inpong Visaisak	Ban Chomcheng	2nd Village Chief	5575-7133
6	Khamany Phengvisak	Ban Chomcheng	Villager	
7	Mr. Ningnong	Ban Chomcheng	Villager	5990-9389
8	Mr. Seephon Khamphanya	Ban South Thakhek	Village Chief	5565-0637
9	Ms. Sengmany Soukwana	Ban Chomcheng	Village Chief	5654-7481
10	Ms. Mui	Ban Chomcheng	Villager	
11	Ms. Boun	Ban Chomcheng	Villager	
12	Mr. Padongsith	Ban Chomcheng	Villager	
13	Ms. Champee	Ban Chomcheng	Villager	5575-1353
14	Ms. Sopha	Ban Chomcheng	Villager	

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Order	Name	Department	Position	Phone No
15	Mr. Long	Ban Chomcheng	Villager	5836-3460
16	Mr. Noy	Ban Chomcheng	Senior Committee member	5545-1879
17	Mr. Anongsak Nong	Ban South Thakhek	Senior Committee member	2232-6112
18	Ms. Viengkeo	Ban Chomcheng	Villager	5653-0009

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Order	Name	Department	Position	Phone No
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	Mr. Senthong Lueyang	Heritage Department	Deputy Administrative Chief Officer	5567-0677
3	Mr. Khamsouk Chandala	Chomphet Administration Dept	District Administrative Chief Office	5504-6018
4	Mr. Somphet Phanthakith	Dept of Info/Cultural/Travel	Head of Dept	5603-5375
5	Ms. Bounma Thawonsa	Lao Nation Development Dept	Vice President	2235-5386
6	Mr. Saikeo Thavichai	Provincial Dept of Public Work	Deputy Administrative Chief Officer	2235-1195
7	Mr. Sengchan Vilaphanya	Pak Ou Dist Dept of Info/Cultural	2nd Head of Dept	5587-1019
8	Mr. Outhasak Phongsavath	Provincial Dept of Treasury	Head of Budgeting Sector	5567-0000
9	Ms. Somphon Sithivong	Women Union Association	Deputy Administrative Chief Officer	2213-4245
10	Mr. Somphon Soukaserm	Pak Ou Dist Administration Office	Head of Administrative Dept	5577-0066
11	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
12	Mr. Sakdaphon Keophachan	Dept of Natural Resources & Envimnt	Technician	7777-9078

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Order	Name	Department	Position	Phone No
Ban Xang Hai Workshop Consultation 11/7/2013				
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	Mr. Syphan	Villager Ban Xang Hai	Villager	2265-4774
3	Ms. Phonpha	Villager Ban Xang Hai	Villager	5577-0542
4	Mr. Keo	Villager Ban Xang Hai	Villager	5547-4256
5	Ms. Amphon	Villager Ban Xang Hai	Villager	
6	Ms. Phonkhao	Villager Ban Xang Hai	Villager	
7	Ms. Seephon	Villager Ban Xang Hai	Villager	
8	Mr. Long	Villager Ban Xang Hai	Villager	
9	Ms. Chan	Villager Ban Xang Hai	Villager	
10	Ms. Phai	Villager Ban Xang Hai	Villager	
11	Mrs. Bod	Villager Ban Xang Hai	Villager	
12	Mrs. Lee	Villager Ban Xang Hai	Villager	
13	PhonToy	Villager Ban Xang Hai	Villager	
14	Mr. Ounhueng	Villager Chief	Villager Chief	5428-6508
15	Mr. Phonthavy	Villager Ban Xang Hai	Retailer	5957-5250
16	Mr. Chandy	Village 2nd Chief	Village 2nd Chief	5597-1663
17	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
Ban Vang Lae Village Consultation 12/7/2013				
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	Mr. Somchit	Ban Vang Lae	Villager	
3	Mr. Oulaisak Hatsadee	Ban Vang Lae	Teacher	5967-8479
4	Mr. Khamfai	Ban Vang Lae	Villager	

Luang Prabang Provincial Workshop Consultation
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Order	Name	Department	Position	Phone No
5	Mr. Bounheung	Ban Vang Lae	Senior Committee member	030-923-3294
6	Ms. Sa	Ban Vang Lae	Villager	
7	Mr. Somdoum	Ban Vang Lae	Villager	
8	Ms. Thongbai	Ban Vang Lae	Villager	
9	Ms. Aom	Ban Vang Lae	Villager	
10	Mr. Somneut	Ban Vang Lae	Villager	5929-6048
11	Mr. My Ngeun	Ban Vang Lae	Villager	
12	Ms. Kanha	Ban Vang Lae	Villager	
13	Ms. Vilaivone	Ban Vang Lae	Villager	9815-5516
14	Mr. Kongkham	Ban Vang Lae	Villager	9618-7285
Ban Hat Mat Village Consultation 12/7/2013				
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	My Onseng	Senior Committee	Village Committee	9999-4175
3	Ms. Nom	Women Union Association	Vice President	9543-3887
4	Ms. Thongkhern	Ban Hat Mat	Villager	5642-7897
5	Mr. Chansouk	Ban Hat Mat	Villager	5554-9989
6	Ms. Khamla Seesuphanthon	Women Union Association	President	5611-3130
7	Ms. Sommee	Ban Hat Mat	Villager	5671-7253
8	Ms. Ae	Ban Hat Mat	Villager	
9	Ms. Pin	Ban Hat Mat	Villager	
10	Mr. Keo	Ban Hat Mat	Villager	5604-1032
11	Mr. Khamphou	Head of Unit	Villager	5678-3089
12	Mr. Thitkanya	Ban Hat Mat	Villager	
13	Mr. Phoutsavong	TA	Resettlement Consultant	

Luang Prabang Provincial Workshop Consultation Provincial Level Consultation July 11, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
Ban Pak Ou Consultation Workshop 12/7/2013				
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	Ms. Manichan Phoummahaxay	Ban Pak Ou	Teacher	5604-4918
3	Ms. Onchan Sonmanyvong	Ban Pak Ou	Retailer	5530-6816
4	Ms. Seemon Thongsangone	Ban Pak Ou	Villager	030-923-6310
5	Ms. Thongsoy Phonsavath	Ban Pak Ou	Villager	5682-8607
6	Ms. Somdee Manysavane	Ban Pak Ou	Retailer	9521-8781
7	Mr. Onsee	Ban Pak Ou	Farmer	9891-0372
8	Mr. Saisamone Phommahaxay	Senior Committee	Villager	9663-3438
9	Mr. Bounthan Bolavong	Ban Pak Ou	District Office Administrator	5589-3016
10	Ms. Bounmee	Ban Pak Ou	Retired	5558-4034
11	Ms. Sengthiang Phonesavath	Ban Pak Ou	Teacher	5420-8371
12	Ms. Oun Chanthamalai	Ban Pak Ou	Villager	030-961-0451
13	Ms. Sengthip Wannasith	Ban Pak Ou	Villager	5400-9603
14	Ms. Bounmee Malakham	Ban Pak Ou	Villager	5887-7292
15	Ms. Senglawan Sulisouk	Ban Pak Ou	Villager	9930-0991
16	Mr. Suliyan Xayadeth	Ban Pak Ou	Farmer	5652-7776
17	Ms. Bouachan Bounsavath	Ban Pak Ou	Retired	9238-38xx
18	Ms. Chanthee	Ban Pak Ou	Villlager	0
19	Ms. Sengalone	Ban Pak Ou	Villager	5543-2705
20	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
Ban Xiengmane North Consultation 13/7/2013				
1	Mr. Sysai T.	TA	Environment Surveyor	9888-3476

Luang Prabang Provincial Workshop Consultation
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Order	Name	Department	Position	Phone No
2	Mr. Keo	Ban Xiengmane	Village Committee	5597-1896
3	Mr. Sone	Ban Xiengmane	Village Police	2200-0024
4	Mr. Bounchan	Ban Xiengmane	Village Police	
5	Ms. Nok	Ban Xiengmane	Villager	5860-8961
6	Ms. Deun	Ban Xiengmane	Villager	9636-0487
7	Ms. Bouwan	Ban Xiengmane	Villager	5692-3467
8	Ms. Bouwon	Ban Xiengmane	Villager	5566-18xx
9	Mr. Houmphan	Ban Xiengmane	Villager	030-9254xxx
10	Mr. Pin	Ban Xiengmane	Villager	
11	Ms. Somchan	Ban Xiengmane	Villager	7777-7552
12	Ms. Thee	Ban Xiengmane	Villager	5529-361x
13	Ms. Dok Keo	Ban Xiengmane	Villager	
14	Ms. Chanpheng	Ban Xiengmane	Villager	030-924-1xxx
15	Ms. Wankham	Ban Xiengmane	Villager	5621-8150
16	Ms. Somdee	Ban Xiengmane	Villager	5507-97xx
17	Ms. Sengchan	Ban Xiengmane	Villager	
18	Ms. Chanthee	Ban Xiengmane	Villager	5454-05xx
19	Ms. Kai	Ban Xiengmane	Villager	9931-9100
20	Mr. Phonxay	Ban Xiengmane	Police	
21	Ms. Mik	Ban Xiengmane	Villager	2996-1117
22	Ms. Khek	Ban Xiengmane	Villager	5692-0692
23	Ms. Onchan	Ban Xiengmane	Villager	9528-4904
24	Ms. Nang	Ban Xiengmane	Villager	5819-2830
25	Ms. Wanpheng	Ban Xiengmane	Villager	
26	Ms. Bouakham	Ban Xiengmane	Villager	

Luang Prabang Provincial Workshop Consultation Provincial Level Consultation July 11, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
27	Ms. Manivane	Ban Xiengmane	Villager	
28	Ms. Teng	Ban Xiengmane	Villager	5633-8332
29	Ms. Wannakhon	Ban Xiengmane	Villager	5633-8332
30	Ms. Vieng	Ban Xiengmane	Villager	5428-8294
31	Ms. Pheng	Ban Xiengmane	Villager	
32	Mr. Phoutsavong	Ban Xiengmane	Resettlement Consultant	9888-8417
33	Mr. Khambai	Ban Xiengmane	Merchant	5969-7189
34	Ms. Doungchan	Ban Xiengmane	Merchant	5508-1883
35	Ms. Loun	Ban Xiengmane	Merchant	9924-4848
36	Ms. Uon	Ban Xiengmane	Housewife	9543-3882
37	Ms. Taan	Ban Xiengmane	Retailer	5517-0649
38	Ms. Deng	Ban Xiengmane	Retailer	
39	Mr. Phonsack Khamkeosavang	Ban Xiengmane	Retired	5438-6130
40	Mr. Khamsee Songalath	Ban Xiengmane	Retired	5561-3915
41	Mr. Tui Udon	Ban Xiengmane	Village Committee	2235-8815
42	Ms. Seelichan	Ban Xiengmane	Village Committee	5644-2494
43	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
44	Mr. Thongkhoun Seesomphon	Xiengmane Village Chief	Village Chief	9862-2636
45	Mr. Thongbai Xaysavath	Xiengmane Village Chief 2nd	Village Chief 2nd	2235-9380
46	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
Ban Xiengmane South Consultation 14/7/2013				
1	Mr. Bounpheng Phetsousane	Ban Xiengmane	Senior Committee member	
2	Mr. Onchan Soukdavong	Ban Xiengmane	Villager	5927-6792
3	Mr. Bai Bounmaly	Ban Xiengmane	Villager	

Luang Prabang Provincial Workshop Consultation Provincial Level Consultation July 11, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
4	Mr. Soumyu	Ban Xiengmane	Villager	
5	Mr. Chansaveng	Ban Xiengmane	Head of Police	9996-5932
6	Mr. Thongsai	Ban Xiengmane	Villager	5501-3681
7	Mr. Keo	Ban Xiengmane	Villager	9519-1225
8	Mr. Yialao Xayavong	Ban Xiengmane	Treasury Head Office	5927-3211
9	Mr. See Liang	Ban Xiengmane	Villager	5508-1879
10	Mr. Lame	Ban Xiengmane	Villager	5428-5275
11	Mr. Thongsouk	Ban Xiengmane	Villager	
12	Mr. Bounphan	Ban Xiengmane	Villager	5927-0775
13	Mr. Ko	Ban Xiengmane	Villager	
14	Mr. Katai	Ban Xiengmane	Villager	5870-0366
15	Mr. Keo	Ban Xiengmane	Villager	4595-4902603
16	Mr. Seewan	Ban Xiengmane	Villager	5617-0119
17	Mr. Bounchan	Ban Xiengmane	Villager	
18	Mr. Seephan	Ban Xiengmane	Head of Justic Office	5486-6574
19	Mr. Bounleung	Ban Xiengmane	Villager	2296-9473
20	Ms. King	Ban Xiengmane	Villager	5405-5374
Ban Chan Neua Workshop Consultation 16-7-2013				
1	Mr. Mouphan	Ban Chan Neua	Villager	5455-7340
2	Mr. Kensamone	Ban Chan Neua	Villager	9527-9874
3	Mr. Daum	Ban Chan Neua	Villager	9780-4589
4	Mr. Tik	Ban Chan Neua	Villager	5950-6727
5	Mr. Ngom	Ban Chan Neua	Villager	5622-2673
6	Ms. Non	Ban Chan Neua	Villager	

Luang Prabang Provincial Workshop Consultation Provincial Level Consultation July 11, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
7	Ms. Bounmee	Ban Chan Neua	Villager	9700-2220
8	Ms. Chan	Ban Chan Neua	Villager	5504-1771
9	Ms. Bounnew	Ban Chan Neua	Villager	5513-3384
10	Mr. Thong	Ban Chan Neua	Villager	5579-1744
11	Mr. Xienghoung	Ban Chan Neua	Villager	
12	Mr. Hak	Ban Chan Neua	Senior Committee member	
13	Mr. Khammaan	Ban Chan Neua	Villager	5417-8857
14	Mr. Somdee	Ban Chan Neua	Villager	5576-4113
15	Mr. Thongphan	Ban Chan Neua	Chief of Police	7777-2285
16	Mr. See	Ban Chan Neua	Villager	597517xx
17	Mr. Somboun	Ban Chan Neua	Villager	7777-0882
18	Mr. On	Ban Chan Neua	Villager	5859-3505
19	Mr. Wan	Ban Chan Neua	Villager	
20	Mr. Bounma	Ban Chan Neua	Village Chief 2nd	9705-4603
21	Mr. Thongphan	Ban Chan Neua	Village Chief	5517-1640
22	Ms. La	Ban Chan Neua	Women Union Association	
23	Mr. Seng	Ban Chan Neua	Villager	5420-7113
24	Mrs. Tee	Ban Chan Neua	Villager	
25	Mr. Phoutsavong	TA	Resettlement Consultant	9888-8417
Ban Soumsanook Workshop Consultation 17-7-2013				
1	Mr. Vathana Souvanavong	Provincial Public Transportation	Technician	5651-4xxx
2	Ms. Keola	Ban Soumsanook	Villager	5597-14xx
3	Mr. Bounmee	Travel	Technician	Missing the last
4	Ms. Vene	Ban Soumsanook	Villager	afew digits due

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Order	Name	Department	Position	Phone No
				to
5	Mr. La Seklasadee	Ban Soumsanook	Technician	bad scanned
6	Mr. Xiengphou	Ban Soumsanook	Villager	
7	Mr. Soomsanit Kenkeo	Provincial Public Transportation	Technician	
8	Ms. Phetsaboun	Ban Soumsanook	Villager	
9	Mr. Nui Vongmanichan	Provincial Public Transportation	Technician	
10	Mr. Boua Sengchan	Ban Soumsanook	Villager	
11	Mr. Vanpheng Inthiphone	Provincial Public Transportation	Crew Supervisor	
12	Mr. Bouakham	Ban Soumsanook	Villager	
13	Mr. Khamsouk	Ban Soumsanook	Villager	
14	Mr. Seng Vanaphanya	District Dept of Public Work	Crew Supervisor	
15	Mr. Sysouwan	2nd Village Chief	2nd Village Chief	
16	Ms. Niengkham Phoumavong	Provincial Public Transportation	Technician	
17	Ms. Chansamone	Ban Soumsanook	Villager	
18	Mr. Phaiwan Chantasouk	Provincial Public Transportation	2nd Crew Supervisor	
19	Ms. Tui	Ban Soumsanook	Villager	
20	Mr. Phoutsavong	TA	Resettlement Consultant	
21	Ms. Toun	Ban Soumsanook	Villager	
22	Mr. Youm	Ban Soumsanook	Villager	
23	Mr. Somdee Soysa	Ban Soumsanook	Villager	
24	Mr. Wat	Ban Soumsanook	Villager	

Oudomxay Provincial Level Workshop Consultation
Provincial Level Consultation
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Order	Name	Department	Position	Phone No
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	Mr. Chananong Sikounnavong	Tourism Division	Deputy Chief Officer	2237-9321
3	Mr. Bounkuam Mitmeungxay	Dept of Info/Cultural and Travel	Deputy Chief Officer	2214-8679
4	Mr. Kham Chithavong	Dept of Info/Cultural and Travel	Technician	2283-9710
5	Ms. Vansy Phoungmalai	Dept of Info/Cultural and Travel	Head of Dept	2873-0328
6	Mr. Sonphet Sichaleun	Dept of Info/Cultural and Travel	Head of Dept	9978-0813
7	Mr. Vilaiphet Anouphone	Dept of Info/Cultural and Travel	Head of Dept	9555-5455
8	Ms Keomany Panyasak	Dept of Info/Cultural and Travel	Head Office	5857-9078
9	Mr. Saichai Yangyongsue	Dept of Info/Cultural and Travel	Technician	9922-1408
10	Ms. Kingphai Phumthisak	Dept of Info/Cultural and Travel	Head of Dept	5634-0000
11	Ms. Champa Simany	Dept of Info/Cultural and Travel	Technician	2818-2654
12	Mr. Kham Xaynyakham	Provincial Public Transportation	Deputy Chief Officer	2320-6565
13	Mr. Khamchan Phoummavong	Dept of Finance/Treasury	Technician	2237-5617
14	Mr. Along Phonmixay	Provincial Public Transportation	Chief Officer	2284-1188
15	Mr. Santhisouk	LCG	Technician	2225-5577
16				
Ban Machouk Village Workshop Consultation 20-07-2013				
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	Mr. Khamphang	Senior Committee Member	Senior Committee member	030-930-0076
3	Mr. Touy	Ban Machouk	Villager	
4	Mr. Khammane	Ban Machouk	Villager	
5	Mr. Yang	Ban Machouk	Villager	030-960-8874
6	Mr. Seung	Ban Machouk	Villager	
7	Mr. Bounkert	Ban Machouk	Teacher	030-997-0530
8	Ms. Hak	Ban Machouk	Villager	

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Order	Name	Department	Position	Phone No
9	Ms. Neur	Ban Machouk	Villager	
10	Mr. Tiang	Ban Machouk	Villager	
11	Ms. Lai	Ban Machouk	Villager	
12	Mr. Phian	Ban Machouk	Villager	030-930-0076
13	Ms. Pa	Ban Machouk	Woman Union Association	
14	Mr. See	Ban Machouk	Villager	9643-4037
15	Ms. Maan	Ban Machouk	Villager	
16	Mr. Tui	Ban Machouk	Villager	9725-5077
17	Mr. Tian	Ban Machouk	Villager	
18	Mr. Khammane	Ban Machouk	Villager	
19	Mr. See	Ban Machouk	Villager	9643-4031
20	Mr. Tiam	Ban Machouk	Villager	
21	Mr. Tongdern	Ban Machouk	Villager	9996-9065
22	Ms. Lai	Ban Machouk	Villager	
Ban Keowchalou Workshop Consultation 21-07-2013				
1	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
2	Mr. Lai	Ban Keowchalou	Villager	
3	Mr. Bounto Ounchanthala	Ban Keowchalou	2nd Village Chief	
4	Mr. Leun	Ban Keowchalou	Village Police	
5	Ms. Lod	Ban Keowchalou	Villager	
6	Mr. Bountiam	Ban Keowchalou	Youth Leader	
7	Mr. Phui	Ban Keowchalou	Villager	
8	Mr. Thaan	Ban Keowchalou	Villager	
9	Ms. Inn	Ban Keowchalou	Villager	

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Order	Name	Department	Position	Phone No
10	Ms. Vane	Ban Keowchalou	Villager	
11	Mr. Pheng	Ban Keowchalou	Villager	
12	Mr. Sith	Ban Keowchalou	Villager	
13	Mr. Hieng	Ban Keowchalou	Villager	
14	Mr. Lew	Ban Keowchalou	Villager	
15	Mr. Khammane	Ban Keowchalou	Villager	
16	Mr. Song	Ban Keowchalou	Villager	
17	Mr. Seo	Ban Keowchalou	Villager	
18	Mr. Met	Ban Keowchalou	Villager	
19	Mr. Xieng	Ban Keowchalou	Villager	
20	Mr. See	Ban Keowchalou	Villager	
21	Mr. Halek	Ban Keowchalou	Villager	
22	Mr. Seung	Ban Keowchalou	Villager	
23	Mr. Phan	Ban Keowchalou	Villager	
24	Mr. Khampong	Ban Keowchalou	Villager	
25	Mr. Kham On	Ban Keowchalou	Villager	
26	Mr. Koeu	Ban Keowchalou	Villager	
27	Mr. Yeum	Ban Keowchalou	Villager	
28	Mr. Taan	Ban Keowchalou	Villager	
29	Mr. Phui	Ban Keowchalou	Villager	
30	Mr. Tui	Ban Keowchalou	Villager	
31	Mr. Tong	Ban Keowchalou	Villager	
32	Mr. Yam	Ban Keowchalou	Villager	030-928-8541

Ban Chom Ong Workshop Consultation 22-07-2013

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Order	Name	Department	Position	Phone No
1	Mr. Somchit	Ban Chom Ong	Village Chairman	030-929-1721
2	Mr. Tho	Ban Chom Ong	Senior Committee member	
3	Mr. Bounsian	Ban Chom Ong	Village Committee Member	020-9100-1993
4	Mr. Nguan	Ban Chom Ong	Villager	9647-4881
5	Mr. Laiwan	Ban Chom Ong	Villager	
6	Mr. Khamsao	Ban Chom Ong	Villager	
7	Mr. Bounpheng	Ban Chom Ong	Villager	
8	Mr. Khamthek	Ban Chom Ong	Villager	
9	Mr. Khampheng	Ban Chom Ong	Villager	
10	Mr. Souk	Ban Chom Ong	Villager	
11	Mr. Vane	Ban Chom Ong	Villager	
12	Mr. Bounphen	Ban Chom Ong	Villager	
13	Mr. Bounchan	Ban Chom Ong	Villager	030-968-3871
14	Mr. KhamAon	Ban Chom Ong	Villager	030-942-3197
15	Mr. Khamlang	Ban Chom Ong	Senior Committee member	
16	Mr. Khamban	Ban Chom Ong	Villager	
17	Nguan	Ban Chom Ong	Villager	
18	Mr. KhamOne	Ban Chom Ong	Agriculture Advisor	030-942-3197
19	Mr. Bouncheng	Ban Chom Ong	Village Chief	030-960-8865
20	Mr. Bounthra	Ban Chom Ong	Villager	
21	Mr. Bounxieng	Ban Chom Ong	Villager	
22	Mr. Chansone	Ban Chom Ong	Villager	9671-3678
23	Mr. Lathmee	Ban Chom Ong	Village Committee Member	
24	Mr. Thongxay	Ban Chom Ong	Villager	9423-1165
25	Ms. Hak	Ban Chom Ong	Villager	5494-9480

Oudomxay Provincial Level Workshop Consultation Provincial Level Consultation July 19, 2013				
Order	**Name**	**Department**	**Position**	**Phone No**
Ban Chom Ong Workshop Consultation 23-07-2013 (2nd Day)				
1	Mr. Kham	Ban Chom Ong	Villager	
2	Mr. Thongxay	Ban Chom Ong	Village Police	9723-2165
3	Mr. Bouncheng	Ban Chom Ong	Village Chief	030-960-8865
4	Mr. Bounsan	Ban Chom Ong	Village Committee Member	020-4100-1993
5	Mr. Khoun	Ban Chom Ong	Teacher	9911-6876
6	Mr. Khamxao	Ban Chom Ong	Villager	
7	Mr. Serm	Ban Chom Ong	Villager	
8	Mr. Pheng	Ban Chom Ong	Villager	
9	Mr. Phat	Ban Chom Ong	Villager	
10	Mr. Somchit	Ban Chom Ong	Villager	
11	Mr. Bouchan	Ban Chom Ong	Villager	
12	Mr. Bounliang	Ban Chom Ong	Villager	
13	Mr. Mot	Ban Chom Ong	Villager	
14	Mr. Yom	Ban Chom Ong	Villager	
15	Mr. Vankham	Ban Chom Ong	Villager	
16	Mr. KhamOnn	Agriculture Center	Agriculture Advisor	030-9423xxx
17	Mr. Thou	Ban Chom Ong	Villager	
18	Mr. Pan	Ban Chom Ong	Villager	
19	Mr. Bin	Ban Chom Ong	Senoir Committee Member	
20	Mr. Nat	Ban Chom Ong	Village Police	
21	Mr. Kham	Ban Chom Ong	Villager	
22	Mr. Suk	Ban Chom Ong	Villager	
23	Mr. Khamsone	Ban Chom Ong	Villager	

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Order	Name	Department	Position	Phone No
24	Mr. Khamman	Ban Chom Ong	Village Police	
25	Mr. Saan	Ban Chom Ong	Villager	
26	Mr. Dee	Ban Chom Ong	Villager	
27	Mr. Khamlek	Ban Chom Ong	Villager	
28	Mr. Wone	Ban Chom Ong	Villager	
29	Mr. Thongkhan	Ban Chom Ong	Villager	
30	Mr. Seurm	Ban Chom Ong	Villager	
31	Mr. Xay	Ban Chom Ong	Villager	
32	Mr. Loun	Ban Chom Ong	Villager	
33	Mr. Eung	Ban Chom Ong	Village Police	
34	Mr. Seth	Ban Chom Ong	Villger	
35	Mr. Tong	Ban Chom Ong	Village Police	
36	Mr. Khon	Ban Chom Ong	Villager	
37	Mr. Peng	Ban Chom Ong	Villager	
38	Mr. Ed	Ban Chom Ong	Village Police	
39	Mr. Khamphon	Ban Chom Ong	Villager	
40	Mr. Siu	Ban Chom Ong	Villager	
41	Mr. Chane	Ban Chom Ong	Villager	
42	Mr. Yom	Ban Chom Ong	Teacher	
43	Mr. Tong Neng	Ban Chom Ong	Villager	
44	Mr. Khamvieu	Ban Chom Ong	Villager	
45	Mr. Phieu	Ban Chom Ong	Villager	
46	Mr. Toung	Ban Chom Ong	Unit Leader	
47	Mr. Lao	Ban Chom Ong	Villager	
48	Mr. Cher	Ban Chom Ong	Unit Leader	

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Order	**Name**	**Department**	**Position**	**Phone No**
49	Mr. Kai	Ban Chom Ong	Villager	
50	Mr. Boun	Ban Chom Ong	Villager	
51	Mr. Sieng	Ban Chom Ong	Village Police	
52	Mr. Saan	Ban Chom Ong	Villager	
53	Mr. Panya	Ban Chom Ong	Villager	
54	Mr. Mai	Ban Chom Ong	Villager	
55	Mr. Bounmee	Ban Chom Ong	Villager	
56	Mr. Pheng	Ban Chom Ong	Villager	
57	Mr. Liang	Ban Chom Ong	Youth Leader	
58	Mr. Lai	Ban Chom Ong	Villager	
59	Mr. Tah	Ban Chom Ong	Villager	
60	Ms. Khamm	Ban Chom Ong	Villager	
61	Ms. Tam	Ban Chom Ong	Villager	
62	Ms. Vin	Ban Chom Ong	Villager	
63	Ms. Seng	Ban Chom Ong	Villager	
Ban Nam Phra Workshop Consultation 24-07-2013				
1	Ms. Thieng	Ban Nam Phra		
2	Ms. Keang	Ban Nam Phra		
3	Mr. Saan	Ban Nam Phra		
4	Ms. Ousa	Ban Nam Phra		
5	Mr. Lao	Ban Nam Phra		
6	Mr. Thongbai	Ban Nam Phra		
7	Mr. Beer	Ban Nam Phra		
8	Mr. Wat	Ban Nam Phra		

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Order	**Name**	**Department**	**Position**	**Phone No**
9	Mr. Chit	Ban Nam Phra		
10	Mr. Tui	Ban Nam Phra		
11	Mr. Non	Ban Nam Phra		
12	Mr. Lath	Ban Nam Phra		
13	Mr. Sian	Ban Nam Phra		
14	Mr. Pha	Ban Nam Phra		
15	Mr. Somphone	Ban Nam Phra		
Ban Mok Kha Workshop Consultation 24-07-2013				
1	Mr. Khamphai	Ban Mok Kha	Villager	
2	Ms. Khamhak	Ban Mok Kha	Villager	
3	Ms. Phenglam	Ban Mok Kha	Villager	030-200-6050
4	Ms. Jaem	Ban Mok Kha	Villager	
5	Mr. Thern	Ban Mok Kha	Villager	5991-9584
6	Mr. Maan	Ban Mok Kha	Villager	
7	Mr. Pao	Ban Mok Kha	Villager	
8	Mr. See	Ban Mok Kha	Villager	
Ban Lang Workshop Consultation 24-07-2013				
1	Mr. An	Ban Lang		030-995-1417
2	Mr. Phai	Ban Lang		5445-1478
3	Mr. Jeng	Ban Lang		
4	Mr. Somchan	Ban Lang		
5	Mr. Earn	Ban Lang		
6	Mr. Vixay	Ban Lang		

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Order	**Name**	**Department**	**Position**	**Phone No**
7	Mr. Khiat	Ban Lang		
8	Ms. Kham	Ban Lang		
9	Mr. Khamtui Xaiyatal	Ban Lang		5577-0208
10	Mr. Phet	Ban Lang		
11	Mr. Chan	Ban Lang		
12	Mr. To	Ban Lang		
13	Mr. Ser	Ban Lang		
14	Mr. Kham	Ban Lang		
15	Ms. Yeen	Ban Lang		
16	Ms. Yong	Ban Lang		
17	Ms. Bee	Ban Lang		
18	Mr. See	Ban Lang		
19	Mr. Mai	Ban Lang		
20	Ms. Teen	Ban Lang		
Ban Na Ngam Workshop Consultation 25-07-2013				
1	Mr. Khai Samerxay	Ban Na Ngam	2nd Village Chief	5986-5585
2	Mr. Khamxay Nannavan	Ban Na Ngam	Deputy Chief Officer	5463-5112
3	Mr. Khampheurxayangam	Ban Na Ngam	School Director	5961-6390
4	Mr. Phone	Ban Na Ngam	Head of Village Police	5961-4694
5	Mr. Bouaphan	Ban Na Ngam	Unit Leader	5895-6500
6	Mr. Khamphon	Ban Na Ngam	Senoir Committee Member	
7	Mr. Loung	Ban Na Ngam	Villager	
8	Mr. On	Ban Na Ngam	Teacher	5520-0708
9	Mr. Bounthong Keopasert	Ban Na Ngam	Villager	5972-4721

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Order	Name	Department	Position	Phone No
10	Mr. Tui	Ban Na Ngam	Villager	5408-7634
11	Mr. Chai Kai	Ban Na Ngam	Villager	
12	Mr. Nong	Ban Na Ngam	Villager	
13	Ms. See	Ban Na Ngam	Villager	
14	Ms. Sai	Ban Na Ngam	Villager	
15	Ms. Seng	Ban Na Ngam	Villager	
16	Ms.Nekha	Ban Na Ngam	Villager	
17	Ms. Sang	Ban Na Ngam	Villager	
18	Mr. Tongxay	Ban Na Ngam	Villager	
19	Mr. Yochai	Ban Na Ngam	Villager	
20	Mr. Chato	Ban Na Ngam	Villager	
21	Mr. Sysai Thaovakithawon	TA	Environment Surveyor	9888-3476
22	Mr. On	Ban Na Ngam	Teacher	5520-0708
23	Mr. Phone	Ban Na Ngam	Villager Police	5961-4694
24	Mr. Seng	Ban Na Ngam	Villager	5512-3217
25	Mr. Bouamae	Ban Na Ngam	Unit Leader	5895-6500
26	Mr. Yang Chue	Ban Na Ngam	Unit Leader	5609-9009
27	Cha Thor	Ban Na Ngam	Villager	5599-6830
28	Mr. Ba	Ban Na Ngam	Woman Union Association	5987-7367
29	Mr. Lamphone	Ban Na Ngam	Senoir Committee Member	
30	Mr. Lee Cha	Ban Na Ngam	Senoir Committee Member	
31	Mr. Lee Koua	Ban Na Ngam	Villager	
32	Mr. Chongher Vang	Ban Na Ngam	Villager	5414-7377
33	Mr. Cher Khai	Ban Na Ngam	Senoir Committee Member	
34	Mr. Thongxay Yang	Ban Na Ngam	Villager Police	

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Order	**Name**	**Department**	**Position**	**Phone No**
35	Mr. Watong Thor	Ban Na Ngam	Former Soldier	
36	Mr. Moua Cha	Ban Na Ngam	Villager	
37	Mr. Loung	Ban Na Ngam	Villager Volunteer Assistant	
38	Mr. Yaj Pao	Ban Na Ngam	Unit Leader	
39	Mr. Bounthong Keopasert	Ban Na Ngam	Unit Leader	5972-4721
40	Ms. Youa	Ban Na Ngam	Unit Leader	
41	Ms. Xia	Ban Na Ngam	Villager Chief	5973-1818
42	Mr. Khai Samerxay	Ban Na Ngam	2nd Village Chief	5986-5585
43	Mr. Kiamkeo Savang	Ban Na Ngam	Villager Volunteer Assistant	5545-9860
Ban Thasaleaung Workshop Consultation 25-07-2013				
1	Mr. Chanpheng	Ban Thasaleaung	2nd Village Chief	9763-3018
2	Mr. Thongbai	Ban Thasaleaung	2nd Village Chief	9911-5302
3	Mr. Khamsao	Ban Thasaleaung	Village Chief	
4	Mr. Ngeun	Ban Thasaleaung	Village Tax Officer	
5	Mr. Jerm	Ban Thasaleaung	Villager	
6	Mr. Loum	Ban Thasaleaung	Villager	
7	Mr. Saan	Ban Thasaleaung	Villager	
8	Ms. Cham	Ban Thasaleaung	Villager	
9	Ms. Mai	Ban Thasaleaung	Villager	
10	Ms. Mao	Ban Thasaleaung	Villager	
11	Ms. Ong	Ban Thasaleaung	Villager	
12	Ms. Mone	Ban Thasaleaung	Villager	
13	Ms. Souk	Ban Thasaleaung	Villager	
14	Ms. Chan	Ban Thasaleaung	Villager	

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Order	Name	Department	Position	Phone No
15	Mr. Thong	Ban Thasaleaung	Villager	
16	Ms. Hom	Ban Thasaleaung	Villager	
17	Ms. Noy	Ban Thasaleaung	Villager	
18	Mr. Peng	Ban Thasaleaung	Villager	
19	Ms. Don	Ban Thasaleaung	Villager	
20	Ms. Thong	Ban Thasaleaung	Villager	
21	Mr. See	Ban Thasaleaung	Villager	
22	Mr. Kheua	Ban Thasaleaung	Villager	
23	Mr. Peng	Ban Thasaleaung	Villager	
24	Mr. Chit	Ban Thasaleaung	Villager	
25	Mr. Da Moua	Ban Thasaleaung	Villager	
26	Mr. Lee Chia Moua	Ban Thasaleaung	Villager	
27	Mr. Po Thor Mour	Ban Thasaleaung	Villager	
28	Mr. Cha Vajh	Ban Thasaleaung	Villager	
29	Mr. Chia Xiong	Ban Thasaleaung	Villager	
30	Mr. Yong Xiong	Ban Thasaleaung	Villager	
31	Ms La Her	Ban Thasaleaung	Villager	
32	Mr. Lian	Ban Thasaleaung	Villager	
33	Mr. Teng	Ban Thasaleaung	Villager	
34	Ms. Yong	Ban Thasaleaung	Villager	
35	Ms. Ek	Ban Thasaleaung	Villager	
36	Mr. Oun	Ban Thasaleaung	Villager	
37	Mr. Loung	Ban Thasaleaung	Villager	
38	Ms. See	Ban Thasaleaung	Villager	
39	Ms. Saan	Ban Thasaleaung	Villager	

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Order	Name	Department	Position	Phone No
40	Ms. Kheau	Ban Thasaleaung	Villager	
41	Ms. Sane	Ban Thasaleaung	Villager	
42	Ms. Ngam	Ban Thasaleaung	Villager	
43	Mr. Od	Ban Thasaleaung	Villager	
44	Mr. Siwan	Ban Thasaleaung	Villager	
45	Mr. Chit	Ban Thasaleaung	Villager	
46	Mr. Khian	Ban Thasaleaung	Villager	
47	Chanpheng	Ban Thasaleaung	Villager	
48	Ngeun	Ban Thasaleaung	Villager	
49	Siphone	Ban Thasaleaung	Villager	
50	Ms. Seen	Ban Thasaleaung	Villager	