



LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY



**Government's Office
Environment Protection Fund Lao PDR**

Environmental and Social Management Framework (ESMF)

**PROTECTED AREA AND WILDLIFE PROJECT
(PAW)**

Project No. P128393-IDA and P128392-GEF

Vientiane, January 24, 2014

NOTE

This Environmental and Social Management Framework (ESMF) has been prepared for the Protected Area and Wildlife Project (PAW). The project aims to strengthen the management systems for national protected areas conservation and for enforcement of wildlife laws in Laos.

PAW will be administered by the Environment Protection Fund (EPF) and implemented through a sub-project mechanism at national level and several provinces. Sub-projects are expected to range from institution building to human resource development and livelihood support for the protection of selected national protected areas. Two national protected areas (NPAs) have been selected for sub-project as part of an “initial” portfolio.

The Environmental and Social Management Framework (ESMF), including Environmental Code of Practice (ECOP), a simplified Pest Management Plan (PMP) and an EMP format, has been prepared to address possible environmental and social impacts of all sub-projects, which will be specifically defined in terms of location and impacts during project implementation. Site specific EMPs will be developed for all NPA subprojects when the respective details will be known. Additionally, a Social Impact Assessment (SIA) has been undertaken to describe the social aspects and risks of communities living in the targeted two NPAs; Further, a Community Engagement Framework (CEF) has been developed to consolidate a Process Framework, a Resettlement Policy Framework and an Indigenous Peoples Planning Framework into a single document. All these documents provide operational guidance on implementation of environmental and social safeguards that meet the Bank requirements as well as the national laws.

This draft has been disclosed in country and consulted with stakeholders in line with OP 4.01 requirements. A public consultation organized by Ministry of Natural Resources and Environment was held on Dec 17, 2013 on the goal and content of this document in Vientiane capital and five capital provinces (Xiengkhuang, Luang Prabang, Houaphan, Bolikhamxay and Khammouane.). Results of this public consultation will be included in the final ESMF.

ABBREVIATIONS AND ACRONYMS

ASEAN	Association of South East Asian Nations
APL	Adaptable Programme Loan
CAP	Community Action Plan
DoA	Department of Agriculture
CEF	Community Engagement Framework
CITES	Convention on International Trade in Endangered Species
DAFO	District Agriculture and Forestry Office
DEQP	Department of Environment Quality and Promotion
DSIA	Department of Environment and Social Impact Assessment
DFRM	Department of Forest Resources Management
DOF	Department of Forestry
DoFI	Department of Forest Inspection
DoNRE	District Office of Natural Resources and Environment
DPC	Department of Planning and Cooperation MoNRE
EPF	Environment Protection Fund
ESMF	Environmental and Social Management Framework
ECOP	Environment Code of Practice
EGPF	Ethnic Group Planning Framework
EIA	Environmental Impact Assessment (EIA)
EMP	Environmental Management Plan
FAO	Food and Agriculture Organization
FLEGT	Forest Law Enforcement, Governance and Trade
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoL	Government of Lao PDR
HCVF	High Conservation Value Forest
IEE	Initial Environmental Examination
IPM	Integrated Pest Management
KB	Kumban
Lao WEN	Lao Wildlife Enforcement Network
MAF	Ministry of Agriculture and Forestry
MoNRE	Ministry of Natural Resources and Environment
NEPL NPA	Nam Et-Phou Louey National Protected Area
NNT NPA	Nakai Nam Theun National Protected Area
NPA	National Protected Area
NREIC	National Resources and Environmental Information Centre
NTFP	Non Timber Forest Product
NUOL	National University of Laos
O&M	Operation and Maintenance
OP	Operational Policy (of the World Bank)
PAFO	Provincial Agriculture and Forestry Office
PAW	Protected Area and Wildlife Project
PDO	Project Development Objective
PICE	Policy, Institution and Capacity Enhancement
PMP	Pest Management Plan
POM	Project Operations Manual
PoFI	Provincial Office of Forest Inspection
PoNRE	Provincial Office of Natural Resources and Environment
REDD+	Reducing Emissions from Deforestation and Forest Degradation

RPF	Resettlement Policy Framework
SIA	Social Impact Assessment
SRCWP	Strengthening Regional Cooperation in Wildlife Protection in Asia
SUFORD	Sustainable Forestry for Rural Development Project
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank
WCS	Wildlife Conservation Society
WHO	World Health Organization
WMPA	Watershed Management and Protection Authority NNT

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	Project Background	1
1.2	Project Development Objective	3
1.3	Project Description and Areas	3
1.4	Project Implementation arrangements	4
1.5	Development Partners	5
1.6	Sub-project management process	5
1.7	Project Components	6
2.	POLICY AND LEGAL FRAMEWORK	7
2.1	National Policy, Decrees, and Guidelines	7
2.2	International and Regional Agreements and Conventions	10
3.	ENVIRONMENTAL AND SOCIAL SAFEGUARDS	10
3.1	World Bank Safeguards Policies triggered	10
3.2	Safeguards Implementation	14
3.3	Safeguard screening of sub-projects	14
4.	POTENTIAL PROJECT IMPACT AND MITIGATION	15
4.1	NPA Macro Zoning and Demarcation activities	15
4.2	Increased patrolling activities	16
4.3	Alternative Livelihood Development activities	17
4.4	Development of small infrastructure activities	19
4.5	Ecotourism Activities	20
4.6	Increased poaching and illegal logging from roads and trails	21
4.7	Pesticide management	23
4.8	Physical Cultural Resources	25
4.9	Guidelines, policy and human resources development	27
5.	POTENTIAL EXTERNAL IMPACT AND MITIGATIONS	28
5.1.	Village Consolidation	28
5.2	Roads and Concessions	29
5.3	Illegal wildlife harvesting and trafficking / illegal logging	31
5.4	Undesirable Fires	32
5.5	Shifting Cultivation	33
6.	SAFEGUARDS MANAGEMENT	34
6.1	Stakeholder consultation	34
6.2	Safeguards integration	35
6.3	Safeguards Management and Monitoring	35
6.4	Internal monitoring in NPA sub-projects	36

6.5	Data Management	37
	ANNEXURE 1 - INTEGRATED ENVIRONMENTAL SAFEGUARDS SCREENING PROCESS	46
	ANNEXURE 2 - PREFERENCE AND NEGATIVE CHECKLIST	47
	ANNEXURE 3 SIMPLE MITIGATION MEASURES FOR SMALL SUB-PROJECTS	55
	ANNEXURE 4 STANDARD ENVIRONMENTAL CODE OF PRACTICE (ECOP)	59
	ANNEXURE 5 - SIMPLIFIED PEST MANAGEMENT PLAN (PMP)	61
	ANNEXURE 6 – OUTLINE OF ENVIRONMENT MANAGEMENT PLAN FOR A SUB-PROJECT	74
	ANNEXURE 7 – BASELINE INFORMATION NAKAI NAM THEUN AND NAM ET PHOU LOUEY NPAS	79
	ANNEXURE 8 – ELEMENT OF INFORMATION ON HYDRO POWER AND RURAL ELECTRIFICATION	87

TABLES

Table 1: Environmental and Social Safeguards Triggered	11
Table 2: Road Access Restriction to Key Landscape Features	24
Table 3: ESMF Implementation, Maintenance and Reporting Requirements	40
Table 4: Environmental Safeguards Budget	40
Table 5: Consequences and Likelihood Risk Matrix	47
Table 6: PAW Negative Checklist - Prohibited Activities	46
Table 7: Screening Questions for Minor Potential Impacts	56
Table 8: Mitigation Measures for Very Small Civil Works	57
Table 9: Mitigation Measures for Buildings	59

MAPS

Map 1: National Protected Areas Lao PDR	2
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BOXES

Box 1: Chance Find Procedures	28
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1. INTRODUCTION

1.1 PROJECT BACKGROUND

Lao PDR is one of the least developed countries in Southeast Asia. The country has considerable natural resources in forests, water resources, and minerals and these are significant for cultural development, environment protection, and economic development. Its forests cover about 40% of the country, the highest percentage in Southeast Asia, but the total area of forest has declined dramatically from 70% of the land area of 26.5 million ha in 1940, to 49% in 1982, and to only 40% or about 9.5 million ha in 2010. Data on changes in forest cover suggest that during the 1990s the annual loss of forest cover was around 1.4% annually, giving an average annual loss of forest cover of about 134,000 ha.

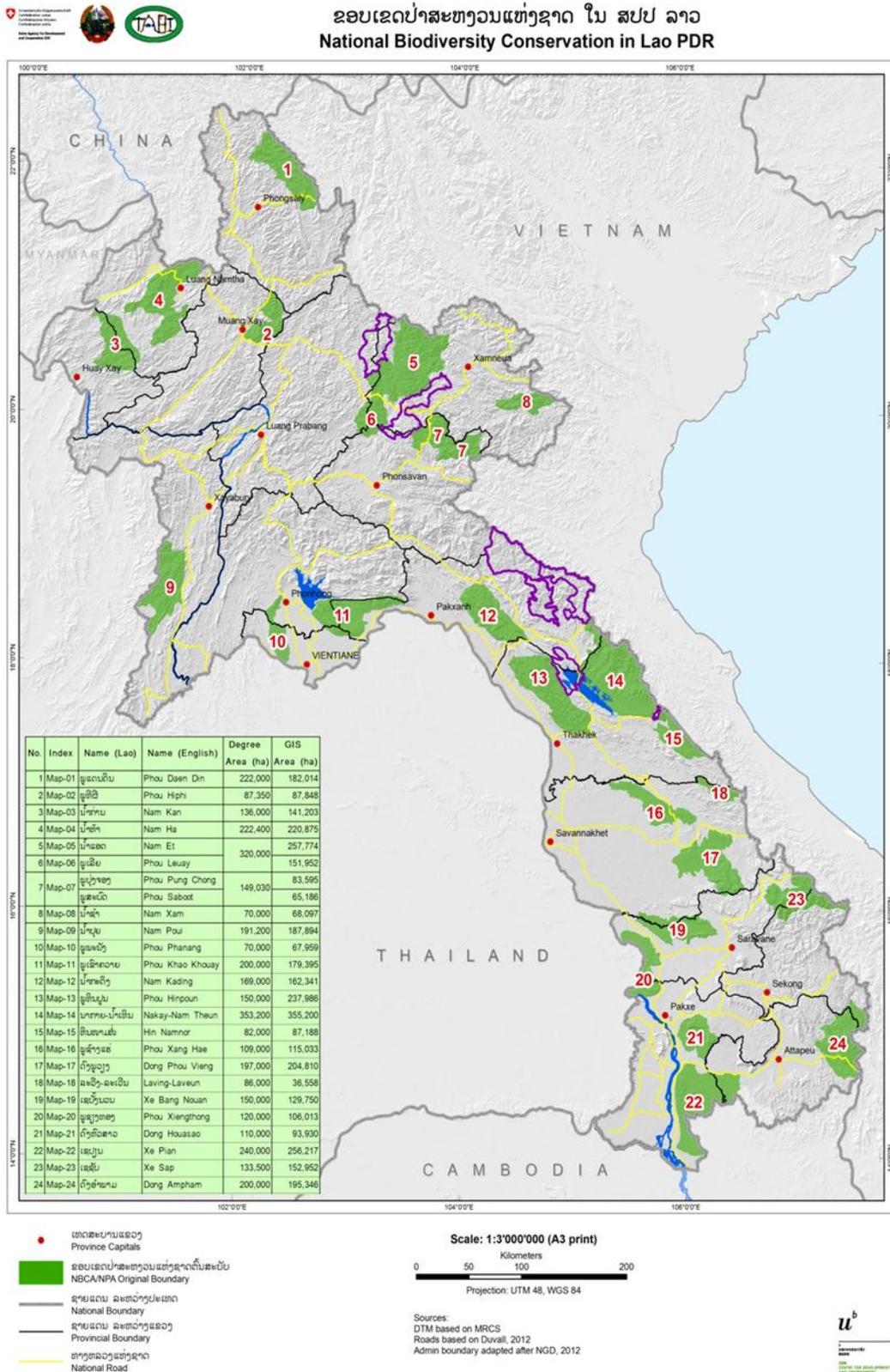
Lao PDR lies in the Indo-Burma Biodiversity hotspot; and government has designated 20% of the country's land area as protected (including 21 national protected areas, plus a number of provincial and district protected areas), and produced the Biodiversity Strategy to 2020. At the same time, poverty reduction is a key priority of the government as it targets poverty eradication by 2020. The project design is aligned with the Bank Country Assistance Strategy (CAS) pillar one which aims to sustain growth through managing key growth drivers and pillar four providing support to the implementation of NT2 as an example of area-based, sustainable natural resources development program that contributes significantly to NGPES/NSEDP objectives.

The key goal of the Government of Lao PDR (GoL), as outlined in the 7th National Socio-Economic Development Strategy (NSEDP) for Lao PDR, is to graduate from the group of Least Developed Countries by 2020. The 7th NSEDP (2011-2015) includes measures on rural development, poverty eradication and environmental protection to achieve sustainable development, with an overall direction towards ensuring that socio-economic development is fully aligned with the protection of the environment and forest resources. The Lao government recognizes that graduating from Least Developed Country status, and continuation of an 8% annual GDP growth rate, requires a secure natural resource base.

Over three million hectares (or 14% of the land area of Lao PDR) is declared as National Protected Areas (NPAs). The National Protected Area System, made up of 18 NPAs and a number of provincial and district PAs was designated in 1993 (PM Decree 164), and four NPAs and two corridors have been added since then. Establishment of the NPA system followed extensive data collection to determine sites of high conservation value and to include 5-20% of every ecosystem of Laos. Around half of the NPAs share a border with Viet Nam, Cambodia, Thailand or China, and a number of these form (or have the potential to be) trans-boundary protected areas.

Map 1 – National Protected Areas of Laos

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National Biodiversity Conservation in Lao PDR



The total investment in the World Bank financing will be US\$23.83 million, of which US\$6.83 million will come from GEF, US\$9.00 million from national IDA allocation, and US\$8.00 million from regional IDA. Co-financing is being mobilized.

The proposed project constitutes Phase III of the horizontal Regional Adaptable Program Loan (APL) on Strengthening Regional Cooperation for Wildlife Protection in Asia (SRCWP).

1.2 PROJECT DEVELOPMENT OBJECTIVE

The **Protected Area and Wildlife (PAW) Project** seeks to *strengthen the participatory management system NPAs conservation and for enforcement of wildlife laws*. It will be implemented in three main components.

1.3 PROJECT DESCRIPTION AND AREAS

The PAW Project will achieve its goals through a sub-project mechanism by building capacities and developing the institutions responsible for NPA management and wildlife protection at the national level (DFRM and DOFI), while also providing targeted support to NPAs at the site level. Already two NPAs are selected: the Nakai Nam Theun (NNT) and Nam Et Phou Louey (NEPL) NPAs (see Annex 7 for a detailed description of the biophysical feature of these NPAs). Others may be added during the project implementation if such Sub-projects are proposed. Support will also be provided to key provincial stakeholders engaged in wildlife and NPA management in 5 provinces: Xiengkouang, Luang Prabang, Houaphan, Bolikhamxay and Khammouane.

The project will focus on *in-situ* conservation of wildlife and habitat at select highly bio-diverse and at threat NPAs. Further, at the national and regional level the project will create harmonized wildlife/PA related enforcement standards, develop good practice applications, and share successful schemes towards protected area management and reduction of illegal wildlife trade. The project would build on the ongoing bilateral initiatives between Lao PDR and Vietnam to promote cooperation on controlling illegal forest products and wildlife trade as well as strengthen Lao PDR capacity to enhance its collaboration with global efforts with international organizations involved in the fight against illegal wildlife trade.

The proposed Project aims to contribute to global, regional, national, and local public goods, as well as direct benefits to Government agencies and village communities. Regional and global benefits would also be derived from the national public benefits already described. Furthermore, with more effective trans-boundary protected area management in NNT and NE-PL, Vietnam's wildlife and protected areas would also be beneficiaries. With greater regional wildlife law enforcement, convictions and arrests, regional security would be improved by removing criminal networks (also involved in narcotics and arms trafficking). The project provides some exclusively global environmental benefits, such as in preserving unique biological resources and reduced carbon emissions through avoided deforestation.

Direct institutional beneficiaries include a number of Government agencies and their staff. These would include MoNRE, especially DFRM; MAF, especially DoFI and PoFI. The WMPA, NNT NPA and the Management Unit, NEPL NPA would be key beneficiaries as Sub-project Delivery Agencies (SDA). In addition District Staff, Department of Justice, Customs Department, and district and provincial law enforcement agencies would benefit.

The proposed NNT NPA sub-project may support about 70 villages, possibly more, including peripheral and enclave villages. The proposed NEPL NPA sub-project may support about 50 villages, possibly more, in and around NEPL NPA to be beneficiaries of project activities. The total approximate number of beneficiaries would be between 80,000 and 100,000. The final list of villages will be identified during implementation through a mixture of technical, environmental sustainable and consultation process. Precise data on the villages, location, population, gender, ethnicity, natural resource dependence, forest and habitat quality, and, wildlife resources and poaching, will be accessed early during the project preparation process. Funds will be provided for a diversity of conservation and livelihood activities.

The Project activities will be implemented through 3 components (see section 1.7).

1.4 PROJECT IMPLEMENTATION ARRANGEMENTS

The Environment Protection Fund (EPF) administers the Project funds and the sub-project mechanism and the beneficiaries of sub-grants are called Sub-project Delivery Agencies (SDA).

The EPF Board of Director chaired by the Deputy Prime Minister, vice-chaired by Minister of Finance, and membered by Minister of Ministry of Natural Resources and Environment (MoNRE), Minister of Ministry of Energy and Mines (MEM), Vice President of Science and Technology Council, President of Lao Women Union, Vice Governor of Bolikhamxay province, Vice President of Chamber of Commerce and Industry, and President of the Association for Agricultural Production and Processing will act as Steering Committee to provide policy guidance to the Project and enhance inter-ministerial coordination. The Board meets regularly twice a year (every six months) to review and approve Annual Reports and AWPB of EPF as well as attend to other EPF matters. The Sub-projects above US\$50,000 to US\$100,000 is approved by the Vice-chair, and the Chair is approved the sub-project above US\$100,000.

To facilitate the work of the EPF Board, a Technical Committee (TC) be established. This committee will be chaired by the Executive Director of EPF and comprised of Department of Planning and Cooperation and Department of Forest Resources Management (DFRM) of MoNRE, Department of Forest Resources Inspection (DOFI) of MAF, Ministry of Finance (MOF), and National University of Lao (NoUL). The TC will review sub-project proposals, reports and plans as well as prepare the agenda of the EPF Board meetings.

According to the EPF Decree a variety of institutions are eligible for EPF financing, as SDAs, for sub-project financing such as (a) public agencies, departments, offices, etc. (b) public education institutions, (c) NGO and Non-Profit Associations. Each of the SDAs will need to demonstrate capacity to implement their sub-project.

Initially identified SDAs are the Department of Planning and Cooperation (DPC), Department of Forest Resources Management (DFRM), Department of Environmental Quality Promotion (DEQP) of the Ministry of Natural Resources and Environment (MONRE); Department of Forest Inspection (DOFI) of the Ministry of Agriculture and Forestry (MAF); Faculty of Forestry of the National University of Lao (NUOL); Provincial Office of Natural Resources and Environment (PONRE), and Provincial office of Forest Inspection (POFI) of selected provinces.

The implementation arrangements for communities are described in details in Chapter 7 of the CEF.

1.5 DEVELOPMENT PARTNERS

WCS will be a key development partner and is already involved in both the NPAs. WCS has been engaged in the management of Nam Et-Phou Louey NPA, and is currently the implementing agency for the NEPL Tiger Landscape Conservation Project, and has, in collaboration with the NGO Freeland been active in awareness building on the wildlife trade. WCS receives GEF4 financing for the NEPL NPA in 2012 and the ongoing project has significant overlap with PAW. The project will also coordinate with CLiPAD in Houaphanh province adjacent to the NEPL NPA on the payment of ecosystem services and landscape approach. In NNT, the main partner is the NTPC which provides about US\$1.4 million per year to support the WMPA efforts. These funds are considered cofinancing to this operation.

WMPA NNT will be involved in implementation of specific components in the NNT protection area. The project will also coordinate with KfW that will fund the Integrated Conservation of Biodiversity and Forestry (ICBF) programme. Germany and the European Union are both supporting the Forest Law Enforcement, Governance and Trade Initiative (FLEG/T) to DoFI and this support will also overlap with PAW activities with DoFI. SNV Lao PDR, in partnership with a wide range of local and international partners, has been working since 2008 on the development of the bamboo value chain in Houaphanh Province and would be an important source of lessons for livelihoods and markets. International non-government organisation's such as IUCN and WWF have all had long programmes in the country in support of biodiversity conservation that are complementary to the Project's objectives. WWF currently assists in the management of southern Lao protected areas (Xe Xap and Xe Pian) and has in collaboration with IUCN and WCS developed training courses for protected area staff. All these NGOs have contributed to the Project's preparation and are expected to remain involved during implementation based on their area of specialisation.

1.6 SUB-PROJECT MANAGEMENT PROCESS

All PAW sub-projects will meet the following criteria (a) support a GoL policy and an officially approved plan, (b) contribute to at least one outcome indicator and at least one intermediary outcome indicator, (c) contribute to a regional outcome such as cross-border cooperation, knowledge transfer or prevention of cross-border wildlife trade.

Under PAWP, the sub-project cycle will be as follows: (a) SDA will submit a short concept to be reviewed by the EPF Secretariat for eligibility, (b) if the concept is deemed eligible, the SDA will be invited to prepare a full proposal using the PAWP OM sub-project template (the EPF will provide assistance to the SDA to ensure quality of the proposal and build SDA capacity), (c) when the SDA submit its proposal, the EPF will appraise it using a check list from the PAWP-OM and, if necessary help the SDA improve its proposal, (d) when EPF Secretariat is satisfied that the sub-project meets all relevant criteria, it will be submitted at the same time to the TC and to the World Bank for review, comments and no objection, (e) at that stage, SDA of sub-project less than US\$50,000 can sign a Sub-project Contract with

EPF and begin implementation; sub-project above US\$50,000 to US\$100,000 are submitted to Vice-Chair of the EPF Board for approval, and Sub-projects above US\$100,000 are approved by Chairperson and a Sub-project contract can be signed with EPF and begin implementation.

The PAWP initial portfolio of 15 sub-project have already completed steps (a) and (b). It is expected that they will progress through the steps from (c) to (e) during the first year of the Project implementation with some sub-project starting as early as three months after Project effectiveness. Where broad community support is not established based on free, prior and informed consultations, such communities have the right to opt out of the project.

1.7 Project Components

Component 1: Institution development and capacity building

This component seeks the following Intermediary Outcome: To improve the DFRM-MONRE, DOFI, MAF and other institutions' partnership and capacity to implement and monitor national conservation laws and regional/international commitments, and operate according to a clear national plan.

This component is implemented through the EPF Window PICE (Policy, Institution and Capacity Enhancement). It will build capacity in Lao PDR for wildlife conservation by enhancing Lao's capacity for regional engagement in illegal wildlife trade control initiatives. This will be implemented through strengthened legislative and regulatory frameworks, well-equipped specialized agencies and systems, operational support, as well as relevant training and awareness programs for staff across the agencies that contribute to the management of the protected areas system and enforcement of wildlife laws and regulations.

- 1) Sub-project 1.1 Capacity building for national biodiversity planning
- 2) Sub-project 1.2 Capacity and institution building for protected area management.
- 3) Sub-project 1.3 Capacity building for addressing regional wildlife trafficking
- 4) Sub-project 1.4 Human resources development for protected area management.
- 5) Sub-project 1.5 Awareness raising among decision makers

Component 2: Management of Wildlife and Protected Areas

The sub-projects for Component 2 can be categorized into 5 comprising management of NPAs; coordination of NPA management; support to NPA management; support to wildlife enforcement; and implementation of the Lao National Plan for Tiger. The first sub-project category involves activities aimed at establishing/strengthening management of NPAs. Two are selected at the beginning of PAW Project: the Nakai Nam Theun (NNT) and Nam Et Phou Louey (NEPL) NPAs. Common initiatives for NPAs include: (a) protected area management such as design of management plan, patrolling, biodiversity monitoring, macro zoning, awareness raising, and (b) village and livelihood development linked to land use planning and compliance to conservation agreements. The NEPL SDA is the NEPL NPA Management Unit (which emanates from the Provincial office of Natural Resources and Environment,

PONREs, from 3 provinces) and the NNT SDA is the Watershed Management and Protection Authority (WMPA).

The second sub-project category covers coordination of NPA management in Bolikhamxay, Khammouane, Houaphan, and Luang Prabang provinces. The aim of this intervention is to help PFRM and DONRE in respective specific Districts receive training, acquire equipment and logistic support to provide assistance to WMPA for management of the NPAs. Meanwhile, support to NPA management in Houaphanh Province, the third sub-project category, will likewise involve similar activities as in the other provinces as a form of assistance to the NPA MU for management of the NEPL NPA.

The next sub-project category relates to the provision of support to wildlife trafficking law enforcement in Bolikhamxay, Khammouane and Houaphanh provinces. This sub-project will help the respective POFIs, and some of its partner institutions such as the provincial environment police, the judiciary and the customs department receive training, acquire equipment and logistic support to scale up wildlife trade law enforcement in their province and support the relevant DAFO teams in its effort to protect wildlife and prevent timber extraction in the NPAs.

Component 3: Project Administration and Technical Assistance

This component seeks the following Intermediary Result: To deliver the Project's outcomes within the allocated time frame through excellence in planning, procurement, financial management, monitoring, and communication.

Component 3 will support the administration of the sub-project mechanism by EPF/DPC. It will include: ensuring capacity building of EPF/DPC staff and systems, compliance with the World Bank's fiduciary requirements, especially procurement, and environment and social safeguards, monitoring and evaluation, communicating with stakeholders, and facilitating effective coordination and cooperation among beneficiaries.

2. POLICY AND LEGAL FRAMEWORK

The project will operate under a national, regional and international framework of policies, laws, guidelines, and agreements.

2.1 NATIONAL POLICY, DECREES, AND GUIDELINES

Prime Minister's Decree No. 112 on Environmental Impact Assessment (16 February 2010). This decree outlines the requirements for all development projects that potentially cause environmental and social impacts to undertake an Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) as relevant; as well as having appropriate project design, mitigation measures and monitoring plan and resources to address the possible impacts. Guidelines for Public Involvement in SIA's were approved in February 2013. Guideline for Ethic Group Consultation were developed in 2013 (not yet approved).

Environmental Protection Law (26 April 1999). This law specifies necessary principles, regulations and measures for managing, monitoring, restoring and protecting the environment to protect human health, including the protection of

natural resources and the richness of nature, and to ensure the sustainable socio-economic development of the nation.

Prime Minister's Decree No. 146 on Environment Protection Fund (6 June 2005). This decree established the EPF, sets its mandate, objective, governance, windows through which it can implement sub-projects and sources of financing.

Regulation No. 0360 on Management of National Protected Areas, Aquatic Animals and Wildlife (Ministry of Agriculture and Forestry, 2003). This regulation describes the zoning of national protected areas into core, managed, and corridor zones and specifies activities in these areas, prohibits hunting of all wildlife and aquatic animals in the core zone, prohibits trade in wildlife, and specifies that guns must be registered with special licenses.

Wildlife Law (24 December 2007). This law determines principles, regulations and measures on wildlife and aquatic life in nature to promote the sustainable regeneration and utilization of wildlife and aquatic life, without any harmful impact on natural resources or habitats and to restrict anthropogenic pressure on decreasing species and the extinction of wildlife and aquatic life. The law outlines guidelines for managing, monitoring, conserving, protecting, developing and utilizing wildlife and aquatic life in a sustainable manner; to guarantee richness of ecological natural equilibrium systems, and to contribute to upgrading livelihoods for multi-ethnic people, which has the potential to develop and realize national social-economic goals.

Lao Tiger National Action Plan 2010-2015. The government of Lao PDR endorsed this plan as part of the Global Tiger Initiative to secure the tiger habitat in its network of national protected areas. Two out of five priority actions programmes to achieve long term strategic goals for tiger conservation, as outlined in the Summary National Tiger Recovery Program will be supported under this project and includes: establishing an inviolate core zone at NEPL NPA through law enforcement, outreach and education, land use planning, and capacity building; establishing and maintaining connectivity between the NEPL source site of tigers with other neighbouring tiger conservation landscapes; and by demarcating an established corridor and collaborating with other forest managers to create a connected forest landscape.

Decree on Associations (9 April 2009). This Decree sets the rules and regulations governing the establishment, operation and management of associations registered as legal entities in Lao PDR for the purposes of promoting the Lao people's right of freedom, creativity and ownership in the organization of associations aiming at national protection and development; providing guidelines to individuals or organizations intending to set up associations; and providing guidelines to government organizations in managing, facilitating and encouraging lawful activities by associations, promoting associations' contributions towards socio-economic development and poverty eradication, as well as countering and restricting activities affecting national stability, social order and individual rights of freedom.

Decree on Compensation and Resettlement of people affected by Development Projects (7 July 2005). This decree defines principles, rules, and measures to mitigate adverse social impacts and to compensate damages that result from involuntary acquisition or repossession of land and fixed or movable assets, including changes in land use, restriction of access to community or natural resources affecting community livelihood and income sources. This decree aims to ensure that project affected people

are compensated and assisted to improve or maintain their pre-project incomes and living standards, and are not worse off than they would have been without the project. Regulations and Technical Guidelines for this Decree were both approved in 2010.

Politburo Resolution on Formulation of Provinces as Strategic Units, Districts as Comprehensively Strong Units, and Villages as Development Units (15 February 2012). This resolution provides general guidelines for decentralization in the country. Province, district and village level governments are requested to explore new roles and responsibilities for enhanced integrated leadership to improve ownership and accountability.

Forestry Law (24 December 2007). This law determines basic principles, regulations and measures on sustainable management, preservation, development, utilization and inspection of forest resources and forestland; promotion of regeneration and tree planting; and increase of forest resources in the country. The principles of the law aim to maintain balance of nature, making forest and forestland a stable source of resources, ensuring sustainable preservation of water sources, prevention of soil erosion and maintenance of soil quality, conserving plant and tree species, and wildlife for the purpose of environmental conservation and contribution to national socio-economic development.

Land Law (21 November 2003) The objectives of the Land Law are to determine the management, protection and use of land to ensure efficiency and conformity with land-use objectives and with laws and regulations, and to contribute to national socio-economic development and the protection of the environment.

Legislations on land and forestry are currently under revision in Lao PDR. The National Assembly has oversight over a process that will lead to a land policy followed by a land use master plan, and a revised land law. The current draft of the land policy provides recognition to customary land management rights, collective management and community management rights. The design of PAW is based on the existing land and forestry laws but the project will update the design and implementation plan if required, depending on the opportunities presented by the revised laws on land and forestry.

Regulation number 0886/MAF, recently updated in June 11, 2010 into the regulation number 2860/MAF on Pest Management in Lao PDR. The regulation was developed based on the WHO recommended Classification of Pesticide by Hazard and Guideline to Classification 1994-1995. The GoL had registered in January 2010 the companies who import pesticides, fertilizers and seeds into Lao PDR. Registered pesticide has been adjusted in May 2010 based on the new regulation. The Department of Agriculture (DoA) under MAF is mandated to oversight all the usage of pesticide (see also Annexure 5).

Prime Minister's Decree No 111/PM determines location of geographical landscapes to ensure that the *strategic areas of national defense and security* are managed in accordance with the national defense strategic plan. The Decree identifies geographic areas by district and province for the Strategic Back up Zone and the Military Zone; and, delineates a 15 km borderline zone from the international border including inside national protected areas.

2.2 INTERNATIONAL AND REGIONAL AGREEMENTS AND CONVENTIONS

ASEAN Agreement on the Conservation of Nature and Natural Resources (1985). Lao PDR as Party to this agreement has agreed on development planning, the sustainable use of species, conservation of genetic diversity, endangered species, forest resources, soil, water, air and address environmental degradation and pollution.

United Nations Convention on Biodiversity (CBD 1996). Under this convention, Lao PDR has agreed to conduct an Environmental Assessment of proposed development projects to minimize harmful effects.

Convention on International Trade in the Endangered Species of Fauna and Flora (CITES 2004). Provides an international umbrella for management and control of trade in endangered fauna and flora. Tiger is listed as CITES Appendix 1 species for which all international trade is prohibited.

United Nations Framework Convention on Climate Change (UNFCCC 1995). The Government of Lao PDR joined the global community to combat climate change by ratifying this Convention. As a developing country (non-Annex I), there is no requirement for Lao PDR to reduce its greenhouse gas emissions. The country also ratified the Kyoto Protocol in 2003 and thus may be eligible for involvement in carbon trading through a compliance market of the Clean Development Mechanism as well as the international voluntary greenhouse gas emission trading.

Ramsar Convention (1982). The GoL officially joined the Convention in 2010. Two wetlands of international importance have been designed as Ramsar sites as part of the accession process which are the Xe Champhone Wetlands in Savannakhet Province, and the Beung Kiat Ngong Wetlands in Champasak Province.

3. ENVIRONMENTAL AND SOCIAL SAFEGUARDS

3.1 WORLD BANK SAFEGUARDS POLICIES TRIGGERED

The environmental and social policies and procedures of the World Bank are widely regarded as de facto international standards for the environmental and social management of development projects.

The World Bank undertakes environmental screening of each of its proposed projects to determine the appropriate extent and type of assessment to be undertaken. The Bank classifies projects depending on its type, location, sensitivity and the nature and magnitude of impacts on communities and the environment.

While the PAW project is not expected to have adverse environmental impacts, it has been assigned Category "B" status. The category B is given because the types of possible impacts are mostly positive, and for the few potential negative impact, they are predictable and easy to mitigate if the environmental mitigation measures are followed promptly. This is a precautionary measure to ensure that all safeguards policies are given due attention, and to help the PAW preparation team identify approaches to enhance expected positive impacts. As per Bank policy the borrower, the Government of Lao PDR is responsible for preparing all project safeguards documents.

Category B project impacts are site-specific; few if any of the negative impacts are irreversible; and in most cases mitigation measures are known and can be easily considered in the design for such projects. The environmental and social assessment examines the project’s potential negative and positive environmental and social impacts and recommends measures to prevent, minimize, mitigate, and compensate for adverse impacts and improve environmental performance.

The PAW project is intended to improve overall protected area management capability in NPAs. However there is a risk that some sub-project activities may cause localized minor scale negative impacts. The table below lists the World Bank safeguard policies, whether they are triggered or not for this project investments, and provides an explanation on the applicability and type of instrument based on which mitigation measure are envisaged during project implementation.

Table 1: Project Environmental and Social Safeguards Triggered

Safeguard Policies	Triggered	Explanation
Environmental Assessment OP/BP 4.01	Yes	The project and sub-projects will not involve any major civil works (e.g., category A type) and/or generate any adverse impacts on the local environment and people. Sub-project includes the following three types of general interventions: (i) sub-projects in support the formulation, and/or capacity building for implementation, of studies, surveys, strategies, policies, regulations, decrees and laws on protected area conservation and wildlife protection at regional, national, and local level; (ii) sub-projects to strengthen the forest and wildlife conservation practices in NPAs starting with NE-PL and NNT NPAs (NPA site level) by supporting the preparation and implementation of NPA management plans and annual plans, participatory demarcation of NPA boundaries and internal zoning; and supporting community livelihood development activities (community level) in the selected NPAs. Project impacts are expected to be minor, known and readily mitigated through implementation of mitigation measures and proper monitoring activities. Given the unknown location of the proposed subprojects before project appraisal, an ESMF has been prepared to describe the process and guidance to address environmental impacts once investments are selected and their location defined during project implementation. The ESMF includes screening criteria for selecting investments that could be financed by the project; lists possible impacts and relevant mitigation measures (Environmental Code of Practice (ECOP) and PCR chance find forms are annexed); describes implementation arrangements for environmental management aspects; and includes the project consultation and disclosure process. During project preparation, stakeholders of the two NPAs have been regularly consulted on sub-project proposed design, potential impact and procedure toward sub-projects preparation and implementation as part of SA process. The draft ESMF has been disclosed in country in English with local stakeholders on December 9, 2013 and has been publicly consulted in Vientiane and 5 capital provinces on December 17, 2013. The draft ESMF consulted in country was also disclosed in English at the Bank Infoshop on 18 December 2013. The Minutes of the public discussion and any comments received from communities will be included in the final ESMF

		and re-disclosed in country and Infoshop
Natural Habitats OP/BP 4.04	Yes	Project or sub-project activities will not create significant degradation of natural habitats but will provide positive benefits (strengthening combating illegal logging) to NPAs including the two initially selected NE-PL and NNT NPAs. However, minor disturbance and site specific impact may occur during the construction and operation of small conservation facilities, such as substations and checkpoints construction proposed for financing under the project. However, the impact is expected to be minor and site specific and it can be mitigated through measures incorporated in the ECOP (annexed to the ESMF). Also, participatory land use plans (PLUP) will be developed to clearly delegate areas of critical natural habitats and incentives for protection of critical and non-critical natural habitats are provided through community grants based on community compliance with forest conservation contracts. The ESMF includes screening procedure to (i) determine whether the proposed facilities are in a critical or non-critical natural habitat and (ii) avoid any significant conversion or degradation of any critical natural habitat.
Forests OP/BP 4.36	Yes	This policy is triggered as the proposed activities involve changes in management of forest areas in NPAs (financing NPA management plans), which may then affect the rights and welfare of people and their dependence on the forests (i.e. the NPAs). The project is expected to have beneficial impact and reduce the deforestation rates of targeted NPAs. The ESMF includes screening procedures (and negative list) for project investments so that interventions which could have the potential to impact upon forested areas are not eligible for financing under the project. Participatory Social Assessment and Participatory Land Use Planning under the CEF process will ensure relevant government agencies and communities work to delegate protection/ production forests from community use areas, and communities will be supported to develop alternative livelihoods to reduce dependency on forest resources for livelihood. Conservation Agreements will be made with communities that include restriction of forest resource use and incentives for community compliance are provided through community grants.
Pest Management OP 4.09	Yes	The project will not finance procurement of pesticides. However, support to agriculture activities compatible to NPA purposes is eligible as a community grant that might increase the use of pesticides or present pest management practices. Impacts of pesticide use will be assessed during each subproject screening. If pesticides will be used, the project impact is expected to be minor and can be mitigated through a simplified Pest Management Plan (PMP) (developed and annexed to the ESMF). The plan includes criteria to ensure that the pesticides used have negligible or minimal impact on environment and are listed as allowed to be used in country in line with WHO.
Indigenous Peoples OP/BP 4.10	Yes	Many project beneficiaries are expected to be ethnic minorities who are known in Lao PDR as Ethnic Groups and meet eligibility criteria under OP 4.10. For example, Hmong, Khmu, Mien, Makong, Bru and others are living in and around the two

		pre-selected NE-PL and NNT NPAs. These are considered to be vulnerable ethnic groups in Lao PDR as their livelihood is heavily based on subsistence agriculture and forest. The presence and involvement of these ethnic groups triggers this safeguard policy. The impact of the project on these communities is generally positive, however, any negative impacts that may occur are addressed under the Community Engagement Framework that includes Indigenous Peoples Planning Framework. Where their broad community support is not ascertained based on free, prior and informed consultations, subprojects will not be implemented.
Physical Cultural Resources OP/BP 4.11	Yes	The project will not affect any known PCRs (e.g., historical, cultural, and/or archaeological, paleontological, religious, or unique natural values of national and/or regional cultural importance). However, the project area covers ethnic minority groups such as Hmong, Mien, Lao Tai and Khmu; there could be a limited number of graves, village cemeteries, and/or communal properties in spiritual forests in the subproject sites that may be affected by project activities. ESMF includes provisions for screening of PCRs during subproject investments and sites' location as well as "chance find" procedures, so that suitable mitigation measures are implemented and incorporated into the corresponding NPA management plan(s).
Involuntary Resettlement OP/BP 4.12	Yes	The policy is triggered because the project will support a stricter enforcement of protected areas management which will restrict the current access of local people to natural resources inside protected areas. Local people affected by the project will benefit from more sustainable access to forest and other natural resources and project support for alternative livelihoods which seeks to enhance their livelihoods sustainably. Nonetheless, short-term loss of livelihood could be unavoidable because adaptation to changes in resource allocation and livelihoods may be a longer-term process. In line with OP 4.12, The Community Engagement Framework (CEF) was developed to allow meaningful participation of affected people in developing a plan of action (Community Action Plan - CAP) to enhance livelihood in the long run and mitigate short-term livelihood losses, and grant financing will be provided to support implementing the CAP. The project will not involve physical relocation. However, minor land acquisition may be required under community livelihood activities and/or small repair, rehabilitation or new construction of office buildings and other facilities on public land. The Resettlement Policy Framework (RPF) was also developed that set out policies and procedures for the limited land acquisition. RPF is attached to CEF. During the project implementation, if land acquisition is required, an abbreviated Resettlement Action Plan(s) (RAP) will be prepared and implemented for any activities that require involuntary land acquisition.
Safety of Dams OP/BP 4.37	Yes	Although the Project will not finance construction/rehabilitation of dams, one protected area (NNT) that will receive funds under this project is located in the area of the NT2 dam and hydropower station. The project will provide for enhancement of protection measures that will strengthen the NNT NPA management addressing any potential damages linked to NT2 operation (P076445). Due diligence on the dam safety would be

		presented in the EMP for this NPA developed during project implementation. The POE and the financiers, including the World Bank, for the NT2 dam monitors regularly the integrity and operation of the dam and information. None of the project activity is dependent of any existing dam or dam under construction.
Projects on International Waterways OP/BP 7.50	No	The project interventions will not affect the quality or quantity of any international waterways.
Projects in Disputed Areas OP/BP 7.60	No	The project is not located in disputed areas

3.2 SAFEGUARDS IMPLEMENTATION

This document is the Environmental and Social Management Framework (ESMF) for the PAW Project that will be applied to all sub-projects. The ESMF aims to provide the national, provincial and district government, the PAW team, consultants, village officials, private and public sector agencies and beneficiary community members with adequate guidance for effectively planning, implementing and monitoring environmental safeguard issues.

The ESMF will be implemented as part of the sub-project cycle and the activities will be fully integrated into their selection, approval, implementation, and monitoring and evaluation process.

The ESMF describes the safeguard screening and review process and safeguard actions, including monitoring and supervision, to be carried out and will be applied to all investments to be financed by the World Bank for all sub-projects. Sub-projects could be related to livelihood improvement, small water supply systems to enhance irrigation, agriculture development etc.

Project staff at central and local levels will be responsible for implementation of the ESMF and in ensuring full compliance, including keeping proper documentation for possible review by the World Bank.

This document is considered a living document and can be modified and changed in line with the changing situation or scope of the activities. Close consultation with the World Bank and clearance of the revised ESMF, as required, will be necessary.

3.3 SAFEGUARD SCREENING OF SUB-PROJECTS

Section 2.6 describes the overall sub-project management process.

Based on the guidance of this ESMF, potential sub-project SDAs will initially explain which safeguard are triggered and review potential mitigation actions. Already, it is established that all NPA subproject will trigger all safeguards listed in section 3.1. For non-NPA sub-projects, the proposal of triggered safeguard will be validate by the EPF and cleared by the World Bank team before the SDA prepares a sub-project proposal.

If any safeguard is triggered, the SDA will prepare an Environment and Social Management Plans (EMP) which would require prior consultation not only with all stakeholders but also with potentially affected communities. The EMP will also include a description of the consultation process and document its findings. The EMP will be disclosed in local language in all relevant district offices and provincial offices where the sub-project is located. An outline of an EMP is proposed in Annexure 6.

For the specific case of NPA sub-projects, an NPA Data Template was created. The NPA Data Template was developed to enhance organised and timely data collection in the project area of impact. It also aims to obtain comparable data to allow a relative comparison of issues and approaches in the two NPAs, and to be able to utilize this disaggregated data for the SIA.

The proposed EMP will be attached to the Sub-project proposal that require one and follow the course of appraisal by EPF, clearance by the TC and the World Bank and approval by the EPF Board.

4. POTENTIAL PROJECT IMPACT AND MITIGATION

The ESMF addresses general environmental management issues that are potentially caused by sub-projects and from associated activities. Project activities will include (a) forest, land use zoning, and demarcation of existing NPAs’s boundary, (b) alternative livelihood development, (c) small infrastructure, (d) improve existing access, (e) forest patrols, (f) ecotourism development, (f) agriculture extension, and (g) policy development or training advice, which may has safeguard implication’ yet, specifics of the locations and actual activities will be determined during project implementation. All sub-projects will address environmental management issues that are summarized in this document through the preparation and implementation of site-specific EMPs.

4.1 NPA MACRO ZONING AND DEMARCATION ACTIVITIES

To achieve its conservation aim of sustainable natural resource management and to protect natural habitat and wildlife, as per the requirements of the Forest law, sub-project will review existing macro zoning of NPAs in Total Protection Zone and Multiple Use Zone and Village Areas followed by physical demarcation.

Objective

To mitigate potential disagreements and conflicts that could delay activities related to forest, land use zoning and demarcation of NPA boundaries.

Issue	World Bank Triggers	Safeguards Response Summary
Land use planning at NPA level	Environmental Assessment (4.01) Forests (4.36) Natural Habitats (4.04) Involuntary Resettlement (OP4.12)	Zoning to follow national regulations on PAs Zoning to reserve enough land for food security of affected households Zoning process to follow free, prior, and informed communication Zoning to be depicted on a map communicated

		<p>to the villagers</p> <p>Zoning map to be annexed to Community Action Plans and Conservation Agreements, which will be developed during the project implementation</p> <p>Demarcation process to ensure all villages with existing usage inside NPAs are consulted</p> <p>Minutes of consultation meetings on demarcation to be prepared and shared with communities</p> <p>Exclusion and loss of access to NPA areas to be negotiated with communities and appropriate alternatives provided.</p>
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Mitigation Process

The following mitigation measures are identified. The CEF should be used first to prepare CAPs geared at mitigation of these issues:

- Forest and land use zoning should follow national regulations on protected areas, and approved regulations and guidelines for the management of the NPA
- Process of land use planning should use approved and current guidelines for Participatory Land Use Planning (PLUP)
- Forest and land use zoning should aim to ensure there are enough areas for meeting food security requirements of affected households, subject to environmental carrying capacity and technical considerations
- Forest and land use zoning process should follow free, prior, and informed communication and establish broad community support through the CEF process
- All agreements related to forest and land use zoning should be agreed, written, and depicted on a map that is communicated to the villages in appropriate cultural context and local language
- All agreements related to forest and land use zoning should be annexed to the Community Action Plan, which will be prepared during project implementation
- Demarcation process should ensure all villages with existing usage inside NPAs are brought together for consultation process
- Minutes of consultation meetings related to demarcation should be prepared and shared with communities in appropriate cultural context and language
- Exclusion and loss of access to NPA areas should be negotiated with communities and appropriate alternatives provided.

4.2 INCREASED PATROLLING ACTIVITIES

A key component of the PAW project is improving law enforcement especially against wildlife trade, and timber. Amongst other activities enhanced forest patrolling will be used in NPA areas that are especially targeted by wildlife traders, hunters, and poachers.

Prime Minister’s Decree No 111/PM determines location of geographical landscapes to ensure that the strategic areas of national defense and security are managed in accordance with the national defense strategic plan including a 15 km borderline zone from the international border where patrols must be carried out in the presence of military officers.

Objective

To ensure enhanced NPA patrolling does not have an unintended negative impact on fragile habitat and species without compromising the need for increased patrols.

Issue	World Bank Triggers	Safeguards Response Summary
Increased patrolling	Forests (4.36) Natural Habitats (4.04)	Zoning to follow national regulations on PAs New tracks based on evidence and after considering alternative options Camps to follow environmental protocols and to be dismantled after use Location of camps to avoid fragile habitats Manage fire hazard from forest patrol camps. Provide training and orientation to rangers.

Mitigation Process

- Forest patrolling to establish new tracks and access based on adequate evidence and after considering alternative options
- Camps for forest patrols should follow all environmental protocols and should be dismantled completely
- Number of rangers in patrol and size of camps should be moderated to ensure very large camps are not required
- Location of camps should take into account fragile areas, and habitats
- Fire hazard from forest patrol camps should be managed as per protocols
- Provide training and orientation to ranger’s related to fragile habitat, garbage management and disposal, and fire risk mitigation
- Learn well the Decree, especially the overlaps with project districts that are listed in the Decree; invite the representative of the Ministry of Defense to participate in the provincial and district institutional arrangements; and establish constructive communication with local military authorities by sharing project goals and objectives with them and eliciting their cooperation.

4.3 ALTERNATIVE LIVELIHOOD DEVELOPMENT ACTIVITIES

Alternative livelihood development activities by the project may lead to minor environmental impacts such as soil erosion, small clearing for houses, etc. that are well with mitigation capability of the project. Some of the likely development activities to be supported by the project will be small agriculture improvement, small irrigation facilities, improved access through repair of trails and tracks, livestock

development, and small scale water supply. Sustainable harvesting and first stage processing of NTFPs may also be included in livelihood development.

Objective

The overall objective will be to avoid and/or minimise negative environmental impact on forests, biodiversity, and natural habitats.

Issue	World Bank Triggers	Safeguards Response Summary
Livelihood development	Environmental Assessment (4.01) Forests (4.36) Natural Habitats (4.04) Involuntary Resettlement (OP4.12)	Use CEF process to explore livelihood development options For livestock related livelihood activities undertake livestock survey, assess several options, and ensure livestock option does not enhance grazing pressure on the PA. For NTFPs assess harvesting practices, and introduce sustainable harvesting protocols through awareness and training. For the construction of small infrastructure such as laying of pipes, small hydro, trail maintenance, etc. (see section 5.4). PMP should be applied as required (see section 5.7) if supported irrigation development and agriculture extension Chance find procedures to be applied as required (see section 5.8)

Mitigation Process

The following mitigation measures are identified. In most cases, social issues are more relevant. Then, the CEF should be used first to prepare CAPs geared at mitigation of these issues:

- Use CEF process to explore livelihood development options that have the least negative impact on natural resources (see Annex 2 of the CEF on negative list)
- For livestock related livelihood activities undertake livestock survey to identify number and livestock diversity; assess carrying capacity of existing grazing areas, assess supply of fodder from different sources and pay special attention to seasonal availability of fodder, including fodder banks during dry season. Ensure livestock programmes do not enhance grazing pressure on project areas. Assess options for stall-feeding, breed improvement and enhanced veterinary care
- For NTFPs assess high conservation areas, undertake biodiversity surveys, assess harvesting practices, and introduce sustainable harvesting protocols through awareness and training. Identify NTFP usage and delineate domestic use from commercial collectors. Include collectors who depend on NTFPs for additional income in awareness and training programmes. Explore of first-

stage drying, sorting, and processing can be undertaken in buffer zones and undertake commodity-based value chain analysis

- For livelihood activities that will involve construction of small infrastructure, laying of pipes, use of construction material use PAW negative checklist for prohibited activities; screening questions for minor, potential impacts, and mitigation measures for very small civil works, as well as for buildings.
- In addition, if the project activity is to support the development/rehabilitation of irrigation system and agriculture extension, which pesticide maybe applied by villagers themselves; the simplify PMP should be applied as required. Training will be provided during project implementation to the Khumban agriculture extension staff and village production group.

4.4 DEVELOPMENT OF SMALL INFRASTRUCTURE ACTIVITIES

The project will not finance any major civil work investments. Small civil works such as construction/rehabilitation of office buildings, stores and such structures that will contribute to effective management and implementation of sub-project activities may be financed. The environmental impacts of these structures will be minor, temporary, localized and the impacts will be mitigated through mitigation measures during the sub-project preparation, design and construction. In addition standard Environmental Code of Practice (ECOP) will be integrated into sub project activities and contract documents. Several simple mitigation measures for small sub-projects for diverse civil works have been developed and will be applied by the project. Annexure 3 provides mitigation measures for civil works and the ECOPs.

Some subprojects will support NPA development. Those sub-projects will try to avoid any form of construction as far as feasible. However, in order to meet some of its project objectives of improved law enforcement against wildlife trade and timber, strengthening of livelihood options from tourism etc, some minor construction and small infrastructure works may be necessary. These could include check points in selected locations of NPA areas, tourist camps, and improvement of access and safety for tourists, etc.

Objective

The objective will be to avoid and/or minimise negative environmental impact of any infrastructure on people, waterways, groundwater, forests, biodiversity, and natural habitats.

Issue	World Bank Triggers	Safeguards Response Summary
Small infrastructure development	Environmental Assessment (4.01) Forests (4.36) Natural Habitats (4.04) Involuntary Resettlement (OP4.12)	All proposals for small infrastructure to be reviewed against the PAW negative checklist for prohibited activities. All proposed infrastructure to use the tools provided in Annex 2, 3 and 5 of this ESMF If land must be acquired, follow the Resettlement Policy Framework found in in Annex 1 of the CEF

Mitigation Process

All proposals for small infrastructure should first be reviewed against the PAW negative checklist for prohibited activities followed by the screening questions for projects. All small infrastructures must follow mitigation measures for very small civil works, and mitigation measures for buildings. In addition ECOPs have been provided and these must be followed as required.

4.5 ECOTOURISM ACTIVITIES

The objective of eco-tourism is to generate local employment, and sustainable finance for management of protected areas. The PAW project funds will be used to supplement existing investments in eco-tourism in, and in areas adjacent to the NPAs. However fragile, highland areas are prone to accompanying negative impacts that need mitigation.

Objective

To avoid negative, direct and indirect impacts, on forest resources, biodiversity, NTFPs caused by project activities to enhance eco-tourism.

Issue	World Bank Triggers	Safeguards Response Summary
Illegal Wildlife Trade	Environmental Assessment (4.01) Forests (4.36) Natural Habitats (4.04)	Assess availability of infrastructure for tourism and regulate inflow of tourists as appropriate Assess impact of increased tourists Ensure proposed tourism sites are not in fragile natural habitat areas Undertake orientation and training of local people involved in eco-tourism Ensure all tourist camps have signage, garbage disposal arrangements, and fire management equipment Provide orientation and briefings to tourists about NPA, Apply ECOP to all infrastructures that will be built by the project Apply CEF procedures if Community grants are mobilized to develop tourism ventures.

Mitigation Process

- Assess availability of infrastructure for tourism and regulate inflow of tourists as appropriate
- Assess impact of increased tourists and accompanying demand on fuel wood from NPA areas, increased harvesting of selected NTFPs, or wild fruits, herbs et al for consumption and sale

- Assess emergence of local forest, bamboo, NTFP-based household production for tourists and its impact on unsustainable harvesting
- Assess location of tourist spots and ensure sites are not in fragile natural habitat areas
- Undertake seasonal analysis of tourist inflow and co relate with breeding cycles of species those are attractive to tourists
- Undertake orientation and training of local people involved in eco-tourism especially with relation to negative impacts of tourism on the environment and forest resources
- Ensure all tourist camps are clearly marked with signage, have garbage disposal arrangements, and fire management equipment
- Provide orientation and briefings to tourists about NPA, make available educational and awareness material in appropriate language
- Apply ECOP to all infrastructures that will be built by the project.

4.6 INCREASED POACHING AND ILLEGAL LOGGING FROM ROADS AND TRAILS

No road construction or development is planned under any sub-project. But existing NPA management roads or tourism/patrol trails would be maintained. Significant overharvesting of wildlife typifies NPAs with repeated violations of wildlife protection and trading laws. In terms of catalysts for wildlife hunting, roads are among the most damaging changes to an area. Road and track development potentially completes links between the markets and new sources of wildlife or logs where roads and track upgrades have been put into new areas.

Objective

To plan and implement access infrastructure and equipment not to increase opportunity for illegal wildlife trade or illegal logging within PAW project areas.

Issue	World Bank Triggers	Safeguards Response Summary
Illegal Wildlife Trade	Environmental Assessment (4.01) Forests (4.36) Natural Habitats (4.04)	Limit new road developments and road/track upgrades to areas where surveillance can be organized. Avoid opening tracks that can be used with transport equipment such as hand tractors especially if the area has evidence of threats. Avoid road network development of any kind in or near key landscape features identified as HCV1-6 Ensure that Conservation Contracts are signed before purchasing any equipment that may be used to transport illegally harvested NTFPs, wildlife or logs as part of a Community Grant for CAP implementation. Apply Negative Checklist and Project Screening procedures for new road and track developments (see annex 2 of ESMF) and Table 2 below. Using data from “occupancy survey” undertake annual review of wildlife threats, illegal logging activities and report findings to DoFI and relevant

		<p>line agencies</p> <p>Using satellite images every 3 years, review the evolution of forest cover and report findings to DoFI and relevant line agencies</p> <p>Form and maintain relationships with line agencies and collaborate on matters relating to NPA management</p> <p>Assess community grants through project screening procedures (see Annex 2 CEF)</p>
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Mitigation Process

- Avoid unnecessary access facilitation.
- Limit road network developments, road upgrades and track construction to a minimum for livelihood development activities.
- Comply with the Negative Checklist and Project Screening Procedures, and Table 2 below, where new roads and upgrades will be required.
- After review of the proposed biodiversity assessments, full compliance to agreed recommendations, which may include restriction to key landscape features.

At the time of ESMF preparation, information relating to the design requirements and location of new access roads, tracks in the two selected NPAs were not concluded. This information will be formulated as part of the planning and consultation phase. Table 2 provides a list of key landscape features identified as warranting special consideration for conservation/protection.

Table 2: Road Access Restriction to Key Landscape Features (from MAF, 2010)

Habitat Feature	Zonation response	Priority
Mineral licks	No roads, road upgrades, tracks or track upgrades	Acute
Permanent natural pools and swamps	No roads, road upgrades, tracks or track upgrades	Acute
Seasonal natural pools and swamps	No roads, road upgrades, tracks or track upgrades	High
Swamp-forests and swamp-bush lands (permanently or seasonally inundated)	No roads, road upgrades, tracks or track upgrades	Acute
Seasonally inundated grassland	No roads, road upgrades, tracks or track upgrades	Acute
Caves	No roads, road upgrades, tracks or track upgrades to caves; no material to go into caves; no alteration of entrances	Mid
Small karsts far from any large karsts	No roads, road upgrades, tracks or track upgrades; no quarrying whatsoever.	High

Habitat Feature	Zonation response	Priority
Large water bird nest trees	No harvest of adults or nestlings or eggs	Mid
Large karsts	No roads, road upgrades, tracks or track upgrades	Mid
Level lowland forest (4+ km ² contiguous)	No roads, road upgrades, tracks or track upgrades	Acute
Areas with large parts (25 km ² +), more than half-a-day's travel from any village, road or navigable river	No new access roads into the area or its ½-day travel buffer.	Acute
Conservation and protection areas	No access or tracks to intersect conservation or protection status land areas of any description	Acute

4.7 PESTICIDE MANAGEMENT

The project will not support procurement of any pesticides; however, pesticide and fertilizer use by villager's themselves in the PAW project may not be totally avoided since the village grant may finance agriculture extension and investment (see also the CEF). All sub-project activities will be screen through the Negative Check List and Project Screening Process. In addition a simplified Pesticide Management Plan (PMP) has been prepared and is available at Annexure 5. Training will be provided during project implementation to the Khumban agriculture extension staff and village production group on integrated pest management (IPM) approaches.

Objective

The objective will be to minimize use and reliance on non-biological controls of pests. The primary aim of pest management will be not to eradicate all organisms, but to manage particular pests and diseases that may negatively affect forest, land and water resources so that these resources remain at a level that is below an economically and environmentally damaging threshold.

Issue	World Bank trigger(s)	Safeguard Response Summary
Improper use of pesticides and fertilisers that may cause harm to humans, biodiversity and the environment	Pest Management (OP.4.09)	<p>Avoid pesticide use where ever and whenever possible.</p> <p>Identify through CEF high-risk villages and forest landscapes.</p> <p>Negative Checklist and Project Screening Procedures for all sub component projects.</p> <p>Develop Integrated Pest Management Plans where pesticides are required.</p> <p>Provide village training and safety equipment for sub-projects that require pesticide and fertilizer use</p> <p>Poison and contamination testing.</p>

Mitigation Process

The project will adopt the Regulation on the Control of Pesticides No 2860/MAF, Lao PDR that was promulgated on 10 February 2010. This regulation is an important tool and monitors activities related to pesticide including import, export, transit, trade and use.

Pesticides should be managed to avoid their migration into off-site land or water environments by establishing their use as part of an Integrated Pest Management Plan, which would include a description of cultural practices, biological control, and resilient genetic strains.

Where feasible, the following alternatives to pesticides should be considered:

- Provide those responsible for deciding on pesticides application with training in pest identification, weed identification, and field scouting
- Introduction of crop and tree inter-planting
- Use of pest-resistant crop varieties
- Support and use of beneficial organisms, such as insects, birds, mites, and microbial agents, to perform biological control of pests
- Protect natural enemies of pests by providing a favourable habitat, such as bushes for nesting sites and other original vegetation that can house pest predators

If pesticide application is warranted the following precautions to reduce the likelihood of environmental impacts should be used:

- Train personnel to apply pesticides and ensure that personnel have received applicable certifications or equivalent training where such certifications are required
- Review the manufacturer's directions on maximum recommended dosage or treatment as well as published reports on using the reduced rate of pesticide application without loss of effect, and apply the minimum effective dose
- Apply pesticides based on criteria such as field observations, weather data, time of treatment, and dosage, and maintain a pesticide logbook to record such information
- Avoid the use of pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes 1a and 1b.
- Avoid the use of pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Class II
- Avoid the use of pesticides listed in Annexes A and B of the Stockholm Convention, except under the conditions noted in the Convention
- Use only pesticides that are manufactured under license and registered and approved by the appropriate authority and in accordance with the Food and Agriculture Organization's (FAO's) International Code of Conduct on the Distribution and Use of Pesticides
- Use only pesticides that are labeled in accordance with international standards and norms, such as the FAO's Revised Guidelines for Good Labeling Practice for Pesticides
- Select application technologies and practices designed to reduce unintentional drift or runoff only as indicated in an IPM program, and under controlled conditions

- Maintain and calibrate pesticide application equipment in accordance with manufacturer's recommendations
- Establish untreated buffer zones or strips along water sources, rivers, streams, ponds, lakes, and ditches to help protect water resources
- Avoid use of pesticides that have been linked to localized environmental problems and threats.

To prevent, reduce, or control the potential contamination of soils, groundwater, or surface water resources, which may result from accidental spills during transfer, mixing, and storage, pesticides should be stored and handled in accordance with the recommendations for hazardous materials management in the FAO Guidelines.

Integrate specific enquiry in CEF process to village use of pesticides and fertilizers. This includes an assessment of the knowledge base of those villages that work within local commercial crop plantations. Evaluate locations of possible land and water contamination, causes and effects. Erect signboards in local language that caution risks related to potential chemical poisoning and contamination.

It is recommended that within high-risk project villages chemical incidence observation committees be established. Priority villages include:

- Villages that store and use chemicals for their own needs
- Villages that store chemicals within their village boundaries on behalf of local agribusiness,
- Villages within 5 km of commercial crop plantations, and
- Villages affected by incidences of poisoning and contamination.

The village based monitoring group will require basic training to respond to reports of adverse events related to pesticides within a reasonable period of time. The community-based approach will ensure the most effective mechanism for surveillance and providing immediate health care.

4.8 PHYSICAL CULTURAL RESOURCES

Sub-project activities in NPAs may cover diverse ethnicities, cultures, and spiritual practices that have the potential to impact on Physical Cultural Resources (PCR). For example, opening new tracks in a NPA for patrolling a new areas may stumble of an old stupa, or a new paddy field enables by a community grant irrigation scheme may unearth artifacts or old grave yards. PCR are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Chance Find Procedures' have been developed to mitigate against damage or loss to PCRs.

Objective

Assist in preserving Physical Cultural Resources (PCR) and in avoiding their destruction or damage. PCR includes resources of archaeological, paleontological, historical, architectural, religious, including graveyards and burial sites, aesthetic, or other cultural significance.

Issue	World Bank trigger(s)	Safeguard Response Summary
Loss, damage, theft, of physical cultural resources from project related activities	Physical Cultural Resources (OP.4.11)	<p>Negative Checklist and Project Screening Procedures for all sub component projects.</p> <p>Evaluations of cultural and archaeological significants to be undertaken as part of ESMF chance find procedure</p>

Mitigation Process

The general approach regarding physical cultural property is to develop management and mitigation measures to assist in their preservation, and to avoid their elimination. In some cases this may require that project features or activities are redesigned in order that sites, objects and structures can be preserved, studied, and restored intact in situ. In other cases, structures may need to be relocated, preserved, studied, and restored on alternate sites. In other cases, scientific study, selective salvage, and museum preservation before destruction may be necessary in the detection, reporting of, and the prevention of disturbance and damage to objects and sites of physical and cultural significance.

To minimize impacts to artefacts Chance Find Procedures have been developed. The objectives of the Chance Find procedures are:

- Minimize impacts to resources from all project related activities
- Ensure that artefacts uncovered are appropriately recorded, documented and reported to appropriate agencies.

To identify and manage any chance finds and comply with the relevant regulations, the following actions will need to be employed by the project:

The DoNRE and Village Chief, with assistance from the SDA will mobilize a consultant specialist in artefact to remove the PCR to a secure location. If the artefact is large and cannot be easily removed, or is one of a number of objects, then the Ministry of Information and Culture must be informed as soon as possible to allow them to investigate the find in situ.

Should a chance find or investigation interfere with forestry operations or livelihood enhancement activities, or affect the planned location of facilities etc, then the DoNRE and Village Chief will need to liaise with the Ministry of Information and Culture to determine the best course of action.

The DoNRE and Village Chief should advise any contractors of any changes to PCR procedures or forestry operations as a result of the chance find. For disputed PCR artefacts, the Ministry of Information and Culture of Lao PDR will determine ownership.

The Project Screening Process and the Chance Find Procedures will assist local project implementers to determine if the PCR will be affected and the action required for conservation.

Box 1: Chance Find Procedures

A suspected PCR find should not be moved or interfered with.
 A suspected PCR find should be reported immediately to the Village Chief and DoNRE representative.
 All work potentially impacting on the find should be suspended whilst these parties assess the find.
 The DoNRE and Village Chief will immediately mark the location of the find and take necessary precautions to protect the site from further disturbance, including limiting access to the site.
 If the find contains suspected human remains the DoNRE and Village Chief will be required to notify the relevant District Administration immediately and take instructions from the District Administration.
 The DoNRE and Village Chief will need to record the depth of the artefact and document and photograph the artefact in situ.
 The DoNRE rep and Village Chief will need to prepare a Chance Find Report
 The Chance Find Report must be submitted to the Provincial Ministry of Information and Culture, and PoNRE within 48 hours.

4.9 GUIDELINES, POLICY AND HUMAN RESOURCES DEVELOPMENT

The essence of the project is to build the GoL institutions capacity to address better the management of biodiversity in NPAs and prevent wildlife trafficking. This implies significant resource allocation to subproject that will help educate the people of Laos and the staff (also future staff) of the public agencies such as DFRM and DOFI and their provincial and district emanations. As guidelines, regulations, policies are reviewed and as curriculum for short courses or bachelor are developed, there is a risk that the set up systems or deliver knowledge that is in opposition with the safeguard, or at least with the “spirit” of the Bank safeguards. The risk is minor as safeguards laws of Laos mirror the World Bank safeguard laws.

Objective

To avoid that training curricula and policy development deliver knowledge and practices that lead to actions on the ground that may not be compatible with customary safeguards standards.

Issue	World Bank Triggers	Safeguards Response Summary
Knowledge and policy development	Environmental Assessment (4.01) Forests (4.36) Natural Habitats (4.04) Involuntary Resettlement (OP4.12)	Screening of proposed activities at sub-project proposal stage Commitment by SDA in the EMPs that all proposed curricula, guidelines, regulations, practices, are to remain fully compatible with the Laos environment laws and possibly with international safeguard standards. SDA commit in the EMP to full transparency, adequate consultations so partners and people of Laos have the opportunity to comment and improve proposed instruments.

Mitigation

- SDA proposing capacity building sub-project will need to document that no policy, knowledge, guidelines and practices developed with sub-rproject funds

would be fully aligned with, and verification will be carried out, the Laos PDR environment laws.

- External consultation, with full transparency, on all instruments proposed, curriculum developed, legal framework designed, etc. so the PAW project partners can exercise due diligence on this standards.

5. POTENTIAL EXTERNAL IMPACT AND MITIGATIONS

The project itself, especially the NPA subproject, proposes to build the various stakeholder capacity to progress toward the mitigation of external threats. These external threats (or risks) are (a) village consolidation, (b) road construction/renovation and concession-granting, (c) illegal wildlife trade, (d) illegal logging, (e) undesirable fires, (f) increased shifting cultivation. The alleviation of all will be incorporated in the NPA management plan that will be developed during sub-project implementation.

5.1. VILLAGE CONSOLIDATION

In one of the selected NPAs, village consolidation has been monitored by the Nam Theun Two Dam Project. This monitoring will continue at least until the end of 2017. It should be noted that the Governor of Khammouane Province has issued in 2012 an Instruction to desist from further village consolidation in the NNT watershed area. In 2013, this instruction has been implemented and verified by the annual NT2 project supervision mission (cf. NT2 wrap up meeting to GoL).

Chapter 6 (risk), Chapter 9.1 (village selection) and Chapter 11 (monitoring) and Annex 2 (negative list) of the CEF provides extensive treatment of the project approach to village consolidation. On the subject of village consolidation, the CEF primes over the ESMF. The SDA are invited to refer to the CEF first when dealing with the issue of village consolidation as what follows is a summary.

In order to address project risks with regard to the ongoing GoL program of village consolidations, the project will distinguish between villages that have been consolidated in the past, and those scheduled or proposed for consolidation. The project will apply the following criteria:

- a) in villages consolidated in the past the project will identify such villages and:
 - (i) determine through participatory social assessment if land and tenure issues associated with the consolidation have been resolved to the satisfaction of communities;
 - (ii) ascertain if adequate land for agriculture or other means of livelihood to improve, or at least maintain their livelihoods, has been made available;
 - (iii) exclude such villages if outstanding issues related to land for agriculture and natural resource are identified, and convey findings to Provincial Authorities for appropriate action; and
 - (iv) excluded villages can subsequently become project beneficiaries if: (a) Provincial Authorities demonstrate that issues have been resolved, (b) communities confirm such resolution met standards of free, prior and informed consultation, and (c) communities provide their broad community support for participating in PAW project.

b) Villages scheduled or proposed for consolidation during the life of the project are excluded from participation in the Project.

In cases where project participating villages consist of multiple hamlets including those of Ethnic Groups, separate CAPs may be developed for respective hamlets. Elected representatives will represent such hamlets both in village-wide and district level meetings to present views and opinions collected at the hamlet-level meetings. The project will utilize the map of concessions granted in the previous few years and continuously engage with provincial governors to avoid project risks due to allocation of land concessions.

5.2 ROADS AND CONCESSIONS

National, provincial and district road may cross NPAs provided they follow the national laws on EIA, obtain an Environment Certificate from PONRE which implementation and compliance is then monitored also by PONRE. The 2007 Forest law and draft NPA decree are clear that hydropower, mining or agriculture concessions are not among the possible business activities, or concessions, authorized in Pas although there is no language of such concessions being prohibited.

However, due to unclear jurisdictional concession granting mandates, insufficient communication between departments particularly between province and central tiers, and weak monitoring and compliance enforcement, NPAs and adjacent areas have experienced incompatible concession planning and granting. Most often, road and hydropower projects are considered strategic and are part of long terms country development plans (even if those plans are not always readily available).

Undoubtedly, those road projects and concessions constitute a threat to many NPAs in Laos. Because of their strategic importance most will proceed. However, the GoL is more and more committed to ensuring that these projects and concessions comply with national environmental and social legislations. Already most hydropower project are attaching Standard for Environmental and Social Operation (SESO) to their concession contracts. Some hydro power and mines have also started providing voluntary financial contribution to the Environment Protection Fund.

Improvements to monitoring and reporting, strengthening governance and interagency coordination, enforcement and legal frameworks will be used as mitigation approaches.

Objective

To build constituency, knowledge and public sector capacity to reduce the likelihood and consequence of incompatible concession grants impacting on the work activities, timeframes deliverable and overall objectives of the PAW project.

Concession Grants - Safeguards Response Summary

Issue	World Bank Triggers	Safeguards Response Summary
Incompatible concession granting in PAs and adjacent areas	Environmental Assessment (4.01) Natural Habitats (4.04)	Review and update plans for road construction and concession granting. Prepare and maintain a national database of roads and concessions through NPAs and

	Forests (4.36)	possibly publish it one a year and on a web site.
Impact of Roads construction through PAs		<p>Establish, will concerned public authorities, a participatory Strategic Environment assessment of the district development of all districts that include NPA land.</p> <p>Contribute to strengthening government institutions and policies (mostly other WB projects such as HMTA, LENS2)</p> <p>Periodic meetings with relevant line agencies, donor projects, and private investors, engineers and contractors, to identify concession and roads before feasibility are initiated.</p> <p>Demarcations of NPA limits and zones.</p> <p>Establish early response mechanisms with local communities on road construction and concession plans.</p> <p>Avoid seeking unrealistic objective which would easily be reversed by roads and concessions (the PAW project PDO seeks to build capacity to reverse biodiversity degradation and not to actually achieve reversal during the life time of the project)</p> <p>Suggest that the decision maker awareness sub-project includes information about the costs of road and concession overlaps with PAs.</p>

Mitigation Process

As per government legal and administrative position, several requirements are needed for the legal granting of concessions. These include, but are not limited, to the following:

- Completion of a land survey to identify existing land use types
- Preparation of a land map that presents the resources of the concession area along with the proposed development, and
- Preparation of a land use plan that defines the existing land use arrangements, and the proposed impacts and mitigations.

It is recommended, as part of the NPA processes of preparing Protected Area Management Plans, that this information is obtained and the risk potential from road planning and concession granting in PAW areas be evaluated.

Utilize the concession area database under GIZ – Land Management and Registration Project (LMRP), with the Natural Resources and Environment Information Center (NREIC) under MoNRE.

Hold quarterly multi-jurisdictional dialogue with relevant agencies to ascertain the extent of concession grants and road construction in or near NPAs. Key institutions involved will include:

- Provincial Land Management Authority
- Provincial Ministry of Planning and Investment
- Provincial Ministry of Agriculture and Forestry
- Provincial Ministry of Transport and Civil Work
- Provincial Ministry of Energy and Mines
- Representations from central Government agencies are also recommended.

Obtain copies of all road plans, and concession management plans, approved or planned.

Demarcation of NPAs has proven to be an effective tool against concession granting. The demarcation sign or marking stone provides tangible physical evidence of a NPA that assists local managers and villagers to negotiate alternative land use with strong developer interests.

5.3 ILLEGAL WILDLIFE HARVESTING AND TRAFFICKING / ILLEGAL LOGGING

Most of the sub-projects hope to have an impact to strengthen the country capacity to address illegal use of wildlife and timber for commercial purpose. Significant overharvesting of wildlife and timber typifies most NPAs in Laos with repeated violations of wildlife and timber protection and trading laws.

Objective

To build the capacity of Laos PDR institutions to reduce the opportunity for illegal wildlife and timber trade within the PAW project areas.

Issue	World Bank Triggers	Safeguards Response Summary
Illegal wildlife and timber harvesting and trade	Environmental Assessment (4.01) Forests (4.36) Natural Habitats (4.04)	Eligible sub-projects all address wildlife and NPA threat mitigation capacity building from all angles. Sub-project all hope to help GoL mitigate the threat through better laws enforcement on trafficking In provinces, enhance POFI capacity to work with partners organization against wildlife trafficking Enhance capacity of PA staff and villagers to monitor, control, report and suppress illegal harvesting of wildlife and timber Train and incentivise villagers through implementation of Conservation Contracts Share information from village monitoring with law enforcement agencies Using occupancy surveys and satellite imagery monitor wildlife threats and logging /forest cover Form and maintain relationships with line agencies and collaborate on NPA management.

Mitigation Process

- Eligible sub-projects addresses wildlife and NPA capacity building from (a) institutional angle (DFRM, DOFI, Lao WEN, etc.), (b) the regulatory and practices angle, (c) the knowledge and human resources development angle and (d) the on-the-ground implementation angles in 5 provinces.
- Sub-project all hope to help GoL mitigate the threat through improvement and implementation of various GoL laws and regulations relating to conservation.
- In provinces, the POFI capacity to work with partners organization against wildlife trafficking will be enhances.
- In NPAs, the capacity of protected area staff and villagers to monitor, control, report and suppress illegal harvesting of wildlife and timber will be improved.
- Villages will receive training and incentive, through a step-wise approach that aims to help them implement a Conservation Contract whereby payment in Village Development Funds are made based on compliance with agreed conservation behaviour, including NPA laws.
- Village situation monitoring and results shared with law enforcement agencies and relevant line departments and agencies
- Using occupancy surveys and satellite imagery undertake review of wildlife threats and logging activities/forest cover assessment and report findings to DoFI and relevant line agencies

5.4 UNDESIRABLE FIRES

NPA forest types are located in landscapes that are not especially fire-prone ecosystems (e.g dense humid forests) or where periodic fires are considered as ecological agents (e.g. grassland in NEPL). However current fire frequencies are believed to exceed natural levels. From a wildlife habitat perspective fire events could reduce habitat suitability for species. Information on fire events will be integrated in the CEF, and community based fire management will be introduced. Indigenous fire management practices will be supplemented with training and early warning. Improved communication and response protocols will be established with forest department staff. High-risk areas will be identified and appropriate fire management plans developed during project implementation.

Objective

Build knowledge and capacity to reduce undesirable fire events inside NPA.

Issue	World Bank Triggers	Response Summary
Increased fire frequency	Natural Habitats (4.04) Forests (4.36)	Situational analysis of fire use, monitor and record fire patterns Document and share experience of successful fire management from other NPAs

Mitigation Process

- Document fire and management practices that have demonstrated sustainable fire management practices. Disseminate this information to project villages and resource managers.

- Discuss fire management with local villages through situational analysis. High-risk villages – those with excessive use that risks high quality environment – should be considered for behavioural change interventions.
- Consider fire risks, fire sensitive areas and fire management practices when drafting the NPA Management Plans.
- Build community members and NPA staff capacity in fire detection, prevention and suppression.

5.5 SHIFTING CULTIVATION

Shifting cultivation involves cutting down vegetation, burning it in situ and then planting crops on the cleared land. Once crops are harvested, the land is left ‘fallow’ for natural vegetation to re-grow. This agricultural system has traditionally been widely practiced in many parts of Lao PDR. Shifting cultivation (rotational) practices have been developed to account for these conditions, however conversion of land for concessions and other forms of development (mining, hydropower etc) is making even less land available for farming and food production. This is having a two-fold affect. The first is that it is forcing villages to reduce the fallow periods. A shorter fallow period produces lower yield rates than longer fallow. The second response is that to make up for the short fall in food availability, shifting cultivation is now expanding more rapidly into new areas, vis. pioneer shifting cultivation.

The dilemma that will be faced by the project is that should it pursue stronger enforcement to protect forest resources, it may have the very negative consequence of reducing people’s food resources.

The CEF provides extensive treatment of the project approach to village development compatible with NPA management. On this subject of mitigating the threat from increased shifting cultivation, the CEF primes over the ESMF. The SDA are invited to refer to the CEF first when dealing with this issue as what follows is a summary.

Objective

Build the community capacity and incentive to reduce incidence of forest conversion by reducing expansion of shifting cultivation practices, while simultaneously ensuring adequate areas and suitable land resources are provided to local communities to maintain food security.

Issue	World Bank Triggers	Safeguards Response Summary
Shifting cultivation is driver of forest cover reduction.	Natural Habitats (4.04) Forests (4.36)	Implement the CEF which includes participatory land use planning (PLUP) to ensure adequate land is available for food production but also for natural habitat conservation. Prepare Community Action Plan (CAP) and provide community grants whereby, if it is a community priority, assistance is provided toward livelihoods less reliant on shifting cultivation such as paddy irrigation, fish management and production, etc.

Mitigation Process

Land use planning will need to ensure that adequate lands, both quality and quantity, are retained for the purpose of food security including shifting cultivation. This includes regulating land use in restored and regenerated forests.

Livelihood Grants will be used to build the capacity and infrastructure requirements of securities to expand livelihood opportunities as a means to offset dependency on shifting cultivation.

6. SAFEGUARDS MANAGEMENT

6.1 STAKEHOLDER CONSULTATION

Project design, and the inputs to this ESMF, is the result of a year and a half of preparation. The main governmental stakeholders are staff and managers of DFRM and DOFI who are tasked with the development of protected areas and the protection of wildlife. They have led the preparation teams strategically and conceptually and ensured that the project responds to the concerns of the Laos society as defined in its various policies and laws. Various non-governmental entities including the National University, Wildlife Society of Laos, Free the Bear, Anoulak, IUCN, WWF, WCS, Freeland etc. have been consulted as preparation progressed and their feedback been incorporated in the project design. The design, especially the policy anchor and approach to community issues, safeguard processes and compliance was influenced by the dialog of the MONRE DPC with a variety of external players who are themselves engaged in consultation in the provinces and designing their support from this consultation. The choice of provinces, sites and approaches was largely influenced by these actors.

In Provinces, NPA team—WMPA in NNT and NEPL MU in NEPL—are in constant contact with their public partners, with their authorities and with communities. Both the WB and the MONRE consultants have carried a number of trips in the project areas to discuss the PAW Project and also other ongoing initiative in the areas such as the GEF4 in NEPL and the NT2 project in NNT NPA. In August and September 2012, a team from the consulting firm PT spent significant time the Houaphan province and NEPL area to meet and consult with stakeholders and communities on the proposed PAW Project. Their report shows a largely positive engagement of the provincial authorities, the district stakeholders, the NGO active in the area and villagers. This finding was confirmed in January 2013 by a World Bank mission, which included social and environmental specialists. That mission met stakeholders in the province, districts and villagers and obtained confirmation of a broad community support. As expected, communities insist that any increase in conservation must be accompanied by development and livelihood support.

This was echoed at all levels of governments, in Houaphan province, but also in the southern provinces of Bolikhamxay and Khammouane where provincial authorities and public departments insisted that community development had to come first and as a result of conservation. In February 2013, a team from the World Bank and MONRE, accompanied by DONRE staff from the Boulapha District and Khamkeut District, also travelled to the villages south and north of NNT, the so-called PIZ villages to consult with communities. Those communities, some of which has already received support from a GIZ operation and another Bank operation, have a special concern about grazing access in some areas of the NPA but, provided that the issues

of grazing right and access to NTFP could be resolved, e.g. through zoning, they could commit to become better steward of the NPA. More recently MONRE consultants, tasked with the SIA and CEF, travelled to Nakai, at the edge of the NNT NPA to meet with WMPA and its partners of DONRE, DAFO and also the department of education and health. They confirmed that, without funds from WMPA, there is almost no budget to support the 31 enclave villages in the NPA or protect the reservoir from illegal access by fisher people not registered or illegal loggers. The enclave villagers confirmed their support but complained that the extension services both for agriculture and conservation was largely insufficient and unpredictable to bear results.

The project document (the PIP), the sub-project approach selected as well as the safeguard documents--this ESMF and the CEF—are issued from this process of consultation, discussion at all level and by the project leaders, MONRE and MAF and their department as well as stakeholders at all level and origin.

This ESMF, as well as the CEF, have already been shared with a number of partners such as WCS, GIZ, WMPA, etc. for improvement. MONRE and EPF have translated them in Lao language and posting both the English and Lao versions on their web sites. The next step is a public consultation held on December 17, 2013, based on the main safeguard documents, in Vientiane and in the PONRE offices five project provinces: (Xiengkouang, Luang Prabang, Houaphan, Bolikhamxay and Khammouane. These meetings have been called for communities any interested stakeholder attention through the local newspapers. The minutes of these meetings will be attached to the final ESMF, which will include. any additional information and/or concerns raised by the communities during the December 2013 project public consultation.

6.2 SAFEGUARDS INTEGRATION

Three safeguard documents have been prepared: an SIA, this ESMF and the CEF. They are the only documents that integrate environmental and social safeguards for the PAW project. They are carefully harmonized. If, there is a case during implementation where their interpretation of the same issue appears to be in contradiction, the ESMF will prevail on environment issues and the CEF will prevail on social mitigation issues.

Safeguards will be integrated into sub-project design through an initial screening and then preparation of EMPs. Through the CEF, the SDA will assure that environmental safeguards are integrated in the participatory planning processes in NPA villages such as consultations, community focus groups, and household data acquisition. An outcome of the consultation process will be a PLUP, a CAP and a Conservation Agreement (CA) for each village. Forms required for approval of community grants will be included in site-specific CAPs. The community through an agreement with the implementing agency will endorse CAPs.

6.3 SAFEGUARDS MANAGEMENT AND MONITORING

The objective of safeguards management and monitoring will be to ensure that environmental safeguard policies and frameworks are implemented effectively and

that the ESMF and CEF process is carried out as per guidelines and appropriate capacity building of communities and government agencies is undertaken.

Under the PAW project, DFRM will recruit a full time international Technical Assistant specialized in community development and safeguards. When NPA sub-projects are initiated, they will have the opportunity to use their budget to recruit national TA with similar qualifications. They will be responsible for Safeguards at the local level. The DFRM TA will be responsible for overall Safeguards management, monitoring and supervision at the national level. The Monitoring and Evaluation Officer of EPF and of each SDA will undertake supervision of Safeguards. Other staff or TA recruitment will give consideration to professionals who have experience of Bank safeguards requirements, and this will be added to their ToR. Review of CEF and CAPs will be undertaken to ensure Bank safeguards requirements are being complied with.

The PAWP will build on the existing reporting; monitoring and evaluation system developed from other World Bank projects such as SUPSFM; SUFORD; PRF; LENs, etc. The project will also undertake special studies on free, prior and informed consultations, stakeholder participation, especially ethnic groups and women, technical aspects of project implementation, safeguards, capacity building and other issues relevant to the project. The role of communities in monitoring will also be strengthened. The monitoring and evaluation will be in close partnership with MAF, MONRE, MPI, LFNC, LWU, etc. with a strong focus on capacity building.

6.4 INTERNAL MONITORING IN NPA SUB-PROJECTS

NPA villages self-monitoring. Village Development Committees (VDC), under the support of the project Kumban team as well as the consultants embedded at the village level, will take a lead and carry out a participatory monitoring of project performance, impact, and efficiency. A community meeting will be held on a quarterly basis where villagers will discuss their perceptions on the efficiency of project support, suggestions they may have to improve the efficiency or alternative options, and any negative impact that has occurred and remains to be resolved. Such meetings will also be used by the project to assess the level of understanding and ownership of villagers to PAWP and alternative livelihood development, as well as changes in people's attitude and behavior. These participatory monitoring efforts will not be stand-alone activities but will be linked to the overall project monitoring and evaluation framework.

NPA Participatory Monitoring and Evaluation. The project will carry out an annual meeting at the district level where village representatives, including both a representative of VDC and another villager nominated by villagers, will present their perspectives and opinions collected through the village self-monitoring process. If the VDC representative is a male, then the second village representative should be a female, or the vice versa. If a village consists of multiple villages that have been consolidated, at least one representative of each hamlet will also participate. Village level meetings will precede the annual district level meeting, in participation of Village Mediation Units, where perspectives of villagers will be discussed and outstanding grievances or issues that are raised to VMU frequently will be reported. The Kumban teams and VDC teams supporting respective villages will support the village level meetings, paying particular attention to ensure vulnerable people and the

minority ethnic groups from each hamlet will meaningfully participate in the village level meetings.

This district level meeting will be organized by SDAs and supported by the project Kumban team as well as the consultants embedded at the village level. At the meeting, village representatives will be encouraged to share their perspectives on project performance, suggestions for improvement, outstanding grievances, and other relevant issues. Measures to improve project performance and resolve outstanding grievances will be also discussed and agreed. Minutes will be taken and kept in the project file, and progress on agreed actions will be discussed in the meeting to be held in the following year.

NPA sub-project monitoring. Implementation will be regularly supervised and monitored by the relevant SDA and Kumban teams (see also the CEF). The consultants hired by the project and embedded at the village level will prepare a quarterly progress report and describe their observations in project performance including on issues related to safeguards, which will be kept in the project file for possible review by the World Bank. The EPF will supervise and monitor the process at least one time per year and include the results in the Project annual reports to be furnished to the World Bank. The SDA will monitor core project indicators proposed by the PW project Result Framework. In consultation with local government and project beneficiaries, they will establish other practical monitoring indicators in line with the project objectives. Indicators will cover at least the following aspects of the project:

- Budget and time frame of implementation
- Delivery of project activities (project inputs)
- Project achievements in developing alternative natural resource use and livelihoods (project outputs and outcome)
- Consultation, Grievance and Special Issues
- Monitoring of benefits from project activities.

6.5 DATA MANAGEMENT

Environmental data

Environmental baseline data have been collected on forest cover. Additional data will be collected during implementation, as part of routine monitoring and for the design of the PA management Plans. Additional surveys will be undertaken by SDA and EPF as required.

- Occupancy survey for wildlife and threat assessment and monitoring
- Landscape characteristics, including waterways and fisheries resources
- Key habitat features likely to provide harbour for key species
- Concession and lease areas – current and proposed
- Situational wildlife sightings and assessments from staff and village patrols
- Situational wildlife trade assessments from village surveys
- Situational small-scale timber collection/logging activities
- Current fire practices in targeted high-risk villages

During NPA sub-project implementation, various such surveys will be undertaken to monitor the distribution and abundance of key wildlife species, to assess and map the threat profile of the NPA and to prepare the PA Management Plans.

GIS and other spatial information datasets

The following GIS, and simple map, datasets are required for baseline knowledge and effective monitoring:

- Satellite imagery of the NPAs and adjacent areas
- Village land use maps and PLUP
- Current location of villages, administrative boundaries
- Current concession area allocations
- Location of existing and proposed infrastructure developments
- Vegetation cover inventory

Incident reporting

Environmental incidents should be reported as soon as practicable to the designated person, and the village grievance committee. An environmental incident is defined as any incident that impacts on, or may potentially impact on the environment or community, or any activity result in regulatory non-compliance or breach of safeguard guidelines, GoL policies, standards or commitments. All incidents are to be reported, regardless of their perceived or actual seriousness.

Communication of ESMF

The content of the ESMF will be communicated to EPF staff and to all and any SDA before a sub-project proposal can be drafted, and all other institutions involved in project activities via an induction program. In addition the ESMF will be provided to district agencies such as Lao Women's Union (LWN), and the Lao Front for National Construction (LFNC) etc. Multiple copies of the ESMF will be made available to all PoNRE, DoNRE, PAFO, DAFO and PoFI, DoFI offices, with key components provided in appropriate language.

Grievance Redress Mechanism

Grievances related to environmental issues that result from project activities will be resolved through a four-step grievance mechanism. Detailed guidelines for the grievance mechanism are included in the CEF and will be communicated to the community during the planning process for all project activities. The grievance mechanism is based on key principles that will protect the rights and interest of project participants; ensure that their concerns are addressed in a prompt and timely manner, and that entitlements are provided in accordance with GoL and Bank environmental safeguard policies. Grievances will be addressed at the village, district, province, and national level. A complainant also retains the right to bypass this procedure and can address a grievance directly to the NPSC or the National Assembly as provided for by law in Lao PDR. All grievances at each level with details, discussions, actions, and outcomes will be recorded in a grievance logbook that will be maintained by WMPA and PAMU.

Audit and Review

All sub-projects will undergo regular internal audit by the safeguard TA that will assess:

- Appropriateness of the CEF, ESMF (and EMPs) to the current resource management practices and conditions;
- Awareness of PoNRE, DoNRE and villagers of the CEF, ESMF and EMPs and all associated plans and safeguard procedures;
- Village grievance committee records as they relate to environmental safeguards issues and compliance;
- Performance of managers, contractors and PoNRE/DoNRE staff in implementing and maintaining the CEF, ESMF and EMP; and
- Availability of adequate resources and expertise for implementation of the CEF, ESMF and EMPs.

The findings of audit reports and recommendations will be presented to the EPF and to SDAs in the Annual Report. Corrective actions will be incorporated into the ESMF and CEF as required.

Table 3: ESMF Implementation, Maintenance and Reporting Requirements

Target	Action	Responsibility	Schedule
Maintain an up-to-date ESMF	Review and update ESMF, and submit revisions to EPF and World Bank for approval	WMPA and PAMU	Annual
Communication structures between Project and GoL in place	DFRM to develop procedures and schedule for coordination and reporting	WMPA and PAMU	Prior to implementation
Meet reporting requirements	Prepare quarterly reports	WMPA and PAMU	Bi-annual
	Prepare ad-hoc reports	WMPA and PAMU	As required

Budget for environmental management and monitoring

Table 4: Environmental Safeguards Budget (US\$ 000)

			Year				
Issue	Safeguards activity	Comment	2014	2015	2016	2017	2018
1. Illegal Wildlife Trade							
	Limit new road developments and road/track upgrades	On-going consultations					
	Avoid road network development of any kind in or near key landscape features identified as HCV1-6						
	Negative Checklist and Project Screening Procedures		6	6	6	5	2
	Compliance with various GoL laws and regulations relating to forestry developments						
	Village situational monitoring with results shared with law enforcement agencies and line departments						
	Biodiversity Assessment	Establish baseline and monitor	20	10	10	5	3

			Year				
Issue	Safeguards activity	Comment	2014	2015	2016	2017	2018
	Satellite images	Purchase	10	10	5	10	4
	Satellite image analysis and reporting	Purchase		5	5	5	4
2. Illegal Logging							
	Annual assessment using satellite imagery to evaluate forest cover loss.	Integrate with DoFI enforcement	10	10	10	10	
	Hold quarterly multi-jurisdictional workshop or meetings with the various responsible agencies	No specific budget required but meeting outcomes may require extra activities and projects that require funding. Budget is contingency only	5	5	5	5	
	NPA demarcation and signage	Signage can be funded through village development grants or other project specific grants mechanism.	2	2	2	2	2
	Village livelihood grants	Use Project Screening and Negative Checklist in EMP.		2	3	3	2
3. Concession Granting							
	Strengthening government institutions and policies	Consultations	2	2	2	2	2
	Signage for NPA and livelihood development areas.	Funding part of subcomponent project budget. Use of negative checklist and project screening processes will assist project proponent in determining concession risk level.	2	2	2	2	2
4. Fire control							
	Document fire and management practices	Dissemination of material through standard extension avenues	2	2	2	1	1
	Discuss fire management with local villages through	On-going consultations	2	2	2	1	1

			Year				
Issue	Safeguards activity	Comment	2014	2015	2016	2017	2018
	situational analysis.						
5. Manage forest encroachment from shifting cultivation							
	Land use planning to ensure adequate land is available for food production.	Standard safeguards administration, and land use planning	2	4	4	3	1
	Village development grants targeted towards having livelihoods less reliant on shifting cultivation	Target village livelihood development grants	2	3	3	1	1
6. Safeguards Management							
	Safeguards Manager	Project environmental safeguard manager	30	30	30	30	30
	Safeguards Training		10	20	20	20	10
	Safeguards Monitoring / Evaluation	All PAW implementers various requirements	15	25	25	20	10
		Sub Total US \$	120	140	140	125	75
		Total Budget US \$					\$600

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ANNEXURE 1 - INTEGRATED ENVIRONMENTAL SAFEGUARDS SCREENING PROCESS

The Integrated Environmental Safeguards Screening tool will be used to evaluate proposals against relevant safeguard requirements. All projects must be GoL and World Bank Safeguard compliant, and this must be demonstrated in every proposal.

The first screening is to assess the project against prohibited activities in the Negative Check List. Any project that triggers one or more of these items will be rejected. This can include a rejection that requires project revision of methods, and then resubmission. Once a project passes the Negative Checklist its risk is weighted against the criteria in the Risk Matrix.

The matrix uses broad definitions as indicators of extent of possible impacts. *Likelihood* refers to level of probability, in a scale between ‘not at all’ to ‘certain’. *Consequence* refers to severity of an impact a proposal, within range of between ‘not significant’ to ‘catastrophic’. If the potential exists for a catastrophic consequence the project will be rejected. Activities that cause a catastrophic event could include environmental poisoning, excessive fire, or introduction of noxious weeds and pests.

The matrix assigns a *risk level*: A1, A2 or A3. Each risk level requires additional levels of safeguard interventions. The risk levels in the matrix correspond to the various conditions, forms and questionnaires to be completed for all projects funded under PAW.

To simplify use of the screening process simple guidelines will be created and included in the CEF training manuals, along with examples. The screening process will also be pre tested and adapted as appropriate given the context of content, culture, and language.

Table 5: Consequences and Likelihood Risk Matrix

	CONSEQUENCE (Impact)			
LIKELIHOOD	Insignificant	Moderate	Major	Catastrophic
Almost certain/certain	A1	A3	A3	Negative checklist
Likely	A1	A2	A3	Negative checklist
Unlikely or not at all	A1	A2	A3	Negative checklist
	CONSEQUENCE (Impact)			

LIKELIHOOD: Probability that the identified consequence will occur	
Almost certain	The most likely and expected result.
Likely	Has happened but was unusual. Possibly a result of unmanaged sequence, or a coincidence.
Unlikely or not at all	Has not happened but minor risk exists (cannot be zero). Usually this impact can be anticipated, and can be managed by the application of guidelines and best practice standards relevant to the project.
CONSEQUENCE: Significance of the environmental impact	
Catastrophic	Widespread irreversible environmental harm. Can result in permanent loss of current and future management options.
Major	Critical event with widespread impact, or serious environmental harm locally. Impacts are unlikely to be permanent but will require major intervention and rehabilitation.
Moderate	Consequences can be absorbed but management effort will be required to minimize impacts.
Insignificant	Full recovery is expected, and / or no harm is done. No significant action required, however, possible impacts need to be acknowledged.

ANNEXURE 2 - PREFERENCE AND NEGATIVE CHECKLIST

The project will support all activities at the community level through the CEF process and as agreed in the CAPs. The overall objective of activities will be to improve protected area management, protect wildlife, and improve livelihoods. The CEF and the CAPs will provide site-specific details on all activities that are on the preference list and agreed through consultations and included in the CAPs.

Screening Step 1: Negative Checklist Screening

Environmental assessment and review is an important process of the environmental safeguard compliance process and a part of the overall sub-project approval/ appraisal process. An initial assessment of PAW activities is screened by the EPF Technical Committee through a negative checklist. The appraisal is undertaken to evaluate if an investment is likely to be in breach of one or more of a core set of Safeguard prohibited activities. If a proposed sub-project is non-compliant to even one of the Negative Checklist items it will not receive approval for funding and will need to be revised and re submitted for approval.

Screening Step 2: Identification of safeguard issues and preparation of mitigation measures

If the EPF Technical Committee is satisfied that Negative Checklist items have not been triggered then the proposal is moved to the second screening process. Safeguard issues will be identified and appropriate mitigation measures are prepared.

Screening Step 3: Safeguard documentation and information disclosure

Documentation: potential negative impacts and the proposed mitigation measures will be identified and the results of the safeguard screening will be recorded on appropriate forms.

Form A1: No impact project. Used when a proposal is unlikely to involve any civil works, land use change, or cause negative impacts on the environment, natural habitats, or physical cultural resources (Appendix 2.1).

Form A2: Low impact project. Used if the proposal will involve small civil works, small land acquisition, minor land use change; affect physical cultural resources, or natural habitats. Form A2 is accompanied by a Screening Questionnaire and the applicant may be required to provide detailed information, at the request of the assessment panel (Appendix 2.2).

Form A3 High impact project. Used if the proposal involves significant land acquisition or changes, or may create significant impacts on ethnic groups, physical cultural resources, natural habitats, or other environmental or social aspects. Form A3 is accompanied by a detailed Screening Questionnaire and may also involve the provision of detailed information at the request of the assessment panel (Appendix 2.3).

Table 6: PAW Negative Checklist of Prohibited Activities

PAW Negative Checklist	
1	New settlements or expansion of existing settlements outside the area defined by the PLUP or in any zone not gazetted for agriculture or habitation in the macro zoning of the NPA.
2	Creation of adverse impacts on local people including ethnic groups that are not acceptable to them, even with the mitigation measures developed in their participation.
3	Physical relocation and/or demolition of residential structures of households
4	Use of PAW subprojects or activities as an incentive and/or a tool to support and/or implement involuntary resettlement of local people and village consolidation. Project finance can be used in villagers that were consolidated only if the requirements provided in Section 9.1, Stage 1 of the CEF have been fully met.
5	Damage or loss to cultural property, including sites having archaeological (prehistoric), paleontological, historical, religious, cultural and unique natural values.
6	Construction of new roads, road rehabilitation, road surfacing, or track upgrading of any kind inside natural habitats and existing or proposed protected areas and in general any construction expected to lead to negative environmental impacts.
7	Introduction of non-native species, unless these are already present in the vicinity or known from similar settings to be non-invasive, and introduction of genetically modified plant varieties into a designated project area.
8	Forestry operations, including logging, harvesting or processing of timber and non-timber products (NTFP); however support to sustainable harvesting and processing of NTFPs is allowed if accompanied with a management plan for the sustainable use of the resources.
9	Forestry operations on land or in watersheds in a manner that is likely to contribute to a villages increased vulnerability to natural disasters.
10	Conversion or degradation of natural habitat and any unsustainable exploitation of natural resources including NTFPs.
11	Production or trade in wildlife products or other products or activity deemed illegal under Lao PDR laws, regulations, or international conventions and agreements, or subject to international bans.
11	The production, processing, handling, storage or sale of tobacco or products containing tobacco.
12	Trade in any products with businesses engaged in exploitative environmental or social behaviour; or engaged in any unauthorized activities especially those related to natural resources.
13	Purchase pesticides, insecticides, herbicides and other dangerous chemicals exceeding the amount required to treat efficiently the infected area. However, if pest invasion occurs, small amount of eligible and registered pesticides in Lao PDR is allowed if accompanied with a training of farmers or villagers to ensure its safe uses and World Bank's clearance is needed. If the use of pesticide is necessary, the SDA will refer to the Pesticide Management Plan.
14	Purchase of guns; chain saws; asbestos, dynamites, destructive hunting and fishing gears and other investments detrimental to the environment and in general purchase of goods intended for a military purpose or luxury consumption.

15	Labor and working conditions involving harmful, exploitative, involuntary or compulsory forms of labor, forced labor ¹ , child labor ² or significant occupational health and safety issues
16	Sub-projects or activities that require a full EIA.

Information disclosure: Information related to the approved sub-grants and mitigation of social or environmental impacts, including mitigation plans, will be made available for local public access.

Screening Step 4: Safeguard clearances and implementation

The Safeguards Manager will approve all projects and sub projects. If denied clearance the proposal will be rejected. All the safeguard documentation (screening and other documents) will be kept in the projects files for later review. The assessment panel will ensure that agreed actions are included in the sub-project conditions and that the applicant understands and commits to implementing agreed mitigations measures.

Screening Step 5: Supervision, monitoring and reporting

The Safeguards Manager will periodically supervise and monitor safeguard implementation performance and include the progress/results in the project progress reports.

¹ *Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.*

² Harmful child labor means the employment of children that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.

Appendix 2.1

FORM A1: NO IMPACT PROJECT

MoNRE PAW Sub-grant application and declaration form

Number

Sub-Project Environmental Screening

For proposals that will not cause negative impacts on ethnic groups, natural habitats, or physical cultural resources.

Applicant Name	Project Name	
Project Location (Village and NPA)	Total Project Cost	Total Requested

DECLARATION

I.....certify that this sub-grant does not involve any activities in the Negative Checklist provided in Step 1 of the EMP. The sub-grant will also not cause any adverse social or environmental impacts, or negatively effect ethnic groups and therefore does not require preparation and clearance of safeguard mitigation measures.

Screened by.....

Attached

- Proposal

Appendix 2.2.

FORM A2: LOW IMPACT PROJECT

MoNRE PAW Sub-grant application and declaration form

Number

Sub-Project Environmental Screening

For proposals that will involve moderate and localized social or/and environmental impacts. These could be land type conversions, negative impacts on indigenous populations, Physical cultural resources, and natural habitats.

Applicant Name	Project Name	
Project Location (Village and NPA)	Total Project Cost	Total Requested

DECLARATION

I.....certify that this sub-grant does not involve any activities in the Negative Checklist provided in Step 1 of the EMP. The sub-grant will also not cause any adverse social or environmental impacts, or negatively effect ethnic groups. If the sub-grant involves small scale land acquisition or resource restriction then an abbreviated Resettlement Action Plan (RAP) is required. If minor social and environmental impacts are likely then good engineering and current best practice management have been incorporated into the project design to minimize and mitigate them. Details of possible impacts and mitigations responses are attached.

I have reviewed and completed the Screening Questions for this application.

Screened by

Attached

1. Proposal
2. Details of impacts and mitigation
3. Responses to Screening Questions

Form 2A: Screening Questions for Low Impact Project

Screening questions	No	Unknown	Yes	Proposed mitigation
• Hydrocarbon contamination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Such as soil removal
• Elevated wildlife trafficking potential	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Such as control barrier
• Localized stream sedimentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Such as planting vegetation
• Localized soil erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Such as contour planting
• Localized habitat loss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Such as nursery and plantation
• Localized vegetation fragmentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Such as protection of corridor
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RECOMMEND	Yes	No	Conditional	Additional information requested
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Proposal Submitted by		Approved by		
NAME.....		NAME.....		
POSITION:.....		POSITION:.....		
DATE.....		DATE.....		

Appendix 2.3

FORM A3: HIGH IMPACT PROJECT

MoNRE PAW Sub-grant application and declaration form

Number

Sub-Grant Environmental and Social Safeguards Screening

For proposals that involve significant habitat conversion, affect natural habitats, or have major potential environmental impacts.

Applicant Name	Project Name	
Project Location (Village and NPA)	Total Project Cost	Total Requested

DECLARATION

I.....certify that this sub-grant does not involve any activities identified in the Negative Checklist in Step 1 of the EMP.

Screened by

Recommendations for proposal improvement before submitting to Peer Review or Evaluation Committee:

Prepared with the following Community Members / Partner Organizations:

Attached

- 1. Proposal
- 2. Details of impacts and mitigation
- 3. Responses to Screening Questions

Form 3A: Screening Questions for High Impact Project

Screening questions for major impacts	No	Unknown	Yes	Proposed mitigation
• Elevated wildlife trafficking potential	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Wide scale sedimentation of streams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Wide scale/long term soil erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Wide scale habitat loss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Wide scale vegetation fragmentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Hydrocarbon contamination - water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Elevated fire risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Others				
RECOMMEND	Yes	No	Conditional	Additional information requested
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Proposal Submitted by		Approved by		
NAME..... ...		NAME..... ...		
POSITION..... ...		POSITION..... ...		
DATE		DATE		

ANNEXURE 3 SIMPLE MITIGATION MEASURES FOR SMALL SUB-PROJECTS

These mitigation measures provide technical guidelines for a simple impact assessment and mitigation measures of the sub-projects that do not require an IEE preparation as required by the Government's EIA regulation. An assessment threshold of civil works for sub-projects is described in Table 16; mitigation measures for very small civil works below the threshold are described in Table 17; and mitigation measures for buildings are provided in Table 18. In addition a standard environmental code of practices (ECOP) to be included in the grant agreement either with the local community and/or a contractor is provided.

Table 7
Assessment thresholds for civil works

	Type of investment	Thresholds
SCALE	Village rural roads, tracks and footpaths (wider than 3.5 m)	> 10 km
	Small bridges and piers	> 20 m
	Village water supply	> 2,000 users
	New construction of irrigation schemes	All
	Community Buildings (halls, health centres, schools, markets)	> 400 m ²
	Sanitation Facilities (<i>latrines</i>)	> 200 users
	Mini-hydro generators	All
Changes likely to occur in water use and/or water availability		All
Protected area or area proposed for protection by the Government		All

Table 8: Mitigation measures for very small civil works

Key issues to consider	Mitigation measures	Remarks
Location & possible impact		
- Land and biodiversity degradation in conservation area	No animal killing	
	No land occupation	
	No forest cutting	
	Solid waste management	
	No camping	
- Flooding area	Provide adequate drainage system	
	Include appropriate measures to accommodate floods such as retention pounds, diversion ditches, small dike, raising houses on stilts, etc.	
- Soil erosion in mountainous area	Design slope should be less than 17%	
	Side drain	
	Slope protection	
	Guard rail (simple type)	
- Security risk to community	Speed limit sign	
	Dust control	
	Accident prevention	
- Land property	Minutes of meeting on conflict resolution and copy of land certificate attached	
	Cultural area, history	
-Disturbance of fish spawning areas and migration routes	Avoid negative impacts such as disposal of spoil and tree uprooting that could silt up watercourses. Ensure optimal design.	
Construction phase		
- Burrow pit	Select suitable site	
	Avoid new burrow pit	
	Back fill as instructed	

- Erosion risk	Provide adequate slope protection	
	Provide maintenance procedure	
- Solid waste	Provide appropriate waste collection and disposal	
- Waste oil	Do not allow to drain into soil and river	
- Camp	Secure agreement with local community	
	Provide water supply, mosquito net, and adequate sanitation (toilet, washing space, etc), and good housekeeping to prevent rodents, insect, etc.	
-Storage of construction material	Store toxic wastes and materials in safe place.	
Operation phase		
- Public health, road safety, and other negative impacts on the village	Consult community and develop mitigation measures	
- Speed control	Install measures to control speed limit (sign, bumper, etc); education campaign	
- Dust control	Control speed limit, periodic watering, plant appropriate trees, surfacing	
- Accident	Awareness training in cooperation with the Police and local authorities	

Table 9: Mitigation Measures for Buildings

Key issues to consider	Mitigation measures	Remarks
Loss of land ownership	Land use certificate	
Disturbance or pollution of of water system	Detail study and proper design	
Clogging of drainage system	Proper design	
Location		
Increase risk of land slide	Proper design and slope protection	
Construction		
Unmanaged waste materials with health risks	Provide appropriate waste collection and disposal	
Safety	Provide training	
Operation		
Unorganized waste management	Set up committee	
	Allocate suitable area for waste	
	Separate recyclable waste	
	Set up rules and regulations	
Water system, drainage system	Detail study and proper design to protect rivers and underground water	

ANNEXURE 4 STANDARD ENVIRONMENTAL CODE OF PRACTICE (ECOP)

The following good housekeeping practices and “chance find” are required for all contracts smaller than the thresholds defined in Table 17. The practice of housekeeping involves proper storage, use, clean up, and disposal of the various materials used during construction for human and environmental safety.

DO:

- Limited working hours during the day, especially in residential areas, and control driving speed
- Minimize earth excavation and appropriate disposal of spoil
- Minimize opening of new burrow pits and ensure proper closure
- Minimize traffic congestion, dust and noise generation
- Proper maintenance of construction equipment and vehicles
- Provide appropriate safety signs (day and night) and inform local residents
- Avoid spill of used oil and other toxic materials, including safe transportation and storage
- Apply good housekeeping in the construction and/or storage sites to ensure safety of workers and peoples. Remove debris to keep the work site orderly and safe. Plan and implement adequate disposal of scrap, waste and surplus materials. Keep work area and all equipment tidy. Designate areas for waste materials and provide containers. Keep stairways, passageways and ladders free of material, supplies and obstruction. Secure loose or light material that is stored on roofs or open floors. Keep materials at least 2m (5ft) from openings, roof edges, excavations or trenches. Remove or bend over nails protruding from lumber. Keep hoses, power cords, welding leads, etc from laying in used walkways or areas. Ensure structural openings are covered/protected adequately. Provide appropriate fire extinguishers for materials found on-site. Keep fire extinguisher stations clear and accessible.
- Ensure access to clean water and latrines for workers and provide mosquito nets.
- Avoid social/cultural conflict between workers and the local population.

DO NOT:

- Do not permit rubbish to fall freely from any locations of the project and/or access by animals (dogs, cats, pigs, etc.). Use appropriate containers.
- Do not throw tools or other materials.
- Do not raise or lower any tool or equipment by its own cable or supply hose.
- Use grounding straps equipped with clamps on containers to prevent static electricity buildup.
- Do not allow hunting of animals by workers in protected areas.

SPECIAL NOTE ON FLAMMABLE/EXPLOSIVE MATERIALS

- Store flammable or explosive materials such as gasoline, oil and cleaning agents separate from other materials.
- Keep flammable and explosive materials in proper containers with contents clearly marked.

- Dispose of greasy, oily rags and other flammable materials in approved containers.
- Store full barrels in an upright position.
- Store empty barrels separately.
- Post signs prohibiting smoking, open flames and other ignition sources in areas where flammable and explosive materials are stored or used.
- Store and chain all compressed gas cylinders in an upright position.
- Mark empty cylinders and store them separately from full or partially full cylinders.
- Ventilate all storage areas properly.
- Ensure that all electric fixtures and switches are explosion proof where flammable materials are stored.

ANNEXURE 5 - SIMPLIFIED PEST MANAGEMENT PLAN (PMP)

Project Background

The proposed project titled Protected Area and Wildlife Project (PAW) aims to contribute to the Lao PDR's continuing efforts to enhance management of its protected areas, and wildlife resources. The project will be implemented in two selected National Protected Areas (NPAs) of Nam Et-Phou Louey (NEPL) in the three provinces of Houaphanh, Luangprabang, and Xiengkhuang; and Nakai Nam Theun (NNT) in Khammouane and Bholikhamxay. These two NPAs constitute part of the Lao PDR's estate of 24 NPAs and have been selected for the project based on the rich biodiversity resources, tiger habitat, increased threats on resources, and trans frontier challenges and opportunities.

The total investment in the project will be US\$ 24.44. Lao PDR will access US\$ 9 million of its national IDA15 allocation, and US\$ 8 million from regional IDA funds due to the trans frontier regional component of the project. In addition US\$ 6.83 will be financed by GEF5, as the proposed project constitutes Phase III of the horizontal Regional Adaptable Program Loan (APL) on Strengthening Regional Cooperation for Wildlife Protection in Asia (SRCWP).

The project will finance through the Environment Protection Fund (EPF) a subgrant under the Department of Planning and Cooperation (DPC), Department of Forest Resources Management (DFRM), Department of Environmental Quality Promotion (DEQP) of the Ministry of Natural Resources and Environment (MoNRE); Department of Forest Inspection (DoFI) of the Ministry of Agriculture and Forestry (MAF); Faculty of Forestry of the National University of Lao (NUOL); Provincial Office of Natural Resources and Environment (PoNRE), and Provincial office of Forest Inspection (PoFI) of Khammouane, Bholikhamxay, and Houaphanh provinces; and local communities living in and near the two project's NPAs.

Project Development Objective and Components

The project development objective is to strengthen participatory and trans frontier management of selected national protected areas, and improve enforcement against illegal wildlife trade. The project development objective (PDO) will be achieved through the three components.

Safeguards Triggered

To be eligible for World Bank (WB) financing, it is necessary to ensure that the activities to be implemented by the PAW project will not create adverse impacts on the local environment and local population. While the PAW project is not expected to have adverse environmental impacts, it has been assigned Category "B" status because it triggers several Bank safeguard policies. The PAW project is intended to improve overall protected area management capability in the two NPAs. However there is a risk that some sub-project activities may cause localized small scale negative impacts. As such the SIA, Environmental Management Plan (EMP), and the ESMF will be compliant with World Bank Safeguard Policies: Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Forests (OP 4.36), Indigenous Peoples (Ethnic Minorities) (OP 4.10), and Involuntary Resettlement (OP 4.12).

This document is the simplified Pest Management Plan (PMP). It aims to provide basic knowledge to the national, provincial and district government, the PAW team, consultants, kumban (KB) staff, village officials, private and public sector agencies with adequate guidance for effectively addressing the safeguard issues in line with OP 4.09. The process will be implemented as part of the PAW project activity implementation and fully integrated into the sub-project selection, approval, implementation, and monitoring and evaluation process. The PMP describes key issues related to procurement and use of pesticide and chemical fertilizer and identifies mitigation measures related to prohibited items, training, and guidelines related to safe use of pesticides. The PMP will be applicable for all PAW activity including activities related to sub-projects. The simplified PMP will be implemented along with other safeguard instruments developed for PAW such as the Environment and Social Management Framework (ESMF), and the Community Engagement Framework (CEF).

Responsible Agency

The EPF administer the project funds. The SDA of NPA sub-projects at provincial and local levels will be responsible for implementation of the PMP and ensuring full compliance, including keeping proper documentation in the project file for possible review by the World Bank.

This document is considered a living document and could be modified and changed as it is appropriated. Close consultation with the World Bank and clearance of the revised PMP will be necessary.

Project Area

The sub-project area are in the selected areas of the NEPL NPA and NNT NPA, and villages within and adjacent to these two NPAs.

Project implementation arrangements

See Section 1.4 of this ESMF.

World Bank's safeguard policy on pest management (OP 4.09)

The objective of this policy is to minimize and manage the environmental and health risks associated with pesticide use and promote and support safe, effective and environmentally sound pest management. The project will not support procurement and use of pesticide and/or chemical fertilizer; however, the OP 4.09 was triggered as there may be minor use of pesticide especially in non NPA areas that are adjacent to NPAs in activities related to livelihood development that could have potential pesticide and/or chemical fertilizer use by the community.

While the project will not procure and promote use of chemical pesticides and fertilizers, which are included in the *negative* list (see below), it may be unrealistic to completely prevent all farmers from applying chemical inputs. Specifically building of small irrigation/agriculture production, and/or control of infestation of diseases may involve the use of pesticides and/or procurement of small amount of pesticides, herbicides, and insecticides. To mitigate this potential impact this simplified PMP has been prepared outlining clear regulations and procedures for management of pesticides and/or toxic chemical as well as providing knowledge and training on health impacts and safe use of pesticides and/or, when possible, promotion of non-chemical use alternatives such as

organic farming. The responsible agencies will apply the Conservation Agricultural Technology approved by Ministry of Agriculture and Forestry (MAF) in 2006 for the agricultural activities.

Government regulation related to pest management

In March 2000, with support from Japan International Cooperation Agency (JICA) and Food and Agriculture Organization (FAO), the MAF established the Regulation number 0886/MAF and recently updated in June 11, 2010 into the regulation number 2860/MAF on Pest Management in Lao PDR. The regulation was developed based on the WHO recommended Classification of Pesticide by Hazard and Guideline to Classification 1994-1995. The GoL had registered in January 2010 the companies who import pesticides, fertilizers and seeds into Lao PDR. Registered pesticide has been adjusted in May 2010 based on the new regulation. The Department of Agriculture (DoA) under MAF is mandated to oversight all the usage of pesticide.

Key issues related to use of pesticide and chemical fertilizer

The PMP is developed to support project community and a responsibility of all parties to support the implementation. Negative impacts from the use of pesticide and chemical fertilizer are expected to be minor and localized and could be mitigated during the planning and implementation of the project. Given that pesticide and chemical fertilizer are normal practicing by many farmers, however, it is important for PAW staff and local communities to understand the nature of activity which could possibly encourage people to reduce the use pesticide and chemical fertilizer.

Implementation of sub-projects related to livelihood development, rehabilitation and improvement of small irrigation may indirectly involve the use of pesticides and or chemical fertilizer.

Actions for mitigation

As mentioned, the negative impacts from the use of pesticide and chemical fertilizer from PAW activities would be minor and localized and could be mitigated during the planning and implementation of the project. During the CEF consultation stage, there are also opportunities to enhance positive impact during the planning and selection of the sub-projects. Activities to be carried out during the planning and implementation of PAW project on pest management are summarized below:

(a) Prohibition

To avoid adverse impacts due to pesticides, procurement of large pesticides will be prohibited and this has been included in the “*negative list*”.

(b) PAW staff training

Specific components will provide basic knowledge on alternative options for livelihood activities, including safe use of pesticides and other toxic chemicals. Budget would be allocated for project staff training to understand i) overall policy on Pest Management (government and Bank policy); ii) basic knowledge on possibly negative impact on environmental and health from the use of pesticide and chemical fertilizer; and iii) basic knowledge on how to prevent it including what are the prohibited items in the country for

pesticide and chemical fertilizer, how to prevent or mitigate the negative impact from use of fertilizer, pesticides, and/or toxic chemicals in sub-projects.

(c) Provide knowledge to farmers

Prior consultation would be provided to project communities. Pest management will be included as one topic for village consultation meetings. If likely that the agriculture support would be priority for a particular village either agriculture infrastructure and livelihood support, training on pest management should be provided in the following areas:

- *Pest management training:* The objective is to provide basic knowledge to the target farmers on prohibited types of pesticide, the negative impacts on the use of pesticide and chemical fertilizer both on environmental and human health, and how to mitigate the negative impact from the usage of pesticide and chemical fertilizers if there is a need to use these. Farmers will also be informed that, the GoL does not intend to support the use of any pesticide and chemical fertilizer in any agricultural productivity but aims to promote conservation agriculture instead. The procurement of pesticide and chemical fertilizer will not be necessarily funded under the project budget; however any PAW villages that get support for livelihood activity would need to have training on pest management described under this PMP.
- *Training on GoL regulation:* The country is experienced in the use of pesticide and chemical fertilizer and has learnt from its neighbouring countries. PAW will train the target farmers on Lao PDR Regulation No 2860/MAF on Pesticide Management before the sub-project can be implemented and subject to compliance with the Bank safeguard policy OP 4.09 on Pest Management.
- *Technical training:* This training would aim to provide the target farmers to understand clearly the technical aspect of pesticide and skills in using them such as what are the eligible and prohibited items of pesticide in Lao PDR, the level of negative impact of each eligible item, how to use them, how to protect and minimize the negative impact while using them, how to keep them before and after use etc. The trainer would be knowledgeable on this and the PAW project will finance the training cost and per diem and transportation cost for the trainer if needed.
- *Procurement, storage, and usage of pesticide:* Procurement, storage and monitoring of the usage of pesticide financing under PAW is fully a responsibility of the implementing agency in respective NPAs. The responsible agency should strictly follow Articles 18 and 19 of MAF Regulation No 2860/MAF for procuring all pesticide; Articles 20, 21 and 22 for transportation, storage and trans-boundary transportation of pesticides; and Articles 23 and 24 for the safety use of pesticide. The agency or user may refer in addition to the Article 25 and 26 for storage and usage of pesticide.

Promotion of non-chemical agriculture

The PAW project has been designed to promote conservation of natural resources. Given that most of the project villages are located in remote area, in and adjacent to protected areas, sustainable use of natural resources would be critical for their livelihood development and poverty reduction. As protected areas or critical natural habitats are located nearby, it is necessary to take specific measures to minimize potential negative impacts and/or enhance positive impacts through the community participation process. In this context, a “conservation agriculture technique” should be introduced for target

communities and included in the CEF process. During the planning process, action will be carried out to plan and train farmers.

Implementation arrangements and budget

(a) Planning and implementation

The sub-project SDA will be responsible for providing training to staff at province and local level during the consultation and planning stage. Budget for training will be included in the sub-project cost or capacity building as appropriate.

(b) Monitoring

The project team will monitor the use of pesticide in target community including: i) ensure the procured pesticide is not in the banned list provided in Annexure 2: ii) ensure procured pesticides are stored and transported properly; iii) ensure training delivery to the user before distribution; and iv) monitor compliance usage of pesticide according to the MAF's Regulation No 2860/MAF (See Annexure 1). The World Bank and the PAW team will carry out a joint Implementation Support Mission every six months to review compliance. The World Bank will use its Pest Management Guidebook as a standard to monitor compliance of the use of pesticide procured under the project.

List of eligible and banned Pesticide in Lao PDR. May 2010

Table A5.1: List of eligible and registered pesticides

No	Common name	a.i (%)	Trade name	Type of application	Countries of origin	Toxicity class
1	2,4- D	80%	Zico 80 WP	Herbicide	Vietnam	WHO II
2	2,4-D dimethyl ammonium	84%	Dee Jai	Herbicide	Thai	WHO II
3	2,4-D dimethyl ammonium	82.1%	Obet	Herbicide	Thai	WHO II
4	2,4-D dimethyl ammonium	84%	B K Amin	Herbicide	Thai	WHO II EPA II
5	2.4 D	60%	ZICO 720 SL	Herbicide	Vietnam	WHO II
6	2.4 D	48%	Zico 48 SL	Herbicide	Vietnam	WHO II
7	45% buprofezin + 15% Imidacloprid	60%	DIFLOWER® 600WP	Insecticide	Vietnam	WHO U
8	Abamectin	1.80%	Khum Pleum	Insecticide	Thai	EPA IV
9	Abamectin	1.8%	Countdown	Insecticide	Thai	EPA IV
10	Abamectin	1.8%-3.6%-5%	DIBAMEC®1.8 EC-3.6EC-5WG	Insecticide	Vietnam	EPA IV

11	abamectin	1.8%	Intake	Insecticide	Thai	EPA IV
12	Abamectin 0.9% + Bacillus thuringensis 1.15	2%	ABT 2 WP	Insecticide	China	EPA IV
13	Acetochlor	50%	Dibstar 50 EC	Herbicide	Vietnam	WHO III
14	Acetochlor	80%	Saicoba 80 EC	Herbicide	Vietnam	WHO III
15	Acting		AI-Net Acting	Plant Growth regulator	Thai	
16	Agrio-streptomycin	72%	Agrio- streptomycin	Bactericide	China	
17	Alachlor	48%	Anchor	Herbicide	Israel	WHO III
18	Alpha cypermethrin	5%	Sapen-Alpha 5 EC	Insecticide	Vietnam	WHO II
19	Alpha-Cypermethrin	2%	Dominex	Insecticide	Thai	WHO II
20	Alpha-Cypermethrin	5%	DANTOX®5EC	Insecticide	Vietnam	WHO II
21	Ametryn	50%,80%	Sametrin 50 WP, 80 WP	Herbicide	Vietnam	WHO III
22	Atrazine	80%	Mizin 80 WP	Herbicide	Vietnam	WHO U
23	Atrazine	90%	B K Mac P 90WG	Herbicide	Thai	WHO U EPA III
24	Azoxystrobin + Propiconazole	32,5 %	Saiprobin 325 SC	Fungicide	Vietnam	WHO U
25	Bensulfuron methyl	10%	Beron 10 WP	Herbicide	Vietnam	WHO U
26	Bifenthrin	24%	Biflex - TC	Termiticide	Thai	WHO II
27	Bifenthrin	0.50%	Fentax 10 WP	Insecticide	Thai	WHO II
28	Bifenthrin	1.25%	Bistar- D	Insecticide	Thai	WHO II
29	Bifenthrin+Malathion	2%+40%	Bistar - M	Insecticide	Thai	WHO II
30	buprofezin	40%	Lang van	Insecticide	Thai	WHO U
31	Butachlor	5%-10%	DIBUTA®60 EC	Herbicide	Vietnam	WHO U
32	Butachlor	60%	Butaxim 60 EC	Herbicide	Vietnam	WHO U

33	Butachlor + Propanil	70%	Por Jai	Herbicide	Thai	WHO U
34	Butachlor+Bensulfuron Methyl	21%+4%	ALOHA®25WP	Herbicide	Vietnam	WHO III
35	Carbendazim	50%	Sabay Dee	Fungicide	Thai	WHO U
36	Carbendazim	50%	DIBAVIL® 50FL -50WP	Fungicide	Vietnam	WHO U
37	Carbendazim	50%	Carbendazim 500 FL	Fungicide	Vietnam	WHO U
38	Carbendazim	50%	Carbendazim 50 WP	Fungicide	Vietnam	WHO U
39	Carbendazim + Mancozeb	6.2%+73.8 %	C M plus	Fungicide	Thai	WHO U
40	Carbosulfan	20%	Kanir	Insecticide	Thai	WHO II
41	Cartap	95%	Big cock 95 SP	Insecticide	China	WHO II
42	Cartap	4%	Big cock 4 G	Insecticide	China	WHO II
43	Cartap hydrochloride	50%	Chodsanit	Insecticide	Thai	WHO II
44	Chlorothalonil	75%	Mention	Fungicide	Thai	WHO U
45	Chlorothalonil	53.0%	Daconil 720 SC	Fungicide	Japan	WHO U
46	Chlorpyrifos methyl	3%	Sago-Super 3 G	Insecticide	Vietnam	WHO U
47	Chlorpyrifos methyl	20%	Sago-Super 20EC	Insecticide	Vietnam	WHO U
48	Chlorpyrifos	40%	Temsoob	Insecticide	Thai	WHO II
49	Chlorpyrifos	40%	Casto	Insecticide	Thai	WHO II
50	Chlorpyrifos	40%	CJ - 40	Insecticide	Thai	WHO II
51	Chlorpyrifos Ethyl + Cypermethrin	532g/l+55g /l	Golden dragon 585 EC	Insecticide	Vietnam	WHO U
52	Chlorpyrifos+cypermethrin	50%+5%	New teen 55	Insecticide	Thai	WHO II
53	Chlorothalonil	75%	Chlorothalonil	Fungicide	China	WHO II
54	Copper hydroxide	77%	Microbucob	Fungicide	Thai	WHO III
55	Copper Oxyclozide	85%	Saicoxy 85 WP	Fungicide	Vietnam	WHO III
56	Cyhalofop-Butyl	10% , 20%	Sagolince 100	Herbicide	Vietnam	WHO U

			EC,200 EC			
57	Cyhalofop-Butyl Pyribenzoxim +	50% + 20%	Sagoshots 70 EC	Herbicide	Vietnam	WHO U
58	Cymoxanil + Mancozeb	8% + 64%	Saicymance 72 WP	Fungicide	Vietnam	WHO III
59	Cypermethrin	10%	Jud Hai	Insecticide	Thai	WHO II
60	Cypermethrin	35%	Rup four 35	Insecticide	Thai	WHO II
61	Cypermethrin	5%-10%- 25%	DANTOX®5EC -10EC-25EC	Insecticide	Vietnam	WHO II
62	Cypermethrine	25%	Secsaigon 25 EC	Insecticide	Vietnam	WHO II
63	Cypermethrine	10%	Secsaigon 10 EC	Insecticide	Vietnam	WHO II
64	Cypermethrine	5%	Sec saigon 5 EC	Insecticide	Vietnam	WHO II
65	Cypermethrine	50%	Secsaigon 50 EC	Insecticide	Vietnam	WHO II
66	Cyst-Forming protozaon	200,000- §ð'ap	Prorodent	Rodenticid e	Thai	
67	Denotefuran Imidacloprid +	5%+15%	EXPLORER ® 200WP	Insecticide	Vietnam	WHO II
68	Diazinon	10%	Diaphos 10 G	Insecticide	Vietnam	WHO II
69	Diazinon	50%	Diaphos 50 EC	Insecticide	Vietnam	WHO II
70	Dimethoate	40%	Dimenate 40 EC	Insecticide	Vietnam	WHO II
71	Dimethoate Fenvalerate +	21.5% +3.5%	Febis 25 EC	Insecticide	Vietnam	WHO II
72	dinotefuran	20%	Sagoshin 20 WP	Insecticide	Vietnam	WHO U
73	Diuron	80%	Ansaron 80 WP	Herbicide	Vietnam	WHO U
74	Effective Microorganism (EM)	5%	GENO-MI® 5 SL	Plant Growth regulator	Vietnam	
75	Emamectin + Benzoate	5%+2%	COMDA 5WDG,2EC,2SC , 5EC,5SC	Insecticide	Vietnam	WHO II
76	Emamectin benzoate	0.20%	Emamectin benzoate	Insecticide	China	WHO III
77	Ethephon	2,5%	Sagolatex 2.5	Plant Growth	Vietnam	

			PA	regulator		
78	Fenobucard	50%	Bascide 50 EC	Insecticide	Vietnam	WHO II
79	Fipronil	5%	Sagofipro 5 SC	Insecticide	Vietnam	WHO II
80	Fipronil	5%-0.3%-80%	LEGEND®5SC-0.3G-800WG	Insecticide	Vietnam	WHO II
81	Fluazifop-p-butyl	15%	Hekio	Herbicide	Thai	WHO III
82	Flumetralin	25%	Flumetralin	Plant Growth regulator	China	WHO U
83	Fomesafen	25%	Dilamma	Herbicide	Thai	WHO III
84	Fosetyl aluminium	80%	Kan Aeng	Fungicide	Thai	WHO U
85	Fosetyl aluminium	80%	Alpine 80 WP; 80 WDG	Fungicide	Vietnam	WHO U
86	Fosetyl aluminium	80%	DIBAJET®80W P	Fungicide	Vietnam	WHO U
87	Glyphosate	41%	Lyphoxim 41 SL	Herbicide	Vietnam	WHO III
88	Glyphosate IPA Salt	48%	Dibphosate 480 SL	Herbicide	Vietnam	WHO III
89	Glyphosate isoproylammonium	48%	Burn up 48	Fungicide	Thai	WHO III
90	Glyphosate isoproylammonium	48%	Glyfosate 48	Herbicide	Thai	WHO III
91	Glyphosate isoproylammonium salt	48%	Grafic	Herbicide	Thai	WHO III
92	Glyphosate isoproylammonium salt	48%	Baca up 48	Herbicide	Thai	WHO III
93	Glyphosate isoproylammonium salt	48%	Baka up 48	Herbicide	Thai	WHO III
94	Greenfast		AI-Net Greenfast	Plant Growth regulator	Thai	
95	haloxyfop-R-methylester	10.8%	Hork	Herbicide	Thai	WHO II
96	Hexaconazole	5%,10%	Saizole 5SL, 10EC,10SC	Fungicide	Vietnam	WHO U

97	Hexaconazole	5%-10%	DIBAZOLE ® 5 SC-10SL	Fungicide	Vietnam	WHO U
98	Imidacloprid	10%	Saimida 100 SL	Insecticide	Vietnam	WHO II
99	Imidacloprid	5%-10%-70%	ARMADA®50E C-100SL-100EC-100WG-700WG	Insecticide	Vietnam	WHO II
100	Imidacloprid	50%	Imidacloprid	Insecticide	China	WHO II
101	Iprobenfos	50%	Kisaigon 50 EC	Insecticide	Vietnam	WHO III
102	Iprobenfos+ Tricyclazole	14%+6%	Lua vang 20 WP	Fungicide	Vietnam	WHO III
103	isoxaflutole	75%	Balance	Herbicide	Thai	EPA III
104	Lamda Cyhalothrin	2,5 %	Vovinam	Insecticide	Vietnam	WHO II
105	Magnesium Phosphide	66%	MAGTOXIN	Fumigant	Germany	EPA 1
106	Malathion	73%	Malate 73 EC	Insecticide	Vietnam	WHO III
107	Mancozeb	80%	Dipomate 80 WP	Fungicide	Vietnam	WHO U
108	Mancozeb	80%	Kroche	Fungicide	Thai	WHO U
109	Mancozeb	25%	Khob Jai	Fungicide	Thai	WHO U
110	Mepiquat chloride	97%	Animat 97 WP	Plant Growth regulator	China	WHO III
111	Metalaxyl	25%	Chiket	Fungicide	Thai	WHO III
112	Metalaxyl	25%	Chud Jen	Fungicide	Thai	WHO II
113	Metalaxyl + Mancozeb	8% + 64%	Mexyl MZ 72 WP	Fungicide	Vietnam	WHO II
114	Metsulfuron Methyl	20%	DANY®25 DF	Herbicide	Vietnam	WHO III
115	N - ONE		AI-Net N- One	Plant Growth regulator	Thai	
116	N- TWO		AI-Net N- Two	Plant Growth regulator	Thai	
117	N-Function		AI-Net N-	Plant Growth	Thai	

			Function	regulator		
118	Nitrogen	4%	GENO-SUPER	Plant Growth regulator	Vietnam	
119	Nitrogen	21%	GENO-N-SUA	Plant Growth regulator	Vietnam	
120	Paccilomyces lilacinus	50%	Palila 500 WP	Fungicide	China	
121	Paclobutrazol	15%	Saigon P1 15 WP	Plant Growth regulator	Vietnam	WHO III
122	Pendimethalin	330g/l	Pendimethalin	Herbicide	China	WHO III
123	Phosalone + Cypernethrin	17,5% + 3%	Sherzol 205 EC	Insecticide	Vietnam	WHO II
124	Pretilachlor	30%	Venus 300 EC	Herbicide	Vietnam	WHO U
125	Propanil	36%	Protocom	Herbicide	USA	WHO III
126	Propiconazole+Prochloraz	49%	Sai Jai	Fungicide	Thai	WHO II
127	Propineb	70%	Saitracone 70 WP	Fungicide	Vietnam	WHO U
128	Pyrazosulfuran ethyl	60%	Red dragon60WDG	Herbicide	Vietnam	WHO U
129	Pyribenzoxim	3%	Pyanchor 3 EC	Herbicide	Vietnam	
130	Quinalphos	25%-5%	FAIFOS®25EC-5G	Insecticide	Vietnam	WHO II
131	Quinclorac	50%	DANY®25 DF	Herbicide	Vietnam	WHO U
132	Seaweed Extract	6%	GENO-ROOTS	Plant Growth regulator	Vietnam	
133	Sulfur	80%	Sulox 80 WP	Fungicide	Vietnam	WHO U
134	Tebuconazole	2,5% + 4,5 %	Saifolicer 250 WG, 430 SC	Fungicide	Vietnam	WHO III
135	Tebuconazole + Trifloxystrobin	5% + 2.5 %	Sainative 750 WG	Fungicide	Vietnam	WHO III
136	Temephos	1%	Chemfleetsan	Insecticide	Thai	WHO U

			dagarid			
137	Thiophanate methyl	70%	Thio - M 70 WP	Fungicide	Vietnam	WHO U
138	Thiophanate methyl	50%	Thio-M 500 FL	Insecticide	Vietnam	WHO U
139	Thiophanate methyl + Tricyclazole	36%+14%	Pysaigon 50 WP	Fungicide	Vietnam	WHO U
140	Tricyclazole	20% + 75 %	Trizole 20WP, 75WP.75WG	Fungicide	Vietnam	WHO II
141	Validamycin	5%	Vanicide 5 SL	Fungicide	Vietnam	WHO U
142	Validamycin	3%	Kwan Jai	Fungicide	Thai	WHO U
143	Validamycin A	5%	Vanicide 5 WP	Fungicide	Vietnam	WHO U
144	Validamycin A	3%	vanicide 3 SL	Fungicide	Vietnam	WHO U

List of banned pesticides

Insecticides and acaricides

1. Aldrin
2. BHC
3. Chlordane
4. Chlordimeform
5. Chlorfenvinphos
6. Chlorthiophos
7. Cyhexatine
8. DDT
9. Dieldrin
10. Dimefox
11. Dinitrocresol
12. Demeton
13. Endrin
14. Endosulfan
15. Ethyl Parathion
16. EPN
17. Heptachlor
18. Hexachloro cyclohexane
19. Leptophos
20. Lindane
21. Methamidophos
22. Methomyl
23. Methyl parathion
24. Monocrotophos
25. Pholy chlorocamphene
26. Phorate
27. Schradan
28. TEPP
29. Toxaphene

Fungicides

30. Binapacryl
31. Captafol
32. Cycloheximide
33. Mercury and mercury compounds
34. MEMC
35. PMA
36. Selenium compound

Rodenticides

37. Chlorobenzilate
38. Sodium fluoasetate

Herbicides

39. 2,4,5 -T
40. Dinoseb
41. Dinoterb acetate / Dinitrobutyphenol
42. Paraquat
43. Sodium chlorate

Fumigants

44. EDB
45. Ethylene oxide
46. Methyl bromide

Others

47. Arsenic compound
48. Calcium arsenate - Herbicide, rodenticide, molluscicide, insecticide
49. DBCP - Nematocidide
50. Daminozide - Plant growth regulators
51. Fluoroacetamide - Insecticide, rodenticide
52. Oxamyl - Insecticide, acaricide, termiticide
53. Phosphamidon - Insecticide, nematocidide
54. Sodium Arsenite - Insecticide, fungicide, herbicide, rodenticide
55. Thallium (i) sulfate - Rodenticide, insecticide

ANNEXURE 6 – OUTLINE OF ENVIRONMENT MANAGEMENT PLAN FOR A SUB-PROJECT

1. Introduction	
Project Development Objective and Components	Information available in the ESMF
Rational of sub-project within overall Project	Information taken from Sub-project proposal.
Sub-project Objective and main indicators	Information taken from sub-project proposal and sub-project result framework.
Summary of sub-project implementation arrangements	Information taken from Sub-project proposal.
Development Partners and contribution	Describe the source of cofinancing if any and whether the co-financiers have agreed to this EMP
2. Summary of Applicable Policy and Legal Framework	
National Policy, Decrees, and Guidelines	Information available in the ESMF
International and Regional Agreements	Information available in the ESMF
3. Environmental Safeguard Policies Triggered by sub-project	
Table of policy triggered	NPA subprojects trigger all the safeguards triggered by the PAW project. Others, are likely to trigger only OP4.01.
4. Description of Environmental feature of Sub-project site	<i>Much of this information is already available in the initial draft EMPs, at least for NNT and NEPL NPAs.</i>
Biophysical features	Describe the climate, hydrology, landscape, aesthetical features, etc. Provide maps.
Vegetation and natural habitat	Description of ecosystem, vegetation type, species of interests, sensitive areas, status of forest cover, etc. Provide map if available.
Wildlife	Describe the animal diversity, species of special interests (flagship, keystones, etc.), species distribution and abundance if available, etc. Provide maps if available.
Man-made features	Describe the transport system including river access, tourism facilities or structures such as watch towers, cultural heritage features such as stupa and cemeteries... Provide maps if available.
5. Socio economic Status of NPA	<i>Much of this information is already available in the SIA, at least for NNT and NEPL.</i>

Demography, ethnicity,	
Sources of Livelihoods and market linkages	
Education, health, access, utilities, sanitation, etc	
Relation with the NPA and its resources	What is the proportion of revenues from natural sources (including fisheries)
5. External threats to the NPA Environmental and mitigation	<i>These potential impacts are not caused by sub-project implementation activities. They are external threat that the project is helping GoL build capacity to address.</i>
Village consolidation	Refer to the CEF and how this applies here. For NNT refer to the governor restriction. For NEPL, try to obtain a list of village to be consolidated or assurance that no consolidation is planned in the targeted villages.
Road through the NPA	Provide as detailed as possible information about road construction or planned road construction in the NPA (include info on Environment Certificate if any and compliance monitoring by PONRE). Refer to PAW
Hydro, mining and agriculture concessions	Provide as detailed as possible information about existing concession or planned concession (stage, operator, investor, Government contact, time, existence of ESIA, of environment certificate, etc.)
Illegal fish, wildlife and timber harvesting and trade	Provide information on law enforcement strategy & implementation through the project. Refer to the CEF and Conservation Agreements.
Expansion of shifting agriculture	Refer to the CEF and process to prepare and implement the PLUP, CAP and CA.
Undesirable fire	If applicable and relevant, provide information on fire management strategy.
Invasive species	If applicable and relevant, provide information on invasive species management strategy
6. Environment impact due to the project	<i>These potential impacts are caused by sub-project implementation activities listed in the sub-project budget.</i>
Increase patrols	ESMF provides guidance on impact to look for and how to address them.
Infrastructure Developments	Potential impact: Acquisition of land, local impact on site and off site, increased access to natural resources facilitating illegal harvesting

Pesticide Use	as part of CAP, so refer to the CEF here
Physical Cultural Resources	ESMF provides a description of Chance Find procedures. Simply refer to them and create an annex with the procedure. They apply only by “chance” during implementation.
Ecotourism and other NPA-related business development	ESMF provides guidance on impact to look for and how to address them. Refer to the CEF if communities are expected to develop tourism business.
7.Safeguards Implementation and Monitoring	<i>Follow guidance provided in the ESMF and adapt the proposed text to the sub-project and its implementation team.</i>
Safeguards Integration	Mention the SIA and the CEF. The ESMF provides guidance on this.
Safeguards Management and Monitoring	
Management of data collected during the sub-project implementation	Environmental data, spatial data. The sub-project implement (a) occupancy method, (b) satellite image monitoring. The ESMF provides guidance on this.
Incident reporting	The ESMF provides guidance on this.
Communication of EMP; consultation and disclosure process	The ESMF provides guidance on this.
Grievance Redress Mechanism	Refer to procedures described in the CEF
Audit and Review	The ESMF provides guidance on this.
Budget for environmental management and monitoring	The ESMF provides an example of this.
Annexure 1 – Impact identification and mitigation forms (infrastructures contracts)	Include from Annexure 2 of the ESMF, if necessary, either FORM A1: NO IMPACT PROJECT, FORM A2: LOW IMPACT PROJECT or FORM A3: HIGH IMPACT PROJECT
Add other annexes as necessary.	

Specific case of NPA sub-project: NPA DATA TEMPLATE

Data-Information-Maps
<p>MAPS</p> <ul style="list-style-type: none"> -Map of NPA showing all zones (inside, at NPA boundary, outside but has agriculture land inside, outside but has access inside) -Map showing village locations inside NPA -Map showing villages and main infrastructure 20 km outside NPA -Map of land use, vegetation -Map showing sites of tiger sightings -Map showing location of past forest fires

PROFILE

- Full name of NPA
- Year of creation
- Copy of Management Plan for NPAs.
- Total area of landscape
- Area in how many provinces
- Break up of area in different zones
- Geology
- Soils
- Water sources, rivers, streams
- Fisheries
- Altitude minimum and maximum
- Main vegetation and forest
- Main non timber forest products
- Main rivers and tributaries
- Biodiversity status
- Main threats and challenges

POPULATION

- Population inside NPAs
- Number of households inside NPAs
- Number of families inside NPAs
- Population outside NPAs
- Number of households outside NPAs
- Number of families outside NPAs
- Women, men and children in all the above data
- Education and literacy rates
- Ethnicity of all villages inside and outside NPAs – by population numbers
- Poverty rates inside and outside NPAs
- Access status (roads, dirt tracks etc) inside NPAs
- Health posts and health status
- Any other relevant data

LIVELIHOODS AND SOCIAL STRUCTURE

- Main livelihoods inside and outside NPAs
- Other Source of Income (selling products, service or works, et)
- Data on level of dependence on natural resources
- Distance to markets
- Farming systems – shifting cultivation, permanent agriculture, agroforestry, others
- Livestock holdings – cattle, small ruminants etc
- Agro or plantation concessions inside NPAs
- Mining concessions inside NPAs
- Any income from remittances and familiarity with traders and markets
- Level of entrepreneurship
- Income from hunting, NTFP collection and sale, opium, and other products
- Food sufficiency levels of households inside NPAs
- Stunting and nutrition level of children
- Village development activities
- Social structure in villages by ethnicity
- Involvement of women in labour, decision making
- Any other relevant data

WILDLIFE

- Main wildlife species
- Species on CITES list
- Tiger numbers, sightings, trend
- Poaching incidents record
- Convictions from poaching incidents
- Wildlife trading locations such as local markets and community markets
- Habitat quality
- Threats
- Livelihoods and personal consumptions that dependent on wildlife
- Patrols, SMART status
- Capacity, resources
- Best practice examples of community based conservation if any
- Other relevant data, reports

INSTITUTIONS

- List of projects financed by bilateral, multi lateral, INGOs, and NGOs in NPAs. Provide titles of projects, objective, funding, years of operation
- Community based organisations inside and outside NPAs
- Grievance redress mechanisms – formal and traditional used by communities
- Involvement of women in institutions

ENVIRONMENT AND HABITAT

- Any data or reports on overall environment and habitat issues
- Threats to habitat
- Pesticide use inside NPAs
- Any data or studies on water quality, discharge levels
- Any data or reports on changes in the watershed
- Any data or reports on deforestation in the NPAs

OVERLAPS

- List of existing and planned hydropower, mining concessions, agriculture concessions, roads, transmission lines, SEZ, and other infrastructure in provinces of Houaphanh, Luangprabang, Xiangkhouang, Khammouane, and Bholikhamxay
- Map showing above overlaps
- Map of mining resources in Lao PDR
- Any other relevant maps

REGIONAL ISSUES

- Length of international border with Vietnam
- Access to Vietnam – is it easy to cross the border? Altitude, dirt tracks, valleys
- Products and commodities in cross border movement – timber, wood products, non timber forest products, wildlife, wildlife skin, wildlife products, drugs, opium, human trafficking, others?
- Are there mechanisms for collaboration between Lao PDR and Vietnam to address cross border issues. Is this effective?
- Describe cross border threats to NPAs
- What are opportunities for cooperation to address unauthorized cross border movement of products.

ANNEXURE 7 – BASELINE INFORMATION NAKAI NAM THEUN AND NAM ET PHOU LOUEY NPAS

A7.1 Nam Et-Phou Louey National Protected Area

Current Biophysical Status

The project area consists of selected zones of the Nam Et-Phou Louey National Protected Area (NEPL NPA) that is operated under the authority of the Nam Et-Phou Louey Protected Area Management Unit with technical support from WCS. Map A7.1 provides the location and boundaries of the NEPL NPA. The NPA is located in north eastern Lao PDR covering an area of 595,000 ha of mountainous terrain and is representative of the Northern Indochina Subtropical Forests Eco-region. The NEPL NPA ranks high in the Lao PDR's national protected area system for contributing with the highest biological diversity of any protected area in this Northern Highlands region (Davidson 1998; Ling 1999), and is best known for harbouring the last known breeding wild tiger population remaining in Indochina (Walston et al., 2010).

The Northern boundary of the NPA borders Vietnam; the southern part covers part of Xiengkhuang Province; and the western side of the NPA shares a boundary with parts of Luangprabang Province. Altitudes in the NPA range from 400-2257 metres above sea level with over 60% of the land area above 1000 metres, and 91% of the area along slopes being greater than 12%.

The NPA is located in the upland areas of the Nam Et river that is one of the biggest rivers on the North Eastern part and flows to the Nam Ma and Nam Neun rivers on the south eastern part, and further to the Nam Ka river in Vietnam. This river system has numerous smaller tributaries.

Biodiversity Values

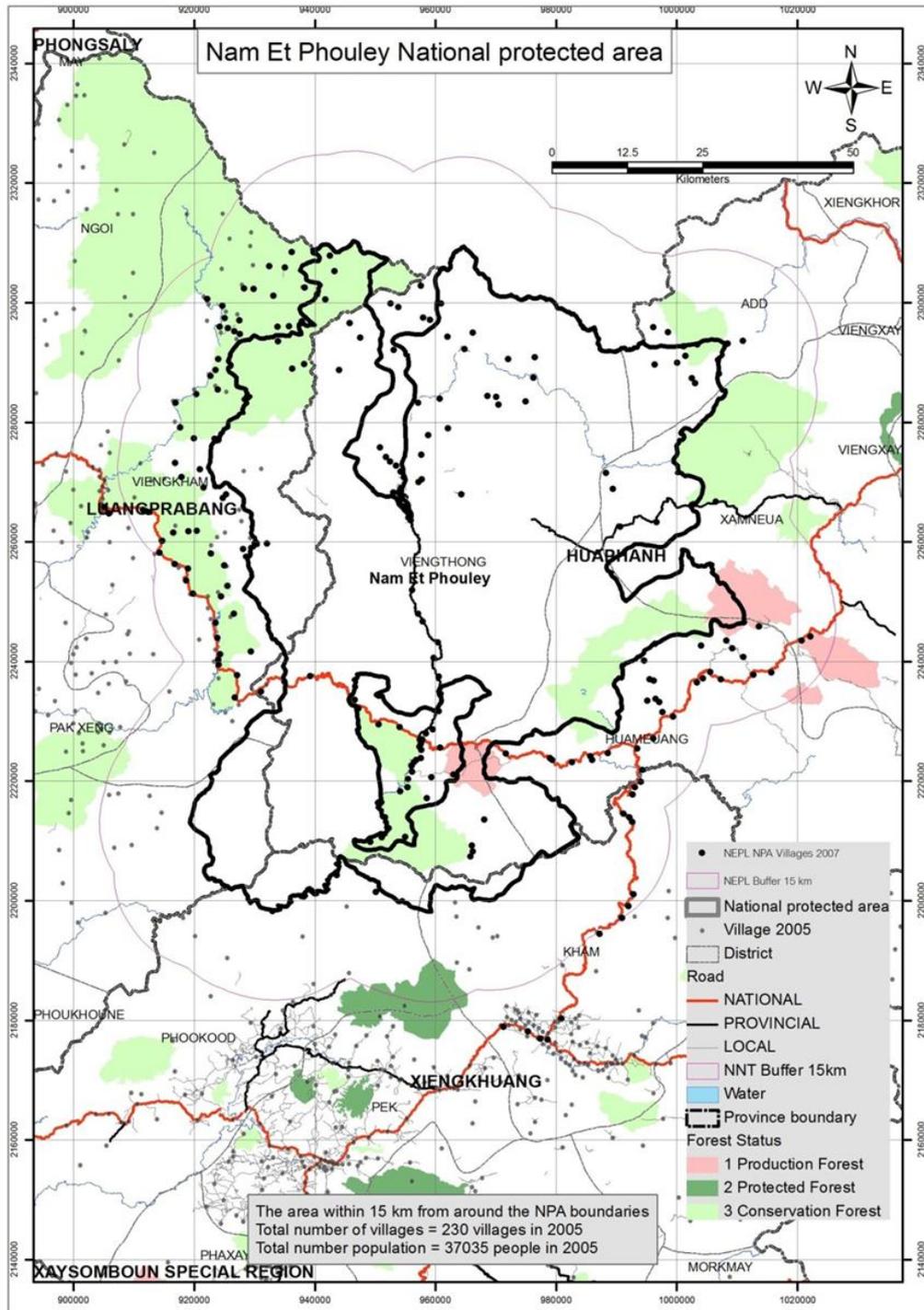
The original vegetation of the region where the NEPL NPA is located was primarily dry evergreen forest mixed with large areas of deciduous forest (Duckworth et al. 1999). Today, mature forest defined, as “areas with at least 20% canopy cover and a 30 metre canopy” are uncommon in the Northern Highlands. In many areas, prolonged shifting cultivation and fire have resulted in forests being replaced by large areas of Imperata grass, bamboo and other secondary vegetation. Amidst this landscape, 72% of the NEPL NPA is covered in mixed evergreen deciduous forest up to 1500 metres transitioning into evergreen forest from 1500 to 1800 metres, which is interspersed with beech forest and rhododendron species above 1800 metres (Davidson 1998). These forested areas are embedded in a mosaic of old shifting cultivation fallow and bamboo groves

Wildlife Resources

NEPL is probably best known for its mammals and most notably for harbouring one of the most important tiger populations remaining in Indochina (Johnson et al. 2006; Dinerstein et al., 2006). In addition, the NPA also lies within the second most important core area in the world for supporting small carnivore taxa –mustelids and viverrids – of conservation concern (Johnson et al., 2009; Schreiber et al. 1989). WCS has conducted a series of mammal surveys in the NPA since 1998 (Davidson 1998, 1999; Guillen and Francis 1998; Vongkhamheng 2002) and also undertakes ongoing annual monitoring of tiger and prey populations (Johnson et al. 2006; WCS-Lao PDR unpublished data). Surveys during March

2003 - May 2004 (Johnson *et al.*, 2006) confirmed the presence of a low-density population (<1 tiger/100 km) of tigers numbering 7–23 individuals in a 952–3548 km sampling area.

Map A7. 1: Nam et Phou Louey NPA



The NPA contains an outstanding diversity of carnivores that includes six cat species, dhole, two bear species, and 11 species of small carnivores, including civets, mustelids and mongoose. A small Asian elephant population persists along the Nam Et river. Guillen and Francis (1998) also described over 40 species of bats from the NPA, three of which were new records for Lao PDR. Nineteen species of mammals recorded from the NPA during camera trap surveys (Johnson *et al.* 2006; Johnson *et al.*, 2009; WCS unpublished survey

data) or during sign surveys (Johnson et al., 2008; WCS unpublished survey data) are listed as globally threatened or data deficient (IUCN 2009), as shown in Table A7.1.

Much of the wildlife of the Northern Highlands is akin to that of the Himalayan Palearctic region (MacKinnon and MacKinnon 1986, in Duckworth et al. 1999). Among the wildlife of Laos, relatively little is known about the reptile and amphibian diversity. A field survey coupled with interviews resulted in a preliminary list of 30 species that included six species of turtles, two species of pythons, several species of frogs, toads, lizards that included two species of monitor lizards, typical snakes, vipers, and an elapid snake (krait). Of the known herpetofauna in the NPA, it is notable that most of the turtles are listed as IUCN endangered (EN), vulnerable (VU) or data deficient (DD), including the Southeast Asian soft-shell turtle *Amydcartilaginia* (VU), the big-headed turtle *Platysternonmegacephalum*(EN), the four-eyed turtle *Sacaliaquadriocellata*(EN), and the tortoise *Manouriaimpressa*(VU) (IUCN 2009).

Preliminary surveys of the avifauna in the NPA were first undertaken in 1998 (Davidson 1998) and resulted in a list of 299 species. Of these, three species are listed as endangered or near threatened (NT), including rufous-necked hornbill *Acerosnipalensis* (VU), the beautiful nuthatch *Sitta Formosa* (VU) and Blyth's kingfisher (NT) (IUCN 2009). PhouLouey mountain is identified as especially important as it contains a distinctive montane bird community with ten species.

The core population of gibbons is located in the western part of the NPA while only one group has been sighted in the whole of the eastern part of the NPA. These records are sourced from ground patrols and no scientific surveys of gibbons have been conducted in the NPA. The gibbons prefer primary forests but can persist in degraded forests if not heavily hunted. If gibbon groups are located through surveys then efforts are made to augment canopy-crossing opportunities such as rope crossings.

Table A7. 1: Globally threatened or data deficient species recorded by camera trap or during sign surveys in the Nam Et-Phou Louey NPA between 2003 and 2008

Species	Scientific name	Camera trap surveys (2003-2007)	Sign surveys (2003-2008)	Status – global ⁽ⁱ⁾
Stump-tailed macaque	<i>Macacaarctoides</i>	X	X	VU
Assamese macaque	<i>Macacaassamensis</i>	X		NT
Phayre's leaf monkey	<i>Tracypithecusphayrei</i>	X		EN
Northern white-cheeked gibbon	<i>Nomascusleucogenys</i>		X	CR
Dhole	<i>Cuon alpinus</i>	X		EN
Asiatic black bear	<i>Ursusthibetanus</i>	X		VU
Sun bear	<i>Helarctosmalayanus</i>	X		VU
Hog badger	<i>Arctonyxcollaris</i>	X		NT
Oriental small-clawed otter	<i>Aonyxcinerea</i>	X		VU
Large Indian civet	<i>Viverrazibetha</i>	X		NT
Owston's civet	<i>Chrotogaleowstoni</i>	X		VU
Asian golden cat	<i>Pardofelistemminckii</i>	X		NT
Marbled cat	<i>Pardofelismarmorata</i>	X		VU
Clouded leopard	<i>Neofelisnebulosa</i>	X		VU
Tiger	<i>Pantheratigris</i>	X	X	EN
Asian elephant	<i>Elephasmaximus</i>		X	EN

Gaur	Bosgaurus	X	X	VU
Small dark muntjac	Muntiacusrooservetorum/ truongsonensis	X		DD
Southwest China serow	Capricornismilneedwardsii	X	X	NT

Globally threatened-critically endangered (CR); Globally threatened-endangered (EN); Globally threatened-vulnerable (VU); Globally near threatened (NT); Data deficient (DD). (IUCN 2009). Source: Johnson et al., 2006; Johnson et al., 2008; Johnson et al., 2009, WCS Lao PDR unpublished survey data.

Background to Nam Theun 2 Watershed and NNT NPA

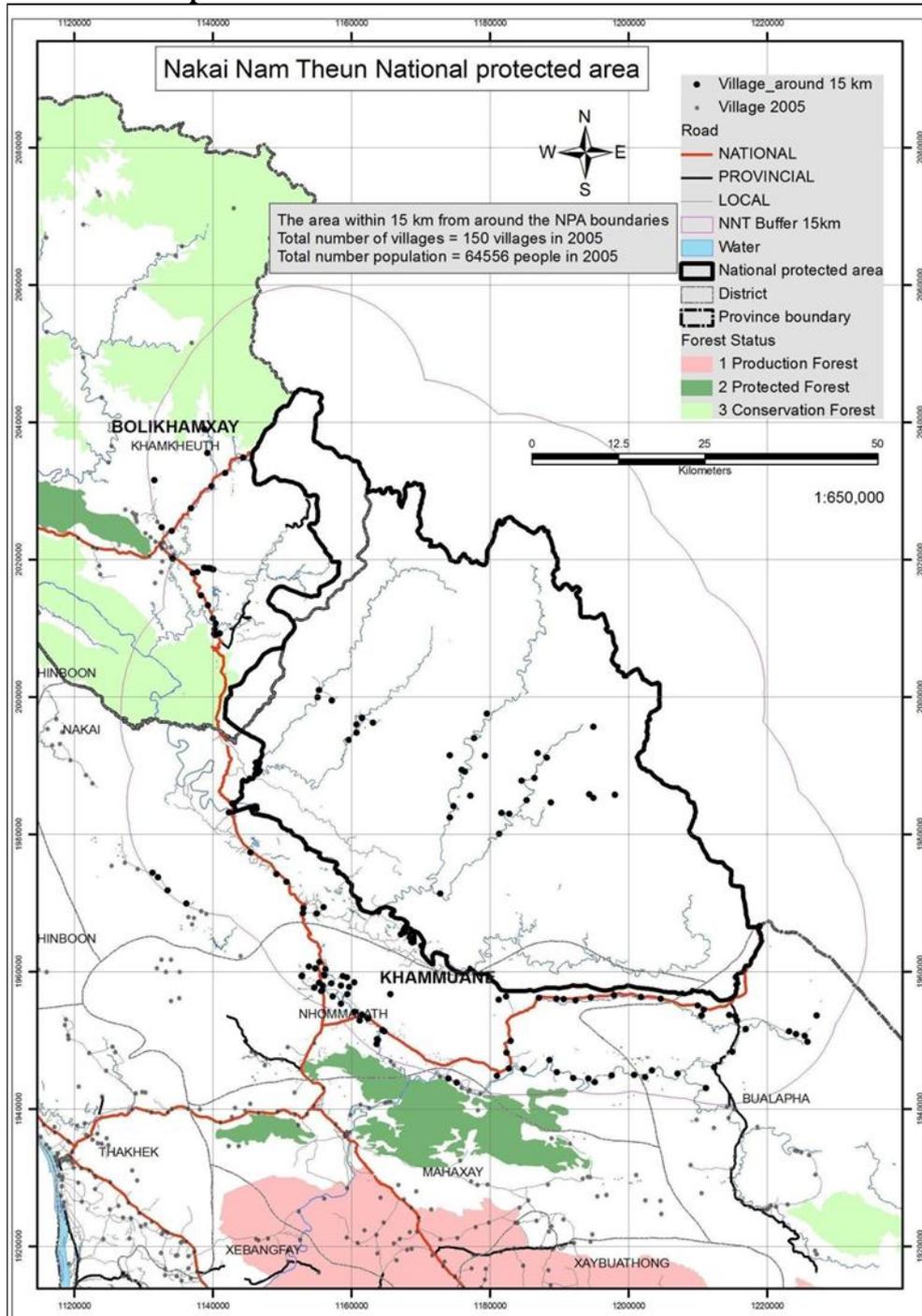
The NNT NPA is located in the Nam Theun 2 watershed that has the Nam Theun 2 (NT2) hydroelectric project with an annual capacity of 1075 megawatts. The creation of the reservoir flooded an area of 450 square km and of this area approximately 130 square km was inside the original NNT NPA as designated by GoL in 1993. The boundary of the NPA was modified in 2000 to extend it by inclusion of two forested corridors linking it to the two national protected areas of Phou Hin Poun NPA and Hin Nam Nor NPA. These three areas together are known as the NT2 Watershed and cover approximately 427,700 ha. The NT2 Watershed also includes special conservation areas comprising of stream alignments and valleys between mountains in the northern and southern source areas of the reservoir, and islands on the northeastern side of the corridor between the NNT NPA and the Phou Hin Poun NPA. The NT2 Watershed is an offset for the NT2 hydroelectric project and continues to be monitored by the World Bank and international financial institutions. See Map A7.2.

The NT2 Watershed Management and Protection Authority (WMPA) are mandated to manage the NT2 Watershed and the NNT NPA. This mandate includes responsibility for coordinating and implementing the conservation, maintenance and enhancement of the NPAs and the watershed. The key objectives of the WMPA are to guarantee adequate volume of water with low sediment load and rehabilitation of forest areas in the NT2 Watershed; preserve and protect the natural biodiversity system particularly the conservation of habitat of rare, endangered or near extinct wildlife and aquatic life species; contribute towards and facilitate improvement of livelihoods of multiethnic communities; and strengthen capacity of the Authority and stakeholders for effective management of the Authority's objectives.

Current Biophysical Status

The Sai Phou Louang (Annamite) Mountains within the NPA running NW-SE dissected by NE-SW oriented river valleys form the bulk of the protected area. As these rivers emerge through gorges in the Dividing Hills onto the Nakai Plateau, the five main rivers (Nam Sot, Nam Mon, Nam Theun, Nam Noy and Nam One) widen and meander, creating rich riverine forest habitat. The Dividing Hills are a NW-SE oriented range up to 1,000 metres separating the Nakai Plateau from the Northern and Central Mountains area. The Nam Theun leaves the plateau at its northwestern end, turns to the west and eventually joins the Mekong River as the Nam Kading. Elevations in the NPA range from 500-2,200 metres above sea level; with 500-580 metres on the Nakai Plateau, 600-1,100 metres in the Dividing Hills; and 600-2,200 metres in the Central and Southern Mountains.

Map A7.2: Nakai Nam Theun National Protected Area



A block of mountains covering around 800 square km forms the heart of the protected area. They are mostly above 1000 metres, with many peaks above 1,500 metres and the summit ridge rising to 2,200 metres at Phou Laoko. This is the catchment for the Nam Sot, Nam Mon and Nam Theun rivers. Established settlements in the lower, flatter portions of these river valleys form two enclaves, named by their sub-districts as Taseng Navang around the Nam Sot and Nam Mon, and Taseng Thaphaiban around the Nam Theun. To the north, the very high ground is continuous with the Northern Mountains. South of the Central Mountains there is a stretch of slightly lower mountains, here named the Southern Mountains, which are the catchments of the Nam Noy and Nam Pheo.

The Nakai Plateau is the relatively flat area around the confluences of Nam Theun with Nam Sot, Nam One and Nam Noy. The rectangular plateau covers about 1,200 square kilometres and ranges from about 490 to 600 metres above sea level and merges into the Dividing Hills to the east and southeast. To the south, the plateau drops away sharply to the cultivated Gnommalat lowlands.

Biodiversity Values

There is a complex range of habitats in the NNT NPA that reflect pronounced gradients in soils, altitudes and microclimates. Habitat types usually blend into one another, and there is rarely a sharp divide between them.

Evergreen forest has plant families and genera typical for other parts of Southeast Asia. Commonly found are species of Dipterocarpus and Shorea in the Dipterocarpaceae, and species of Myristicaceae, Annonaceae, Rutaceae, Sapindaceae, and Fabaceae etc. The upper canopy reaches generally around 20 metres, with emergent trees reaching to about 30 metres. The diameter of larger trees is in the 50-60 cm class; with occasional emergent trees having diameters exceeding 120-cm. Undisturbed montane Fagaceous forest dominates the northern areas where it generally occurs at higher elevations. Ridges above 950 metres toward the Vietnam border in the southern part of the NPA have scattered and small populations of cypress. Like evergreen forest, Fagaceous forest shows a mosaic of species associations and distribution patterns. Within the Fagaceae and other families, some species are generalists, found everywhere, and others are highly localized.

Cloud forest exists on the summit of PhouChomvoy and the upper reaches of the mountains in the north and south. The transition between montane Fagaceous and cloud Ericaceous forest is sharp, occurring at about 1600 metres. Ericaceous species dominate this habitat, in particular Rhododendron cf. veitchianum Hooker.

One of the unique features of the NPA is the occurrence of highly restricted 'everwet forest'. This occurs only in narrow bands where there are low elevation saddles in the SaiPhouLouang (Annamite) chain. These saddles allow the Vietnamese northeast monsoon to penetrate across the border and consequently these areas receive rain for up to ten months of the year. These areas are typically very wet in January-February when adjacent areas of habitat are in the midst of harsh dry season. It is probable that the fauna and flora assemblages are unique, as the habitat occurs nowhere else in Lao PDR.

Wildlife Resources

The NNT NPA represents Lao PDR's largest and most diverse natural forest area of Lao PDR. Three of the last five large mammals to be discovered or re-discovered worldwide occur in the NNT NPA. The most distinct of these remarkable discoveries is the Saola Pseudoryx nghetinhensis (Dung et al. 1993; Schaller & Rabinowitz 1994). Other newly discovered species, a small dark muntjac and Giant Muntjac Megamuntiacus vuquangensis (Tuoc et al. 1994; Schaller & Vrba 1996) also have restricted world ranges centred on the NNT NPA. The Indochinese Warty Pig Sus bucculentus was rediscovered in the area (Groves et al. 1997) after being considered extinct (Salter 1993). Field surveys indicate that mammal communities within the protected area are exceptionally diverse. At least nine species of primate occur, including four threatened taxa to which the NPA represents a global stronghold (Pygmy Lorises Nycticebus pygmaeus, Douc Langur Pygathrix nemaeus, Francois' Langur P. nemaeus francoisi and White-cheeked Gibbon Hylobates leucogenys).

In addition 16 species of carnivore have been recorded, and further species have been found in the NPA. This is the highest diversity of mammalian predators reported at a single site in Lao PDR-Cambodia-Vietnam. Included amongst these are many rare cats (Fishing Cat *Prionailurus viverrinus*, Golden Cat *Catopumatemmincki*, Marbled Cat *Pardofelis marmorata*, Clouded Leopard *Pardofelis nebulosa* and Tiger *Panthera tigris*), several of which have not been recently observed by biologists elsewhere in Lao PDR.

The NPA holds significant populations of many mammals including Asian Elephants *Elephas maximus*. Few Elephants are found elsewhere in the NPA and, moreover, few viable populations of elephants currently exist elsewhere in Lao PDR.

Surveys have found approximately 430 bird species in the NNT NPA (Timmins & Evans 1996, Tizard 1996, Tobias 1997). This is the highest diversity of any site yet surveyed in Lao PDR, and amongst the highest recorded in protected areas across Southeast Asia. In terms of key species of conservation concern, 56 have been found in the NPA. If it is accepted that birds provide an appropriate basis for evaluating the importance of an area to wildlife conservation (due to ease of specific identification, availability of detailed distributional data and globally standardized categories of threat), these totals establish the NNT NPA as the most important site yet surveyed in the Lao PDR-Cambodia-Vietnam region.

The Nakai Plateau supports many threatened birds (WCS 1995a, 1995b). The northern forests contain one of the largest populations ever recorded of Crested Argus *Rheinwardia ocellata*, an endangered pheasant.

Surveys in the Nam Theun and Xe Bang fai basins indicate diverse fish communities comprising many species with restricted ranges and high conservation importance (Kottelat 1996; Roberts 1996). Although the Nam Theun was found to be less diverse than the Xe Bang fai (60 as opposed to 131 species) it contained a higher proportion of endemic species (18% as opposed to 4%; Kottelat 1996).

Table A7.2: Most threatened wildlife species recorded in the NNT NPA

Scientific Name	Common Name	Global Threat Status		At Risk in Lao PDR
		Critically Endangered	Endangered	
<i>Amblonyx cinereus</i>	Oriental Small-Clawed Otter	-	-	√
<i>Arctictis binturong</i>	Binturong	-	-	√
<i>Bos gaurus</i>	Gaur	-	-	√
<i>Bos javanicus</i>	Banteng	-	√	√
<i>Cuon alpinus</i>	Dhole	-	-	√
<i>Elephas maximus</i>	Asian Elephant	-	√	√
<i>Felis chaus</i>	Jungle cat	-	-	√
<i>Lutrogale perspicillata</i>	Smooth-Coated Otter	-	-	√
<i>Manis javanica</i>	Sunda Pangolin	-	-	√
<i>Manis pentadactyla</i>	Chinese Pangolin	-	-	√
<i>Miniopterus schreibersii</i>	Common Bent-Winged Bat	-	-	√
<i>Neofelis nebulosa</i>	Clouded Leopard	-	-	√
<i>Panthera pardus</i>	Leopard	-	-	√
<i>Panthera tigris</i>	Tiger	-	√	√
<i>Pseudoryx nghetinhensis</i>	Soala	-	√	√
<i>Pygathrix nemaeus</i>	Douc Langur	-	√	√
<i>Rhinoceros sondaicus</i>	Rhinoceros sp.	√	-	-

Dicerorhinus sumatraensis				
Ursus malayanus	Sun Bear	-	-	√
Ursus thibetanus	Asiatic Black Bear	-	-	√
Aceros nipalensis	Rufous-necked hornbill	-	-	√
Aceros undulatus	Wreathed hornbill	-	-	√
Anser anser	Greylag goose	-	-	√
Buceros bicornis	Great hornbill	-	-	√
Cairina scutulata	White-winged Duck	-	√	√
Ciconia nigra	Black stork	-	-	√
Ducula aenea	Green imperial pigeon	-	-	√
Ichthyophaga humilis	Lesser fish eagle	-	-	√
Ichthyophaga ichthyaetus	Grey-headed Fish Eagle	-	-	√
Milvus migrans	Black kite	-	-	√
Pavoninus	Green Peafowl	-	-	√
Rheinardia ocellata	Crested argus	-	-	√
Vanellus duvaucelii	River lapwing	-	-	√
Cuora galbinifrons	Indochinese box turtle	√	-	√
Cuora trifasciata	Chinese three-striped box turtle	√	-	-
Indotestudo elongata	Elongated tortoise	-	√	√
Manouria impressa	Impressed tortoise	-		√
Platysternon megacephalum	Big-headed turtle	-	√	√
Pyxidea mouhotii	Keeled box turtle	-	√	√
Sacalia quadriocellata	Four-eyed turtle	-	√	-
Notes:				
i) Species falling into IUCN categories "Vulnerable" or "Near Threatened" are not marked or included in this summary table.				
ii) Global Threat Status is recorded in IUCN 2003 Red List of Threatened Animals. National status follows <i>Duckworth et al. 1999</i> .				

ANNEXURE 8 – ELEMENT OF INFORMATION ON HYDRO POWER AND RURAL ELECTRIFICATION

Hydropower and Dams

An analysis of the status of power projects in the five project provinces has been undertaken. This includes operational, under construction, planning stage and feasibility stage projects. Map A8.1 provides a national overview of the location of power projects as in 2012. Analysis of this data for the five project provinces in Table A8.1 indicates that the three provinces of Houaphanh, Luangprabang, and Xiengkhuang where the NEPL NPA is located, together have two power projects under construction; six in the planning stage; and, seven at the feasibility stage. The provinces of Khammouane and Bholikhamxay together have two operational projects that includes the NT2 hydropower project; one project under construction; one being planned and three under feasibility planning. If all the planned and feasibility stage projects were to become operational this would increase the number of operational plants from four with a capacity of 1,416 MW to 24 with a total capacity of 5,648 MW. Some of these projects have a footprint across neighbouring provinces also but Table A8.1 only mentions the name of the province that is indicated as the primary location of the power project. The analysis does not in any way imply that there will be a direct or indirect impact of these power projects on the PAW project, as this needs to be ascertained as part of the EMP development.

In Houaphanh province two hydropower projects, one each on the Nam Et and Nam Neun rivers were proposed for feasibility studies. Both these sites are adjacent to the NEPL NPA. The province authorities have confirmed that concessions for feasibility studies would not be granted and the proposed hydropower projects will not be allowed in these two sites due to potential negative impacts on the NEPL NPA.

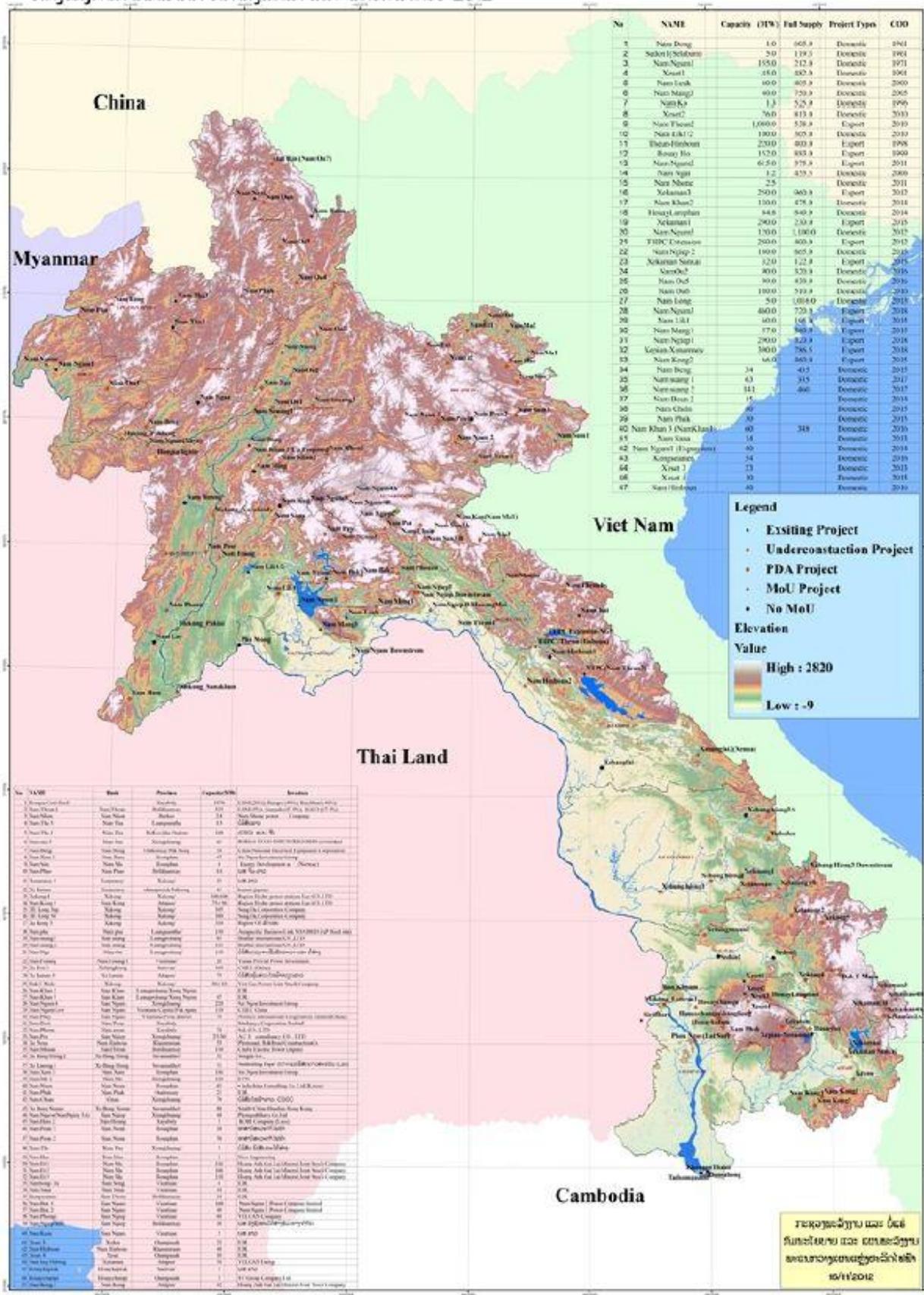
From the PAW project perspective further analysis is required to determine the status and precise location of all power projects, footprint assessment, and the likely impact these will have on project interventions. As mitigation measure, it is recommended that this issue is raised in the EMP and discussed at the EPF Board level with the Minister of Energy and Mines.

Table A8.1: Status of Power Projects in PAW Provinces

S. No	Province	Operational Projects		Under Construction		Planning Stage		Feasibility Stage		Total	
		No	Capacity	No	Capacity	No	Capacity	No	Capacity	No	Capacity
1.	Houaphanh	-	-	1	8	2	390	3	660	6	1058
2.	Luangprabang	2	121	-	-	2	190	2	1310	6	1621
3.	Xiengkhuang	-	-	1	180	2	135	2	275	5	590
4.	Khammouane	1	1075	-	-	-	-	1	53	2	1128
5.	Bholikhamxay	1	220	1	57	1	289	2	685	5	1251
All Provinces		4	1416	3	245	7	1004	10	2983	24	5648

Map A8.1: Map of Power Projects in Lao PDR 2012

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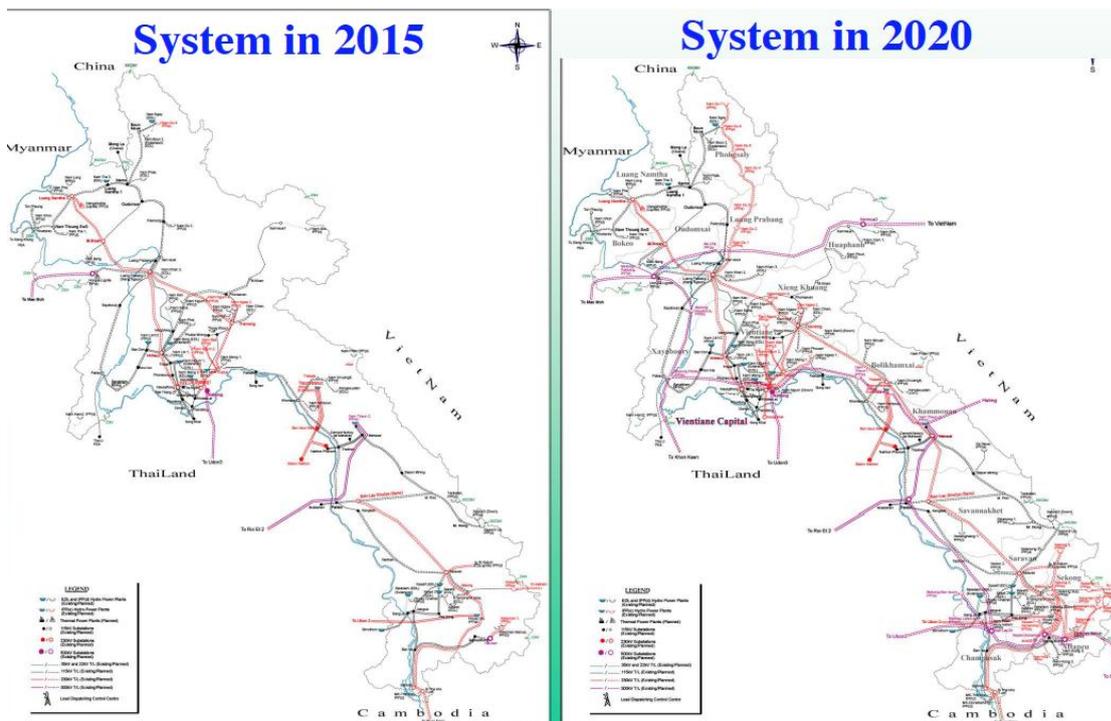


Rural Electrification

In the NEPL NPA the government financed 22kV electrical and telephone lines from Viengkham district, Luangprabang province through the existing road alignments. The extension of the 22kv electrical line was completed in 2010. The electrical line followed the existing road that is in the NPA and was designed to minimize its environmental footprint. A MoU was developed prior to the construction that included details on minimising tree and vegetation clearance and disturbance, transportation methods, and construction staff management, to minimise environmental impact. The Department of Energy and Mines and NEPL NPA management unit carried out monitoring jointly that will continue during the operation of the line. The telecommunication line was extended from Viengkham district, Luangprabang province to Sone area in Viengthong district was completed before the extension of the electricity line. The monitoring of future use and maintenance of the line will be done under close supervision of the NEPL NPA management unit.

The Ministry of Energy and Mines has drawn up a Rural Electrification Master Plan and Map A8.2 provides an overview of rural electrification in 2015, and in 2020. In addition district level plans are available with information on planned rural electrification network with coordinates. This data is accompanied by high quality district level maps and are available for all the PAW project districts in five provinces. See Maps A8.3 and A8.4 for District Boulapha, Khammouane province, and District Viengthong, Houaphanh province, respectively.

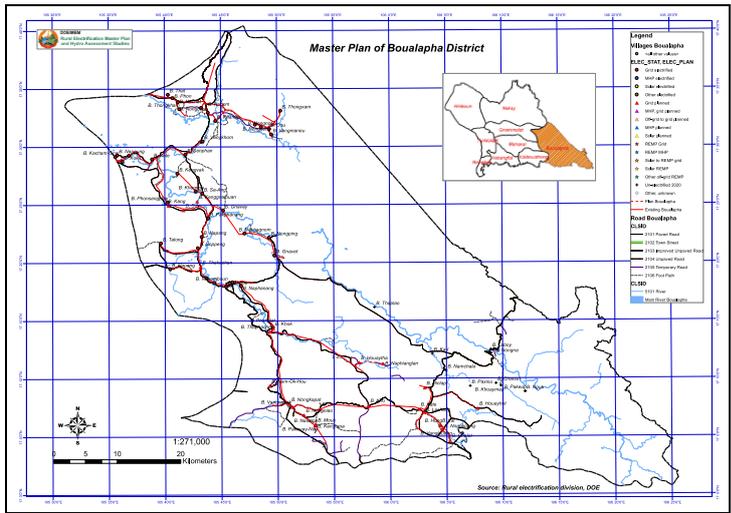
Map A8.2: Rural Electrification Master Plan 2020



These plans and maps can be used to start the mitigation process by ratifying to what extent annual budgets have been allocated to implement these plans. This can be done at the national level with follow up at the provincial and district level. Local communities are often the best source of information on issues related to rural electrification in remote areas that are not on the national grid. Rural electrification issues and its impact on

environmental resources can also be discussed at CEF consultations and appropriate mitigation measures can be evolved.

Map A8.3: Rural Electrification Map of Boulapha District



Map A8.4: Rural Electrification Map of Viengthong District

