Lao People's Democratic Republic

Peace Independence Democracy Unity Prosperity

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Ministry of Natural Resources and Environment

and

Ministry of Public Works and Transport

Lao Environmental and Waste Management Project (P175996)

Environmental and Social Management Framework (ESMF)

Volume I Main Report

(Revised Draft)

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Table of Contents

List of Tables

List of Figures

ABBREVIATIONS AND ACRONYMS

3R	Reduce, Reuse and Recycle
ARAP	Abbreviated Resettlement Action Plan
ASEAN	Association of Southeast Asian Nations
AWPB	Annual Work Plan and Budgets
BKX	Bolikhamxay province
C1, 2, 4	Components 1, 2, and 4
C3	Component 3
CERC	Contingency Emergency Response Component
CHSP	Community Health and Safety Plan
COC on SEA/SH and VAC	Code of conduct on Sexual Exploitation Abuse/Sexual Harassment and Violence Against Children
COVID19	Corona Virus 19
CTA	Chief Technical Advisor
DCC	Department of Climate Change
DGs/DDGs	Director Generals/ Deputy Director Generals
DHUP	Department of Housing and Urban Planning
DINE	Department of Inspection on Natural Resources
DPF	Department of Planning and Finance
DOE	Department of Environment
DOP	Department of Planning
DONRE	District Offices of Natural Resource and Environment
DPWT	Department of Public Works and Transport
ECC	Environmental Compliance Certificate
ECOP	Environment Code of Practice
EDPD/PTI	Environmental Research and Disaster Prevention Division
EGEF	Ethnic Group Engagement Framework
EGEP	Ethnic Group Engagement Plan
EHSG	Environmental, Health and Safety Guidelines of WB Group
EIA	Environmental Impact Assessment
EPF	Environmental Protection Fun
EPFO	Environment Protection Fund
E&S	Environmental and Social
ESCOP	Environmental and Social Code of Practice
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environment and Social Impact Assessment
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
ESS	Environmental and Social Standards

EWMP	Environmental Waste Management Project
EXRI	EX Research Institute Ltd
FGD	Focused Group Discussion
FM	Financial Management
FPIC	Free Prior and Informed Consent
ISP-LUP	Integrated Spatial Planning and Land Use Planning
GBP	Green Business Plan
GBV	Gender Based Violence
GCB	Green Clean and Beautiful Lao PDR
GCBP	Green, Clean, and Beautiful Plan
GDP	Gross Domestic Product
GGGI	Global Green Growth Institute
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
IEE	Initial Environmental Examination
IFC	International Finance Corporation
KHM	Khammouane province
KM	Kilometer
km^2	Square kilometre
LEMGP	Laos Environmental Matching Grant Program
LFND	Lao Front for National Development
LMP	Labour Management Procedures
LNCCI	Lao National Chamber of Commerce and Industry
LWU	Lao Women's Union
MAF	Ministry of Agriculture and Forestry
MGA	Matching Grant Agreement
M&E	Monitoring and Evaluation
MoES	Ministry of Education and Sport
MOF	Ministry of Finance
MOIC	Ministry of Industry and Commerce
MONRE	Ministry of Natural Resource and Environment
MPWT	Ministry of Public Works and Transport
MEM	Ministry of Energy and Mines
MPI	Ministry of Planning and Investment
NGO	Non-Government Organization
NRERI	Natural Resources and Environmental Research Institute
NPAP	National Plastic Action Plan
NPSC	National Project Steering Committee
OHS	Occupational Health and Safety
ODX	Oudomxay province
PAD	Project Appraisal Document

PAP	Project Affected People
PIU	Project Implementation Unit
PCU	Project Coordination Unit
PMU	Project Management Unit
PONRE	Provincial Offices of Natural Resource and Environment
PPE	Personal Protective Equipment
Pre-FS	Pre-Feasibility Study
Pre-ESIA	Preliminary Environmental and Social Impact Assessment
PSMEB	Participating small and medium size enterprises and businesses
PTI	Public Works and Transport Institute
RAP	Resettlement Action Plan
RDF	Refuse-Derives Fuel
RPF	Resettlement Policy Framework
SCOC	Social Code of Conduct
SDAs	Subproject Delivery Agencies
SEA	Strategic Environmental Assessment
SEP	Stakeholder Engagement Plan
SIA-SMP	Social Impact Assessment and Social Management Plan
SIA	Sub-component Implementing Agency
SMEs	Small and Medium-sized Enterprises
SMEB	Small and medium size enterprises and businesses
SMP	Social Management Plan
SOER	State of Environment Report
SWM	Solid Waste Management
SVK	Savannakhet province
UDAAs	Urban Development Administrative Authorities
US$	United States dollar
UXO	Unexploded Ordnance
VCOMS	Vientiane City Office for Management and Service
VTC	Vientiane Capital
VTP	Vientiane Province
WB	The World Bank
WBG	World Bank Group

EXECUTIVE SUMMARY

E1. Project Background

In Lao People's Democratic Republic (Lao PDR,) rapid development during the past 10 years (pre-Covid-19) has resulted in degradation of natural resources and environmental quality and increase generation of solid wastes while the Government of Lao PDR (GOL) through the Ministry of Natural Resources and Environment (MONRE), the Ministry of Public Works and Transport (MPWT), and the Environmental Protection Fund (EPF) has been preparing a project, namely Environment and Waste Management Project (EWMP), for possible financing by the World Bank (WB). The project will be implemented in 2023 to 2029 with a total budget cost of $ 45.08 million b Project objectives and activities are provided in Chapter 2 and Annex 1.

The WB's Environmental and Social Framework (ESF) will be applied to the project. With support from the WB on-going project, a team of international and national consultants have been mobilized to prepare ESF documents are necessary for the project comprising an Environment and Social Commitment Plan (ESCP), a Stakeholders Engagement Plan (SEP), and Environment and Social Management Framework (ESMF), a Social Impact Assessment and Social Management Plan (SIA-SMP), and a Pre-ESIA (PESIA) for selected site. Scope of the ESCP, SEP, ESMF, and SIA-SMP will cover all components while Pre-ESIA will cover only Component 3. This document is the ESMF of the EWMP which will cover all project components.

E2. Project Objectives and Activities

Main Project Development Objectives (PDO) of EWMP is to strengthen environmental protection systems, improve municipal solid waste management in selected cities in Lao PDR, and provide immediate and effective response in case of an Eligible Crisis or Emergency. Achievement of the PDO will be measured by the following indicators :

- Environmental protection system (practices) improved (score)
- Increase coverage of municipal waste collection from households and businesses in Vientiane Capital (percentage)
- Solid waste recycled, composted and/or treated to reduce waste disposal volumes (percentage)
- Net greenhouse emissions reduction (metric tons/year)

The project activities will be implemented through the following 5 components:

- ***Component 1: Policy Implementation and Capacity Enhancement ($12.12 Million).*** This component will strengthen the policies, institutional framework, and capacities of central government agencies (particularly MONRE and MPWT) responsible for various technical and administrative aspects of environmental, pollution, solid waste, and plastics management, including initiating a matching grant mechanism with selected

private sector. The activities will be implemented by responsible agencies through the following five subcomponents: Sub-component C1A: (Policy and capacity support for national institutions on EIA/IEE/SEA, solid waste management, and toxic and hazardous waste (THW); Subcomponent Sub-component C1B: (Capacity and Financial Support to SMEs on environmental and waste management); Sub-component C1C: (ECC compliance and pollution monitoring framework) ; Sub-component C1D (Policy and Capacity support on Climate change and low carbon resilient development); and Sub-component C1E: (Policy and capacity support on plastics policies and legislation).

- ***The Matching Grant (LEMGP):*** The proposed matching grant activities (called Lao Environmental Matching Grant Program or LEMGP) seeks to initiate active engagement with a selected small-and medium-size enterprises and businesses (SMEBs) that can provide resources or practical solutions for solving the most pressing issues related to effective use of natural resources, waste generation, environmental quality, and pollution control challenges taking into account the needs and opportunities for selected SMEBs to continue with their businesses after Covid-19 pandemic and contribute to economic growth toward green growth direction.
- ***Component 2: Integrated Support and Capacity Building for Local Government and Municipalities ($4.5 Million).*** This component aims to enhance the capacity of local government and institutions to address the policy implementation of waste, plastic and pollution management. This component will support local governments to better prepare for investments under Component 3. Three subcomponents are: Sub-component C2A: (*Support and Capacity Building for Local Governments on waste and pollution data and information systems and waste services*); Sub-component C2B: (*GCB and 3R projects plus capacity building for NPAP/plastic policies implementation in targeted districts*); and Sub-component C2C: (*Support to private-public partnerships and enhancing output-based waste service delivery and cost recovery capacity*).
- ***Component 3: Waste and plastics management Infrastructure Investments ($24.62 Million).*** This component will finance waste management and recycling infrastructure investments in Vientiane Capital including provision of goods, services, and consulting services required to carry out detailed design, preparation of bidding document taking into account climate change considerations, and supervision of construction and rehabilitation works. Component 3 will finance waste management and recycling infrastructure investments in Vientiane Capital including (i) a new waste transfer station in Naxaythong district; (ii) upgrading material recovery facility at the km16 in Xaythany district; and (iii) partial rehabilitation of the existing landfill at the km32 in Xaythany district.
- ***Component 4: Project coordination and reporting ($3.81 Million).*** This component will focus on inter-ministerial coordination, progress reporting, and monitoring and

evaluation. Strengthening implementation and management capacity will involve support for monitoring and evaluation systems for the proposed program, enhancing stakeholder's collaboration at all levels. Two subcomponents are: Sub-component C4A: (*Project management and administration)* and Sub-component C4B: (*Communication, Engagement, and EPF Capacity building*).

- ***Component 5. Contingent Emergency Response Component*** *(*CERC). This component will provide an immediate response to an Eligible Crisis or Emergency, as needed by enabling the GOL to request the World Bank to reallocate project funds to support emergency response and recovery.

Under Component 1, the project activities will be implemented nationwide on the part related to policy, regulations, and technical assistance (TA) while some activities such as those related to the matching grant (C1A) and the National Plastic Actions Plan (NPAP) (C1E). However, given limited budget, it is expected that these activities will be conducted in Vientiane Capital and nearby provinces. Under Component 2, the project activities will be conducted in specific areas to be identified during project implementation according to the objective and scope of the Subcomponent activities (C2A, C2B, and C2C). The activities areas will be limited to Vientiane Capital, Vientiane Province and Oudomxay Province,

Component 3 will finance waste management and recycling infrastructure investments in Vientiane Capital in Xaythany District and Naxaythong district. In Xaythany district, there are two specific sites: one at the km 32 (the existing landfill) and another at the existing waste facilities at km16. In Naxaythong, specific site and activities are being considered. More details can be found in Pre-ESIA and SIA-SMP. Environmental and Social (E&S) baseline conditions of Vientiane Capital, Vientiane Province and Oudomxay Province,and 3 sites to be invested under C3 are provided in Section 3.

E3. Purpose and scope of the ESMF

This ESMF sets out the principles, rules, guidelines and procedures to assess and mitigate the environmental and social risks and impacts of the whole project based on information currently available from the Project Appraisal Document (PAD), Preliminary Feasibility Study (Pre-FS of the proposed investment under Component 3, Pre-ESIA conducted for the specific site at KM 32 of Component 3, and the SIA conducted for all components. The ESMF contains measures and frameworks to reduce and mitigate adverse risks and impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for implementation of the activities and addressing the project risks and impacts. The ESMF is prepared in line the World Bank's Environment and Social Framework (ESF) and its Environmental and Social Standards (ESSs) applicable to relevance for the project.

E4. Positive and Potential E&S Risks and Negative Impacts

The project impacts are broken down into positive impacts and negative E&S risks and impacts as presented below.

Positive Impacts:

The project will continue to support GOL efforts to strengthen environmental protection systems, improve municipal solid waste management in selected cities in Lao PDR, and provide immediate and effective response in case of an Eligible Crisis or Emergency building on key outcomes of existing and/or recent projects financed by WB as well as initiate policy, regulations, and capacity building to address priority issues related to solid waste and plastics in Lao PDR. The project will seek to comprehensively support capacity building and stakeholder collaboration across priority aspects of key sector agencies of MONRE, MPWT, EPF, and selected local governments responsible for solid waste management.

Key benefits from project intervention through the efforts to improve policy and regulations related to environmental prevention measures (EIA, IEE, SEA, 3R, GCB, and the Laos Environmental Matching Grant Program (LEMGP) to be implemented under Component 1 and capacity building of local authorities to be implemented under Component 2 will clearly support urban cleanliness and overall environmental management and pollution control. This will indirectly impact the quality of health of residents, which will lead to healthy long lives, money savings on health medication and support for urban poverty alleviation. Implementation of SEA regulations as well as other tools related ISP-LUP and pollution control measures will contribute to minimize risk and impacts and promote positive impacts and participation of the sector agencies and local authorities on ways to implement them. Implementation of Component 4 will continue to strengthen EPFO capacity to engage key stakeholder and tap more funding support form national and international sources.

The EWMP Project investments proposed under Component 3 aim at significantly improving waste management in Vientiane Capital through an integrated waste management approach comprising upgrading the existing waste management and disposal facilities at the existing Km 32 landfill, establishment of Integrated Waste Management Facilities at the existing Km16 transfer station, and at a new transfer station to be established in Naxaythong District.

The construction and operation of two new landfill cells proposed under the Km 32 Landfill Project will reduce some of the environmental impacts associated with disposal of the future incoming waste to the landfill. The proposed new landfill cells include leachate collection and treatment, which when managed and maintained properly will to some extent reduce the current pollution of surface water bodies draining from the landfill site and thereby also reduce adverse impacts caused by discharge of polluted water on agricultural fields. Human health risks due to consumption of water polluted by wastewater/leachate from the landfill site will also be reduced. Overall, compared with a “do nothing” scenario, the proposed improvements to waste disposal, leachate collection and treatment and waste disposal operations including a complete stop for open burning of waste, daily cover of incoming waste, and reduced littering -

are expected to reduce odour nuisances, air and water pollution and improve health and safety for landfill workers and waste pickers. Furthermore, there are likely to be significant global and regional beneficiaries of improved environmental conditions with decreases in (plastic) waste entering oceans and GHG releases to the atmosphere.

Direct and indirect beneficiaries of the project are expected to be the approximately 1 million inhabitants of Vientiane Capital who will benefit from improvement to the waste management system, and an additional 820,000 inhabitants in Oudomxay and Vientiane provinces who will benefit from improved policies, regulations, monitoring and enforcement, legislation, strengthened institutions, and increased capacities of SWM departments as included under Components 1 and 2.

The 264 waste-pickers at the KM-32 landfill will benefit directly from improved working conditions at the landfill, training and skills development provided through the project, and opportunities for work at the waste management facilities planned for Naxaythong and KM16. Women and vulnerable groups currently involved in informal (and formal) waste collection, sorting, and disposal networks will be specifically targeted to ensure they benefit from re-skilling and training opportunities, with the objective of incorporating informal workers into formal waste management systems and identifying alternative and/or substitute livelihood operations.

The poor and near poor, on average 10 percent of the population, are likely to experience significant positive impacts of collected waste, decreased waste burning, decreased pollution, and sanitary disposal of waste.

Overall Negative Impacts/Risk and Proposed Mitigations

Overall, the project is classified a high-risk project. Project components have differing risk profiles. Environmental and social (E&S) risks and impacts of the Component 1, 2 and 4 are classified as low to moderate while the Component 3 risks and impacts are classified as substantial to high mainly due to the on-going significant pollution at Km32 landfill site and risk if E&S considerations and implementation during each phase of activities including Detailed Design is inadequate.

With effective implementation of appropriate ESF Instruments and adequate design measures for solid waste management facilities as proposed in the Pre-ESIA, E&S risks and negative impacts from the project's activities is expected to be at acceptable level.

E&S Risks for Components 1, 2, and 4

E&S risk for Component 1, 2, and 4 is considered low to moderate. Activities to be implemented under Component 1, 2 and 4 will be limited to technical assistance (TA); procurement of equipment and other goods/supplies; policy development; training, workshops, and other capacity building; and probable construction and/or rehabilitation of small and/or very small civil works; SMEs and Matching Grant. The proposed activities under the C1 and C2

will create positive impacts on GOL efforts to improve overall environmental and waste management. However, there are possible risks and negative impact as summarized below:

- Risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker[1].This will be addressed through the implementation of LMP (Attachment 1 of the SIA-SMPs);
- Inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection. This can be managed through the implementation of a simple Code of Conduct on SEA/SH and VAC (Attachment 3B of the SIA-SMPs);
- Temporary risks and disturbances related to OHS, CHS and dust and noise generation due to construction and/or rehabilitation of small and/or very small civil works as well as installation of environmental quality monitoring stations. This will be mitigated by simple ESCOP (Annex 6)
- Given the size, location and activities for LEMGP under C1B and 2B will be identified during implementation, the E&S risks and negative impacts of the implementation of the Laos Environmental Matching Grant Program (LEMGP) are categorized as low up to moderate and associated to working conditions, labour disputes transmission of infectious disease and temporary disturbances related to OHS, CHS and dust and noise generation due to construction and/or rehabilitation of small and/or very small civil works. This will be mitigated through a list of ineligible items (Annex 3B) to be applied to the program as well as specific requirements (as part of the site-specific mitigation measures and/or preparation of an environmental management plan (ESMP) of the proposed activities (Annex 5B). Similar approach will be made for those related to 3R, GCB, and NPAP related activities to be implemented in selected areas and the activities will be planned and conducted in close consultation with local authorities and local community.

E&S Risks for Component 3:

Component 3 will finance waste management and recycling infrastructure investments in Vientiane Capital including (i) a new waste transfer station in Naxaythong district; (ii) upgrading material recovery facility at the km16n in Xaythany district; and (iii) partial rehabilitation of the existing landfill at the km32 in Xaythany district.

[1] The World Bank ESS2 defines four categories of project workers are grouped into direct workers, contracted workers, primary supply workers, community workers and civil services. The definition of project workers is provided in the Attachment 1 LMP of the SIA-SMP.

The overall risks and impacts of C3 are classified as substantial to high taking into account limited regulations, institutional capacity, and the on-going significant E&S issues such as degraded surface and groundwater quality and impacts on aquatic and agricultural resources due to leakage of leachate/toxic waste components into soil, water resource; air pollution and odor including air pollution from landfill fire; poor health and safety and sanitation, etc.

To ensure that the E&S risks and impacts from the project will be at an acceptable level, a Pre-ESIA has been prepared for project activities at the Km 32 landfill based on the preliminary design and feasibility study. The Pre-ESIA has found that the KM 32 landfill currently has significant E&S issues such as degraded surface and groundwater quality and impacts on aquatic and agricultural resources due to leakage of leachate/toxic waste components into soil, water resource; air pollution and odor including air pollution from landfill fire; poor health and safety and sanitation, etc. With the Project intervention, the impacts from the future incoming waste are expected to be reduced compared to a "without the project" scenario due to better management of future coming waste and upstream segregation at Km16 and Naxaythong facilities.

However, as the currently available project budget can only cover partial rehabilitation of Km 32 landfill, the pre-project environmental and social impacts to the surrounding environment and communities at KM 32 will not be addressed. In terms of the proposed project activities at the Km 32 landfill described in the preliminary design and feasibility study, the Pre-ESIA has identified several shortcomings in the proposed design which according to the Pre-ESIA must be improved to ensure that the E&S risks and impacts are at an acceptable level. The identified inadequate designs pose a risk of high cumulative negative impacts from pre-project unsanitary waste disposal practices and the project supported activities, thus deteriorating the environment. These impacts are likely to be continuous and long-term, and exacerbated by contextual environmental risks (e.g. unusual high temperature, flood, etc.) and institutional risks (e.g. capacity constraints pertaining to the operation of waste management facilities and budget deficiency). To ensure that E&S risks and impacts from the project identified in the Pre-ESIA will be properly addressed and reduced to an acceptable level, revision/update of the preliminary design should ensure that adequate considerations on environmental and social risks and impacts are incorporated and that potential E&S risks and impacts from the project activities are acceptable.

The key E&S risks and impacts and proposed mitigation measures of the C3 are provided in Section 4.3.2 while the details are provided in the standalone Pre-ESIA and SIA-SMP.

E6. ESMF Procedures

The ESMF describes procedures for (i) E&S screening and scoping guidelines provided in Annex 4; and(ii) guidelines for preparation of site specific ESIA and ESMPs provided in Annex 5 including the information required, responsibilities and capacity needs and training necessary for project staff in charge of ESMP monitoring. Institutional arrangements for the project at the

MPWT and government-level, as well as for consultants and contractors, are also described in Section 6 of this report.

E7. Implementation Arrangements

The MONRE will be the lead agency for Components 1 and 2, the MPWT will be the lead agency for Component 3, and the EPF will be the lead agency for Component 4. Project activities will be implemented by several agencies under the MONRE, the MPWT and the EPF, and under the MPI, MEM, and NUOL.

EPF Project Coordinating Unit (PCU). A PCU will be established at the EPF to support project management and oversee the implementation of Components 1, 2 and 4. The PCU is proposed to include: a chief technical advisor (CTA), FM team, M&E team, E&S safeguard team, a project coordinator and subproject coordinators.

MPWT Project Committee and PMU. The MPWT will establish a committee to oversee the implementation of activities under Component 3. The committee will be chaired by the Vice Minister of MPWT and include Director Generals (DGs) and Deputy Director Generals (DDGs) of MPWT's Department of Planning and Finance (DPF), Department of Housing and Urban Planning (DHUP), Public Works and Transport Institute (PTI), and local Departments of Public Works and Transport (DPWT). The MPWT PMU will consist of technical staffs of the DHUP, the DPC and the PTI. The MPWT will continue to discuss the arrangements and terms of reference of the project committee and will confirm these with the WB team.

The ESMF implementation arrangements are broken down into MPWT PMU and EPF PCU. The MPWT PMU will be responsible for planning, supervision, monitoring and reporting of ESMF implementation for the C3 while EPF PCU will be responsible planning, supervision, monitoring and reporting of ESMF implementation for the C1,2, 4.

E8. Consultation and Stakeholder Engagement

During preparation of the ESF instruments, the Focused Group Discussion (FGD) was carried out on 11 August 2022 by the EPF consultants together with technical staffs from EPFO, NRERI and PTI in Ban Naphasouk village, the KM32 landfill and Nahai village (KM16 Transfer Station) with a total of 82 participants including 52 females. Key Informant Interview was undertaken during 09 to 16 August 2022 with a total of 22 key representatives (9 women) from DOE, DINE, NRERI, PTI, DHUPD, VCOMS, Small B, and Xaythany district hospital. The summary results of KII and FGD are provided in Section 7 while list of participants is provided in SEP including details on the survey including the questionnaires used. The draft ESF documents (ESCP, SEP, ESMF, SIA-SMP, and Pre-ESIA) will be disclosed on 16 November 2022 and consulted at national level on 30 November 2022. The details will be provided in the project's Stakeholder Engagement Plan (SEP).

E9. Grievance Redress

The grievance mechanism seeks to resolve concerns promptly, using an understandable process that is culturally appropriate and readily accessible at no cost. Grievances can be submitted if someone believes the Project is having a detrimental impact on the community, the environment, or on their quality of life. Stakeholders may also submit comments and suggestions. The GRM is described in full in the project's SEP, as well as in the ESMF.

In the EWMP it is envisaged there could be five types of grievances:

- Grievances relating to land acquisition, that follow the Resettlement Action Plan's GRM (detailed in the project's RPF).
- Grievances related to ethnic groups who may be excluded from project activities, attachment to land, different cultural practices, low literacy levels, lack of Lao language.
- Grievances related to Gender-Based Violence (GBV), Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH); and Violence Against Children (VAC).
- Grievances related to project implementation (including relating to environmental and social impacts, health, worker's camp, pollution and waste, etc.). Some of these may be specific to ethnic groups.
- Job-related disputes (detailed in the project's LMP).

More details are provided in the SEP.

E10. Monitoring and Reporting

Monitoring is the method of ensuring mitigation measures are being implemented in accordance with ESMF and ESCP and are effective and also to ensure compliance with ESF requirement. Semi-annual monitoring reports will need to be undertaken in order to:

- Improve environmental and social management practices;
- Ensure the efficiency and quality of the environmental and social assessment processes;
- Establish evidence- and results-based environmental and social impact assessment; and
- Provide an opportunity to report the results of the implementation of mitigation measures in future ESMPs and other project related documents.

To ensure effective implementation of the ESMF requirements, the MPWT PMU will be responsible for monitoring and reporting of C3 while the EPF PCU will be responsible for monitoring and reporting for C1,2, 4 to WB. The monitoring and reporting system will include both internal monitoring and reporting by each PMU and overall project monitoring and reporting as required by WB.

E11. Budget

The total indicative cost reviewed is estimated at **USD1,202,500** plus the costs of specific mitigation measures in the ESMPs, ARAPs and EGEPs (if applicable). The cost for ESMF implementation for C1,2 & 4 is estimated at USD**606,000** while for C3 is estimated at **USD596,500** including the cost for full ESIA study. Funds will be from the project management of Component 4 (C4) for C1,2,4 while that for C3 is part of C3 budget. This budget is indicative only and should be further refined during the preparation of a full ESIA for Component 3 and site-specific ESMPs. The cost for resettlement and compensation will be the responsibility of the Government of Laos (GOL) if necessary. Also the cost of the implementation of E & S measures by the contractors will be under contractor's contracts. The cost for External Monitoring for C1,2 & 4 will be covered under the Project Management budget of EPFO PMU and the cost for External Monitoring for C3 will be under MPWT PMU budget. The estimated budget for ARAP/RAP including livelihood restoration of waste pickers will be confirmed during full ESIA stage will be responsible by the MPWT if applicable. See Annex 7 Detailed of the Estimated ESMF Implementation Budget.

1 PROJECT DESCRIPTION

1.1 PROJECT BACKGROUND

1. In Lao People's Democratic Republic (Lao PDR,) rapid development during the past 10 years (pre-Covid-19) has resulted in degradation of natural resources and environmental quality and increase generation of solid wastes. In response, the Government of Lao PDR (GOL), through the Ministry of Natural Resources and Environment (MONRE) and Ministry of Public Works and Transport (MPWT), has prepared the Environment and Waste Management Project (EWMP) for possible financing by the World Bank (WB) to be implemented in 2023 to 2029 with a budget of about $45.08 million.

2. The WB's Environmental and Social Framework (ESF) will be applied to the project.

3. This ESMF sets out the principles, rules, guidelines and procedures to assess and mitigate the environmental and social risks and impacts of the whole project based on information currently available from the Project Appraisal Document (PAD), Preliminary Feasibility Study (Pre-FS of the proposed investment under Component 3, Pre-ESIA conducted for the specific site at KM 32 of Component 3, and the SIA conducted for all components. The ESMF also provides technical guidance on the E&S screening, the Guideline for preparation of ESF instruments to be required to mitigate potential E&S risks and negative impacts.

1.2 PROJECT OBJECTIVE AND INDICATOR

4. Main development objective of EWMP is to strengthen environmental protection systems, improve municipal solid waste management in selected cities in Lao PDR, and provide immediate and effective response in case of an Eligible Crisis or Emergency. The activities will support policy development and institutional strengthening at the national level to enhance regulatory oversight and planning of the solid waste sector, supporting environmental risk management and climate change actions, and enhance monitoring and regulation of key types of pollution in the country.

5. At the provincial and district levels, the Project will focus on supporting improved solid waste services and increasing the financial and environmental sustainability of solid waste management operations through technical assistance and investments in infrastructure and equipment. The project will facilitate the creation of models for solid waste management in selected cities that can demonstrate improved and cost-effective performance and serve as inspirations for other cities.

6. The project will seek to comprehensively support stakeholder collaboration across all aspects of the sector, most notably MONRE, MPWT, EPF, as well as local governments responsible for solid waste management.

7. The project will measure its success by the following indicators:

(a) Environmental protection system (practices) improved (score)

(b) Increase coverage of municipal waste collection from households and businesses in Vientiane Capital (percentage)

(c) Solid waste recycled, composted and/or treated to reduce waste disposal volumes (percentage)

(d) Net greenhouse emissions reduction (metric tons/year)

1.3 PROJECT COMPONENTS

8. The project activities will be implemented through the following 5 components (Please see Annex 1 for Details Project Description) :

- ***Component 1 (C1): Policy Implementation and Capacity Enhancement*.** This component will strengthen the policies, institutional framework, and capacities of central government agencies (particularly MONRE and MPWT) responsible for various technical and administrative aspects of environmental, pollution, solid waste, and plastics management, including initiating a matching grant mechanism with selected private sector. The activities will be implemented by responsible agencies through the following five subcomponents as presented in Table 1-1:

Table 1-1: C1 Subcomponents (reference: Report No: PAD4795)

Component	Lead Implementing Agency	Total Budget (US$ millions)
Component 1. Policy Implementation and Capacity Enhancement (PICE)	**MONRE**	**12.12**
Subcomponent 1A. Policy and capacity support on EIA/IEE/SEA, solid waste management, and Toxic and Hazardous Waste (THW)	DOE/DWR-MONRE	2.72
Subcomponent 1B. Capacity and Financial support to SMEs on environmental and waste management	EPF	2.36
Subcomponent 1C. Policy and capacity support on ECC compliance and pollution monitoring framework	DNEI/NRERI/DWR-MONRE	3.65
Subcomponent 1D. Policy and Capacity support on Climate change: low carbon resilient development	DCC-MONRE/ DOP-MPI	1.5
Subcompomnent1E. Policy and capacity support on plastics policies and legislation	DOE/DPF-MONRE	1.59

- ***The Matching Grant (LEMGP):*** The proposed matching grant activities (called Lao Environmental Matching Grant Program or LEMGP) seeks to initiate active engagement with a selected small-and medium-size enterprises and businesses (SMEBs) that can

provide resources or practical solutions for solving the most pressing issues related to effective use of natural resources, waste generation, environmental quality, and pollution control challenges taking into account the needs and opportunities for selected SMEBs to continue with their businesses after Covid-19 pandemic and contribute to economic growth toward green growth direction. Eligible applicants include SMEs per the SME law and small/medium size businesses including local authorities and local communities that are committed and capable of planning and implementation of a Green Business Plan (GBP) or Green, Clean, and Beautiful Plan (GCBP) in line with GOL regulations and located in the target/project areas. Total cost for LEMGP is estimated at $1.5M. With a maximum matching grant of $100,000 per one PSMEB who can sign a Sub- grant Agreement with EPFO (as suggested by WB), it is expected that 10-15 green plans will be prepared and implemented. The activities to be implemented within 1-2 year time frame.

- ***Component 2 (C2): Integrated Support and Capacity Building for Local Government and Municipalities*.** This component seeks to address primary constraints to improving sector performance including the technical, organizational, and financial capacity of local governments to efficiently provide solid waste services. This component will support local governments to better prepare for investments under Component 3. The activities will be implemented by responsible agencies through the following three subcomponents as presented in Table 1-2:

Table 1-2: C2 Subcomponents (reference: Report No: PAD4795))

Component	Lead Implementing Agency	Total Budget (US$ millions)
Component 2. Integrated Support and Capacity Building for Local Government and Municipalities	**MONRE**	**4.54**
Subcomponent 2A. Support and Capacity Building for Local Gov't on waste and pollution data and information systems and waste service	DNEI/NRERI-MONRE	0.09
Subcomponent 2B. GCB and 3R projects + capacity building for NPAP/plastic policies implementation in targeted districts	DOE-MONRE	3.92
Subcomponent 2C. Support to private-public partnerships and enhancing output-based waste service delivery and cost recovery capacity	TBD	0.53

- ***Component 3 (C3): Infrastructure investments for solid waste and plastic management*.** This component will finance waste management and recycling infrastructure investments in Vientiane Capital to improve the effectiveness and efficiency of waste and plastics management to enhance services and environmental sustainability in three selected locations in Vientiane Capital including (i) in Naxaythong district for installing

a new waste transfer station; (ii) at the Km 16 in Xaysettha district for upgrading a material recovery facilities and support waste collection and transportation equipment; and (iii) at the Km32 (existing landfill) in in Xaysettha district for partial rehabilitation and construction of waste cells and leachate treatment facility, temporary hazardous waste storage facility, waste reception area, upgrading waste recycling facilities and associated facilities. Potentially, investments in riverine plastics collection technologies will be provided under this Component, including support on setting up viable operations and disposal systems and integration into general SWM system. This will be combined with the establishment of plastics pollution monitoring stations and provide citizen science and reporting possibilities for monitoring of impacts. The activities will be implemented by responsible agencies through the following two subcomponents as presented in Table 1-3:

Table 1-3: C3 Subcomponents (reference: Report No: PAD4795)

Component	Lead Implementing Agency	Total Budget (US$ millions)
Component 3. Waste and plastics management Infrastructure Investments	**MPWT**	**24.62**
The investments will be divided into three locations strategically selected in Vientiane Capital to maximize the waste-to-resource opportunity, minimize the waste volume that will be landfilled at Km32, and mitigate the negative environmental and social impacts from waste management. The three sites are as follows: • At Naxaythong district in north-west of Vientiane Capital will install a new waste transfer station with material recovery facility, waste collection and transportation equipment with waste transfer function. • At Km 16 in Xaysettha District, upgrade to a material recovery facility and support waste collection and transportation equipment. • At the current landfill at Km32 will be partially rehabilitated to extend the lifetime of the landfill and also to install the waste reception area, upgrading of waste recycling facility, ensure a safe and healthy working environment of informal waste pickers, improve the leachate treatment and regulation facility to mitigate the direct discharge of leachate to the surrounding area and also install the	DHUP	24.62

storage for hazardous waste to safely store the toxic and hazardous materials.		

- ***Component 4: Project coordination and reporting***. This component will focus on inter-ministerial coordination, progress reporting, and monitoring and evaluation Strengthening implementation and management capacity will involve support for project management and monitoring and evaluation systems across the implementing agencies at all levels. The activities will be implemented by responsible agencies through the following two subcomponents as presented in Table 1-4:

Table 1-4: C4 Subcomponents (reference: Report No: PAD4795)

Component	Lead Implementing Agency	Total Budget (US$ millions)
Component 4. Project Coordination and Reporting	**EPF**	**3.81**
Subcomponent 4A. Project management and administration	EPF	2.90
Subcomponent 4B. Communication, Engagement, and EPF Capacity building	EPF	0.91

- ***Component 5. Contingent Emergency Response (***CERC). This component is designed to provide swift response in the event of an eligible crisis or emergency, by enabling the GOL to request the World Bank to reallocate project funds to support emergency response and reconstruction.

1.4 PROJECT LOCATIONS

9. Under Component 1, the project activities will be implemented nationwide on the part related to policy, regulations, and technical assistance (TA) while some activities such as those related to the matching grant (C1A) and the National Plastic Actions Plan (NPAP) (C1E) may focus on specific areas to be identified during project implementation. However, it is expected that these activities will be conducted in Vientiane Capital and nearby provinces.

10. Under Component 2, the project activities will be conducted in specific areas to be identified during project implementation according to the objective and scope of the Subcomponent activities (C2A, C2B, and C2C). The activities will be implemented in Vientiane Capital, Vientiane Province and Oudomxay Province. The brief Environmental and Social (E&S) baseline condition of these three provinces are provided in Section 3.

11. Component 3 will finance priority low-cost infrastructure to improve effectiveness and efficiency of waste and plastics management in Vientiane Capital in Xaythany District and Naxaythong district. In Xaythany district, there are two specific sites: one at the existing solid waste landfill at Km32 and another at the existing waste facilities at Km16. In Naxaythong, the specific site is being considered for the proposed project activities to establish a transfer

station and Integrated Waste Management Facilities (IWMF). Site selection criteria, including environmental and social criteria considered for Naxaythong site selection is presented in Annex 3A.

2 LEGAL AND INSTITUTIONAL FRAMEWORK AND WB ESF REQUIREMENTS

2.1 NATIONAL LEGAL FRAMEWORK

12. The Lao PDR has many laws and regulations that govern environmental and social impacts and risks assessment and management applicable for all development projects financed by both public and private sectors. The key Lao laws and regulations relevant to the EWMP Project are listed in Table 2-1 below while details are provided in ***Annex 2***.

Table 2-1: National Policies and Legislations

Subjects	Related national policies, strategies, laws, regulations
Natural Environment (Land, water, forest)	• Constitution of the Lao PDR People's Democratic Republic (amended) No. 63/NA, 08/12/2015 • The Law on Making Legislation, No. 19 /NA, 12 July 2012 • Law on Environment Protection, No. 29/NA, dated 18/12/2012 • Law on Land, No. 70/NA, dated 21/06/2019 • Law on Forestry, No. 08/NA, dated 13/06/2019 • Law on Disaster Management, No. 15/NA, dated 24/06/2019 • Law on Water and Water Resources, No. 23/NA, dated 11/05/2017 • The Law on Aquatic and Wildlife Animals No. 07/NA (2007) • Decree on Environmental Impact Assessment, No. 21/GoL, dated 31/01/2019 • Decree on the Promulgation and Enforcement of National Environmental Standards, No. 81/PMO, dated 21 February 2017 • Decree on Occupational Health and Safety, No. 22/GOL, dated 05/02/2019 • The Law on Resettlement and Occupation, No. 086/NA, dated 15/06/2018 • The Decree on Compensation and Resettlement of People Affected by Development Projects, No. 84/GoL, dated 05/04/2016
Waste management	• Ministerial Decision on landfill management No. 521/MPWT, 23 February 2007 • Ministerial Instructions on Hazardous Waste Management, No. 0744/MONRE, 11-Feb-2015.

Subjects	Related national policies, strategies, laws, regulations
Labour: OHS, child labour non-discrimination, freedom of association, worker grievance; labour code; Sexual Exploitation and Abuse/ Harassment (SEA/SH)	• The Law on Labour Protection, No. 43/NA, dated 24/12/2013; • The Law on Grievance Redress, No. 023/NA, dated 09/11/2016; • The Law on Hygiene, Prevention and Health Promotion, No. 73/NA, dated 22/11/2019; • The Law on Prevention of HIV Disease, dated 01/NA, dated 29/6/2010; • The Law on Entry-Exit and Management of Foreigners, No. 59/NA, dated 26 December 2014; • The Law on Lao Union, No. 3-/NA, dated 15/11/2017; • The Law on Anti-Human Trafficking, No. 73/NA, dated 17 December 2015; • The Law on Preventing and Combating Violence against Women and Children, Law No. 56/NA, 23/12/2014; • The Law on the Protection of Children Rights and Benefits, No. 05/NA, dated 27/12/2006; • The Law on the Development and Protection of Women, No.08/NA, dated 22/10/2004; • The Law on Prevention of HIV Disease, dated 01/NA, dated 29/6/2010; • The Family Law, No. 05/NA, dated 26/9/2008; • Health Impact Assessment No. 365, MOPH, 01 March 2006 • Health Impact Assessment Guidelines, Ministry of Public Health, 2010. • The Decree on Occupational Health and Safety, No. 22/GoL, dated 05/02/2019; • The Decision on Occupational Health and Safety at Construction Sites, No. 3006/MLSW, dated 21/08/2013; • The National Plan of Action for the Prevention and Elimination of Violence against Women and Violence against Children 2014-2020;
Ethnic Groups including engagement	• The Constitution of the Lao PDR People's Democratic Republic (1991, amended, No. 63/NA, 08/12/2015; • The Ethnic Minority Policy (1992); • The Law on Lao Front for National Development, No. 49, dated 20/8/2018; • The Law on Media No. 01/NA, dated 4/11/2016; • The National Assembly of the Lao PDR –2009 and National Assembly Meeting No. VIII, 28/12/2018 for Ethnic Groups in Lao PDR.

Subjects	Related national policies, strategies, laws, regulations
	• The National Guideline on Consultation with Ethnic Groups, 2013; • The Guidelines for the Implementation of the State Decree on the Management and Protection of Religious Activities in the Lao PDR, no 16/MoI, 09/11/2016; • The Public Involvement Guidelines in ESIA Process, No. 707/MONRE, dated 05/02/2013;

2.2 APPLICABLE WORLD BANK ENVIRONMENT AND SOCIAL STANDARDS (ESS) AND ESF INSTRUMENTS PREPARED FOR THE PROJECT

2.2.1 Relevance World Bank Environment and Social Standards (ESS)

13. According to the Environmental and Social Review Summary (ESRS) of the WB identified during the project concept stage and confirmed during project preparation, of the WB's ten ESSs, nine (9) ESSs, except for ESS 9 – Financial Intermediaries, are considered relevance including:

- ESS1 – Assessment and Management of Environmental and Social Risks and Impacts;
- ESS2 – Labour and Working Conditions;
- ESS3 – Resource Efficiency and Pollution Prevention and Management;
- ESS4 – Community Health and Safety;
- ESS5 – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- ESS7 – Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
- ESS8 – Cultural Heritage; and
- ESS10 – Stakeholder Engagement and Information Disclosure.

The following ESS is not relevant to the project:

- ESS9 – Financial Intermediaries.

14. Potential E&S risks related to Component 3 are different from those related Components 1, 2, and 4. The risk and mitigation measures discussed in this ESMF (see Section 2.2.2 and Table 2-2) are divided into those related to Component 3 and Components 1, 2, and 4 activities. This is also consistent with the implementation arrangement of the project.

2.2.2 ESF Instruments Prepared for the Project

15. The following ES instruments as listed in Table 2.2 have been prepared during project

preparation to manage environmental and social risks from the project activities in the manner consistent with the ESF requirements and objectives:

i) A standalone Environment and Social Management Commitment Plan (ESCP). Given the different implementation arrangement between Component 3 and Component 1, 2, and 4, the ESCP identifies the measures and the entities responsible for implementation.

ii) A standalone Stakeholder Engagement Plan (SEP). This document identifies key stakeholders to be consulted throughout the project preparation and implementation process. It also identifies Grievance Redress Mechanism (GRM) to be applied at project, subproject and activities levels. SEP will be applied to all project components. GRM monitoring will be conducted and included in the project monitoring report.

iii) Environmental and Social Management Framework (ESMF). This document provides information regarding the principles, rules, guidelines and procedures to assess and mitigate the environmental and social risks and impacts of the project based on information available from Pre-Feasibility of the proposed investment under Component 3 taking into account the results from consultation with key stakeholders and local communities conducted at Km32 during the Preliminary Environment and Social Impact Assessment (Pre-ESIA) and the Social Impact Assessment (SIA) conducted for all components. The ESMF also provides technical guidance on the E&S screening, the Guideline for preparation of ESF management plans to be required to mitigate potential E&S risks and negative impacts in annexes. The social instruments (LMP, CHSP, COC, RFP and EGEF) to be applied to all components are provided in a standalone SIA-SMP.

iv) As agreed during the Project concept stage, a standalone Preliminary Environmental and Social Impact Assessment (Preliminary ESIA, Pre-ESIA) for one landfill site (Km32) has been prepared since information on activities and design available during project preparation is at preliminary level and inadequate for preparation of a full ESIA. This document describe baseline information on the E&S baseline condition and potential key E&S risks and impacts and mitigation measures required for the activities to be implemented at the Km32. The preliminary design will be further examined and revised during the detailed design taking into account necessary design improvement measures recommended in the Pre-ESIA. In parallel, the Pre-ESIA will be developed into a full ESIA that cover project activities at Km 32 landfill, Km16 transfer station and new Naxaythong transfer station during Detailed Design phase of Project implementation.

v) A standalone Social Impact Assessment and Social Management Plan (SIA-SMP). This document provides social background and discussion on social risks and impacts related to all components. The SMP provides technical guidance for addressing social issues related to (a) Labour Management Procedures (LMP); (b) Worker Grievance Procedures; (c) Community Health and Safety Plan (CHSP); (d) Resettlement Policy Framework (RPF)

(including livelihoods restoration); and (e) Ethnic Group Engagement Framework (EGEF). Details on application of these instruments are provided as an attachment (Attachment 1 to Attachment 5).

Table 2-2: Key objectives and relevance of World Bank's E&S Standards to the EWMP Project

Key objectives	Relevance to the EWMP Project
ESS1 (Assessment and Management of Environmental and Social Risks and Impacts): Relevant	
• Identify and assess social and environmental impacts, both adverse and beneficial, in the project's area of influence; • Avoid, or where avoidance is not possible, minimize, mitigate or compensate for adverse impacts on workers, Project Affected Communities (PACs) and the environment; • Adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project; • Utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, where	Overall, the project is classified a high-risk project. With effective implementation of appropriate ESF Instruments and adequate design measures (as recommended by the Pre-ESIA) for solid waste management facilities, environmental and social risk and impact from the project's activities is expected to be at acceptable level and likely to generate long-term positive E&S impacts. Project components have differing risk profiles. Activities to be implemented under C1, 2 and 4 will include technical assistance (TA); procurement of equipment and other goods/supplies; policy development; training, workshops, and other capacity building; small and/or very small civil works; SME matching grants. The risks and negative impacts of 1, 2, and 4 are classified low to moderate and associated to working conditions, labour disputes transmission of infectious disease and temporary disturbances related to OHS, CHS and dust and noise generation due to construction and/or rehabilitation of small and/or very small civil works. The risks can be mitigated through effective implementation of ESF instruments and management plans including LMP (Attachment 1 of the SIA-SMPs); Code of Conduct on SEA/SH and VAC (Attachment 3B of the SIA-SMPs); ESCOP (Annex 6); and SS-ESMPs (Annex 5B) Component 3 will finance waste management and recycling infrastructure investments in Vientiane Capital including (i) a new waste transfer station in Naxaythong district; (ii) upgrading material recovery facility at the Km16n in Xaythany district; and (iii) partial rehabilitation of the existing landfill at the Km32 in Xaythany district. The risks and impacts of C3 are classified as substantial to high taking into account limited regulations, institutional capacity, and the on-going significant E&S issues such as degraded surface and groundwater quality and impacts on aquatic and agricultural resources due to leakage of leachate/toxic waste

Key objectives	Relevance to the EWMP Project
applicable; • Promote improved social and environmental performance, in ways which recognize and enhance Borrower capacity.	components into soil, water resource; air pollution and odour including air pollution from landfill fire; poor health and safety and sanitation, etc. To ensure that the E&S risks and impacts from the project will be at an acceptable level, a Pre-ESIA has been prepared for project activities at the Km 32 landfill based on the preliminary design and feasibility study. The identified inadequate designs pose a risk of high cumulative negative impacts from pre-project unsanitary waste disposal practices and the project supported activities, thus deteriorating the environment. These impacts are likely to be continuous and long-term, and exacerbated by contextual environmental risks (e.g. unusual high temperature, flood, etc.) and institutional risks (e.g. capacity constraints pertaining to the operation of waste management facilities and budget deficiency). To ensure that E&S risks and impacts from the project identified in the Pre-ESIA will be properly addressed and reduced to an acceptable level, the preliminary design will be revised and developed into a conceptual and detailed design taking into account the necessary design improvements outlined in the Pre-ESIA. The project design will be subject to a full-scale ESIA also covering the proposed project activities at the waste transfer stations in Naxaythong District and at the km16.
ESS2 (Labour and Working Conditions): Relevant	
• Promote safety and health at work; • Promote the fair treatment, non-discrimination and equal opportunity of project workers; • Promote project workers, including	<u>Component 3:</u> The main risks relating to labour and working conditions in the project are: i) employment discrimination of women and/or vulnerable groups; ii) payment for unskilled workers below the minimum wage[2] of KIP 1,200,000 as per GOL mandated minimum wage; iii) inadequate working facilities for workers (including housing for government staff at the Km32 and Km16), in particular lack of sanitation facilities for women; and (iv) occupational health and safety or OHS related issues such as inadequate personal protective

[2] The improved minimum wage in Lao PDR (1 August 2022 – 30 April 2023) is a single rate applicable to all employees, and does not differ based on region, skill level, or employer characteristics.

Key objectives	Relevance to the EWMP Project
vulnerable workers such as women, person with disabilities, children (of working age, in accordance with WB's ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate; • Prevent the use of all forms of forced labour and child labour; • Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law; and Provide project workers with accessible means to raise workplace concerns.	equipment (PPE); (v) labour related disputes, (vi) Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), (vii) child labour (waste pickers); (viii) accidents and injuries, exposure to toxic waste component/ air pollution (dust and bio-aerosols, odours nuisances, and vehicle emissions/noise and vibration/ pathogens and vectors in waste collection, transport and management processes as well as risks of Covid-19 and other transmission diseases including HIV. In this context, Labour Management Procedures (LMP) have been prepared as part of the SMP to be applied to Component 3 (Attachment 1A) The LMP will also include OHS issues and ensure that different project teams and workers will be provided with adequate resources, including personal protective equipment (PPE), accommodation, transport, first aid-kits available at working sites, and can be contacted/reached in case of emergency. The PMU of MPWT will ensure that Social Security (health and life insurance) is provided to all workers according to the Labour Law for all project consultants and workers involved in Component 3 before the commencement of project activity. Labour, especially construction labour and drivers have an increased risk for substance abuse, such as alcohol and amphetamine. Such substance abuse is often a contributing factor to accidents and incidents. The LMP also includes the risks and impacts of substance abuse including Codes of Conduct (CoCs). The CoCs which will be included in the letter of appointment for government staff and contractors. The LMP will also include dedicated Worker Grievance Mechanism for all groups of workers, to collect and address potential grievances coming from these workers. In addition, the LMP) will take into account the latest COVID-safe guidelines mandated by the government and/or best practice in the country, in order to maintain a safe working environment for workers and for the community and minimize the risk of COVID transmission. This should include hygiene practices, use of PPE and ensuring sick workers can self-isolate and access pay. <u>Components 1, 2, and 4:</u> The PMU of EPFO will ensure full compliance with the proposed LMP (Attachment 1B) to be applied to

Key objectives	Relevance to the EWMP Project
	Components 1, 2, and 4.
ESS3 (Resource Efficiency and Pollution Prevention and Management): Relevance	
Promote the sustainable use of resources, including energy, water and raw materials; Avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; Avoid or minimize project-related emissions of short and long-term climate pollutants; Avoid or minimize generation of hazardous and non-hazardous waste; and Minimize and manage the risks and impacts associated with pesticide use.	Inadequate waste control is one of key challenges that undermine the efficiency use of natural resources and cause environmental pollution, health and economic impacts. Solid and plastic waste is continuously increasing particularly in urban areas. Inadequate collection, recycling and disposal will lead to environmental problem including air pollution and emission, surface and ground water contamination. <u>Component 3:</u> For Component 3, the site-specific ESMP (Annex 5A) will determine mitigation measures and the agencies responsible for addressing risks and impacts to enhance Resource Efficiency and environmental sustainability. The measures will aim at gaining resource efficiency through waste recycling and recovery system and reducing pollution caused by open burning and dumping of waste, uncollected leachate and methane, and plastics leakage. <u>Components 1, 2, 4:</u> For Components 1, 2, and 4, efforts will also be made by EPFO and MONRE agencies to address these issues during the planning and implementation of the subprojects and/or proposed activities, especially those related to the matching grant program, 3R, GCB, and NPAP through ESCOP (Annex 6) or ESMP (Annex 5B)
ESS4 (Community Health and Safety): Relevance	
• Anticipate and avoid adverse impacts on the health and safety of project-related communities during the project life cycle from both routine and no routine circumstances;	<u>Component 3:</u> For Component 3, the main risks and impacts of the community health and safety include: (i) health damages of residents from household waste burning and open waste burning at landfill sites; (ii) impacts on the health of waste pickers at illegal dumpsites (as a result of increased waste dumping fees in the Km32) and the unmanaged open landfills; (iii) problems on respiratory system of people living nearby

Key objectives	Relevance to the EWMP Project
• Promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure; • Avoid or minimize community exposure to project-related traffic road safety risks, diseases and hazardous materials; • Provide effective measures to address emergency events; and Ensure the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.	landfills from toxic smoke accidental landfills inferno, etc; (iv) road damages and road accidents associated with transportation of waste to the landfill and recycling facilities; (v) the leachate from the landfill or recycling facilities, when not properly collected and treated may pollute the drinking water source for the communities; (vi) the bio-gas from landfills could cause fire and explosion if not properly collected and treated, threatening the safety of communities nearby; (vii) the nuisance odor from the landfills may cause impact on the health of residents nearby; (viii) risk of SEA/SH and VAC including COVID transmission and incidence of HIV/AIDS. Details will have to be identified in the site-specific ESMP to be prepared during the preparation of full ESIA for Component 3 (Annex 5A) Community Health and Safety Plan (CHSP) as part of the SMP (Attachment 2). To address the risk of SEA/SH, the project's CHSP will include provisions to prevent and manage SEA/SH; violence against children (VAC) and incidence of HIV/AIDS. Among others, it will include provisions to promote local recruitment of the workforce, plus mitigation measures such as a worker codes of conduct (including requirements for both worker-community and worker-worker interactions), mapping of third-party service providers, plus specific actions (training, public awareness, etc.) to avoid sexual harassment, sexual assault, and exploitation and human trafficking. The Project also has a potential risk of spreading COVID19 to communities and the CHSP will also need to take into account the latest COVID-safe guidelines mandated by the government and/or best practice in the country. The full site-specific ESIAs/ESMPs will be developed to include mitigation measures on pollution management in line with WBG EHSG for Waste Management Facilities (Annex 5A). <u>For Components 1, 2, and 4.</u> The PMU of EPFO will ensure full compliance with the proposed CHSP (Attachment 2 of SIA-SMP) to be applied to Components 1, 2, and 4.

Key objectives	Relevance to the EWMP Project
ESS5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement): Relevant	
• Avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives; • Avoid forced eviction; and • Mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement cost, and (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to beginning of project implementation, whichever is higher; • Improve living conditions of poor or vulnerable persons who are physically displaced; • Conceive and execute resettlement activities as suitable development	Based on the updated information of the Component 3 activities and information on land owner provided by VCOMS, acquisition of private land and economic displacement are not required for the rehabilitation of Km32 Landfill and Transfer Station of Km16 because the land at both locations are exclusively owned by VCOMS. However, the Naxaythong location is being considered may also require land acquisition and/or result in impacts on livelihoods. By contrast, the establishment of air quality measurement networks is foreseen to be placed within the compound of district MONRE offices and as such, is unlikely to require land acquisition. The project may also cause the loss/reduction of the existing livelihoods of waste collectors, waste-pickers and other groups like informal recyclers who rely on revenue from the waste stream for their livelihood (e.g. small-scale waste buyers). Therefore, as part of project preparation, the SIA has identified the potential risk of economic and/or physical displacement and associated impacts. Furthermore, a Resettlement Policy Framework (RPF) as part of SMP (Attachment 4), including measures for livelihood restoration for waste pickers, was prepared and included in the SMP. The RPF specifies the requirements for the preparation of site-specific land acquisition and resettlement plans, as well as livelihood restoration plans, once the location of activities are known, and relevant designs have been prepared. For Components 1, 2, and 4, activities that require land acquisition, resettlement, etc. will not be eligible for project financing. This requirement will be included in the E&S screening criteria to be applied to Components 1, 2, and 4 (Annex 3B Negative List)

Key objectives	Relevance to the EWMP Project
programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project; and Ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.	
ESS6 *(Biodiversity Conservation and Sustainable Management of Living Natural Resources):* ***Relevant***	
• Protect and conserve biodiversity and habitats; • Apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity; • Promote the sustainable management of living natural resources; and Support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development	For Component 3: No biodiversity significance as the site was disturbed for agricultural purposes. Some rubber trees and banana tress remained on site. However, new solid waste disposal sites and recycling facilities may impact ecosystem services such as provisioning of sources of water for water supply systems of the communities and their agriculture activities nearby. The Pre-ESIA has been prepared as a standalone document during preparation of this ESMF. The full ESIA and ESMP will be prepared by the MPWT PMU for C3 to ensure that the potential risks and impacts to biodiversity, ecosystem services and sustainable management of living natural resources are evaluated. The site-specific ESMP will set out appropriate material measures in compliance with environmental Law and ESS6 to ensure that environment receptors including plant species, aquatic, animals and their habitats are protected (Annex 5A). Site selection criteria for Naxaythong site under C3 (Annex 3A) and a “negative list” for C1 and 2 will be applied for screening.

Key objectives	Relevance to the EWMP Project
priorities.	
ESS7 (Indigenous People/Sub-Saharan African Historically Underserved Traditional Local Community) Relevant	
• Avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not feasible, to minimize, mitigate, or compensate for such impacts, and to provide opportunities for development benefits, in a culturally appropriate manner; • Foster good faith negotiation with and informed participation of Indigenous Peoples when projects are to be located on traditional or customary lands under use by the Indigenous Peoples; and • Respect and preserve the culture, knowledge and practices of Indigenous Peoples; • Promote sustainable development benefits and opportunities for Indigenous People in a manner that is accessible, culturally appropriate and	The project area is culturally diverse, there 50 ethnic groups in Laos and the project covers the whole country as such this standard has been applied. It is likely that a if there are ethnic groups in the project area they could be more adversely impacted due to their attachment to land, different cultural practices, low literacy levels, lack of Lao language (especially among women) and other vulnerabilities. An EGEF, as part of SMP, has been prepared consistent with ESS7 (Attachment 5), to screen the presence of ethnic groups with collective attachment to the project area following the four criteria included in WB's ESS7, as well as procedures to conduct a Social Assessment and Ethnic Groups Engagement Plans (EGEPs) if needed. In addition, both the project's EGEF and SEP include provisions to ensure meaningful and culturally appropriate consultations with EGs. <u>For Component 3:</u> As the Naxaythong location is being considered and will not be known prior to appraisal (for example PPP under component 3 for waste recycling) an Ethnic Group Development Framework (EGPF) will be included in the SMP (Attachment 5). Where necessary Free, Prior, and Informed Consent (FPIC) will be used in the preparation of site-specific plans. There is a need to ensure that ethnic groups are not excluded from any benefits and there is equity in the benefits. The grievance mechanism for the project has been prepared and communicated taking into consideration the needs of the ethnic groups, and accessibility for ethnic groups to submit feedback or grievances. Whenever feasible, locally appropriate GRMs have been built upon. Also, whenever feasible, the GRM includes traditional grievance or conflict resolution systems. If EGEPs are prepared, the GRM may need to be adjusted in consultation with relevant ethnic groups.

Key objectives	Relevance to the EWMP Project
inclusive; • Improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the Indigenous People throughout the project's life's cycle; • Obtain FPIC of affected Indigenous People; and Recognize, respect and preserve the culture, knowledge, and practices of Indigenous People, and to provide them with opportunities to adapt to changing conditions in a manner and in a timeframe acceptable to them.	<u>Components 1, 2, and 4.</u> The PMU of EPFO will ensure full compliance with the proposed SEP and EGEP as part of SS-ESMP to be applied to Components 1, 2, and 4 (Attachment 5 of SIA-SMP)
ESS8 (Cultural Heritage): *Relevant*	
• Protect cultural heritage from the adverse impacts of project activities and support its preservation; • Address cultural heritage as an integral aspect of sustainable development; • Promote meaningful consultation with	<u>Component 3:</u> Cultural Heritage is unlikely relevant for C3 (Km 32 and Km 16 does not). Naxaythong site will be screened that there will be no sensitive cultural heritage to be affected by the site. However, this standard is relevant because there might be tangible and intangible cultural heritage within the sites identified during the civil works/earth works. This will be determined by respective full ESIAs/ESMPs, and if this is the case, respective mitigation

Key objectives	Relevance to the EWMP Project
stakeholders regarding cultural heritage; and Promote the equitable sharing of benefits from the use of cultural heritage.	measures will be proposed to avoid or minimize any impact on cultural heritage. Where tangible or intangible cultural heritage sites are known to be in the vicinity of the proposed landfill sites, those sites will be excluded from consideration. The ESMF will provide an overview of steps to be taken by the Borrower and other stakeholders in case of chance finds (this will be included in the ESMP to be prepared as part of full ESIA report). <u>For Component 1, 2, and 4.</u> This standard is relevant because there might be tangible and intangible cultural heritage within the sites identified during small civil works and installation of WQ/AQ monitoring stations. The ESMF will provide an overview of steps to be taken by the Borrower and other stakeholders in case of chance finds (ESCOP: Annex 6).
ESS10 Stakeholders Engagement and Information Disclosure: *Relevant*	
• Establish a systematic approach to stakeholder engagement that will help borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties; • Assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken in to account in project design and environmental and social performance; • Promote and provide means for effective	A Stakeholders Engagement Plan (SEP), including a GRM, has been prepared incorporating the findings from the pre-ESIA. The SEP will be implemented, updated, and disclosed throughout the different phases of the project life cycle. This was developed early in the project preparation process to inform engagement to address key risks and develop communication and engagement strategies and materials to effectively reach out to affected and interested stakeholders to ensure accessibility and culturally appropriateness. Stakeholder identification, analysis and engagement will inform assessment of both the social assessment and processes and practices prescribed in the ESMF. The approach to engagement activities will take into account the needs of ethnic groups, vulnerability, language, literacy as well as consent, and child protection measures, both as part of engagement and also assessment process. The engagement will ensure not only risks are managed but benefits are accessible to all. The ESF instruments prepared include ESMF, SIA-SMP, preliminary ESIA, SEP and ESCP. Following review

Key objectives	Relevance to the EWMP Project
and inclusive engagement with project-affected parties through the project life cycle on issues that could potentially affect them; and • Ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.	by the World Bank Task Team, EPF, and DHUP, the draft ESF Instruments will be revised and disclosed on 16 November 2022 at the EPF/MONRE's website and consulted with stakeholders at the national level on 30 November 2022. The findings from the national stakeholder consultation will be incorporated into the ESF instruments prior to project appraisal.

2.3 GAP ANALYSIS: WB ESF AND LAO LEGISLATION

16. This Section builds upon the information on relevant legislations of the GOL and requirements of WBs recent ESF. It summarizes significant gaps that are identified by comparing the requirements of WB's ESF and relevant national legislations conducted by the EPF consultant team. Generally, the GOL has established a comprehensive regulatory framework including various laws, decrees, and instruction/regulation to govern the environment, and utilizing and conserving natural resources with explicit and implicit relevance for the ESMF and Social Standards (SSs) application. Many of them have been revised, updated, and amended more recently. For all ESS relevant to the Project, national legislation exists, and no significant gaps have been identified. However, there are minor deviations that the ESMF and its E&S instruments address. Table 2-3 summarizes the key requirements defined in the legislative and regulatory framework of Lao PDR and each relevant WB SSs.

Table 2-3: Gap Analysis of Legislative and Regulatory Framework of Laos PDR VS. Relevant WB ESSs

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	• Conduct an environmental and social assessment of the proposed project, including stakeholder engagement. • Undertake stakeholder engagement and disclose appropriate information in accordance with ESS10. • Develop an ESCP, and implement all measures and actions set out in the legal agreement including the ESCP; and • Conduct monitoring and reporting on the environmental and social performance of the project against the ESSs.	• A broad guidance for E&S assessment is articulated in the Environmental Protection Law (2012), Article 21 (for IEE), and Article 22 (for EIA). • Further guidance for the conduct of ESIA and ESMP is provided in the Decree on Environmental Impact Assessment (2019). • The Decision on the Endorsement and Promulgation on the List of Investment Projects and Activities (No. 8056/MONRE, 2013) indicates that rehabilitation or construction of new landfill facilities required the conduct of EIA. However, the final clause of this Decision asserts that any projects that cause involuntary resettlement shall require the conduct of ESIA.	• No capacity of the project owner to implement and monitor the ESMP is required • There is no provision for the "no project" option. • No reference to institutional capacity development and training measures. • No separate ESCP, SEP and/or EGEF is required by the Lao laws.	• Application of site selection criteria for Naxaythong site under C3 (Annex 3A) and a "negative list" will be applied for screening (Annex 3B). • Full ESIA, ESMP, RAP, EGEP etc. are required for the Project. The full site-specific ESIA and C-ESMP will strengthen social risk management aspects. • Capacity building/training on implementation of the ESF instruments during the Project preparation will be provided for MPWT PMU, EPF PCU, VCOMS, SIAs and Grant Receivers. • Additional capacity development and training programs on safety and mitigation of social impacts during civil works for C3 with the support consultants are included in Project design and ESMP mitigation measures.

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
		•		• Provide adequate budget supports to build EPF and SDAs E&S capacity and facilitate effective ESMP implementation with the support from consultants.
ESS2: Labour and Working Conditions	ESS2 establishes minimum requirements in the following areas to be observed: • Terms and Conditions of Employment • Non-Discrimination and Equal Opportunity • Rights to Organize. • Prevention / restriction of child Labour • Prevention of forced Labour • Grievance Mechanism for Labourers • Identification of potential hazards • Provision of preventive and protective measures	• The employee rights and working conditions are specified in the Labour Protection Law (2013) which has provisions that are consistent with the Bank's ESS2; • In addition, the Prime Minister's Notification on the Minimum Wage of Labour in Lao PDR (2018) also sets out a minimum wage of LAK 1.2million/month. • The Law on Grievance Redress (2016) also outlines conflict resolution procedures.	• In Lao PDR, the Trade Union is managed under the government system which is not a collective association of workers. However, the WB's ESS2 outlines that the project will not restrict project workers from developing alternative mechanisms to express their grievances and protect their legitimate rights regarding working conditions and terms of employment. The Borrower should not seek to influence or control discriminate to retaliate against project workers who participate, or seek to participate, in workers' organization and collective	The national Labour Law is highly consistent with ESS2. However, to address some of the gaps, the project's LMP (SIA-SMP Attachment 2 for C3 and 2B for C1,2 & 4)) includes: • Procedure to Prevent Child Labour and Forced Labour (PPCLFL). • Project Workers' Grievance Mechanism. • In addition, the LMP sets out requirements for additional measures to comply with ESS2, which will include: • Direct Project Workers' Occupational Health and Safety Strategy • Terms and Conditions of Employment for Direct Project

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	• Training of workers and maintenance of training records • Documentation and reporting of occupational accidents, disease, and incidents. • Emergency Preparedness; and • Remedies for adverse impacts on workers safety, including occupational health, and safety and SEA/SH.		bargaining or alternative mechanisms. • There is no specific national guideline for labour conflict resolution.	Workers. • Environmental, Social, Health and Safety Specification (ESHSS) for contracts. • Community Labour Management Procedure. • Provisions in location and site - specific ESMP • Site-specific Occupational Health and Safety Plans (works) • The project will only allow employment of people 18 years old and above.
ESS3: Resource Efficiency and Pollution Prevention and Management	Resource Efficiency and Pollution Prevention requires project to: • Promote more sustainable use of resources including energy and water and the reduction of project related GHG emissions; and Avoid or minimize pollution from project activities. • To avoid or minimize	• Key legislation regarding resource efficiency and pollution prevention include the Decree on Lao PDR National Environmental Standards (2017); Ministerial Instructions on Hazardous Waste Management (2015); and the Law on Environmental Protection (2012); Decision on Pollution Control (2021), Decree on Energy Saving and	• Seasonal burning of waste and agricultural fields, and area-wide dust, may cause high concentrations during certain periods during the dry season both in urban and rural areas. A lack of enabling AQM framework, with unclear lines of responsibility and authority across jurisdictions or levels	• The project has been designed to strengthen environmental protection systems, improve municipal solid waste management in selected cities in Lao PDR • The standalone Pre-ESIA includes measures in compliance with the national regulation and ESS3 to ensure the rational and sustainable resource uses,

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • To avoid or minimize project-related emissions of short and long-lived climate pollutants. • To avoid or minimize generation of hazardous and non-hazardous waste. • To minimize and manage the risks and impacts associated with pesticide use.	Efficiency (2020), National Policy on Energy Efficiency (2016), Law on Water and Water Resources (2017).	of government. • Similar to AQM, WQM also faces capacity and resource constraints including lack of guidelines, standard operating procedures (SOPs) and manuals for water quality monitoring and insufficient capacities of NRERI staffs on maintaining water quality monitoring (including limited staff knowledge and limited budgets to maintain water quality monitoring activities). • Solid waste generation has increased substantially over the years in the Lao PDR, due to rapid urbanization, economic development, and tourism growth. Municipal solid waste management (MSWM) in the Lao PDR is challenging as provinces and cities due to (i) insufficient waste infrastructures are	management, and prevention the pollution through project activities of the project component 3 including site selection and design options and construction, operations and closure phases for project rehabilitated cells. • The full ESIA and ESMP will be prepared by MPWT PMU.

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
			also a challenge for GOL as well as Vientiane Capital, (ii) insufficient financial resources for waste management and human, technical and operational capacities are typically low; (iii) a lack of subsidies for waste management and overarching legislation on solid waste management in Lao PDR; (iv) no adequate enforceable legislations and policies are in place for hazardous and toxic waste management including medical waste management.	
ESS4: Community Health and Safety	The Bank's Standard requires for Community Health, Safety and Security and requires projects to: • Avoid or minimize adverse impacts on the health and safety of project affected communities; and • Ensure safeguarding project property and personnel is	• Key legislation for community health, safety, and security in Lao PDR include the Decree on Occupational Health and Safety (2019), Law on Road Traffic (2012), Lao PDR National UXO / Mine Action Standards (2012); and discharge / hazardous waste legislation.	• Currently, there is no national law, regulation or guideline specific to community health and safety.	• The Community Health and Safety Plan (SIA-SMP Attachment 2 for C3 and 2B for C1,2 & 4) provides guidelines on how to address the identification and mitigation measures associated with these issues. • Specific guidelines have been provided in terms of Labour

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to project affected communities.			Management Procedures (SIA-SMP Attachment 2 for C3 and 2B for C1,2 & 4) • Code of Conduct (COC) including SEA/SH Action Plan is provided in (SIA-SMP Attachment 3A for C3 and 3B for C1,2 & 4)
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	• Avoid or at least minimize involuntary resettlement wherever feasible by exploring alternative project designs and layouts; • Mitigate adverse social and economic impacts from land by: (i) Providing compensation for loss of assets at replacement cost; and (ii) Ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation and the informed participation of those	• Key national legislation related to land acquisition and involuntary resettlement includes the Law on Land (2019); Forestry Law (2019), Law on Resettlement and Vocation (2018); and the Decree on Compensation and Resettlement (2016).	• According to the Land Law (2019), Article 130: Acquisition of Customary Land Use Rights, rights can only be assigned to individuals that can demonstrate continual use of the land for more than 20 years. • However, the World Bank's ESS5 articulates that those who suffer negative social and economic impacts as a result of the acquisition of land for a project and / or restrictions on land use, may include those having legally recognized rights or claims	• The project's Resettlement Policy Framework (RPF) (SIA-SMP Attachment 4) introduces some additions to the provisions established at the Degree 84: ○ Avoidance of resettlement as the preferred option. ○ Rights of land users without formal title. ○ restoration of livelihood activities ○ additional protection for vulnerable households ○ disclosure, consultation and informed participation arrangements.

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	affected; • Improve or at least restore the livelihoods and standards of living of displaced persons; and • Improve living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites.		to the land; those with customary claims to land; and those with no legally recognized claims.	• Provisions of the RPF, in line with ESS5, will apply in the project.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	• The E&S assessment will consider direct, indirect and cumulative project-related impacts on habitats and the biodiversity they support. • The Borrower will avoid adverse impacts on biodiversity and habitats. • Where the project occurs within or has the potential to adversely affect an area that is legally protected, designated for protection, the Borrower will ensure	EIA process provides for analysis of all potential alternatives. There is no explicit rule providing for use of land already converted and to avoid land located within protected area, water catchment and area containing high forest.	• Lack of clear reference to siting project on lands already converted. • In the hypothesis that no feasible alternative exists as demonstrated by an ESIA, there is no legal obligation to provide for compensation for conversion of non-critical habitats. • There is no mention of "critical natural habitats" or prohibition on investing in projects that would degrade	The ESMF include activities that may cause "significant conversion or degradation of natural habitat or where the conservation and/or environmental gains do not clearly outweigh any potential losses" in the negative list. Measures and process to avoid and/or mitigate impacts on natural habitats has been included in the ESMF and Pre-ESIA. The full ESIA and ESMP will be prepared by MPWT PMU.

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	that any activities undertaken are consistent with the area's legal protection status and management objectives.		or convert them.	
ESS7: Indigenous People/Sub-Saharan African Historically Underserved Traditional Local Community	• Requires the Borrower to avoid adverse impacts on communities of indigenous peoples and to engage with affected communities to ensure they have given their Free Prior and Informed Consent.	• The Decree on Ethnicity (2020) confirms that the GOL has special policies for ethnic, vulnerable and disadvantaged groups. • The National Social Protection Strategy (2020) states that ethnic groups, women, children, vulnerable people and those living in remote areas are specially promoted to access education, health care and equal economic activities.	• The Land Law does not specifically mention customary to land used by ethnic and vulnerable groups who are often found to be present and have collective attachment to the forestlands in rural area in Laos. There is no sub-law registration with implementable procedures in place for registering communal and non-communal (individual) customary rights. This may negatively impact ethnic groups and other vulnerable communities, since excluding such communities from the benefits of land registration and overruling or replacing their actual	• An EGEF has been prepared as a stand-alone document to cover the existing gaps. The EGEF provides proactive and inclusive approach and measures to ensure the vulnerable and ethnic groups will not be negatively affected by the project activities. • The EGEF (SIA-SMP Attachment 5) includes requirements and process of engaging the ethnic groups in risks assessment, meaningful consultation, Free, Prior and Informed Consent (FPIC) to identify risk management and benefit engagement measures. • In case of land-related impacts, the RPF will provide guidance in the development of RAPs

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
			customary land (e.g with smaller area or poorer quality of land) could increase inequality and their vulnerability.	aligned with the EGEF/EGEP
ESS8: Cultural Heritage .	• Aims to protect cultural heritage through consultation procedures, community access and removal of replicable cultural heritage. Provides specific requirements for chance finds, consultation, community access, removal of replicable and non-replicable cultural heritage, as well as critical cultural heritage.	• Key applicable national legislation includes the Law on National Heritage (2013), Agreement of the National Assembly on Ethnicity (2008) and the Decree of the President of Lao PDR on the Preservation of Cultural, Historical and Natural Heritage (1997). • Mandatory reporting to authorities (Ministry of Culture and Information and EPF). The project owner and contractor must interrupt all construction activities and measures must be adopted to preserve the vestiges uncovered by chance until the classification of those assets or until conclusion of the archaeological research shall	No significant gap. Reference to "chance finds" is formally lacking in applicable laws and regulations.	• This ESMF includes a Cultural Heritage Framework to be applied in case there is a risk of impacts on heritage, whether tangible or intangible.

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
		be prescribed by the Ministry of Culture and Information. The area of archaeological patrimony accidentally revealed must be delimited, as suitable and protected under the responsibility of the project owner and contractor.		
ESS10: Stakeholder Engagement and Information Disclosure	• Requires effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them. • Provides specific requirements for Stakeholder Analysis and Engagement Planning, Disclosure of Information, Consultation and Indigenous Peoples.	GOL's requirements are covered by various legislations, especially those on consultation and grievance including the Constitution, the Law on Government (amended 2016), the Law on Handling Petitions (amended 2016), as well a sub-ordinate decrees such as the EIA Decree (2019) and the Compensation and Resettlement Decree (2016), as well as the Public Involvement Guideline (2012) and the Ethnic Group Consultation Guideline (2013)	• There is a lack of clarity about when engagement activities can be considered meaningful. Those affected by a project can file grievances using the existing system, not a project-based system. There are also unclear procedures on public disclosure of E&S documents, and on how to respond to concerns and grievances of project-affected parties • The ethnic group consultation guideline (2013) is the sole document requiring consultation with ethnic groups. The EIA	• The ESMF as well as this SIA-SMP discusses the requirements of the SEP in terms of consultations and disclosure. A SEP consistent with ESS10 has been prepared for this project. • A SEP has been developed which details a GRM for the project covering all project aspects, including concerns about environmental and social impacts. The LMP in this SIA-SMP also describes a specific GRM for workers that contractors must have in place. • The GRM must be accessible to all stakeholders, in particular vulnerable, ethnic group people,

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Different between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
			decree only requires dissemination of information to them.	and women and suitable receive and respond to SEA/SH.

3 SUMMARY OF ENVIRONMENTAL AND SOCIAL CONTEXT

17. The project detailed activities to be implemented under Components 1, 2, 3 and 4 are provided in chapter 1.3 while the project locations are provided in Section 1.4. Section 3.1 provides brief overview on the general E&S background in Lao PDR while Section 3.2 provides information on solid waste management including health, legal, and institutional aspects. Section 3.3 to 3.6 provides brief environment baseline conditions of Vientiane Capital, Vientiane Province and Oudomxay Province while brief social baseline conditions of these three provinces are provided in the SIA-SMP. Section 3.6 provide information of the selected sites to be implemented under Component 3 while more details description on the E&S baseline conditions of Km32 are provided in the standalone Pre-ESIA report.

3.1 OVERVIEW ON E&S CONDITIONS IN LAO PDR[3]

18. Lao PDR is a land-locked country located in Southeast Asia region, it shares border with Thailand, Vietnam, Cambodia, Myanmar and China with a total area of 236,800 km^2. About 80% of the country landscape is mountainous. In 2020, the country had 7.2 million people live in 18 provinces, with an estimated annual growth rate of 1.5%[4]. Vientiane is the capital and the largest city of Lao PDR; it had the land area of 3,920 km^2 with population of 787,529. The country has a total of approximately 1.3 million households with average household size of 5.3 people per family and population density of 31 people per km^2.

19. About 80% of the country landscape is mountainous and the remaining 20% comprising plateaus and lowland valleys along the Mekong floodplain. Approximately 58% of a total land is forest, 26.7% is potential forest (unstocked forest of regenerating vegetation and bamboos), 10.8% is agricultural land the rest proportions are water resource and infrastructure areas5

20. Lao PDR is characterized by a tropical climate, influenced by the southeast monsoon which brings 70% of annual rainfall and high humidity. There are two distinct seasons: the rainy season, or monsoon, from May to mid-October and the dry season from mid-October to April. Average rainfall can be as high as 3,000 millimeters (mm) per year. Mean annual temperatures of 20°C was observed in the northern and eastern mountainous areas and the plateaus, whereas temperatures are higher in the plains at 25-27 °C. Relative humidity typically ranges between 65%-80% (https://climateknowledgeportal.worldbank.org)

[3] Some of data and information are from Project Appraisal Document (PAD), October 2022

[4] Lao Statistic Bureau, 2020a

[5] https://laos.opendevelopmentmekong.net

Natural disasters, flood & drought

21. Lao PDR faces high disaster risk levels and is ranked 69th out of 191 countries by the 2019, extremely high exposure to flooding (ranked 6th), including, riverine and flash flooding. Lao PDR also has some limited exposure to tropical cyclones and their associated hazards (ranked 47th). Drought exposure is lower (ranked 115th) but must be monitored as hydropower development on the Mekong River significantly alters the hydrology of the region. Lao PDR's overall ranking on the INFORM risk index is somewhat exacerbated by its lack of coping capacity and to a lesser extent the vulnerability of its population (https://climateknowledgeportal.worldbank.org)

22. **In Lao PDR, climate hazards such as droughts and floods are predicted to increase and exacerbate the degradation of natural resources, lead to losses in jobs and economic growth, and increase poverty.** Lao PDR faces a significant projected warmed climate against baseline conditions, with dry seasons getting longer and a projected increase in the number of hot days (> 35°C) rising from 40 days to 50-110 days per year, on average. The country is also exposed to major natural hazards with droughts and flooding becoming more severe and frequent. Lao PDR has extremely high exposure to flooding (including riverine and flash flooding) and increases in rain are projected to be between 10 and 30 percent, particularly in the east and south (PAD, October 2022)

Socioeconomic development

23. Despite being among the fastest-growing economies in the world before COVID-19, Laos's growth model is showing its limitations. Economic growth averaged about 7 percent over the two decades to 2019, but the economy's growth pattern was capital-intensive, resource-driven, and debt-fueled. Economic growth had been steadily decelerating from 8.0 percent in 2013 to 5.5 percent in 2019. Growth was predominantly driven by large foreign investments in hydropower, mining, and construction (of transport infrastructure), which provided few formal job opportunities.

24. Economic growth has been severely affected by the COVID-19 pandemic but is starting to recover gradually. Lockdowns, restrictions on economic activity, quarantine requirements, and social distancing measures have led to a reduction in employment and working hours. Real Gross Domestic Product (GDP) growth declined sharply from 5.5 percent in 2019 to 0.5 percent in 2020, owing to the wide-ranging economic impacts of COVID-19 – including the collapse of international tourism. Growth is estimated to have recovered to 2.5 percent in 2021.

25. Laos has made remarkable progress in reducing poverty over the past few decades, from 46.0 percent to 18.6 percent over 1992-2018 periods. Recent estimates show that the national poverty rate fell from 24.6 percent in 2012 to 18.3 percent in 2018, due to an annual average GDP growth of about 7 percent during the same period.

26. Despite this progress, poverty in Laos remains high compared to its regional peers. A lack of non-farm job creation has limited gains in household income, especially at the lower end of the income distribution, weakening the impact of growth on poverty reduction and

driving inequality. Despite improvement in farm incomes, poverty remains highly concentrated in agriculture. COVID-19 has set back progress on reducing poverty. Employment disruptions and remittance losses due to return migration resulted in a decline in household income, while rising prices put pressure on households' purchasing power.

27. Laos's rich natural resources and biodiversity continue to play a key role in the country's economic development prospects and resilience. The Lao population is directly dependent on forests, land, and related resources including non-timber forest products for livelihoods. Natural resources are furthermore critical for the national socio-economic development. Natural resource-based sectors contributed one-third of GDP in 2018, and the Lao natural capital value of assets were quantified at USD149 billion, with 78 percent coming from water and forests and a further 22 percent from agriculture. The natural resources are especially valuable in times of COVID-19 when thousands of migrant young laborers return home unemployed and without income.

28. While Laos is rich in natural resources, environmental degradation poses a threat to sustainable development and household livelihoods. As a result of agricultural expansion, mismanaged forest plantation development, shifting cultivation and unsustainable timber harvesting, forest cover decreased from 61 percent in 2000 to 58 percent in 2015 and the target of 70 percent in 2020 was not achieved but postponed to 2030. The annual cost of environmental degradation is estimated at 19.3 percent of GDP in 2017.

29. The most important environmental problems are associated with environmental health, representing an annual cost equivalent to 14.6 percent of GDP. Most costly are those related to air pollution, as well as inadequate disposal and widespread burning of solid waste, water pollution and inadequate wastewater treatment and lead exposure. As elsewhere in the world, the distribution of pollution impacts falls primarily on the vulnerable.

Ethnicity

30. The country is ethnically diverse country in Southeast Asia. The Lao government currently recognizes 160 ethnic subgroups within 50 ethnic groups. Out of the total population, the Lao ethnic group accounted for 53 percent, followed by Khmu (11%), Hmong (9%) and other ethnic groups (27%). Laos is official language and over 80 languages used by different ethnicities in Lao PDR and the most common are Khmu and Hmong languages. Other minority languages include Akha, Arem, Bana, Katu, Ksingmul, Maleng, Lamet, Phai, Tai Daeng, Phu Thai, and Tai Dam. The most vulnerable ethnic minorities have very few assets, are geographically isolated (mostly highlands), and face language and cultural barriers. Buddhism is the pre-dominant faith practiced by the population in Lao PDR. Sixty-five percent of the populations are Buddhist, while Christians constituted nearly 2%, and 32% reported themselves as having no religion or being animist.

31. Cities in Lao PDR are small in population, with only the capital city Vientiane having a population of more than 100,000 people and few high-rise buildings. City centres are not very densely built up and have wide peri-urban areas around them, requiring trash collection

and recycling transportation. Waste collection schemes currently exist only in (parts of) the larger cities in the country. Collection of recyclable materials is informal and focuses only on materials for which there is an attractively priced market. When prices drop, specific materials may no longer be collected. In rural areas a market for some recyclable materials is lacking (e.g. plastic bottles) due to lower resale value and higher transportation costs. Collection of recyclable materials is mainly implemented by 3 actors: informal door-to-door collectors of recyclables; formal waste collectors separating valuable materials during their regular collecting rounds; and waste pickers (formal/informal) collecting at waste disposal sites. Waste separation at source is rare, except for some higher value materials such as scrap metal, used engine oil and re-use of glass beer bottles by the beer factories. Cleaning of recyclable materials, such as plastic bags can add value, but is rare.

Pollution level, social and health aspect

32. Despite improvements cities and districts suffer from lack of infrastructure and municipal services. Urban population growth in Laos was the highest in Southeast Asia in 2021 at 3.2 percent which was twice the average of the East Asia Pacific region for the same year. City limits have expanded but often in the absence of spatial planning and urban development planning.[6] The continued growth of the cities will require higher levels of infrastructure and municipal services, which are currently facing underinvestment together with weak institutional capacity in policy, planning implementation and enforcement.

33. Pollution levels in Lao PDR have severe public health and economic impacts and need improved monitoring and regulatory oversight, and improved environmental, pollution and solid waste management is emerging as a priority for the GOL. The most important environmental problems are associated with environmental health, representing an annual cost equivalent to 14.6 percent of GDP[7]. Most costly are those related to air pollution, as well as inadequate disposal and widespread burning of solid waste, water pollution and inadequate wastewater treatment and lead exposure. As elsewhere in the world, the distribution of pollution impacts falls primarily on the vulnerable.

34. Seasonal burning of waste and agricultural fields, and area-wide dust, may cause high concentrations during certain periods during the dry season both in urban and rural areas. Household use of solid fuels for cooking is also contributing to elevated levels of PM2.5 in rural villages as well as in urban areas. In Lao PDR, environmental pollution contributed to 10,000 deaths in 2017 (22 percent of all deaths in Lao PDR) and 27 percent of these deaths were from ambient air pollution. The cost of health effects from ambient air pollution in 2017 amounted to a 3.5 percent equivalent cost of GDP. Air quality is identified as a priority

[6] Government of Lao PDR (2021). National Progress Report on the Implementation of the New Urban Agenda. Ministry of Public Works and Transport.

[7] Ibid.

environmental issue in the 9th National Socio-Economic Development Plan (NSEDP),[8] and the MONRE has been taking steps to improve its capacity for air quality monitoring with focus on training of staff at central level and provinces and increasing the number of air quality monitoring stations.

35. Water pollution is also a significant environment challenge for Laos, and the GoL has prioritized water quality management (WQM) as a national priority in the 9th NSEDP. Using 2017 data, Larsen (2019) estimated that about 1,549-3,002 deaths occur annually in Laos due to water pollution, and the annual cost of water pollution was estimated at 2,745-5,384 billion Lao kip (LAK) which is about 1.95-3.82 percent of 2017 GDP.[9] Two major sources of water pollution in Laos are fecal contamination or microbial pollution of drinking water, and arsenic in groundwater tube wells in central and southern parts Laos that are used for drinking.[10] Of the two, microbial pollution accounts for the greater share (92 percent) of health impacts and mortality. The use of unprotected drinking water sources declined from 24 percent in 2011/2012 to 16 percent in 2017.[11] As about 15 percent the population to date still rely on natural sources (surface water and groundwater) for drinking water, water quality monitoring of these sources is of high priority**.** Priority activities under the NSEDP-9, include the development of management plans to allocate and use and manage water resources efficiently, effectively and sustainably, and to establish strategies and policies at the national and local levels to encourage effective investment in appropriate sanitation services for water resource management and use.

36. While the amount of solid waste generation has substantially increased, the infrastructure for collection and sanitary disposal has not kept up with the demand, causing significant environmental problems. Landfills in Lao PDR are usually operated as open dumpsites without proper waste and leachate treatment, with the landfills of Vientiane or secondary cities such as Luang Prabang or Savannakhet being no exception. Currently, approximately 30 controlled landfills and 60 open dumps are in operations in Lao PDR. Waste dumping is done without compaction and disposal planning. There is a high risk that toxic waste components are or will in the future contaminate soil at adjacent farmland, surface

[8] Priority air quality measures include (i) conducting environmental quality inspections, in particular, on air quality (PM 2.5), establishing a database system and collecting information on sources of pollution; (ii) implementing measures to reduce and prevent bush fire, haze and slash and burn agricultural practices at all hotspots; and (iii) solve air pollution problems.

[9] Larsen, B. 2019. Economic Assessment of Major Environmental Health Risks in Lao PDR. Report prepared for the World Bank. Washington D.C.: World Bank.

[10] Ibid.

[11] Larsen, B. 2019. Benefit-Cost Analysis of Interventions to Address Priority Environmental Health Risks, in Sánchez-Triana, Ernesto. 2021. Environmental Challenges for Green Growth and Poverty Reduction: A Country Environmental Analysis for the Lao People's Democratic Republic. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/36266 License: CC BY 3.0 IGO

water bodies and groundwater. Uncollected methane from anaerobic decomposition of organic waste significantly contributes to greenhouse gas emissions and poses a high risk of landfill fires.

37. Medical waste treatment facilities are still limited with two medical waste incinerators in Vientiane while medical wastes are placed in landfills in other places. Inadequate solid and plastic waste management system leads to widespread practices of open burning, household burying, littering along roadsides and rivers, and dumping in vacant lands which has contributed to pollution generation. Household burning of waste is one of the major sources of ambient air pollution in VTE capital. Open burning and occasional accidents, such as inferno, at landfill sites could also aggravating the already pressing air pollution issues. Toxic waste components are contaminating surface and groundwater, including of adjacent farmland. Uncollected methane significantly contributes to national greenhouse gas emissions and results in a high risk of landfill fires.

38. Plastics pollution is an increasing concern in the country. The amount of plastic waste is continuously increasing particularly in urban areas and often remains uncollected. In Vientiane, plastics constitute around 12 percent of the total waste stream. In a series of studies, the priority plastic items ending up in the environment and waterways were identified as: drinking bottles; caps and lids; bags; cups; food containers; and straws. In major cities such as Vientiane, Savannakhet, and Pakse, plastic waste is a key factor in blockage of drainage systems causing sudden flooding during rains. In key tourism hotspots such as Luang Prabang or Vang Vieng, widespread plastics littering poses a substantial threat to the touristic value. Fishers throughout the country report catching plastics almost every single time they are out fishing, and a study at the largest marshland of Vientiane found high amounts of microplastics in fish, surface water, and sediments. In addition, burning of plastics is widespread, contributing to air pollution and causing respiratory health issues. Lao PDR has seen an almost 10-fold increase in plastic waste imports from 2018 to 2019 due to the recent import regulations by China and other countries in the region. The quality and recyclability of the waste imports are unknown, and the capacity to cope with the large amounts of plastic waste in Lao PDR is not present.

39. Women and children in the informal waste sector tend to be socially disadvantaged and are exposed to health and safety threats posed by inadequate solid waste management. Their contributions to recovery and recycling in the context of underdeveloped formal waste management systems are largely overlooked and unsupported. Improving the management of waste collection systems must consider the informal sector, where substantial amount of waste pickers are women, and work in hazardous and unsanitary environments without adequate protection and safety.

40. Due to the lack of appropriate collection systems, open burning, household burying, littering along roadsides and rivers, and dumping in vacant lands are widely spread practices in both urban and rural areas. Illegal dumpsites are also common in urban areas. Open waste

burning contributes to respiratory infections for urban residents resulting in significant health damages and lost working days, and further aggravates the severe air pollution in the country. Poor and vulnerable populations are the most likely to suffer from inadequate sanitation due to uncollected waste, which can be a heavy financial burden through health-related expenditures and lost productivity.

3.2 SOLID WASTE MANAGEMENT IN LAO PDR

41. **Solid waste generation has increased substantially over the years in the Lao PDR,** due to rapid urbanization, economic development, and tourism growth. Municipal solid waste (MSW) generation in Lao PDR was estimated to be 0.75 kg/capita/day and the total waste generation is approximately 970t/day in Vientiane Capital in 2020[12] which is one of the lowest amounts in the Asia and Pacific region. However, the average waste generation in the major cities varies in the region with reported amounts ranging from 0.65-1.4 kg/capita/day, depending on the sources[13]. Based on the average GDP growth rate of 6%, Global Green Growth Institute (GGGI) has estimated that total MSW generation amount will increase up to 1513 t/day in 2030 if no waste reduction effort is taking place.

42. **Plastics are an increasing proportion of the solid waste composition as consumption of single-use plastics is rapidly increasing in the Lao PDR and particularly in urban areas**. As much as 24% of the waste found in Lao cities is plastic. A 2020 World Bank study of six Lao cities found that 95% percent of plastic pollution is caused by only 10 items — all single-use plastics. Single-use food and drink packaging, including plastic bottles, cups, and containers, is the top plastic product category, combined accounting for more than 50% of plastics leakage. Plastic bags alone account for 23%. The hospitality and tourism sectors have been identified as key contributors to plastics pollution, with centers of restaurants, cafes and bars, and tourist activity being linked to the majority of plastic pollution hotspots. The increase in single-use plastics due to COVID-19 and escalating plastic waste imports since 2018 (a more than 10-fold increase from 2018 to 2019), are making the problem worse.

43. Waste collection in the country is largely limited to the urban centres but remains at low levels. While no accurate figures exist, it is estimated that in Vientiane city only around 30-50% of the waste generated, and only about 25% of household waste, is collected and transported to the landfill sites. Similar figures are estimated for secondary cities such as Savannakhet, Luang Prabang and Champassak. Due to the lack of appropriate collection systems, open burning, household burying, littering along roadsides and rivers, and dumping in vacant lands are widely spread practices in both urban and rural areas. Illegal dumpsites

[12] GGGI, Sustainable Solid Waste Management – Strategy and Action Plan for Vientiane 2021-2030, 2021

[13] E.g. Tokodai, 2017; Climate & Clean Air Coalition, 2015; Fourth Regional 3R Forum in Asia, 2013; GGGI, 2018

are also common in urban areas. Open waste burning contributes to respiratory infections for urban residents resulting in significant health damages and lost working days, and further aggravates the severe air pollution in the country. Poor and vulnerable populations are the most likely to suffer from inadequate sanitation due to uncollected waste, which can be a heavy financial burden through health-related expenditures and lost productivity.

44. Waste collection in the country is largely limited to the urban centres but remains at low levels. While no accurate figures exist, it is estimated that in Vientiane city only around 30-50% of the waste generated, and only about 25% of household waste, is collected and transported to the landfill sites. Similar figures are estimated for secondary cities such as Savannakhet, Luang Prabang and Champassak. The most reliable data is from Vientiane Capital where the waste generation has been estimated to 0.65 kg/person/day14. It is generally the case that waste generation is higher in urban areas than in rural areas and assuming a waste generation in urban areas of 0.65 kg/person/day, a waste generation in rural areas with road access of 0.5 kg/person/day and a waste generation in rural areas without road access of 0.3 kg/person/day, the total annual waste generation in 2020 would then amount to approximately 1.48 million tons. About 50 % of the waste are disposed in open dumps. Hazardous waste is not collected or treated separately from general waste, resulting in toxic materials and medical waste being disposed of together with municipal waste.

Regulations and institutional arrangements

45. A clear institutional and specific regulatory framework for solid waste management is missing. At the national level, two main bodies are responsible for issues related to solid waste management are implemented mainly through two ministries. MPWT mainly responsible for construction of infrastructures while MONRE is tasked with a regulatory, supervisory and supporting role. The specific responsibilities of different central governmental agencies are however not clearly defined. MONRE's main tasks and responsibilities include the preparation of environmental laws and regulations; however few of these specifically target the solid waste sector. Urban Development Administrative Authorities (UDAAs), at provincial level are the main bodies tasked with solid waste management issues but undefined responsibility at the national level affects solid waste management at the local level in policy implementation, budget allocation, and provision of services.

46. In addition, regulatory oversight of solid waste management is limited and local governments (LGs) lack capacities for solid waste operations. Solid waste services are often outsourced to the private sector with limited financial sustainability of operations. UDAAs are

[14] Global Green Growth Institute 2018, Solid Waste Management in Vientiane, Lao PDR, Situation assessment and opportunities for waste-to-resource

not equipped with sufficient budget and staffing to provide the regulatory oversight and services required. UDAA's do not receive public funding from the government for solid waste management and generate revenue through waste collection and landfill tipping fees which are spent for O&M. Many UDAAs outsource (part of their) waste collection and disposal to private companies while sometimes also running direct operations in selected service areas. For example, in Vientiane around 10 collection companies currently operate in addition to UDAA's own collection services. Services are however hampered by the general (i) lack of performance benchmarks and key performance indicators in the contracts and lack of regulation, monitoring and reporting; and (ii) a lack of financial sustainability to extend services. In Lao PDR, waste collection companies collect fees directly from households typically upon collection of waste. There is no enforcement mechanism for households to pay for waste services, thus the collection companies limit their services to more profitable urban centers and areas with ability and willingness to pay as well as to public institutions, and the commercial sector in order to achieve cost recovery.

47. The priority challenges within the solid waste sector can be summarized as follows. (a) lack of a clear legal framework for solid waste and pollution management and policies and regulations on pollution and solid waste management; (b) lack of capacities at national level to provide regulatory oversight; (c) lack of monitoring and enforcement capacities for environmental pollution (d) local governments are in charge of solid waste management but lack of capacities for operations, monitoring and regulations; (e) lack of financial sustainability due to limited willingness/ability to leading to partial services; (f) lack of proper treatment, recycling and disposal infrastructure causing environmental pollution and severe health and economic impacts; (g) strong increase of single-use plastic items and widespread plastics pollution. The project will address these key challenges and priorities at both national and local levels.

3.3 Brief Background of Vientiane Capital

48. Vientiane is the capital and the largest city of Lao PDR located on the curve of Mekong River bordering Thailand. It has the land area of 3,920 km^2. It is divided administratively into 9 districts namely Chanthabouly, Sikhottabong, Xaisethha, Sisatthanak, Xaithany, Naxaythong, Hatxayfong, Pakngum, and Sengthong. Vientiane is the economic center of Laos. The city had a population of 948,477 as of the 2020. Vientiane topography is lowland valleys along the Mekong floodplain between 300 and 1284 meters above sea level. The majority of population is dominated by Lao Tai followed by Hmong and Khmu.

Figure 3-1 Map of Vientiane Capital (JICA, 2011a)

49. A dominant land use type in Vientiane capital is forest area, which occupied about 68% of total area, followed by 17% of paddy area. Rapid economic development and population growth is expected to affect the land use pattern. The built-up area doubled from approximately 3% of total area in 1995 to 6% in 2005 (JICA: The Project for Urban Development Master Plan Study in Vientiane Capital A Brochure of the Final Report, March 2011)

50. Much of the land to the west and northwest of the main urban centre is forested and hilly in parts with the peaks of Phusang (1,666 metres) and Phu Khao Khuay (1,039 metres) and a small area in the northeastern part at the rim of the forest protected by the Phu Khao Khuay National Biodiversity Conservation Area. The protected reserves in the Vientiane capital are the Houay Ngang Forest and the Phou Phanang National Biodiversity Conservation Area (which covers much of the forest in the west), although Phou Khao Khuay NBCA borders the northeast. The Houay Ngang Forest Reserve, within Vientiane, has many species of birds. The Nam Leuk, Nam Gnum and Mekong River also flow through the prefecture.

Waste Management

51. Currently there is no regulation on municipal solid waste management, however the agreement of waste collection service in Vientiane Capital is applicable, while the waste collection fee is set by VCOMS. There is a SWM Plan of VCOMS, but in Naxaythong district just turn UDAA to work for waste collection service based on monthly work plan of UDAA. For the SWM of Vientiane capital cannot support.

52. VCOMS is responsible for solid waste management (SWM) policy development in Vientiane Capital. The UDAA of Naxaythong works under of District Administration Offices and is responsible for SWM operation within the district. There are three permanent staffs in

the Naxaythong UDAA that are responsible for daily SWM.

Waste Generation and Collection

53. Vientiane capital has 161, 655 households with a total population of 948,447 people[15] as of 2020. The waste generation per capita in Vientiane is 750g/day[2], while the total household waste generation was calculated as 711 tons/day according to the Vientiane Capital population data from LSB. With waste generated from other sources such as business entities and public buildings counted, the total waste generation in Vientiane amounted to approximately 970 tons/day in 2020[16].

54. To calculate projected waste generation per capita from 2021 to 2030, the World Bank's regression model (World Bank, 2018) is used as a methodology to capture the co-relation between GDP per capita and waste generation per capita. The World Development Indicator's GDP per capita (2011 PPP international $/year) is applied to the GDP per capita projection for target year from 2021 to 2030 and to determine change in the proxy waste generation rate. The population projection data from LSB is used to calculate the projection of the total household waste generation from 2021 to 2030. The average annual GDP per capita growth rate of 6% from 2021 to 2030, obtained from the time series analysis on the GDP per capita PPP projection, is applied to estimate the volume of other waste generation from 2021 to 2030. The Table 3-1 below presents the projected waste generation from 2021 to 2030.

Table 3-1 Projection of MSP SMP generation in Vientiane from 2021-2030

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Population (person)									
968,99	289,28 9	1,009,27 2	1,028,91 4	1,048,17 0	1,067,28 6	1,068,21 7	1,104,97 5	1,123,53 2	1,141,91 1
Household waste generation per capita (g/person/day)									
766	783	799	816	833	850	867	884	901	918
Household waste generation amount (Ton/day)									
742	774	807	840	873	907	926	977	1,012	1,048
Other waste[17] generation amount (Ton/day)									
275	291	308	327	347	367	389	413	438	464
MSW generation (Ton/day)									

[15] Lao Statistics Bureau (LSB)

[16] Sustainable Solid Waste Management, Strategy and Action Plan for Vientiane 2021-2030, GGGI in 2020

[17] Other waste include waste from commercial areas (café, restaurants, hotels) and public buildings

1,017	1,065	1,115	1,167	1,219	1,274	1,315	1,389	1,450	1,512

Source: Sustainable Solid Waste Management, Strategy and Action Plan for Vientiane 2021-2030, GGGI in 2020

55. Naxaythong is the proposed district for installing a new waste transfer station under the project component 3. The amount of waste generated in Naxaythong district (2019) is 101.1 tons/day, the amount of waste collected is 40.1 tons/day and collection rate is 39.7% Since it is difficult to collect actual SWM data of Naxaythong district due to COVID-19 issue, these values are estimated based on the waste generation and waste collection volume of the entire Vientiane capital in 2019 as described in the JICA report of 2021 and the population ratio of each district in 2019 (Table 3-2). Although there is a difference between the collection volume calculated from the population ratio of each district and the collection volume calculated from the number of units contracted for collection services, the collection volume is calculated from the population ratio of each district because many residents dispose of waste without a collection service contract.

Table 3-2: Waste Generation and collection Amount in Vientiane Capital

No	District	Population[18]	Waste Generation (ton/day)[19]	Collection (ton/day)
1	Chanthabouly	52,875	67.4	27.2
2	Sikhottabong	115,201	146.9	59.4
3	Xaisethha	109,188	139.2	56.3
4	Sisatthanak	59,200	75.5	30.5
5	Xaithany	194,970	248.6	100.4
6	**Naxaythong**	**79,266**	**101.1**	**40.8**
7	Hatxayfong	95,679	122.0	49.3
8	Pakngum	50,570	64.5	26.1
9	Sengthong	30,580	39.0	15.8
	Total	787,529	1,004	405.8

3.4 BRIEF BACKGROUND OF VIENTIANE PROVINCE

56. Vientiane Province should not be confused with Vientiane Municipality, which is the capital of Laos. These two jurisdictions used to be part of one another until 1989 when they were split. Located in the northwest of Laos, Vientiane Province borders Sayabouly Province to the west, Luang Prabang Province to the north, Xiangkhoang Province to the northeast, Bolikhamxay Province to the east, and Vientiane Municipality and Thailand to the south

[18] Vientiane Health Department (2019)

[19] Total waste generation and collection of Vientiane capital (2020)

(Figure 3-2). It has the land area of 15,927 km^2, divided into eleven districts, including Thoulakhom, Keo-oudom, Kasy, Vangvieng, Feuang, Xanakham, Med, Viengkham, Hinheup, and Muen and Phonhong. Phone Hong district, about 70 kilometers north of Vientiane Capital, is the province's capital. As of 2021 the province has a population of 471,974 people, 424 villages, and 86,993 households[20]. The majority of population is dominated by Lao Tai followed by Hmong and Khmu.

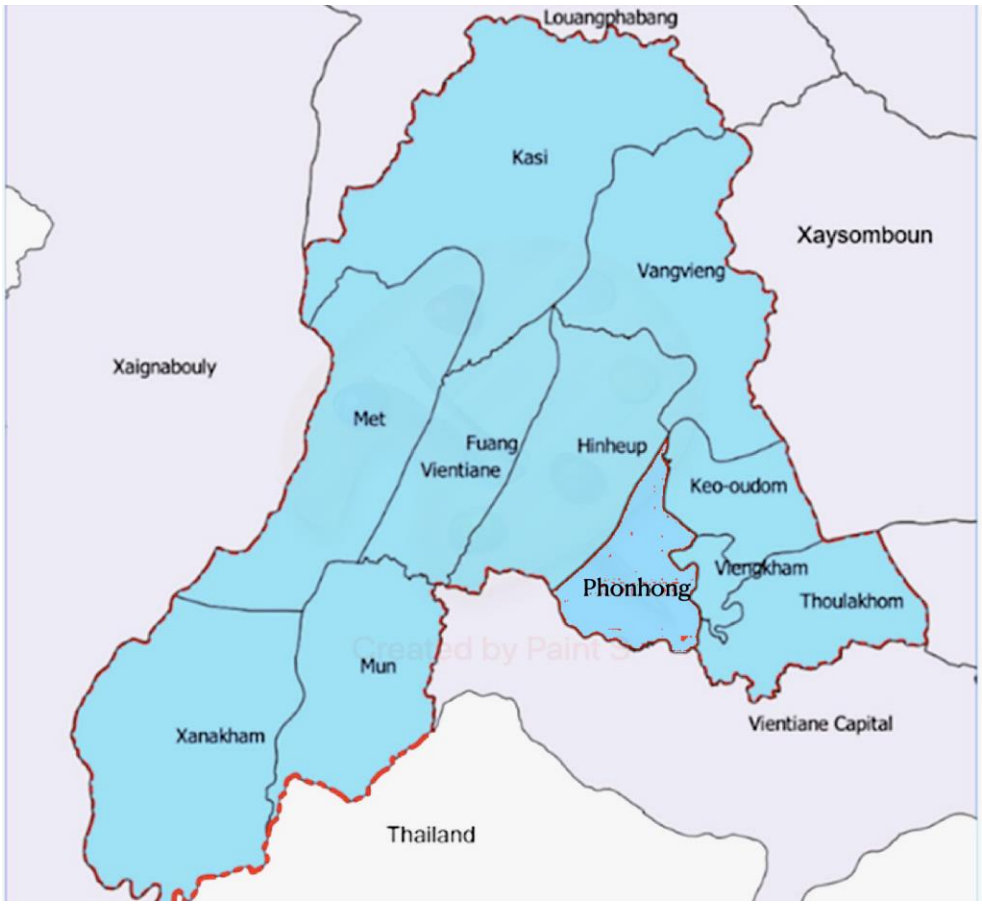

Figure 3-2 Map of Vientiane Province (Pre-FE Report, June 2022)

57. Nam Ngum. (Ngum River), one of the Laos's largest lakes, is located in Vientiane province, much of this area; particularly the forests of the southern part are under the Phou Kao Khouay Biodiversity Conservation area. The principal rivers flowing through the province are the Nam Song, Nam Ngum and Nam Lik.

58. The topography of Vientiane province is characterized as mountainous, with elevation varying from 200 m to 1761 m, emerged from uplifting and exposure of the underlying sedimentary (Indosinias schist-clay-sandstone) complex, extensive flat uplands with sandstones with hardly any soil cover are also part of the topography of the park. It has a

[20] Vientiane Province | Investment Promotion Department (investlaos.gov.la)

large stretch of mountain range with sandstone cliffs, river gorges and three large rivers with tributaries which flow into the Mekong River.

59. It has monsoonal climate with recorded annual rainfall of 1936 mm (with higher reaches recording more rainfall). The mean annual temperature is 26.6 °C with a mean maximum of 31.6 °C and a mean minimum temperature of 21.5 °C.

60. The forests are evergreen, Shorea mixed deciduous forest, dry dipterocarp and pine type; particularly coniferous forest, of mono specific stands of Pinus merkusii, Fokienis hodgsonsii, Bamboo (mai sanod), and fire-climax grasslands.

61. Animals found here include many species of reptiles and amphibians and birds. The green peafowl has been reported here, near Ban Nakhay and Ban Nakhan Thoung, although it was generally considered to be extinct in Laos; conservation management has increased its population.

62. The important landmarks including numerous caves in the province, especially in the Vang Vieng area. Of note are the Patang, Patho Nokham, Vangxang and Tham Chang Caves. Vangxang Cave, also known as Elephant Court, contains the remains of an ancient sanctuary. Vang Vieng contains several Buddhist temples dated to the 16th and 17th centuries; among them Wat Si Vieng Song (Wat That), Wat Kang and Wat Si Sum are of note. Ecotourism is a significant contributor to the provincial economy (http://laotourism.org/vientiane).

Waste Management

63. Currently there is no regulation on solid waste management at the district level; however the private companies issued the regulation on waste management by themselves including the waste collect fees. There is no SWM Plan for Vientiane Province because there is no UDAA in this district, so the Section for Housing and Urban Planning under the Department of Public Works and Transport does the macro-management of municipal solid waste by supervising day-to-day waste collection and waste disposal of the private companies.

64. The Department of Public Works and Transport (DPWT) is responsible for SWM policy development in Vientiane Province. The Section for Housing and Urban Planning (SHUP) under DPWT is responsible for SWM operation within the district. Three technical staffs under the SHUP are responsible for daily SWM.

Waste Generation and Collection

65. Estimated waste generation and waste collection volume of the entire Vientiane province in 2020 as described in the Record of Meeting between DPWT and private companies held on 19th January 2021 is shown in Table 3-3. That waste collection volume calculated from the number of contracted households for waste collection services does not align with the actual waste generation pattern because many residents dispose of waste without a collection service contract.

Table 3-3: Waste Generation and Collection Amount in Vientiane Province

No.	District	Population	Generation (ton/day)	Collection (ton/day)
1	Phonhong	71,777	64.6	19.3
2	Keo-Oudom	19,454	17.5	2.3
3	Viengkham	20,591	18.5	2.8
4	Thoulakhom	59,858	53.8	7.0
	Total	171,680	154.4	31.4

Source: Vientiane Provincial Statistics Center, as of June 2021

3.5 BRIEF BACKGROUND OF OUDOMXAY PROVINCE

66. Oudomxay Province is in the heart of northern Laos. It borders China to the north, Phongsaly Province to the northeast, Luang Prabang Province to the east and southeast, Xayabouly Province to the south and southwest, Bokeo Province to the west, and Luang Namtha Province to the northwest (Figure 3-3). Covering an area of 15,370 km2 (5,930 sq. ml), the province's topography is mountainous, between 300 and 1,800 metres (980-5,910 ft.) above sea level. Annual rain fall ranges from 1,900 to 2,600 millimetres (75-102 in.). The average winter temperature is 18 C, while during summer months the temperature can climb above 30 C[21].

67. Muang Xai is the capital of Oudomxay. It is connected to Luang Prabang by Route 1. Oudomxay Airport is about 10-minute on foot from Muang Xai center. Lao Airlines flies from this airport to Vientiane Capital three times a week.

68. Oudomxay is rich in natural resources. Approximately 60 rivers flow through its territory, offering great potential for hydropower development. About 12% of Oudomxay's forests are primary forests, while 48% are secondary forests. Deposits of salt, bronze, zinc, antimony, coal, kaolin, and iron have been found in the province.

69. Oudomxay province has a total population of 340,628 of which 168,723 are women and Xay district has a total population of 87,327 of which 43,355 are female22. The area of Udomxay Province is 15,370 square kilometers.

70. .

[21] Udomxay | Investment Promotion Department (investlaos.gov.la)

[22] Oudomxay Provincial Statistics Center, as of 5 March 2021

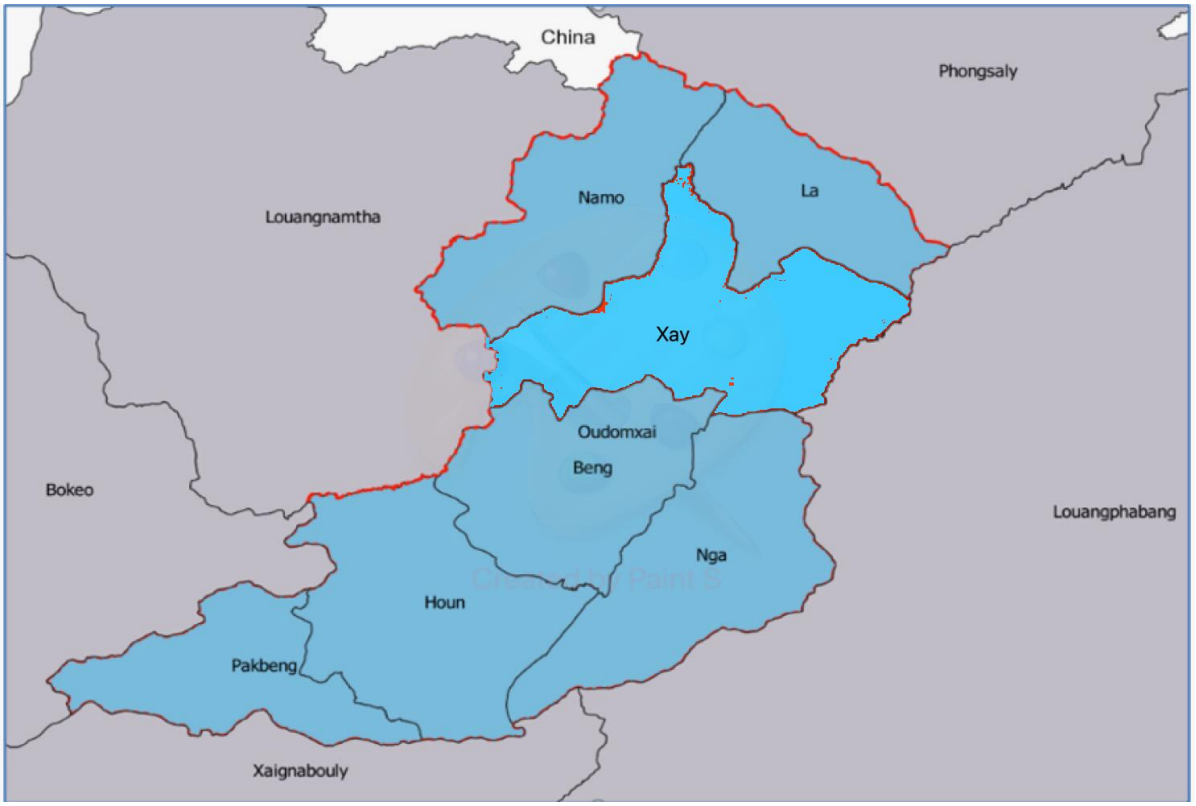

Figure 3-3 Map of Oudomxay Province (Pre-FS Report, June 2022)

Waste Management

71. There are three regulations regarding municipal solid waste management (SWM) in Xay district: (i) Regulation on the management of Xay Town No. 724/XDG, dated 21 November 2019; (ii) Regulation on the management of waste disposal site and reckless waste littering and (iii) Revised Version of Decision on Determination of Waste Collection Fees and Service Charges of UDAA in 22 Villages of Xay District No. 726/DG.XD., dated 21 November 2021. There is no SWM Action Plan at the time of the survey as of August 2021.

72. Xay Urban Development and Administration Authority (Xay UDAA) is responsible for SWM Policy in Oudomxay Province and Xay District. Section for Management of Urban Cleanliness and Waste Disposal Site under Xay UDAA is in charge of daily SWM operation in Xay District. 2 Engineers and 2 Technical Staffs are allocated to daily SWM operation.

Waste Generation and Collection

73. The estimated waste generation is 57.1 tons; however two companies can collect only about 11.6 tons per day or about 20.3% of waste generated. The area covered by the collection service is 49 km2 and its ratio is 85.74% against the total area of the district (Table 3-4).

74. There are 97 villages in Xay district, the solid waste collection service covers 22 urban villages, and 75 rural villages do not use the waste collection service.

75. Xay district has a total of 15,712 households, 4,644 households with contract are

covered by solid waste collection service, while 11,068 households are not covered. Xay district covers the waste collection service only 29.56% (4,644/15,712*100%) by household.

Table 3-4: Summary of Waste Collection Service 2020

No	District	Number		Village		Household		% of HH	
		Village	HH	Non-Use	Use	Non-Use	Use	Non-Use	Use
1	Xay	97	15,712	75	22	9,238	4,644	29.56	73.44
2	La	45	3,622	39	6	2,768	854	76.42	23.58
3	Namor	63	7,644	63	0	7,644	0	100.00	0
4	Nga	61	6,626	61	0	6,626	0	100.00	0
5	Baeng	57	7,769	57	0	7,769	0	100.00	0
6	Houn	94	14,415	94	0	14,415	0	100.00	0
7	Pakbaeng	55	5,870	55	0	5,870	0	100.00	0
	Total	472	61,658	444	28	56,160	5,498	86.57	13.43

Source: Xay UDAA, 2021

3.6 Brief Background of Proposed Sites to be Invested under C3

76. The investments will be divided into three locations strategically selected (at the existing landfill Km32, existing waste transfer station Km16, and in Naxaythong district) to improve the integrated waste management in Vientiane Capital to maximize the waste-to-resource opportunity, to minimize the waste volume that will be landfilled at the Km 32 landfill, and to mitigate the negative environmental and social impacts from waste management.

77. The brief baseline of the three sites to be invested under C3 is provided below while the detailed E&S baseline conditions for the Km 32 are provided in the Pre-ESIA and more social baseline conditions of the Km16 and Naxaythong sites are provided in the SIA-SMP.

3.6.1 Vientiane Capital Landfill at Km32

78. The preliminary design of the proposed Km 32 Landfill Project includes the following main activities and facilities:

- Construction of two new fenced engineered landfill cells with a total capacity of 1.15 million m3 of waste over a design life of 10 years. The cells are designed with a 1.5 mm HDPE liner, protected by a geotextile, and leachate collection systems and landfill gas ventilation.
- Excavation of the existing waste (156,000 m3) in the area for the new cells and redepositing the waste in Cell 5 within the landfill site.
- When the two new landfill cells are filled-up they will be capped with 2 m soil and equipped with a gas ventilation system.

- Construction of a hazardous waste storage facility (900 m2) for temporary storage of small amounts of hazardous solid waste in the incoming municipal waste which will be segregated and put in drums to be stored in the facility.
- Construction of a leachate treatment facility comprising a combination of an Up-flow Anaerobic Sludge Blanket Reactor (UASB) and an aerobic rotary disc system and including a HDPE lined regulating pond. Only leachate from the new landfill cells will be treated in the leachate treatment facility.
- Construction of an administration building (3,200 m2), a weighbridge, a solar power system (5,000 m2), and concrete paved internal roads (width 7 m, length 950 m).
- Upgrading of the existing recycling facility and the waste management centre to improve the working conditions and increase the value of recyclables.
- Construction of 4 groundwater monitoring wells.

Figure 3-4 The Conceptual Landfill Design (Pre-FS Report, June 2022)

79. The Km 32 Landfill Project is proposed to be developed at Vientiane Capital's existing Km 32 landfill located in Ban Naphasouk, Xaythany District, and Vientiane Capital. The landfill is connected to Road No. 13 South by a 2.8 km two-lane unpaved access road (see Figure 3-5). The total area of the landfill site is 100 hectares of which 50 hectares on the north side are granted as a 50-year concession to Khouanmouang Group Company, where the

concessionaire plans to make a waste complex management system that includes recyclable waste plants and a Refuse Derived Fuel (RDF) plant. This part is currently inactive. This facility does not fall into the definition of Associated Facilities defined in the ESF which requires that Associated Facilities is necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist. The southern part of the site (50 ha) is managed by Vientiane City Office for Management and Service (VCOMS). VCOMS has a contractual arrangement with a private company under which the company implements waste management-related administrations, fee collection, data collection, waste collection, and landfill operation and management.

80. The 50 ha large southern part managed by VCOMS constitutes the Km 32 Landfill Project site.

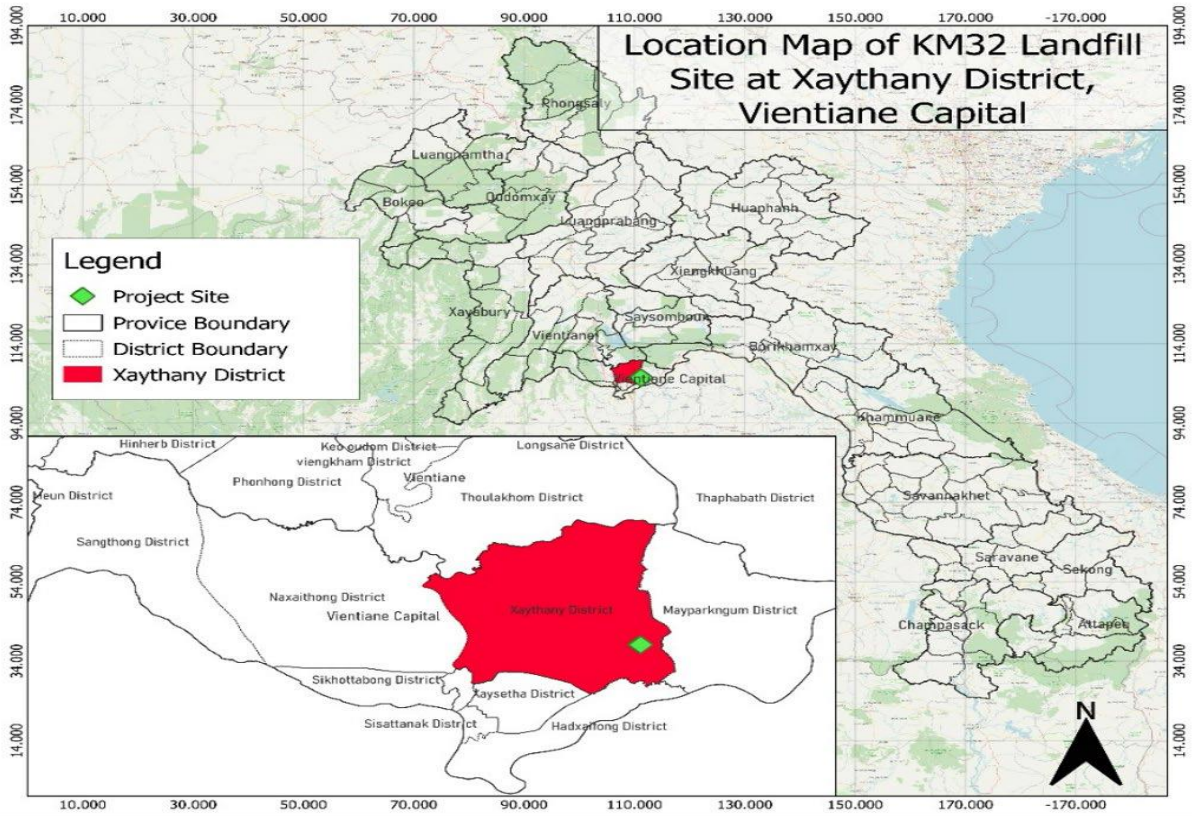

Figure 3-5 Location of Xaythany District, Vientiane Capital (Pre-FS Report, June 2022)

81. The landfill compound in the existing landfill boundary facility includes (1) a control entrance and fence, (2) administration office, (3) weighbridge, (4) waste incineration plant only for medical waste, (5) two sludge ponds (6) wheel-washing, (7) storm-water ponds (8) recyclable plant (one active, and one disabled), and (9) a garage, truck parking, and recyclable waste storage. See Figure 3-6 for surrounding of the Km32 Landfill Project Site.

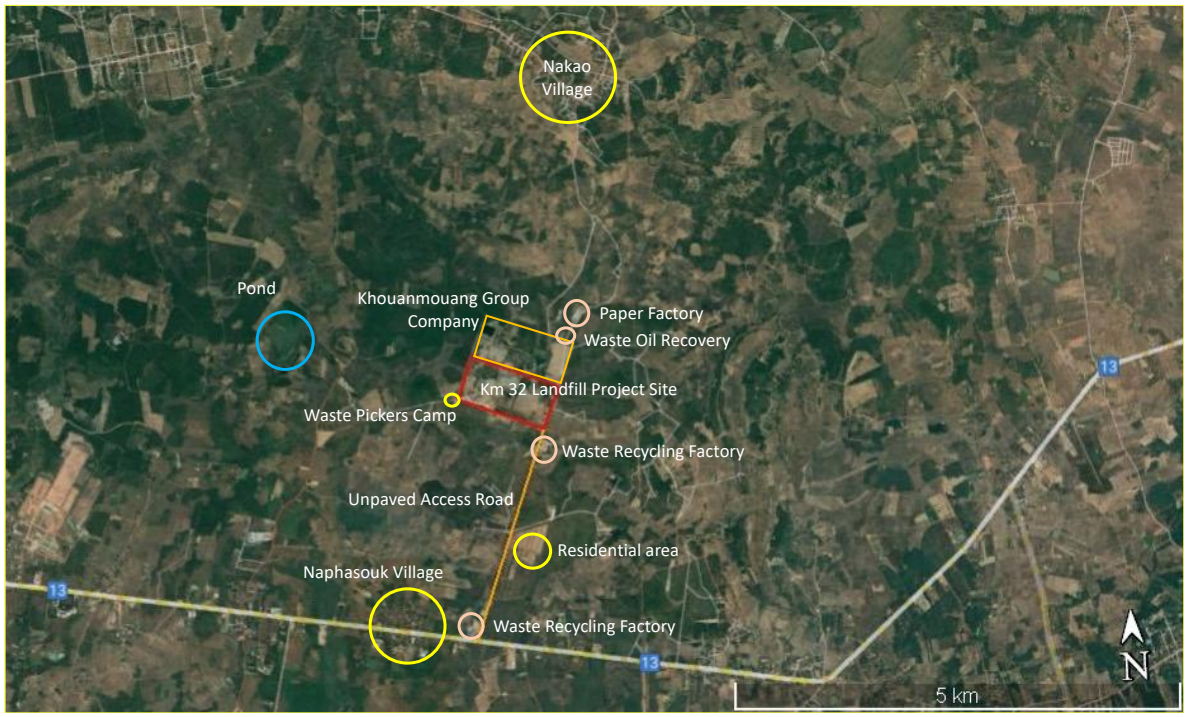

Figure 3-6 Surrounding of the Km32 Landfill Project Site

82. More details on the E&S baseline conditions of the Km32 are provided in the standalone Pre-ESIA report.

3.6.2 Waste Transfer Station at Km16

83. Under Component 3, the investments in the existing Km 16 Transfer Station are proposed to include:

- A Material Recovery Facility
- A Refuse Derived Fuel production facility
- Upgrade of the existing composting facility
- Separate bathroom facilities for males and females

84. The integrated waste management facilities will provide job opportunities and priority will be given to Km 32 waste pickers with quotas for women.

85. The Project will improve workplace safety for women and men through providing personal protective equipment (PPE) and safety training as by improving the security standards and protocols at the waste facilities.

86. The Km 16 Transfer Station was built with technical and financial support from JICA and commissioned in January 2016. The 2-ha large waste transfer station is located in Ban Nahai, Xaysettha District, Vientiane Capital (Figure 3-7). The transfer station only reloads waste from smaller trucks to larger trucks without compaction or sorting. The waste is transported to the Km 32 Landfill. Currently, the Transfer Station only receives commercial and domestic solid waste.

87. In 2013, prior to establishing the transfer station, an Initial Environmental Examination (IEE) was undertaken and the Vientiane Capital Department of Natural Resources and Environment issued an Environmental Compliance Certificate.

88. The existing facilities include:

- A main building 20 m x 40 m
- An office building
- A parking lot
- A weighbridge
- A workshop
- A wastewater retention pond, and
- A composting plant.

89. The site is accessible from the 450-highway through the access road that is divided into two sections, a 1 km unpaved and 0.8 km concrete access road. According to the IEE of 2013, the waste transfer station was developed on vacant land that was cleared by the villagers. The study did not identify any big trees or wildlife. The Consultant visited the site on 10 August 2022 and noted that the site is surrounded by some households and shops, agricultural land including rubber and cassava plantations. The nearest single residences are located about 300 m from the site and the nearest village, Ban Nahai is located about 600 m south of the site (See Figure 3-7). **The detailed social baseline conditions of the KM16 will be collected and analysed during the full ESIA stage.**

90. According to the Ministerial Agreement No 8056, MONRE of 17 December 2013, recycling factories (Item 3.40 in the Ministerial Agreement) fall under the category that are required to develop an ESIA for review and approval by MONRE. The proposed investments belong in this category and these investments are planned to be covered under the full-scale ESIA to be prepared during detailed design. The full ESIA will build on KM32 Pre-ESIA and will cover all the three sites including the Km 32, the Km16 and Naxaythong site.

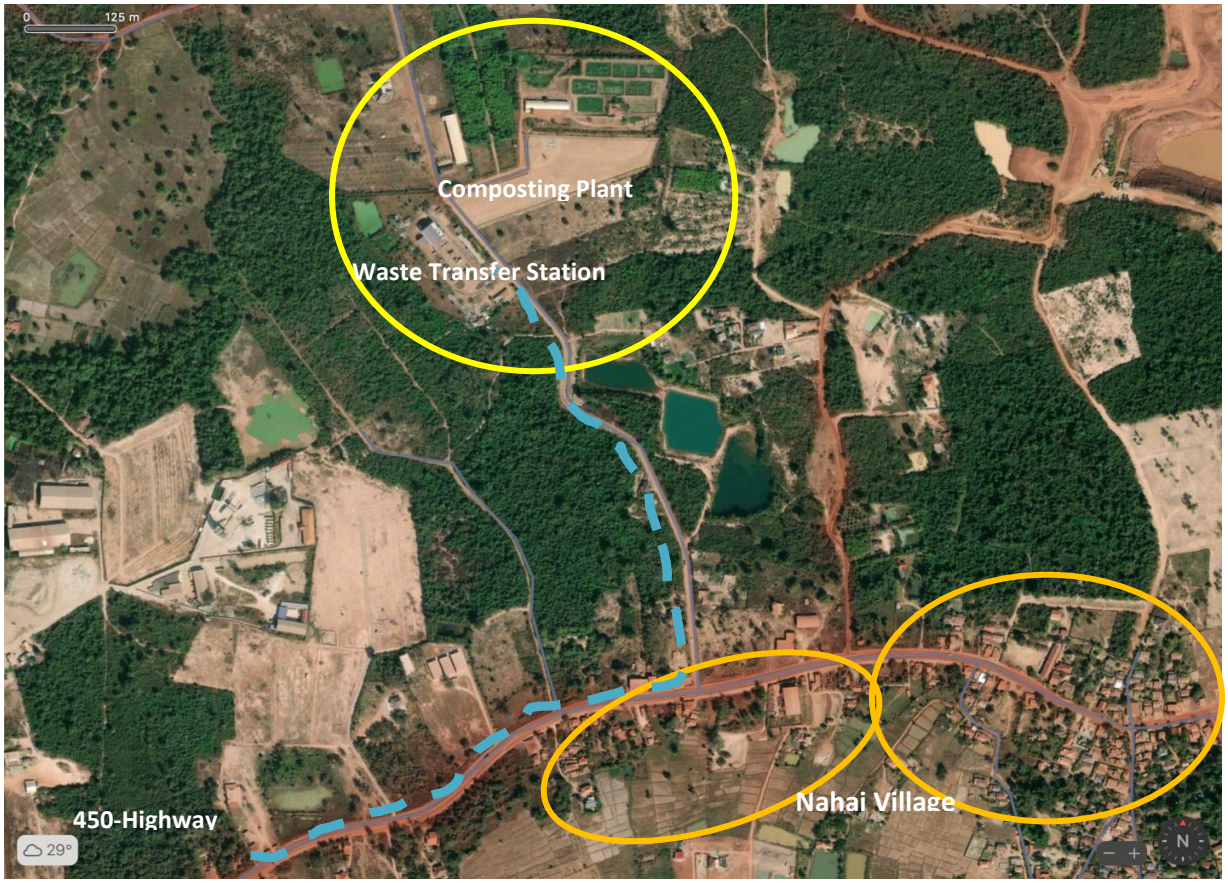

Figure 3-7 Site location Map (Google Earth Image 2022)

3.6.3 Waste Transfer Station in Naxaythong District

91. The investments of Component 3 in Naxaythong Integrated Waste Management Facilities are proposed to include:

- Waste transfer facilities
- Simple sorting facility for plastic, paper and metal waste
- Separate bathroom facilities for males and females.

92. The integrated waste management facilities will provide job opportunities and priority will be given to Km 32 waste pickers with quotas for women.

93. The Project will improve workplace safety for women and men through providing personal protective equipment (PPE) and safety training as by improving the security standards and protocols at the waste facilities.

94. Naxaythong District is located in the middle of the north part of Vientiane Capital, next to Xaythany District. It has a total area of 1,131 km2. To the north, there is Phonhong District in Vientiane Province. To the south, there are the adjacent Sikhodthabong and Chanthabouly Districts. To the east, there is the adjacent Xaythany District. To the west, there is the adjacent Sangthong District. Currently, Naxaythong has no waste management facilities so all waste is transported around 50 km to the Km32 landfill in Xaythany District.

95. The location of the site for the Integrated Waste Management Facilities in Naxaythong District has not yet been determined. The location and design for a transfer station and RDF plant in Naxaythong District will be identified using criteria in Annex 3A. The E&S baseline conditions and the potential risk, impacts, and mitigation measures will be collected and analyzed during the full ESIA stage under the Component 3.

96. According to the Ministerial Agreement No 8056, MONRE of 17 December 2013, recycling factories (Item 3.40 in the Ministerial Agreement) fall under the category that are required to develop an ESIA for review and approval by MONRE. The proposed investments belong in this category and the investments are planned to be covered under the full-scale ESIA.

97. **The detailed social baseline conditions of the Naxaythong site will be collected and analysed during the full ESIA stage.**

4 RISKS AND IMPACTS, AND PROPOSED MITIGATION MEASURES

98. Overall, the project is classified a high-risk project. Project components have differing risk profiles. Environmental and social (E&S) risks and impacts of the Component 1, 2 and 4 are classified as low to moderate while the Component 3 E&S risks and impacts are classified as substantial to high mainly due to the on-going significant pollution at Km32 landfill site and risk if E&S considerations and implementation during each phase of activities including Detailed Design is inadequate.

99. With effective implementation of appropriate ESF Instruments and adequate design measures for solid waste management facilities as proposed in the Pre-ESIA, E&S risks and negative impacts from the project's activities is expected to be at acceptable level. Risks and impacts are broken down into positive impacts and negative E&S risks and impacts as presented in Section 4.1, 4.2 and 4.3 accordingly.

4.1 POSITIVE IMPACTS

100. The project will support GOL ongoing efforts to strengthen environmental protection systems, improve municipal solid waste management in selected cities in Lao PDR, and provide immediate and effective response in case of an Eligible Crisis or Emergency building on key outcomes of existing and/or recent projects financed by WB as well as initiate policy, regulations, and capacity building to address priority issues related to solid waste and plastics in Lao PDR. The project will seek to comprehensively support capacity building and stakeholder collaboration across priority aspects of key sector agencies of MONRE, MPWT, EPF, and selected local governments responsible for solid waste management.

101. Key benefits from project intervention through the efforts to improve policy and regulations related to environmental prevention measures (EIA, IEE, SEA, 3R, GCB, and the Laos Environmental Matching Grant Program (LEMGP) to be implemented under Component 1 and capacity building of local authorities to be implemented under Component 2 will clearly support urban cleanliness and overall environmental management and pollution control. This will indirectly impact the quality of health of residents, which will lead to healthy long lives, money savings on health medication and support for urban poverty alleviation. Implementation of SEA regulations as well as other tools related ISP-LUP and pollution control measures will contribute to minimize risk and impacts and promote positive impacts and participation of the sector agencies and local authorities on ways to implement them. Implementation of Component 4 will continue to strengthen EPFO capacity to engage key stakeholder and tap more funding support form national and international sources.

102. The EWMP Project investments proposed under Component 3 aim at significantly improving waste management in Vientiane Capital through an integrated waste management approach comprising upgrading the existing waste management and disposal facilities at the existing Km 32 landfill, establishment of Integrated Waste Management Facilities at the

existing Km16 transfer station, and at a new transfer station to be established in Naxaythong District.

103. The construction and operation of two new landfill cells proposed under the Km 32 Landfill Project will reduce some of the environmental impacts associated with disposal of the future incoming waste to the landfill. The proposed new landfill cells include leachate collection and treatment, which when managed and maintained properly will to some extent reduce the current pollution of surface water bodies draining from the landfill site and thereby also reduce adverse impacts caused by discharge of polluted water on agricultural fields. Human health risks due to consumption of water polluted by wastewater/leachate from the landfill site will also be reduced. Overall, compared with a "do nothing" scenario, the proposed improvements to waste disposal, leachate collection and treatment and waste disposal operations including a complete stop for open burning of waste, daily cover of incoming waste, and reduced littering - are expected to reduce odour nuisances, air and water pollution and improve health and safety for landfill workers and waste pickers. Furthermore, there are likely to be significant global and regional beneficiaries of improved environmental conditions with decreases in (plastic) waste entering oceans and GHG releases to the atmosphere.

104. Direct and indirect beneficiaries of the project are expected to be the approximately 1 million inhabitants of Vientiane Capital who will benefit from improvement to the waste management system, and an additional 820,000 inhabitants in Oudomxay and Vientiane provinces who will benefit from improved policies, regulations, monitoring and enforcement, legislation, strengthened institutions, and increased capacities of SWM departments as included under Components 1 and 2.[23]

105. The 264 waste-pickers at the KM-32 landfill will benefit directly from improved working conditions at the landfill, training and skills development provided through the project, and opportunities for work at the waste management facilities planned for Naxaythong and KM16. Women and vulnerable groups currently involved in informal (and formal) waste collection, sorting, and disposal networks will be specifically targeted to ensure they benefit from re-skilling and training opportunities, with the objective of incorporating informal workers into formal waste management systems and identifying alternative and/or substitute livelihood operations.

106. The poor and near poor, on average 10 percent of the population,[24] are likely to experience significant positive impacts of collected waste, decreased waste burning, decreased pollution, and sanitary disposal of waste.

[23] Population source https://laosis.lsb.gov.la/tblInfo/TblInfoList.do

[24] https://www.worldbank.org/en/country/lao-pdr

4.2 E&S Risks and Impacts and Proposed Mitigation Measures of C1, 2 and 4

107. The overall risk rating of Component 1, 2 and 4 is classified as low to moderate. Activities to be implemented under Component 1, 2 and 4 will include technical assistance (TA); procurement of equipment and other goods/supplies; policy development; training, workshops, and other capacity building; small and/or very small civil works; SME matching grants.The key E&S risks and impact of C1,2 & 4 are summarized below:

- Risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker[25].This will be addressed through the implementation of LMP (Attachment 1B of the SIA-SMPs);
- Inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection. This can be managed through the implementation of a simple Code of Conduct on SEA/SH and VAC (Attachment 3A of the SIA-SMPs);
- Temporary risks and disturbances related to OHS, CHS and dust and noise generation due to (construction and/or rehabilitation of small and/or very small civil works as well as installation of environmental quality monitoring stations. This will be mitigated by a simple ESCOP (Annex 6);
- The risks and negative impacts of the implementation of the Laos Environmental Matching Grant Program (LEMGP) to be implemented under C1B and 2B are low and associated to working conditions, labour disputes transmission of infectious disease and temporary disturbances related to OHS, CHS and dust and noise generation due to construction and/or rehabilitation of small and/or very small civil works. This will be mitigated through a list of ineligible items to be applied to the program as well as specific requirements (as part of the site-specific mitigation measures and/or preparation of an environmental management plan (ESMP) of the proposed activities. Similar approach will be made for those related to 3R, GCB, and NPAP related activities to be implemented in selected areas and the activities will be planned and conducted in close consultation with local authorities and local community.

108. The proposed project activities to be implemented under Component 1,2 and 4 and the expected E&S impacts and potential risks while ESS relevance and the proposed mitigation measures and/or ESF instruments to be applied during project implementation are presented in Table 4-1.

[25] The World Bank ESS2 defines four categories of project workers are grouped into direct workers, contracted workers, primary supply workers, community workers and civil services. The definition of project workers is provided in the Attachment 1 LMP of the SIA-SMP.

Table 4-1: Summary of the E&S Risks and Impacts and proposed Mitigation Measures for C1,2&4

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
Component 1. Policy Implementation and Capacity Enhancement (PICE)				
1A Policy and capacity support on EIA/IEE/SEA, solid waste management, and Toxic and Hazardous Waste, with the following key activities: *Key detailed activities on EIA/IEE/SEA development and capacity support on:* • Upgrading of the Strategic Environment Assessment (SEA) Ministerial Decision to a SEA Prime Minister Decree, and development of SEA sub-legislation; • Development of a SEA for the mining sector, and support to the implementation of the power sector and green growth SEAs developed under the LENS2 project; • Development of Environmental Impact Assessment (EIA)-related guidelines; • Revision of the Integrated Spatial Planning and Land Use Planning (ISP-LUP) guideline to include climate change and disaster risk considerations, and integration of ISP-LUPs into 11 Provincial Socio-Economic Development Plans; • Preparation and dissemination of the national State of Environment Report (2021-2025); • Dissemination of the Environment Protection Law, several other environmental protection regulations and guidelines developed under the LENS2 project.	• OHS risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • Inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection.	• Update, implement, monitor and report LMP (Attachment 1), COC on SEA/SH and VAC (Attachment 3B of the SIA-SMP); • Implement, monitor and report of SEP including GRM; • Each SDA to assign one E&S coordinator to oversee, coordinate, monitor and report the E&S implementation.	ESS1-4, ESS7 and ESS10	DOE-MONRE throughout the project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
Key activities on Solid Waste Management: • Development of a National Waste Management Decree, its relevant sub-national regulations; • Development of standard operational procedures (SOPs) on waste management measures covering all types of waste to support the enforcement of SWM regulations.				
1B Capacity and Financial Support to SMEs on environmental and waste management, with the following key activities: Key activities would include: • Capacity and financial support (matching grant) to SMEs (hotel, restaurant, and tourism companies) in Vang Vieng, Vientiane Province to enable them to improve their environmental and waste management, and compliance with MONRE environmental regulations(**S**MEs eligible to receive the matching grant support would be those that have investment projects that are classified by the MONRE as Category 1 and that have an environmental clearance certificate (ECC) or will be issued an ECC)	Given the size, location and activities under C1B will be identified during implementation, the E&S risks and negative impacts are categorized as low up to moderate and will include but not limited to the follows: • Risks that selected firms/LA/LC that have poor environmental or social performance, including non-compliance with National environmental legislation; • Support to activities that may harm people, the environment or the society; • Temporary risks and disturbances related to OHS, CHS and dust and noise generation including transmission of infectious diseases	• Include ESMF requirements applicable to Components 1 during the development of the subproject proposal and the activities to be implemented by the beneficiaries; • Apply Annex 3B: Ineligible/Negative Criteria List for Components 1,2,4 and Annex 4 Guideline for ES Impacts Screening and Scoping for proposal selection; • Prepare ESMP including EGEP (if needed) in compliance with this ESMF (esp. Annex 2, 3B, 4B, 5B, 7B, Attachment 1B, 2B, 3B and 5 and SEP (ensuring inclusive and meaningful consultations with stakeholders and local	ESS1-4, 7 and 10	EPF throughout the project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
	from civil works may occur. • Risk of insufficient public information and awareness among the project's beneficiaries; • OHS Risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • CHS and inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection; • Weak system of grievance redresses mechanism.	communities); • Implement, monitor and report the approved ESMP; • To address the issues related to consultation, under EWMP, these activities will be continued with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities and components; • Assign one EPF E&S coordinator to oversee, coordinate, monitor and report the E&S implementation of the SMEs and Matching Grants; • Each SMEs and Matching Grants should assign an E&S coordinator.		
1C ECC compliance and pollution monitoring framework with the following key activities: Key detailed activities would include policy and capacity support on ECC compliance and pollution monitoring framework for environmental pollution management: • Enhancing of the existing 9-site Air Quality Monitoring Stations (AQMS) to improve the completeness and	• Risks/Impacts due to land acquisition for ambient environmental quality monitoring stations is low as they are in government- managed land; • Occupational health and safety	• Apply Annex 3B: Ineligible/Negative Criteria List for C,1,2,4 and Annex 4 Guideline for ES Impacts Screening and Scoping for proposal selection; • Implement, monitor and report	ESS1-5, 7 and 10	DNEI/NRERI-MONRE throughout the project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
reliability of the network and work to understand exposure to air pollution. • Strengthening of water quality and pollution monitoring through the procurement of equipment for water quality monitoring and water quality analysis. • Establishing SOPs and QA/QC protocols for AQMS, and implement via capacity building trainings including PONRE staff; • Conducting a limited deployment of low-cost sensors in provinces that currently have no AQMS and to establish a training data set to enable use of global remote sensing products to estimate human exposure to PM2.5 with reduced uncertainty until network expansion can be financed.	risks/impacts during installation on monitoring stations; • Temporary risks and disturbances related to OHS, CHS and dust and noise generation including transmission of infectious diseases during installation of environmental quality monitoring stations.	ESCOP (Annex 6) and LMP (Attachment 1B); • Implement, monitor and report of GRM and SEP; • Each SIA to assign one E&S coordinator to oversee, coordinate, monitor and report the E&S implementation.		
1D Climate change and low carbon resilient development with the following key activities: Development and implementation of a long-term low emission development strategy (LT-LEDS) 2030. Including: • Climate adaptation and resilience activities including integration of the updated Nationally Determined Contribution (NDC) include a commitment to achieve net zero emissions by 2050 (conditional to international support). • The LT-LEDS can also further strengthen the country's aspiration towards a cleaner and greener	• OHS risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • Inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection; • Strategies unintentionally apply to	• To address the issues related to consultation, under EWMP, these activities will be continued with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities and components; • Update, implement, monitor and report LMP (Attachment 1 of the SIA-SMP), CHSP	ESS1-4, 7 and 10	DCC-MONRE/ DOP-MPI

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
economy and improve the lives of citizens, particularly the most vulnerable groups. • Climate and disaster risk screening (CDRS) tool into the national Green Growth Investment Guidelines; • Expansion of the Green Growth Investment Guidelines to cover private investment projects; and • Capacity building for sectors and provincial offices for green growth strategy implementation.	activities outside the targeted "community".	(Attachment 2 of the SIA-SMP), COC on SEA/SH and VAC (Attachment 3A of the SIA-SMP), SEP and GRM for project staffs; • Each SIA to assign one E&S coordinator to oversee, coordinate, monitor and report the E&S implementation.		
1E Policy and capacity support on plastics policies and legislation with the following key activities: Development of the National Plastic Actions Plan (NPAP) including: • Development and implementation of national policies, legislation and regulations; implementation of the National Plastics Action Plan (NPAP)[26]; • Development of guidelines and supporting instruments for NPAP implementation; capacity building at the national and sub-national level to enable monitoring and enforcement; awareness raising, education campaigns, and citizen engagement; plastics information and reporting	• Inadequate consultation among key agencies and key stakeholders, implementation of these activities could lead to unexpected impacts to key sector agencies, local authorities, and local communities, and the private sector. • OHS risks related to the working conditions, labour disputes transmission of	• To address the issues related to consultation, under EWMP, these activities will be continued with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities and components. Activities under 1E include citizen engagement; • Implement GRM for project workers; • Implement, monitor and report	ESS1-4, 7 and 10	DOE-MONRE throughout the project implementation

[26] At this time, the NPAP is under development led by MONRE and supported by the World Bank and other development partners.

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
system; • Development of SOP for plastic/HTW waste management, 3Rs, GCB and Circular Economy campaign, inventories and database on plastic and solid waste in selected provinces; Micro plastic in aqua life analysis in selected river basins, guideline and; • Support implementation of Single-use plastics.	infectious diseases (such as Covid-19) of Project Worker; • CHS and inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection; • Plans may generate unmitigated social or environmental impacts and fail to adequately address the main current and likely future problems.	LMP (Attachment 1B) CHSP (Attachment 2) COC on SEA/SH and VAC (Attachment 3B); • Each SIA to assign one E&S coordinator to oversee, coordinate, monitor and report the E&S implementation.		
Component 2. Integrated Support and Capacity Building for Local Government and Municipalities				
2A Support and Capacity Building for Local Governments on waste and pollution data and information systems and waste services with the following key activities: • Development and implementation of sub-decrees, regulations and ordinances on waste and pollution data and information systems ; • Capacity Building for Local Governments (PONRE) of Vientiane Capital and Oudomxay and Vientiane Provinces on sub-decree development,, waste and pollution data and information systems and waste services; • Feasibility study on establishment of waste and	• Inadequate consultation among key agencies and key stakeholders, implementation of these activities could lead to unexpected impacts to key sector agencies, local authorities, and local communities, and the private sector; • OHS risks related to the working conditions, labour	• To address the issues related to consultation, under EWMP, these activities will be continued with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities and components; • Implement GRM for project workers; • Implement, monitor and report LMP (Attachment 1B) CHSP	ESS1-4, 7 and 10	DNEI/NRERI-MONRE throughout the project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
pollution data and information system in collecting regional/international good practices in managing and utilizing the waste statistics system	disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • Inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection.	(Attachment 2) COC on SEA/SH and VAC (Attachment 3B); • Each SIA to assign one E&S coordinator to oversee, coordinate, monitor and report the E&S implementation.		
2B GCB and 3R projects plus capacity building for NPAP/plastic policies implementation in target districts with the following key activities: **To continue the ongoing efforts for waste management and plastics reduction at the village-scale:** • GCB and 3R projects + capacity building for NPAP/plastic policies implementation in target districts; • Promote the MONRE's Green, Clean and Beautiful (GCB) and 3R programs that aims for waste management and plastics reduction at the village-scale ; • Development of waste bank recycling operational guidelines and awareness-raising campaigns. which could contribute to the GoL's GCB program;	Given the size, location and activities under C2B will be identified during implementation, the E&S risks and negative impacts are categorized as low up to moderate and will include but not limited to the follows: • Lack of inclusive stakeholder consultation and incorporation of public comments in the policy development; • Risks that selected firms and LC that have poor environmental or social performance, including non-compliance with National environmental legislation; • Support to activities that may harm people, the environment or the	• Include ESMF requirements applicable to Components 1, 2, and 4 during the development of the subproject proposal and the activities to be implemented by the beneficiaries; • Apply Annex 3B: Ineligible/Negative Criteria List for Components 1,2,4 and Annex 4 Guideline for ES Impacts Screening and Scoping for proposal selection; • Prepare ESMP including EGEP (if needed) in compliance with this ESMF (esp. Annex 2, 3B, 4B, 5B, 7B, Attachment 1B, 2B, 3B and 5 and SEP (ensuring inclusive	ESS1-4, 7 and 10	DOE-MONRE throughout the project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
• Scaling-up the waste bank initiatives at villages and schools, composting at schools, waste separation at household level.	society; • OHS Risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • CHS and inappropriate behaviour by Project Worker during training, consultation workshops and working in communities or field data collection; • Lack of inclusive stakeholder consultation and incorporation of public comments in the policy development; • Risk of insufficient public information and awareness among the project's beneficiaries; • Weak system of grievance redresses mechanism.	and meaningful consultations with stakeholders and local communities); • Implement, monitor and report the approved ESMP; • To address the issues related to consultation, under EWMP, these activities will be continued with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities and components; • Assign one EPF E&S coordinator to oversee, coordinate, monitor and report the E&S implementation of GCB and 3Rs (Matching Grants or Sub-projects) and each subproject should assign an E&S coordinator.		
2C Support to private-public partnerships and enhancing output-based waste service delivery and cost recovery capacity with the following key activities: Support private-public partnerships and enhancing output-based waste service delivery and cost	• Lack of inclusive stakeholder consultation and incorporation of comments from private waste operators in development of	• To address the issues related to consultation, under EWMP, these activities will be continued with more extensive consultation following SEP	ESS1-4, 7 and 10	MPWT, MONRE, VCOMS, district offices and private waste operators

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
recovery capacity. Activity proposed by the MPWT including: • Development of Standard Operation Procedures (SOPs), Sub-regulation preparation and its guidelines, and Solid waste management planning and capacity development for DPWT, UDAA/VCOMS; • Introducing improved contract management system to improve performance and output-based contract management between VCOMSS and private waste operators • Development and training of mobile application for fee collection and user feedback for waste fee payment, services route tracking and communication with clients to address cost recovery; • Technical and equipment supports to the waste pickers currently working at the Km32 to provide necessary protection equipment and facility to improve their working environment.	mobile application for fee collection and user feedback for waste fee payment, services route tracking and communication with clients. • OHS Risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • Inappropriate behaviour by Project Worker during training, consultation workshops.	procedures that are being prepared and to be applied to all project activities and components; • Implement, monitor and report LMP (Attachment 1B) CHSP (Attachment 2) COC on SEA/SH and VAC (Attachment 3B); • Implement SEP including GRM; • Each SDA to assign one E&S coordinator to oversee, coordinate, monitor and report the E&S implementation.		throughout the project implementation
Component 4. Project Coordination and Reporting				
C4: Project Coordination and Reporting with the following key activities: *Project management and administration related activities including:*	• OHS risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project	• Implement, monitor and report LMP (Attachment 1B) CHSP (Attachment 2) COC on SEA/SH and VAC (Attachment	ESS1-4, 7 and 10	EPF during project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Mitigation Implementation Stage
• Procurement, project staffing, consultant, meeting, workshop, training, capacity building, project annual audit and etc. *Communication, Engagement, and EPF Capacity building:* • Inter-ministerial coordination; • Progress reporting, and monitoring and evaluation, strengthening implementation and management capacity • Enhancing stakeholder's collaboration at all levels.	Worker. • Inappropriate behaviour by Project Worker during training, consultation workshops and working in communities.	3B); • Implement SEP including GRM; • Recruit CTA and E&S consultants to assist C4 for supervision, capacity/training, monitoring and reporting of implementation of ESF instruments.		

4.3 E&S Risks and Impacts and Proposed Mitigation Measures of C3

109. The proposed activities to be implemented in three sites under Component 3 as provided in the Section 1.4 above are likely to create E&S risks at substantial level; however, the risks are increased to high level when taking into account (i) weak legal and institutional capacity on waste management; and (ii) the existing waste at the Km32 Site and associated legacy risks and impacts.

110. The anticipated impacts have been characterized in terms of type (direct, indirect, cumulative, positive or negative); duration (temporary, short-term, long-term, permanent); geographical extent (local, regional or national); intensity, magnitude, or significant (low, moderate, substantial, and high. The impact assessment has been divided by project phase (pre-construction, construction, operations and closure phases for project rehabilitated cells). A full ESIA to be prepared for Component 3 will further assess these potential risks and impacts of project activities at Km32 landfill, Km16 and Naxaythong sites. The proposed mitigation measures for improvement of design and operations of Km32 rehabilitation proposed in the Pre-ESIA will be considered in the Detailed Design. Revision/update of the preliminary design during the detailed design stage should ensure that adequate considerations on environmental and social risks and impacts are incorporated and that potential E&S risks and impacts from the project activities are acceptable. The key E&S risks and impacts and proposed mitigation measures are summarized in following sections while the details are provided in a standalone Pre-ESIA and SIA-SMPs.

4.3.1 Environmental Risks and Negative Impacts and Proposed Mitigation Measures

111. The key environmental risks and negative impacts with proposed mitigation measures during pre-construction, construction, closure and operation phases are summarized below while the details are provided in a standalone Pre-ESIA for the Km32 site and can be applied for the Km16 and Naxathong sites.

112. The key environmental risks and negative impacts with proposed mitigation measures during pre-construction and construction of the three sites are as follows:

- Overall, the environmental risks and impacts associated with the construction activities are assessed to be moderate, temporary and localized. These impacts are well-known and can be effectively mitigated by conventional methods.
- Construction work at the Km32, Km16 and Naxathong sites and movement of trucks to and from the site will generate noise, dust and other air quality impacts. The impacts will be temporary (daytime only) and localized. The noise and dust impacts will mainly be a concern for construction workers and residents near the access road;
- Impacts on flora and fauna from construction activities are considered negligible because the landfill site is already a disturbed area with waste dumped on most part

to the site and there is no flora or fauna of conservation value at or near the site. However, establishing new borrow pits or spoil disposal sites may generate impacts on flora and fauna, which needs to be taking into account when identifying potential sites and during their operation.

- Full ESIA and Site Specific ESMPs (SS-ESMPs) will be prepared by MWTP PMU with technical assistant from a qualified ESIA firm in compliance with the ESMF, SIA-SMP, Pre-ESIA of the Km32 and SEP. Revision/update of the preliminary design during the detailed design stage should ensure that adequate considerations on environmental and social risks and impacts are incorporated and that potential environmental risks and impacts from the project activities are acceptable.
- Temporary impacts and disturbances will be managed through the implementation, monitoring and reporting of CESMP to be prepared by contractor(s) in compliance with the SS-ESMPs. PMU with technical assistant from PTI and CSC will conduct capacity building and training to contractor (s) and regularly monitor the contractor's E&S compliance.

113. The key environmental risks and negative impacts with proposed mitigation measures during operation phases of the Km16 and Naxaython Sites are as follows:

- The operation of the new transfer station in Naxaythong district and at the Km16 may pose operational environmental risks such as degraded surface and groundwater quality and impacts on aquatic and agricultural resources due to leakage of leachate/toxic waste components into soil, water resource; air pollution and odor including air pollution from landfill fire; poor health and safety and sanitation, etc.
- Surface water contamination will affect the productivity and quality of rice production and other agricultural production in the surrounding fields; and may also pose a risk to the health of farmers, domestic animals and wildlife; and may in general render the water resources in the affected streams unusable.
- Risk of uncontrolled site access leading to injury of people or loss of cattle.
- Odour nuisances from decomposing organic waste in the relocated waste, waste littered along the access road.
- Spread of infectious diseases including water-borne diseases by disease-carrying vectors or by pollution of surface or groundwater with pathogens.
- Open burning of waste or landfill fires caused by lack of controlled collection and release/flaring of landfill gas will generate air pollution posing a health hazards to landfill workers, waste-pickers and nearby residents.
- Risk of increase in illegal dumping, littering, and open burning exacerbating impacts on public health and the environment.

- ESMP for Operation Phase (ESMP-OP) including operational manual for the new transfer stations at the Km16 and Naxaythong sites will be prepared by MPWT PMU incompliance with the ESMF, and implemented by Small B for the KM16 and UDAA for the Naxaythong site.

114. The key environmental risks and negative impacts with proposed mitigation measures during operation phases of the Km32 site are as follows:

- The operational phase environmental risks and impacts of the Km32 site are by far the most important environmental risks and impacts. It is assessed that the current preliminary conceptual liner design is unlikely to provide acceptable mitigation. There is a high risk of contamination of important regional groundwater resources that are or may in the future be used for domestic water supply, and which is therefore important for long-term water supply. Research and modelling of leakage through a single HDPE geomembrane (as proposed in the preliminary design) compared with leakage through a composite liner comprising a HPDP geomembrane on top of a compacted clay liner, indicate that the leakage through a single HDPE geomembrane is orders of magnitude higher than leakage through a composite liner system[27]. A composite liner system is a standard requirement for non-hazardous waste landfills in many jurisdictions and is also the recommended groundwater protection measure in the World Bank Group's Environmental Health and Safety Guideline for Waste Management Facilities.
- The leachate regulating pond is designed with a single HDPE bottom liner. To ensure sufficient protection against infiltration to the groundwater of polluted leachate, the pond needs to be provided with the same composite liner system which as noted above is also required for the new landfill cells.
- The design of the cell for relocated waste (Cell 5) includes a bottom HDPE liner but out of concerns not to infringe on the rights of access to the waste that the Khounmouang Group Company has been granted in its concession agreement with the GOL, the design does not include capping of the waste. This basically means that at some point in time infiltrated water will fill-up the cell and overflow or seep out of the waste pile to the surroundings (known as the bathtub effect) and pose a risk of surface water, soil and groundwater contamination by polluted leachate or seepage from the relocated waste. Similar to the new landfill cells, Cell 5 needs to be provided with a composite liner system and a proper final landfill cap. Considerations have been given to different options that would allow Khounmouang Group Company access to the waste without compromising environmental protection. The preferred option would be to make an agreement with Khounmouang Group Company that

[27] T. Katsumia, C.H. Bensonb, G.J. Foosec, M. Kamond, Performance-based design of landfill liners, Engineering Geology 60 (2001) 139±148

would provide the company with access to the waste in Cell 10 and Cell 11 over a one-year period during which the company would have to remove all the waste that they would be interested in. This one-year period should coincide with the detailed design and ESIA studies so that it would not overlap with the construction phase. Other options that would allow Khounmouang Group Company access to the relocated waste in Cell 5 have also been considered. One of such options would be to allow the company access to the waste in Cell 5 over one or more dry seasons provided that the company places a liner on the waste in the rainy season. This and other similar options are considered impractical, difficult to control and having rather uncertain outcomes, and these options are therefore not recommended.

- Surface water contamination will affect the productivity and quality of rice production and other agricultural production in the surrounding fields; and may also pose a risk to the health of farmers, domestic animals and wildlife; and may in general render the water resources in the affected streams unusable.
- It is unclear if the concern not to infringe on Khounmouang Group Company's rights of access to the waste would also mean the new cells would not be capped, but it is here assumed that they will be capped.
- The operational phase mitigation measures outlined in the Pre-ESIA (Table 8-5) are considered adequate to ensure that the following typical landfill operational risks and impacts are mitigated to an acceptable level:
    - Accidental spills or spill/leaks due to improper management or storage of hazardous waste may affect workers, surface water and/or groundwater resources.
    - Odour nuisances from decomposing organic waste in the relocated waste, waste littered along the access road and from inadequately covered organic waste deposited in the new cells to be constructed by the project.
    - Potential fire hazards due to inadequate measures to capture landfill gas.
    - Risks of explosion from migration of landfill gas and build-up in confined spaces.
    - Spread of infectious diseases including water-borne diseases by disease-carrying vectors or by pollution of surface or groundwater with pathogens.
    - Contribution to climate change by fugitive emission of greenhouse gases (methane and carbon dioxide) in landfill gas generated by decomposing organic waste.
- Also, ESMP for Operation Phase (ESMP-OP) including operational manual for the new landfill facilities at the Km32 will be prepared by MPWT PMU incompliance with the ESMF, and implemented by VCOMS for the Km32.

115. The key environmental risks and negative impacts with proposed mitigation measures

during closure phase[28] are as follows:

- According to the Project design, when filled-up, the new landfill cells will be closed with a 2 m thick soil layer and equipped with gas ventilation pipes[29]. It is preliminarily assessed that the 2 m thick soil layer combined with the mitigation measures listed in the Pre-ESIA (Table 8-6) will satisfactorily prevent the following typical closure phase impacts such as:
    - direct exposure to waste by people or animals
    - disease spread by vectors and vermin
    - odour nuisances, windblow litter and risk of fire
    - breach of capping and ponding in depressions leading to increased infiltration and increased generation of leachate, erosion and crop death
    - uncontrolled use of the land incompatible with the design of the caps or the integrity and stability of the cells.
- The landfill cell closure cap combined with the mitigation measures will most likely also provide for a range of future land uses such as grazing land, plantations and cultivation of crops.
- The proposed landfill cell cap consisting of a 2 m thick soil layer is preliminarily assessed likely to be inadequate to minimize infiltration and thereby generation of leachate. Leachate may build-up in the cell, seep through embankments, and increase the hydraulic head on the liner system which may lead to increased risk of leachate infiltrating into the subsoil posing a risk of groundwater pollution. The design should be assessed in more detail during the full ESIA to determine if the proposed cover system will provide sufficient water storage capacity and evapotranspiration to control moisture and water percolation into the underlying waste.
- It is assessed that the design of the final cap is not optimal in terms of controlling migration of landfill gas as the cap does not have a gas drainage layer and no gas barrier layer.
- The final cover should consist of a cap designed to accommodate the desired future land use of the cells. Assuming that the future land use is some kind of open space activity such as grazing, plantations, crop cultivation, sport or recreation and in any case a land use that would not allow construction of buildings or other structures, and taking into account the need to minimize infiltration and to control migration of landfill gas, the recommended final cap should consist of a gas drainage layer on top of

[28] This refers to risks and impacts that are solely associated with the Km 32 Landfill Project not including the risks and impacts from the existing conditions at the project site (the VCOMS site).

[29] As noted earlier, it is unclear if the concern not to infringe on Khounmouang Group Company's rights of access to the waste would also mean the new cells would not be capped, but it is here assumed that they will be capped

the waste, followed by a compacted clay barrier[30], a water drainage layer, a subsoil layer and finally a layer of topsoil.

116. The project related environmental risks and negative impacts combined with the existing waste at the VCOMS Site at the Km32 are summarized as below:

- The existing waste and its history at the VCOMS site pose and will continue to pose significant risks to the regional groundwater resources that are currently or may in the future be used for domestic water supply, and which is therefore an important resource for long-term water supply. It is highly recommended to address these risks in design of the **Km 32 Landfill Project** and as a minimum include capping of the existing waste.
- There is a significant risk of contamination of surface water in streams and ditches draining the landfill site by polluted leachate or seepage from the existing waste and waste to be relocated by the Project.
- Surface water contamination will affect the productivity and quality of rice production and other agricultural production in the surrounding fields; and may also pose a risk to the health of farmers, domestic animals and wildlife; and may in general render the water resources in the affected streams unusable.
- The unmitigated project specific risks to groundwater which are due to lack of proper landfill liner systems will add to the risks of groundwater contamination posed by the existing waste.
- To ensure that E&S risks and impacts from the project identified in the Pre-ESIA will be properly addressed and reduced to an acceptable level, the preliminary design will be revised and developed into a conceptual design taking into account the necessary design improvements outlined in the Pre-ESIA. The project design will then be ready for detailed design and will be subject to a full-scale ESIA also covering the proposed project activities at the waste transfer stations in Naxaythong District and at Km16.

117. In conclusion, this preliminary assessment of environmental and social risks and impacts finds that during the course of the project phases (pre-construction, construction, operation and closure) with the current preliminary landfill design there are 5 impacts/risks which are assessed unacceptable ("with mitigation"). These impacts/risks are considered unacceptable because the proposed preliminary design does not provide sufficient environmental protection. This Preliminary ESIA finds that to ensure that the environmental and social risks and impacts associated with the project are at acceptable level, the design of the project needs to be upgraded on several points to provide sufficient environmental protection as presented in the Pre-ESIA Report (Table 8-1). All other identified impacts/risks are assessed to be acceptable with the implementation of the mitigation

[30] The USEPA recommends that the permeability of the final cover shall be less than the underlying liner system, but no greater than 1.0 x 10-5 cm/sec. This design requirement was established to minimize the "bathtub effect", which occurs when the landfill fills with liquid because the cover system is more permeable than the bottom liner system. This "bathtub effect" greatly increases the potential for generation of leachate

measures outlined in the Pre-ESIA Report (Table 8-3 t0 Table 8-7).

4.3.2 Social Risks and Negative Impacts and Proposed Mitigation Measures

118. The key social risks and negative impacts with proposed mitigation measures during pre-construction, construction and operation phases are summarized below while the details are provided in a standalone Pre-ESIA for the Km32 site and SIA-SMP for all components.

119. The key social risks and negative impacts with proposed mitigation measures during pre-construction and construction phases of the three sites are as follows:

- Overall, the environmental risks and impacts associated with the construction activities of the three sites are assessed to be moderate, temporary and localized. These impacts are well-known and can be effectively mitigated by conventional methods. More details are provided in a standalone SIA-SMPs ;
- Lack of inclusive and meaningful consultation during the full ESIA study with all concerned stakeholders (esp. vulnerable/poor households, women, waste pickers and collectors) could result in the risk is regulatory non-compliance, project delays, reputational harm to project stakeholders;
- Risk of land acquisition and impact on the heritage assets or values including discovery of artifacts or relics during construction of the new Transfer Station in Naxaythong district and operation of new borrow pits, sand and quarry sites;
- The risks of UXO explosion during the construction activities is considered minor but cannot be excluded;
- OHS risks of existing waste pickers due to construction activities and increased traffic congestion (transportation of construction materials and solid wastes to the landfill);
- Poor condition of the access road causing excessive dust, increasing risks of accidents and increasing costs of maintenance;
- OHS Risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19), SEA/SH and VAC including the temporary labour influx of construction workers is likely to increase the risk of substance abuse such as alcohol and amphetamine. Such substance abuse is often a contributing factor to accidents and incidents. It also is a contributing factor for gender-based violence;
- Nearby CHS risks due to temporary disturbance from construction activities including dust/noise/ wastewater/ solid wastes generation, traffic and road safety impacts, transmission of infectious diseases and other social issues from temporary labour influx of construction workers etc;
- Damages to the local roads due to increased traffic;

- Disruption or restrictions on recycling activities with risk of causing loss/reduction in income of the waste collectors, waste-pickers and other groups (informal recyclers or small-scale waste buyers) who rely on income from the waste stream.
- Inadequate Stakeholder Engagement or inadequate management of the grievances redress mechanism during the con.
- Full ESIA and Site Specific ESMPs (SS-ESMPs) will be prepared by MWTP PMU with technical assistant from a qualified ESIA firm in compliance with the ESMF, SIA-SMP, Pre-ESIA of the Km32 and SEP. Revision/update of the preliminary design during the detailed design stage should ensure that adequate considerations on environmental and social risks and impacts are incorporated and that potential social risks and impacts from the project activities are acceptable.
- Temporary social risks and impacts and disturbances will be managed through the implementation, monitoring and reporting of CESMP to be prepared by contractor(s) in compliance with the SS-ESMPs. PMU with technical assistant from PTI and CSC will conduct capacity building and training to contractor (s) and regularly monitor the contractor's E&S compliance.

120. The key social risks and negative impacts with proposed mitigation measures during operation phases of the three sites are as follows:

- Based on the current preliminary conceptual liner design of the new cells in the Km32 landfill, there is a high risk of contamination of surface, groundwater and soil which could be or may in the future be used for domestic water supply, and which is therefore important for long-term water supply and public health, the productivity and quality of rice production and other agricultural production in the surrounding fields; and may also pose a risk to the health of farmers, domestic animals and wildlife; and may in general render the water resources in the affected streams unusable;
- The implementation of the integrated waste management facilities in Naxaythong District and Km16 may result in a reduction in recyclables arriving at the Km 32 and therefore affecting the current income (livelihood) of the seasonal and registered waste-pickers at the Km32 including vulnerable groups (currently one family working as waste pickers at the KM32 landfill) who rely on income from the waste stream at the landfill;
- Risk that waste-pickers do not receive a fair payment for the recyclables;
- OHS risks include the risk of: (i) employment discrimination, (ii) labour related disputes, (iv) SEA/SH and VAC from alcohol, drug and amphetamine (as per FGD); (v) child labour (waste pickers); (vi) accidents and injuries, exposure to toxic waste component/ air pollution (dust and hazardous wastes/materials, odours nuisances,

and vehicle emissions/noise and vibration/ pathogens and vectors in waste collection, transport and management processes;

- CHS risks/impacts involving increased number of garbage trucks going back-and-forth to the landfill could lead to increased dust, noise, smells, water pollution, road safety (esp. children and vendors along the access road) and spread of infectious diseases (COVID-19, HIV-AIDS) and) SEA/SH and VAC.
- Risk of uncontrolled site access leading to injury of people or loss of cattle;
- Open burning of waste or landfill fires caused by lack of controlled collection and release/flaring of landfill gas will generate air pollution posing a health hazards to landfill workers, waste-pickers and nearby residents;
- Risk of increase in illegal dumping, littering, and open burning exacerbating impacts on public health and the environment.
- Inadequate Stakeholder Engagement or inadequate management of the grievances redress mechanism.
- ESMP for Operation Phase (ESMP-OP) including operational manual for the new landfill facilities at the Km32 and transfer stations at the Km16 and Naxaythong sites will be prepared by MPWT PMU incompliance with the ESMF, and implemented by VCOMS for the Km32, Small B for the KM16 and UDAA for the Naxaythong site.

121. The mitigation measures for social risks and impacts are provided in the Pre-ESIA for the KM32 site and also in the SIA-SMP for all the three sites.

5 ESMF MANAGEMENT PROCEDURES

122. This ESMF is to manage potential adverse environmental and social impacts by establishing guidance documents that will inform EPF PCU and MPWT PMU of the agreed sets of ESF instruments and procedures to be implemented by the EWMP. The ESF instruments and E&S management procedures are broken down into E&S procedure for C1,2,4 (Section 5.1) and C3 (Section 5.2) while Ethnic Group Engagement Framework (EGEF) in SIA-SMP (Attachment 5) Stakeholder Engagement Plan (SEP and will be applied by all components (C1,C2, C3 and C4).

123. The For the CERC component, an addendum to the ESMF or a specific CERC-ESMF will be prepared specifically for the CERC and disclosed within 12 months after project effectiveness."

5.1 ESMF MANAGEMENT PROCEDURES FOR C1,2 &4

5.1.1 ESF Instruments to be implanted by C1,2 &4

1. The ESF instruments applied for C1, 2 & 4 are presented in Table 5-1 below while E&S management procedure is illustrated in Figure 5-1.

Table 5-1: Overview of ES Management Measures/ Instruments for C1,2 &4

ES Management Measures/ Instrument	Objective	Applies to	Timing
1. Ineligible Criteria /Negative List (Annex 3B)	To screen and avoid project financing activity likely to generate or produce substantial ES risk and impact	C1 and C2	Prior to approval of C1B and 2B implementation
2. Guideline for ES Impacts Screening and Scoping (Annex 4)	- Assessment of overall environmental and social risks - Identification of appropriate site-specific or sub-project specific ES management instruments	C1B: Matching Grants for SMEs 1C installation of AQ/WQ monitoring station 2B GCB and 3R projects plus capacity building for NPAP/plastic policies implementation	Prior to approval of C1B , 1C and 2B implementation

ES Management Measures/ Instrument	Objective	Applies to	Timing
3. Guideline for Preparation of Site-Specific Environmental and Social Management Plan (Annex 5B)	- Covering E&S risks, impacts and mitigation measures during planning, implementation and post-implementation (long term sustainability) of LEMGP. -	C1B and 2B as above Not all LEMGP sub-projects will apply this Annex 5B as some of them may apply just a simple ESCOP (Annex 6). This will be confirmed during the project implementation.	During project implementation and prior to approval of C1B and 2B implementation
4. Simple Environmental and Social Code of Practices for small civil works (Annex 7B)	- Ensure that environmental and social risks and impacts associated with LEMGP Sub-projects are identified, assessed and prevented or minimized to an acceptable level.	C1C: installation of AQ/WQ monitoring station C1,2, 4: Small civil works and LMEMP (where applicable)	- Throughout the project implementation prior to approval of C1C and small civil works implementation
5. Labour Management Procedures (LMP) with Worker Grievance Procedure - (SIA-SMP Attachment 1)	- Provides measures to manage and mitigate adverse OSH risks and impacts (prevent occupational injuries and illnesses) affecting civil servants (government staff appointed from the implementing and concerned agencies at all levels), direct workers (workers hired directly by PMUs, PIU, SIAs) and contracted workers (employees of civil works contractors and subcontractors, service providers, employees of consulting firms)	C1,C2,C4	- Throughout the project implementation

ES Management Measures/ Instrument	Objective	Applies to	Timing
6. Community Health and Safety Plan (CHSP) - (SIA-SMP Attachment 2)	- Provides measures to manage and mitigate potential adverse potential health and safety impacts to local communities anticipated also from small civil works, working and training in local communities which can have risks for infectious diseases including Covid-19 and SEA/SH	C1,C2,C4	- Throughout the project implementation
7. Simple Code of Conduct on SEA/SH and VAC - (SIA-SMP Attachment 3B)	- Provides guidance on the social Code of Conduct (COC) to be included in works contract to address the issues related to Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH), and Violence against Children (VAC) from small civil works, working and training in local communities which can have risks for infectious diseases including Covid-19 and SEA/SH	C1,C2,C4	- Throughout the project implementation

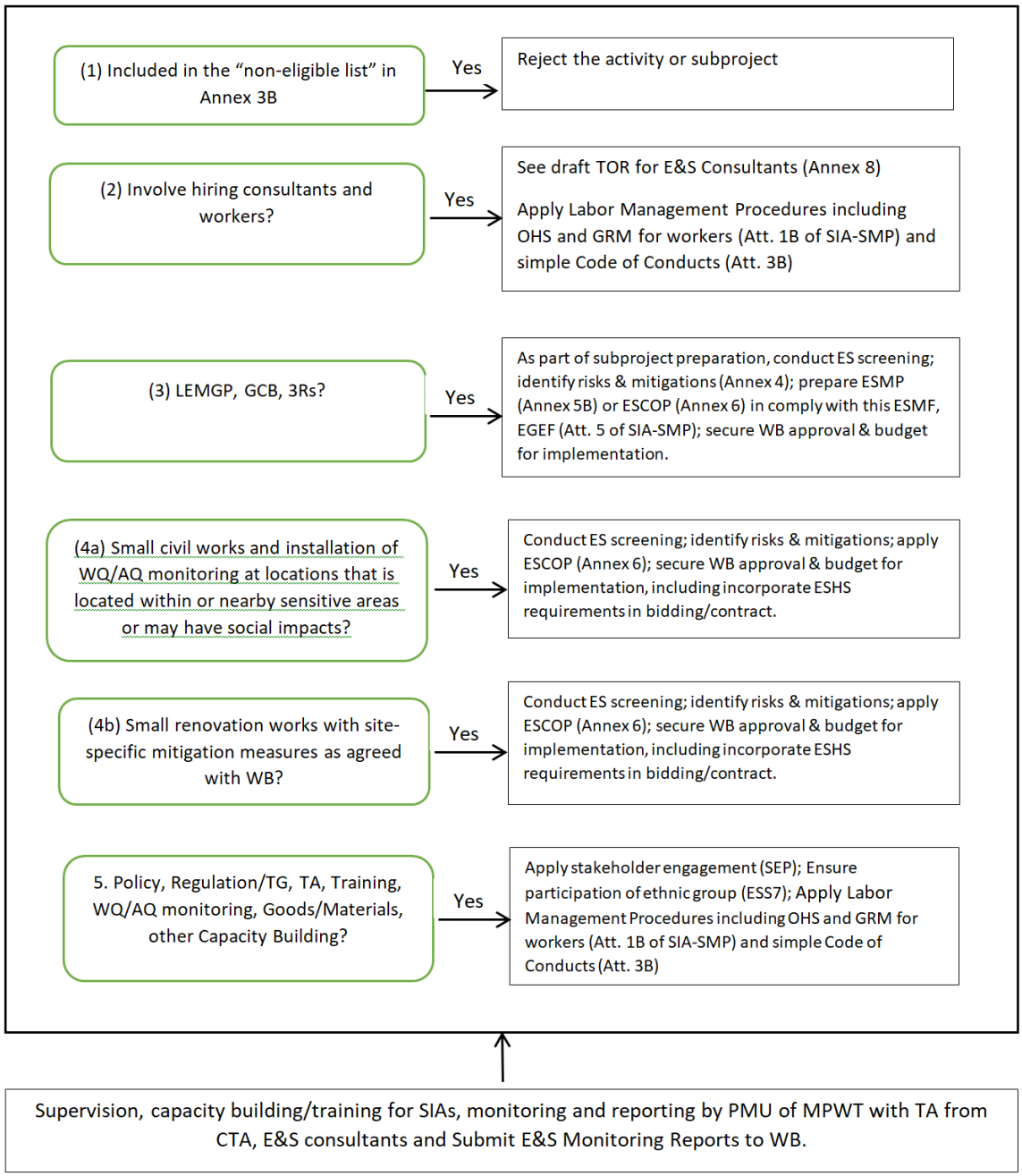

Figure 5-1 E&S Management Procedure for C1,2 & 4

5.1.2 E&S Screening and Scoping Process for C1 and 2

124. A negative list of activities has been established (see Annex 3B) and this will be applied for C1B, 1C and 2B. After application of negative list and only those positive activities will apply E&S screening process (Annex 4.

125. Environmental and social screening is designed to identify and document potential impacts arising from proposed sub-projects and advise on the appropriate next risk assessment and management processes and documentation to be undertaken. The environmental and social screening informs decision-makers about the need to implement

measures or actions which avoid, minimize, mitigate or compensate for adverse impacts. Sub-projects are categorized according to the screening procedure depending on the type, location, sensitivity and scale of the project and the nature and magnitude of their potential environmental and social impacts. Sub-projects may be deemed to have minor or moderate risks and impacts depending on the type of business activity, sector and geographic location. As a result of screening process, E&S management plans (SS-ESMP or ESCOP) will be confirmed and prepared.

5.1.3 Simple ESCOP and Site-Specific ESMP for LEMGP

A simple ESCOP:

126. The scope of a generic Environment and Social Code of Practices (ESCOP in Annex 6) will be applied for small civil works and MGAs to be implemented under C1 and 2 which will be confirmed during the Project implementation.

127. The generic ESCOP in Annex 6 comprises an Environment Code of Practice (ECOP) (Part A6.1) and the Social Code of Conduct (SCOC) (Part A6.2). The ESCOP will be included in MGAs and civil works contract for small size construction and/or rehabilitation of works related to offices and/or facilities to be implemented under the under C1,2, & 4. The ECOP describes a general and key specific requirement for environmental management and monitoring for MGAs and physical construction and renovation civil works while scope of SCOC describing obligations of contractor and workers to prevent social impacts during MGA implementation and work contract. More details are in Annex 6.

A Site Specific ESMP:

128. The ESMP will establish the environmental and social standard and compliance mechanisms and serve as ES management requirements for each Matching Grant Agreement (MGA) for supervision and enforcement of good environmental and social practices during grant implementation. Annex 5B provides guidelines for preparation of Site-Specific ESMP for C1 and 2.

129. The Site Specific ESMP will include the potential impacts and mitigation measures, which should be further detailed to mitigate risks and impacts within specific locations and activities or amended as needed, including by breaking them down into impacts/mitigation during planning, implementation, and after the project or long term sustainability.

130. The Site Specific ESMP should be read together with other documents that may be required, such as Ethnic Groups Engagement Plan (EGEP), as the EGEP may be part of the set of management plans to mitigate social impacts, if required. EGEP should follow the guidance outlined in the Ethnic Groups Engagement Framework (EGEF) (See Attachment 5 of the SIA-SMP). Stakeholder engagement should follow the parameters outlined in the project's Stakeholder Engagement Plan (SEP), and ensuring the SEP is updated. EPF PCU will make sure that the ESMPs (and other sub-plans if required) for the MGA are consulted and disclosed

prior to approval. EPF PCU will also ensure that a grievance mechanism is in place during the entire project process to address any concern or suggestion for improvement coming from the stakeholders at local or national level. A Guideline for preparation of SS-ESMP is provided in Annex 5B.

5.2 ESMF MANAGEMENT FOR C3

131. The ESF instruments applied for C3 are presented in Table 5-2 below while E&S management procedure is illustrated in Figure 5-2 below.

132. Selection of unknown site/s: During project preparation, Project location at Km32 landfill and Km16 transfer station has been confirmed while location for the new proposed transfer station in Naxaythong district has not been confirmed. Site selection criteria has been established to guide the site selection to avoid/ minimize impacts on E&S along with other technical considerations (Annex 3A). Criteria has been included in this annex for selection of any new construction materials site.

133. Site Specific Environmental and Social Impact Assessment: Although the sites for project investment at Km 32 landfill and Km16 have been identified during the project preparation, design and information available is still not adequate for preparation of a Full-scale ESIA and several design aspects of Km32 partial rehabilitations are still need to be further updated/revised during the Detailed Design. A standalone Preliminary Environmental and Social Impact Assessment (Pre-ESIA) for one landfill site (Km32) has been prepared as agreed during the project concept stage. This document describes baseline information on the E&S baseline condition and preliminary assessment of potential key E&S risks and impacts and proposed mitigation measures to be required for the activities to be implemented at the Km32 landfill. The Pre-ESIA also provides comments for improvement of the preliminary design of the Km32 landfill during the Detailed Design phase of project implementation. The Pre-ESIA also covers cumulative impacts assessment and will be further developed into a Full-scale ESIA that cover project activities at Km 16 and Naxaythong district during Detailed Design phase.

134. The TOR for ESIA firm to conduct a full the ESIA and SS-ESMP that cover three sites (Km32, Km16 and Naxaythong) will be prepared by E&S consultants to be hired by MPWT PMU and approved by WB before consulting firm hiring.

Table 5-2: Overview of ESF Instruments for C3

ESF Instrument	Objective and Application	Timing
1. Site Selection Criteria in Site including E&S criteria for Naxaythong and new construction material	- Prevent significant environmental and social risks. - Given that the location of Km32 and Km16 has been confirmed, this Annex will only applied for Naxaythong site and any new construction material sources.	During project implementation: Selection of Naxaythong transfer station,

ESF Instrument	Objective and Application	Timing
site (if any). (Annex 3A)		and new construction materials sites
2. Guideline for Preparation of Site-Specific Environmental and Social Impact Assessment and Environmental and Social Management Plan including screening and scoping (Annex 5A)	- Ensure that environmental and social risks and impacts associated with Project investments in waste management facilities are identified, assessed and prevented or minimized to an acceptable level	During project implementation: Detailed Design phase
3. Labour Management Procedures (LMP) with Worker Grievance Procedure - (SIA-SMP Attachment 1A)	- Provides measures to manage and mitigate adverse OSH risks and impacts (prevent occupational injuries and illnesses) affecting civil servants (government staff appointed from the implementing and concerned agencies at all levels), direct workers (workers hired directly by PMUs, PIU, SIAs) and contracted workers (employees of civil works contractors and subcontractors, service providers, employees of consulting firms)	- Throughout the project implementation
4. Community Health and Safety Plan (CHSP) - (SIA-SMP Attachment 2)	- Provides measures to manage and mitigate potential adverse potential health and safety impacts to local communities anticipated also from construction works, working and training in local communities which can have risks for infectious diseases including Covid-19 and SEA/SH	- Throughout the project implementation
5. Code of Conduct on SEA/SH and VAC - (SIA-SMP Attachment 3A)	- Provides guidance on the social Code of Conduct (COC) to be included in works contract to address the issues related to Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH), and Violence against Children (VAC)	- Throughout the project implementation
6. Resettlement Policy Framework (RPF) (including livelihoods restoration) - (SIA-SMP Attachment 4)	- Describes procedures for land acquisition and livelihood restoration in accordance with national laws and ESS5 of the ESF including screening form for Land acquisition and resettlement - Provides specific guidance on the compensation process and scope of an ARAP/RAP	- Throughout the project implementation
7. Ethnic Group Engagement Framework (EGEF) - (SIA-SMP Attachment	- Provides specific guidance on the consultation and engagement process and scope of an Ethnic Group Engagement Plan (EGEP) including screening process.	- Throughout the project implementation

ESF Instrument	Objective and Application	Timing
5)		

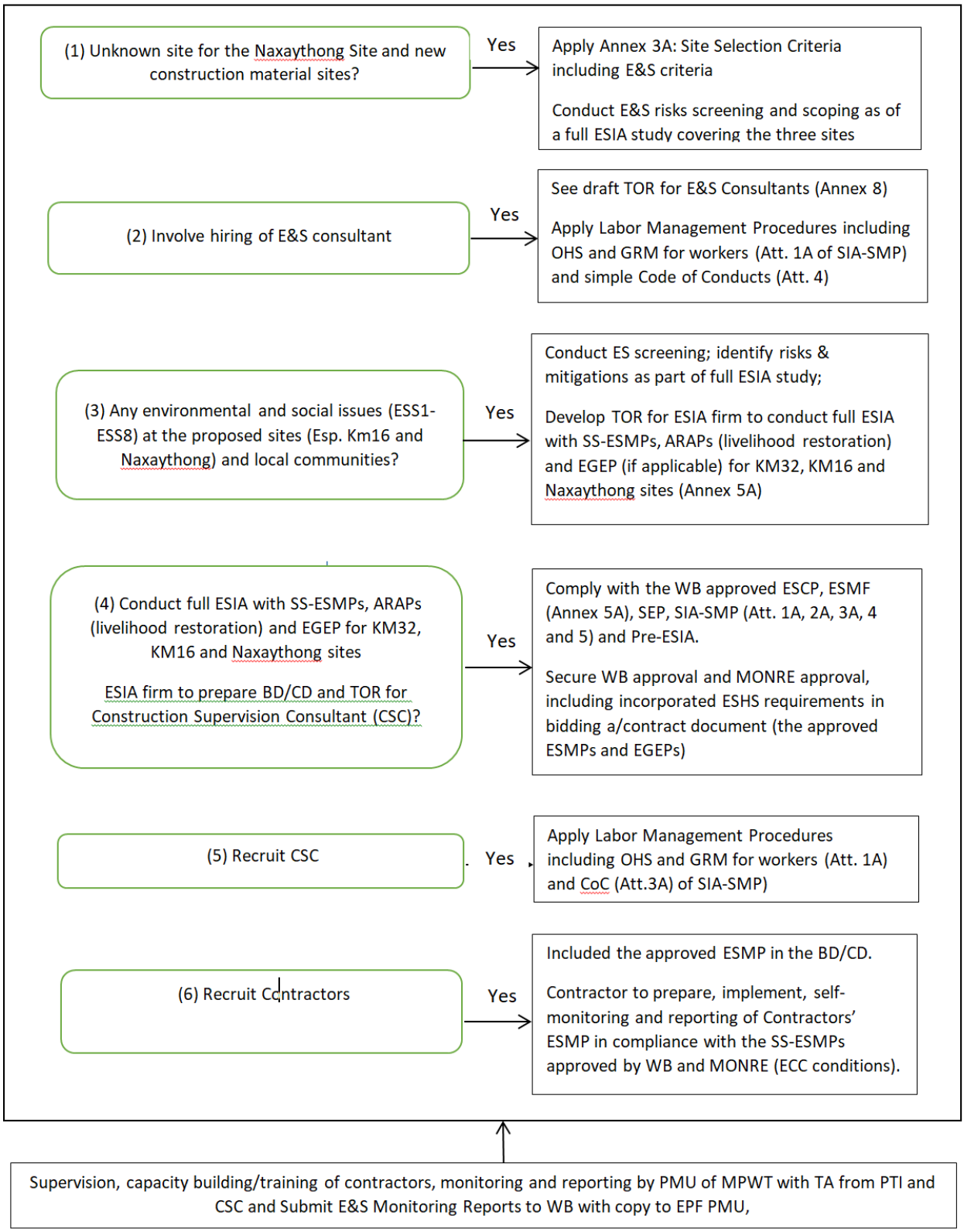

Figure 5-2 E&S Management of C3

5.3 CLIMATE CHANGE ADAPTATION AND MITIGATION

135. The GoL has taken significant action and is making progress on addressing climate change. In its updated Nationally Determined Contributions (NDC) (May 2021), the GoL clearly indicates its climate change ambition of achieving net zero greenhouse gas (GHG) emissions by 205031 through growing a low carbon and resilient economy. The country is making progress here, with a 34 percent emissions reduction achieved between 2000 and 2020. The main contributing sectors to emissions are the agriculture and land-use change and forestry (LUCF) sectors which contribute more than 50 percent of GHG emissions and energy related activities which contribute to another 48 percent. Waste is estimated to contribute 0.3 MtCO2-eq (about 0.3% of total emissions) and emissions of methane associated with open burning of waste as well as disposing organic waste in a solid waste disposal site without landfill gas capture system are expected to keep growing steadily together with economic development.32

136. To achieve its net zero emission target by 2050 and ensure the coherence of short-term climate action with long-term strategic objectives the GoL intends to develop a long-term low emission development strategy (LT-LEDS). The LT-LEDS can further strengthen the country's aspiration towards a cleaner and greener economy, improve the lives of citizens, particularly the most vulnerable groups, strengthen its adaptive capacity to climate change and enhance an inclusive and green recovery from COVID-19.

137. Climate change adaptation and mitigation are integral components in the design and implementation of the EWMP.

138. In terms of climate change adaptation, the overall aims are to ensure that the vulnerability to climate risks of Project activities and interventions are reduced and that their climate resilience is improved. For climate change mitigation the overall aim is to decrease emission of greenhouse gasses where reasonably practicable.

139. Proposed subproject activities or interventions will be screened for potential impacts due to climate change such as climate change induced natural hazards (flooding, landslides etc.) that may affect proposed civil works or increase the risks to public health.

140. The screening of proposed subproject activities or interventions will also identify possibilities for reducing greenhouse gas emissions. This is particularly relevant for investments in waste management facilities where for example segregation and composting of organic waste can eliminate generation of methane and thereby reduce the amount of greenhouse gas measured in CO2 equivalent. For landfill projects, collection and either flaring

[31] Lao PDR is the first country in ASEAN to pledge the net zero GHG emissions target.

[32] Government of Lao PDR (2021). Nationally Determined Contribution (NDC).

or utilization of landfill gas generated in waste cells will be standard measures to reduce emission of methane.

141. Climate change adaptation and mitigation will not only be considered for investments in waste management facilities but will also be part of overall policy and strategy development under Component 1 where climate change issues will be addressed and assessed when undertaking strategic environmental assessments of proposed policies or strategies.

142. The detailed engineering design of infrastructure or other civil works will assess the climate change risks to ensure that the works are robust and capable of withstanding anticipated future flood levels, extreme weather events or rise in temperature. Landfill designs will also have to consider changes in rainfall and rainfall pattern which may affect the rate of leachate generation; as well as rise in temperature which may affect biological processes in leachate treatment systems.

6 ESMF IMPLEMENTATION ARRANGEMENTS AND CAPACITY BUILDING

6.1 PROJECT IMPLEMENTING AGENCIES

143. The implementation arrangements for the project will follow the existing government structures. The Ministry of Finance (MOF) is the borrower and the formal point of contact between the Government of Lao PDR and the World Bank on all financial and legal matters for the credit and represents the Government of Lao PDR in discussions on these matters. MOF is expected to have reasonable capacity to deliver effectively, as it has implemented World Bank financed projects previously.

144. The MONRE will be the lead agency for Components 1 and 2, the MPWT will be the lead agency for Component 3, and the EPF will be the lead agency for Component 4. Project activities will be implemented by several agencies under the MONRE, the MPWT and the EPF, and under the MPI, MEM, and NUOL. A summary of agencies involved in the EWMP is presented in Table 6-1 and Figure 6-1 and Figure 6-2.

Table 6-1 Agency Implementation of project activities

Institution	**Project-related Mandate**
EPF	The EPF will coordinate the implementation of the EWMP and will work closely with the MONRE and the MPWT in this regard. The EPF will oversee fiduciary management for components 1, 2 and 4 for the project, and will be responsible for collating overall project progress reports. The MONRE Minister chairs the EPF Board of Director which acts as a multi-sectoral National Project Steering Committee. The EPF will also lead subcomponent 1B activities.
DOE-MONRE	Implements subcomponent 1A on environmental protection policies and instruments (EIA, SEA, ISP-LUP, Cumulative Impact Assessment (CIA), and SOER), subcomponent 1E on policy and capacity support on plastics policies and legislation, subcomponent 2A on support and Capacity Building for Local Gov't on waste and pollution data and information systems and waste service, and subcomponent 2B on GCB and 3R projects + capacity building for plastic policies implementation in target districts.
DNEI-MONRE	Implements subcomponent 1C on ECC compliance and pollution monitoring framework. It leads the development of EIA compliance monitoring SOPs and ensures that Category 2 projects are in compliance with ESMPs.
DCC-MONRE	Implements subcomponent 1D on climate change low carbon resilient development. It leads the development of the LT-LEDS and implementation of its roadmap.
NRERI-MONRE	Implements subcomponent 1C on ECC compliance and pollution monitoring framework. It leads the enhancement of air and water quality monitoring system.

Institution	Project-related Mandate
DPF-MONRE	Implement subcomponent 1E on policy and capacity support on plastics policies and legislation jointly with DOE
DHUP-MPWT	Leads the implementation and houses the PIU of subcomponent 2C and component 3. DHUP will construct waste related facilities and provide support to local government to build cost recovery capacities.
PTI-MPWT	Supports the PIU to perform environmental and social safeguard requirements for subcomponent 2C and component 3.
DPF-MPWT	Supports the PIU to perform fiduciary requirements, financial management, and procurement for subcomponent 2C and component 3.
DOP-MPI	Implements subcomponent 1D on Climate change: low carbon resilient development. It leads the integration of climate change into national investment guidelines and development plan.
MEM	Implements selected activities in subcomponent 1A on environmental protection policies and instruments, specifically: (a) department of mining develops the mining SEA; and (b) department of energy policy and planning implements the power SEA.
PONREs	Implement subcomponent 2A on Support and Capacity Building for Local Gov't on waste and pollution data and information systems and waste service, and subcomponent 2B on GCB and 3R projects + capacity building for NPAP/plastic policies implementation in target districts. PONRES will establish waste banks in schools and markets.
DPWTs	Supports the supervision and construction of waste related facilities under component 3.
VCOMS	Implements activities under subcomponent 2C. Waste management infrastructure will be handed over from DHUP after construction to be managed by VCOMS.
FES-NOUL	Implements subcomponent 1E on policy and capacity support on plastics policies and legislation and jointly with DOE, and subcomponent 2B on GCB and 3R projects + capacity building for plastic policies implementation in target district jointly with DOE.

145. ***EPF Project Coordinating Unit (PCU).*** A PCU will be established at the EPF to support project management and oversee the implementation of Components 1, 2 and 4. The PCU is proposed to include: a chief technical advisor (CTA), FM team, M&E team, E&S safeguard team, a project coordinator and subproject coordinators.

146. ***MPWT Project Committee and PMU.*** The MPWT will establish a committee to oversee the implementation of activities under Component 3. The committee will be chaired by the Vice Minister of MPWT and include Director Generals (DGs) and Deputy Director Generals (DDGs) of MPWT's Department of Planning and Finance (DPF), Department of Housing and Urban Planning (DHUP), Public Works and Transport Institute (PTI), and local Departments of Public Works and Transport (DPWT). The MPWT PMU will consist of technical staff of the DHUP, the DPC and the PTI. The MPWT will continue to discuss the arrangements and terms

of reference of the project committee and will confirm these with the WB team.

147. ***National Project Steering Committee (NPSC).*** The national-level project steering committee would provide high-level strategic guidance and enable cross-ministerial collaboration to support implementation of the EWMP. The EPF Board of Directors would serve as the NPSC. Ministries comprising the EPF Board include: the MONRE Minister; the MONRE vice minister; the MPWT vice minister; the Ministry of Finance (MOF) vice minister; the Ministry of Energy and Mines (MEM) vice minister; the Ministry of Planning and Investment (MPI) vice minister; the Ministry of Agriculture and Forestry (MAF) vice minister; the Ministry of Industry and Commerce (MOIC) vice minister; the Ministry of Education and Sport (MoES) vice minister; the Lao Front vice president; the Lao Women Union vice president; and the Lao National Chamber of Commerce and Industry (LNCCI) vice president. The Minister of the MONRE is the chair of the EPF Board and would serve as the chair of the NPSC. The EPF Board of Directors served as the NPSC for LENS2 and so there is precedence for the proposed arrangement. The EPF will serve as the secretariat for the NPSC.

148. ***Technical Committee.*** This committee will oversee the technical direction of the project. It will be chaired by the Director General of the Department of Planning and Finance of MONRE and attended by representatives of the ministries that comprise the EPF board. The committee will meet bi-annually and report to the NPSC.

149. ***Subproject Delivery Agencies (SDAs).*** The EWMP will be implemented as sub-projects following the LENS2 project implementing arrangements. However, key differences from the LENS2 project are that the number of subprojects is 50 percent less which reduces the overall administrative management effort, and the subprojects are larger in value. One of the main lessons learnt from the LENS2 is that the procedures of the subproject arrangement fostered a drive for results and strengthened capacity for planning, fiduciary management, monitoring and reporting results among GoL department and agencies. Each of the departments listed in Table 6-1 will manage a subproject, with the exception of the DHUP, DPF and PTI whose activities will be consolidated under Component 3.

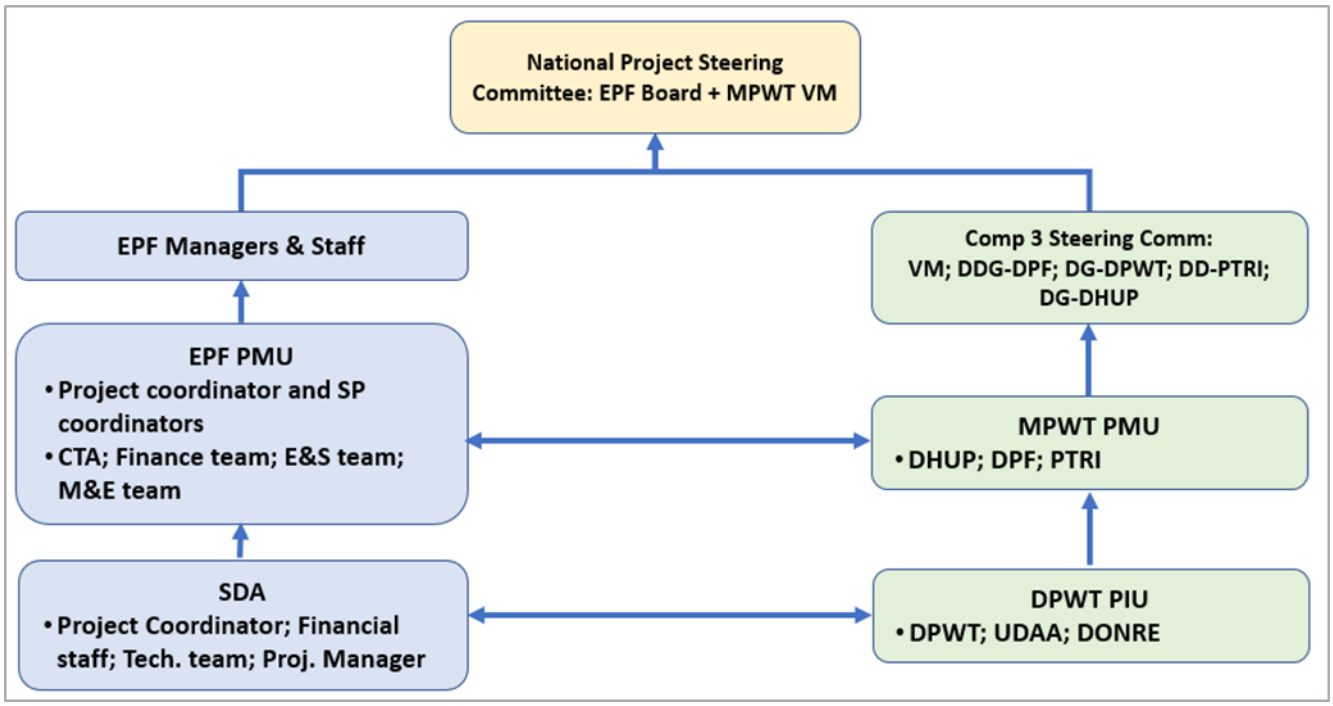

Figure 6-1 Proposed Institutional Arrangements

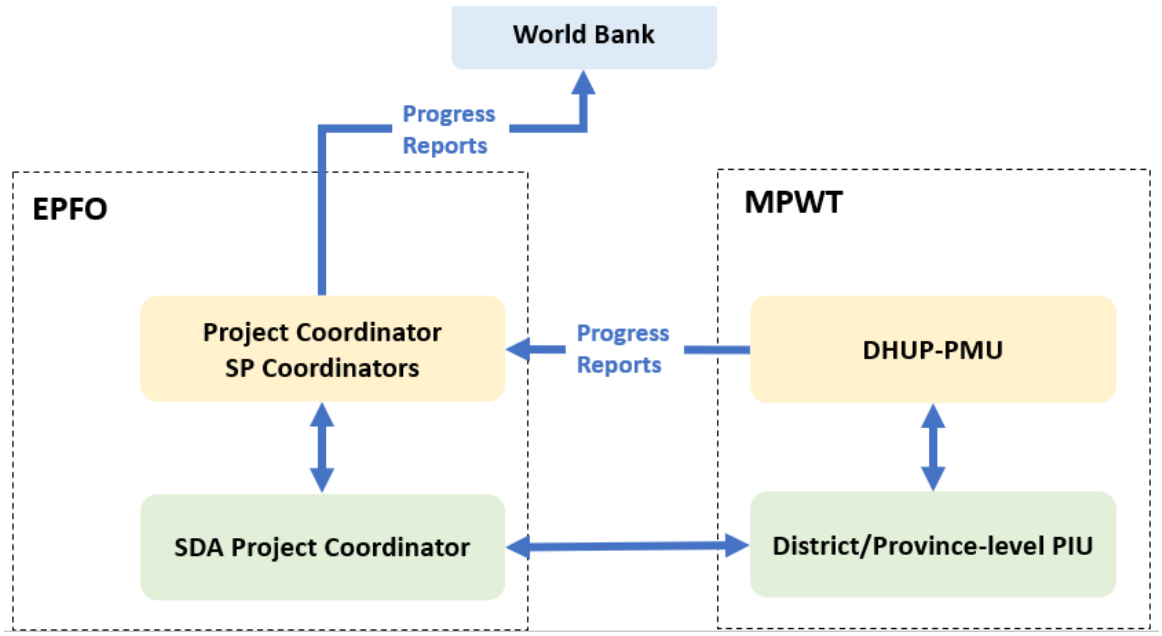

Figure 6-2 Coordination arrangements for the EWMP Project

6.2 SUBPROJECT CYCLE AND ADMINISTRATION

2. ***All EWMP sub-projects will meet the following criteria:*** (a) support a GoL policy and an officially approved plan, and (b) contribute to at least one outcome indicator and at least one intermediary outcome indicator. They would exclude any activities or expenditures in the negative list contained in the Project Operational Manual (POM) and the safeguard documents.

150. ***Under EWMP, the sub-project cycle will be as follows:*** (a) SDA will submit a short concept to be reviewed by the EPF for eligibility, (b) if the concept is deemed eligible, the SDA will be invited to prepare a full proposal using the POM sub-project application template (the EPF Office will provide assistance to the SDAs to ensure quality of the proposal and build SDA's capacity), (c) when the SDA submits its proposal, the EPF will appraise it using a check list from the POM and, if necessary help the SDA improve its proposal, (d) when EPF and the project Technical Committee are satisfied that the sub-project meets all relevant criteria, it will be submitted to the World Bank for review, comments and no objection, (e) sub-projects above US$50,000 to US$100,000 are submitted to the Vice-Chair of the EPF Board for approval, and sub-projects above US$100,000 are approved by the EPF Board Chairperson before a sub-grant agreement can be signed with the EPF Executive Director and begin implementation.

151. ***The Project initial portfolio of sub-projects has 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-projects starting early after Project effectiveness. Sub-project performance will be measured along the continuum input, output, intermediary outcome and outcome. However, the trigger for approving the Annual Work Plan and Budgets (AWPB) will be based on performance related to (a) input (use of fund and governance), (b) and output. Each proposal will suggest these triggers.

152. ***Each of the SDAs have demonstrated capacity to implement their sub-project.*** Transactions above US$10,000 will be carried out through direct payment by EPF Office. Procurement above $10,000 will be carried out by EPF Office. Each SDA will have the option of using a percentage of the sub-project to recruit implementation support TA.

6.3 ESMF IMPLEMENTATION ARRANGEMENTS

153. **The** ESMF implementation arrangements are broken down into MPWT PMU and EPF PCU. The MPWT PMU will be responsible for planning, supervision, monitoring and reporting of ESMF implementation for the C3 while EPF PCUPCU will be responsible planning, supervision, monitoring and reporting of ESMF implementation for the C1,2,4 (See Figure 6-3) and the details of roles and responsibilities are provided in Section 6.3.1 (C1,2 & 4) and 6.3.2 (C3) below.

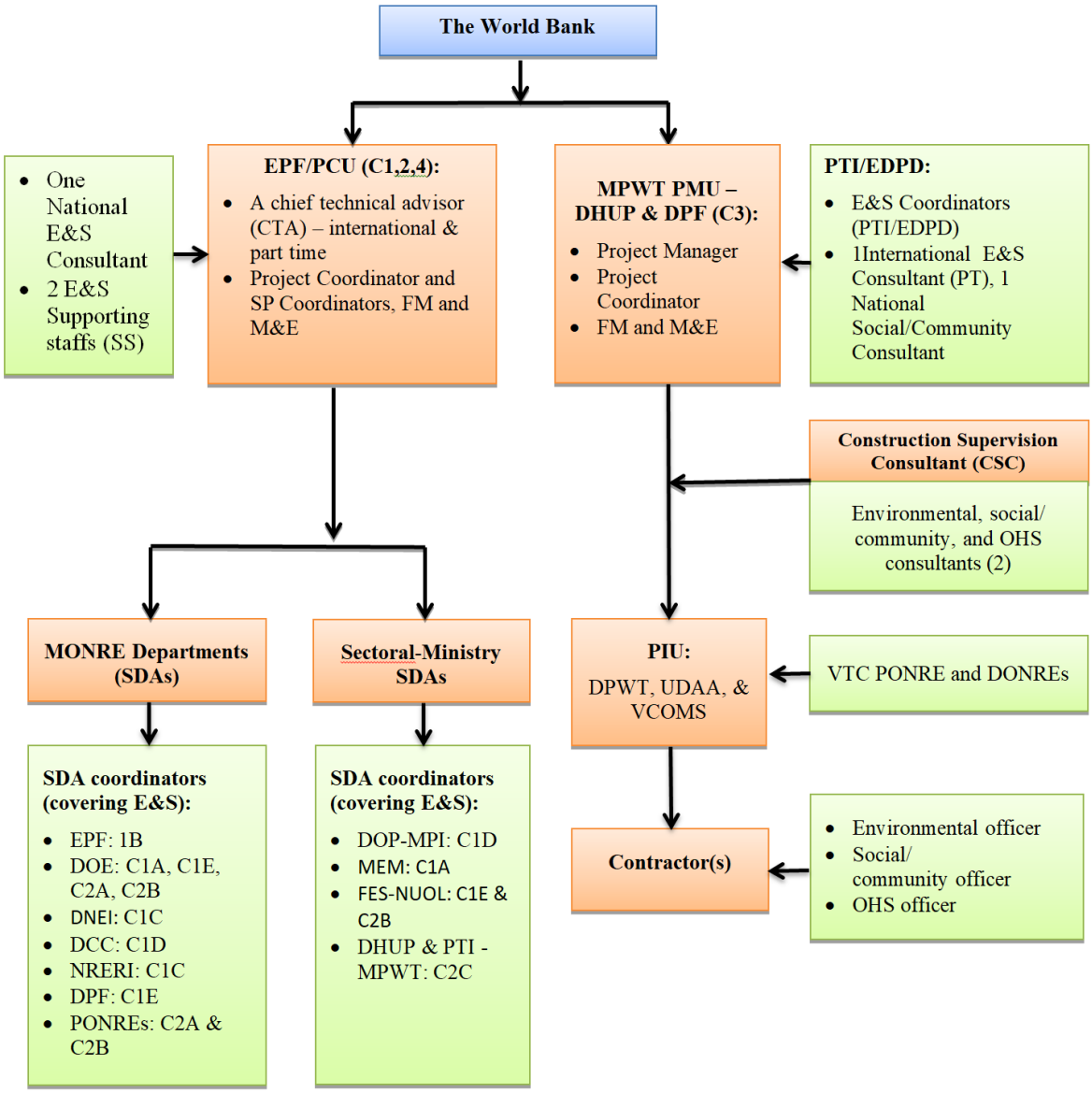

Figure 6-3 ESMF Institutional Arrangements

6.3.1 ESMF Implementation Arrangement for C1,2,4

154. The EPF PCU will work in close coordination with and provide technical support to Subproject Delivery Agencies (SDA)of MONRE, MPI, MEM, NUOL and MPWT who will be actually planning and implementing the subprojects (sub-components) on the ground, including environmental and social instruments. The EPF PCU will be tasked with overall supervision and monitoring of the implementation of environmental and social measures including GRM for C1,2,4.

155. The EPF PCU with the technical support from CTA and E&S consultant team will be responsible for ensuring that E&S requirements are mainstreamed in subprojects activity planning, design and implementation including LEMGP and MGA process. At subproject level, SDAs are responsible for planning and implementation of E&S activities including the

implementation and management of the GRM.

156. ***E&S clearance****:* The EPF PCU the technical support from CTA and E&S consultant team will review and approve all the ESF documents (ESCOP, ESMP with CHSP, LMP, CoC on SEA/SH and VAC, SEP, EGEP) prepared by contractors and owners of MGA.

a) ***Subproject Delivery Agencies (SDAs) of Sectoral Ministries***

157. This ESMF applies to all project components, thus all SAAs of Sectoral Ministries (MONRE, MPI, MEM, NUOL, and MPWT) are responsible for ESF implementation and compliance. All SDAs shall assign an E&S focal person to ensure proper implementation of ESMP including ESCOP, LMP, Code of Conduct, SEP, GRM and EGEP, if necessary. This includes regular monitoring and reporting to the EPF PCU.

158. All SAAs of Sectoral Ministries will submit quarterly monitoring report of ES implementation to the EPF PCU.

b) ***SMEs/3Rs and Matching Grant Receivers***

159. All Grant Receivers shall appoint an E&S coordinator during the MGA implementation.

160. Key responsibilities of each MGA are as follows:

- Preparing the ESCOP or ESMP (including LMP, Code of Conduct, SEP, GRM and EGEP) and submitting it to the EPF PCU for review and approval.
- Ensuring the approved ESCOP and ESMP is implemented effectively throughout the project implementation.
- Coordinating community relations issues through acting as the community relations focal point (proactive community consultation, complaints investigation and grievance resolution).
- Provide training on OHS, SEA/SH, STD/HIV, COVID-19, etc.
- Preparing progress reports as listed below;
- No works will be authorized before the required ESCOP or ESMP has been approved by the EPF PCU, WB review and approval on ESMP will be required for the first year of implementation. WB approval on ESMP for subsequent years will be decided based on the first year implementation experiences. WB approval on ESCOP is not required.

161. Each MGA shall prepare the following reports:

i) **Quarterly Reports:** The Consultants shall prepare a comprehensive quarterly report summarizing all activities including financial and ESS aspects of the Subproject, at the end of each quarter (not later than the 14thday of next quarter), and at other times for the Periodic Report when considered necessary by the EPF PCU because of delays in the subproject implementation or the occurrence of

agreement difficulties. The quarterly report shall also summarize the performance of the subproject staffs in implementing their monitoring supervision responsibilities. In addition, the report will also include progress and issues related to the implementation of E&S measures, as well as works' compliance with WB requirements. The report will include reporting on the GRM.

ii) Each MGA shall ensure the immediate reporting to the EPF PCU of complaints related to SEA/SH and/or child abuse, any pollution incident/accident, any fatality and/or bodily harm affecting subproject staff or project affected people, any public opposition, and the issuance of any notice or fine for breach of environmental, labour, health or safety laws and regulation.

c) Accident Reports

162. Reports of the circumstances of any significant accident occurring during the grant implementation will be immediately informed to the EPF PCU for further report to the WB within 24 hours.

6.3.2 ESMF Implementation Arrangement for C3

163. The EDPD/PTI will work in close coordination with and provide technical support to the Component Management Units of MPWT; and the provincial DPWT who will be actually planning and implementing the project on the ground, including environmental and social instruments. EDPD/PTI will be tasked with overall supervision and monitoring of the implementation of environmental and social measures.

164. MPWT PMU with the technical support from EDPD/PTI will be responsible for ensuring that E&S requirements are mainstreamed in maintenance planning, design and pre-construction works including tendering and contracting process.

165. MPWT PMU will recruit a qualified ESIA firm to carry out and prepare a full ESIA with SS-ESMMP, ARAPs and EGEPs (if applicable) for Km32, Km16 and Naxaythong site. In addition to the preparation of full ESIA report, the selected ESIA firm will also assist PMU to prepare E&S requirements in the BD/CD and conduct training on the approved SS-ESMP, ARAP and EGEP.

166. At subproject level, DPWT-PIU (DPWT, VCOMS and UDAA) is responsible for planning and implementation of E&S activities including the implementation and management of the GRM. The DPWT-PIU will assign E&S focal persons to be responsible for compliance with environment and social standards of the project activities.

167. MPWT PMU will also recruit Construction Supervision Consultant (CSC), which will include environmental, social and OHS specialists, for day-to-day supervision of Contractor performance and implementation support to DPWT-PIU and EDPD/PTI during the construction of C3 including ensuring full compliance with the ESS measures as required by the WB and GOL.

168. More details on ESMF implementation arrangement including the responsibility of the CSC and contractors are provided in the Pre-ESIA.

6.4 CAPACITY ASSESSMENT AND NEEDS

169. A Capacity Assessment was made during the preparation of this ESMF through the Key Informant Interview (KII) and the result of this assessment is summarized in Table 6-2 below. The KII was undertaken during 09 to 16 August 2022 with a total of 22 key representatives (9 women) from potential SDAs of MONRE and MPWT including DOE, DINE, NRERI, PTI, DHUPD, VCOMS, Small B, and Xaythany district hospital. The PONRE of VTE capital postponed its interview but provided written responses to the consultant team.

170. It can be said that at the national level MPWT, MONRE and MPI have experience working with World Bank financed projects, but with a limited experience of implementing environmental and social (E&S) risk management under the Environmental and Social Framework (ESF). Participating local government departments are known to have institutional capacity constraints and current systems for E&S risk management are weak. Building social risk management capacity for land acquisition and stakeholder engagement is included in the project through various ways, including formal as well as informal training, as part of the capacity building program under Component 3 and the TA support for project management under Component 4. Among the key agencies involved in ESMF implementation, EDPD/PTI and EPF are the agencies with knowledge and experience on the new WB ESF implementation. However, they have limited staffs to oversee the implementation of ESF instrument for the project.

Table 6-2: Institutional Capacity Assessment and Needs in Implementing E&S Instruments

Department	Existing Capacity on the WB ESF	Capacity Needs
1) DOE: C1,2,4: (1B, 4A, 4B) Policy and capacity support on EIA/IEE/SEA, plastics policies and legislation Support and Capacity Building for Local Governments on solid waste management, and Toxic and Hazardous Waste,	• A total of 91 staff (41 females)/ 37 staff with environmental and social backgrounds and/or experience. • Leads in the development of environmental policy development, planning, and awareness, EIA, and technical inputs in the development and implementation of environmental laws and international conventions. • Involves in the technical discussion/collaboration with relevant departments within	• Basic understanding of the WB ESSs and the underlying environmental and social standards. • Training on the implementation, monitoring and reporting of the ESF instruments to be implemented under sub-components.

Department	Existing Capacity on the WB ESF	Capacity Needs
GCB and 3R projects	MONRE and MPWT on the "criteria" for waste management and monitoring including the site selection, construction, and operation of waste management facilities in accordance to Environmental laws and national standards. • The existing capacity on the WB ESF is limited: Staff rotation within the organization happened regularly enabling staff to broaden technical skills relevant to EIA, but still limited involvement in the new WB ESS training and implementation.	
2) DINE: C1&2: (1A, 2A, 2C) Strengthening pollution monitoring, environmental risk and climate change management Support and Capacity Building for Local Governments on waste Support to private-public partnerships and enhancing output-based waste service delivery and cost recovery capacity.	• 65 staff (23 females)/26 staff with environmental and social backgrounds and/or experience. Some of them gained received ESS training during the previous project (LENS II). • Leads in environmental inspection of the investment projects and other activities within DINE. • During the LENS II, the DINE developed six (06) manuals for environmental inspection of mineral extraction, agriculture, road, industrial production and hydropower and agreement on environmental inspection. • Capable to provide capacity building to provincial authorities on the environmental inspection, monitoring, operation of monitoring equipment, data management and reporting. • The existing capacity on the WB	• Basic understanding of the WB ESSs and the underlying environmental and social standards. • Training on the implementation, monitoring and reporting of the ESF instruments to be implemented under sub-components.

Department	Existing Capacity on the WB ESF	Capacity Needs
	ESF is limited: few staff involved in the implementation of the ESF during the LENS	
3) NRERI: C1& 2: (1C, 2A, 2C) Strengthening pollution monitoring, environmental risk and climate change management Support to private-public partnerships and enhancing output-based waste service delivery and cost recovery capacity	• 65 staff (23 females)/ about 90% of them have an environmental and social background and/or experience. 60% of those have obtained a master's degree. • Leads in environmental research and provide environmental data to relevant departments including the Lao Statistical Bureau (LBS), Department of Inspection of Natural Resources (DINE) • Although NRERI has capable to perform environmental research activities accordant with the developed SOPs, manuals and national environmental standard, but still limit experience on the new WB ESS implementation (no receipt of the WB new ESF training before).	• Basic understanding of the WB ESSs and the underlying environmental and social standards. • Training on the implementation, monitoring and reporting of the ESF instruments to be implemented under sub-components.
4) DHUP: (3A, 3B) Design, construct of solid and plastic waste management infrastructure Development of O&M for the solid and plastic waste infrastructure	• 44 staff (11 females)/1 female are in the management position. • Ten (10) staffs have environmental and social backgrounds and/or experience. • Limit experience with the ESF	• Basic understanding of the WB ESSs and the underlying environmental and social standards. • Training on the implementation, monitoring and reporting of the ESF instruments to be implemented under sub-components.
5) PTI: Planning, supervision, monitoring and report of safeguard	Total 67 staffs (22 females), 5 Hmong (1 female). PTI has recently been restructured or combined from two previous institutes.	• One E&S focal coordinator (government staffs) • Training on the implementation of the final ESF instruments focusing on

Department	Existing Capacity on the WB ESF	Capacity Needs
activities for C3	Therefore, the organization and responsibility is under reallocation or reformation. The capacity of PTI on the WB ESF implementation is summarized as below: • EDPD under PTI has mandates to manage and supervise E&S safeguards for road and riverbank sectors financed by WB and its co-financers; • EDPD has 8 staffs (3 females): 5 have received training on new ESF • Existing policies: ESOM, WB ESMF and new WB ESF • Currently: managing and supervising E&S safeguards activities for 5 projects financed by the WB, EIB and AIIB (4 road projects and 1 DRM projects) • Currently there are 5 consultants and 13 supporting staffs to assist on the six WB-financed projects.	environmental pollution, labour management procedure, OHS of waste pickers and CHS. • 1 international E&S consultant as a team leader (part time) and one national E&S consultant (full time) to assist in supervision, monitoring and reporting of ESF instruments implementation starting from preparation of BD/CD and continues through the construction phase; • ESIA firm to conduct ESIA study; • Training on the ESIA and ESMP by the ESIA consultant • 1 pickup car and office facilities for consultants and office administration budget
VCOMS Leads in waste management in Vientiane capital with a coverage area of 196 villages and road clean up. In collaboration with private waste operator company, oversee the waste collection and transfer, WTF and Km32 landfill operation and maintenance (10 waste collection contractors under private waste operator company and	68 civil servants (22 females)/27 contract staff (Not inclusion of staffs/labours who work at the field such as: waste collectors and street sweepers). • Implements the sustainable solid waste management strategy and action plan for Vientiane 2021-2030, manuals on general waste, hazardous and infectious waste handling and relate waste management instructions. • No training on the new WB ESS received. However, day-to day occupation health and safety inductions are provided to its	• Basic understanding of the ESMF and the underlying environmental and social standards. • Day-to-day implementation of the ESMP. • Project Monitoring and Evaluation.

Department	Existing Capacity on the WB ESF	Capacity Needs
Chanthabouly district VCOMS).	staff.	
PONRE-VTE Responsible for environmental inspection (general waste, hazardous waste management) and awareness raising in accordance with Environmental law, national environmental standard and relevant instructions and manuals.	• 183 staff (73 females) 7 females are in the management position, 22 E&S staff (10 females) 6 Master, 12 Bachelors. • Never receive training on the new WB ESS.	• Basic understanding of the WB ESSs and the underlying environmental and social standards. • Training on the implementation, monitoring and reporting of the ESF instruments to be implemented under sub-components.
Small B Small B joined the Vientiane Waste Co-Development program on 09 September 2021 for collection, transferring and disposal of solid waste. (Operation of waste transfer station at Ban Nahai and Km32 landfill; manage ten (10) waste collection contractors; coordinate with Vientiane capital-VCOMS capital and Chanthabouly district VCOMS). Service coverage areas of 07 districts (190 villages).	• 260 staffs (30 females). According to the provided organization chart, one hazardous team leader and one landfill manager are assigned. • Developed work policy, rules and Key Performance Indicator (KPI) for waste management. • Do not have experience with the ESF implementation, only Internal OHS induction provided to small B staff on a quarter basis.	• Basic understanding of the WB ESSs and the underlying environmental and social standards. • Training on the implementation, monitoring and reporting of the ESF instruments to be implemented under sub-components. • Training should be provided to other outsource companies under VCMOs as well. •
Xaythany district hospital One district hospital	• A total of 48 staff (2 females in the management position)/2 professors for district hospital. • Performs internal specific	Under support from the WHO, Xaythany district hospital improved its waste management

Department	Existing Capacity on the WB ESF	Capacity Needs
and 11 health centers (souksala) with service coverage of 104 villages (217.000 people).	training on healthcare and treatment practices in accordance with the Ministry of Health and relevant instruction on healthcare, diseases outbreak responses and etc. • Jointly hosted campaign with the district DONRE on waste, wastewater, clean drinking water, malaria prevention, sex education and etc. • Never have training on ESF. • **Current waste management practices:** In March 2022, WHO supported handheld cut tools for sharp waste and high pressure incubator for disinfecting the infectious waste. Presently, the Xaythany district hospital performs treatment of its infectious waste before transferring to the waste collector. • Three types of waste generated by the hospital. Sharp waste (0.5kg/week); infectious waste (10kg/week) and general waste (about 30 kg/week). The sharp waste after cutting and infectious waste are incubated in the high pressure incubator (>100°C for 20-30mn), the general waste is also segregated by the housekeeper.	since march 2022: • Established a standard waste storage facility with concrete floor, bunding, wire barb fence and roof. The standard waste bins were also provided by WHO; • The induction on safe handling of waste is conducted on quarterly. • They need more training if there is a support from the EWMP. • Basic understanding of the ESMF and the underlying environmental and social standards. • Occupational Health and Safety for handling of sharp and infectious waste.

171. On-the job training on the EWMP Relevance ESSs and preparation of the ESF instruments has been provided for focal points of SDAs in the EPFO on 08 August 2022 to determine gaps and capacity needs for the project focal points. A total of 09 staff (2 females) from EPF, DOE, DINE, and NRERI, PTI, HUPD, and the ESF national Environmental and social consultants (list of participants provided SEP). The workshop aimed to assess and build the capacity building on the WB ESF relevance to the project and the process to prepare ESF

instruments for the project. The training outcomes are summarized as follows:

- The improved knowledge and understanding of the EPF and Component coordinators on the WB standards applied for the Project and ESF instruments to be prepared for the project which most of them had no experience on the new WB ESF except one EPF coordinator had experience with implementation of ESF instruments;
- Community consultation plan and FGD and KII questionnaire was discussed, clarified and revised;
- A focal point WhatsApp group was set up to ensure smooth coordination and information sharing during the public consultation and through the ESF preparation stage;

172. Table 6-3 below summarizes the proposed trainings and workshops for the EWMP key personnel and other stakeholders needed to strengthen capacity.

Table 6-3 Proposed E&S Trainings and Workshops

No.	Trainings and Workshops	Target Participants
1	Introduction to World Bank ESF ESSs	Key personals and E&S focal points of EPF PCU, MPWT PMU, PIU, SDAs and financed SMEs and Matching Grants
2	The overview and key points of ESF instruments (ESCP, ESMF, SIA-SMPs, Pre-ESIA and SEP)	Key personals and E&S focal points of EPF PCU, MPWT PMU, PIU, SDAs and financed SMEs and Matching Grants
3	The implementation, monitoring and reporting of ESMP, EGEP and SEP, GRM for C1,2,4	Key personals and E&S focal points of EPF PCU, SDAs and financed SMEs and Matching Grants
4	The implementation, monitoring and reporting of ESMP, ARAP/RAP, EGEP and SEP, GRM for C3	&S focal points of MPWT PMU, PIU, CSC and contractors
5	The implementation, monitoring and reporting of CESMP	E&S focal points of MPWT PMU, PIU, CSC and contractors

6.5 PROJECT ESF PERSONALS AND CONSULTANTS

173. ***For C1,2 &4:*** The EPF-PCU will hire and mobilize one (1) International Chief Technical Advisor (CTA) (part-time), one (1) National Social Consultant (full-time) and one (1) National Environmental Consultant (full-time). These consultants will assist EPF PCU in planning, supervision, monitoring and reporting of ESMF implementation including capacity building to E&S focal points of MONRE SDAs, SDAs of Sectoral Ministries and MGA. The two E&S full time

consultant will also assist EPF PCU in subversion, monitoring and reporting of MGA implementation. The hiring of the E&S consultants will be completed within 3 months after Project effectiveness.

174. ***For C3:*** The MPWT-PMU will hire one International E&S Consultant as E&S Team Leader (part-time) and one national E&S consultant (full-time) to assist MPWT-PMU and PTI in planning, supervision, monitoring and reporting of ESMF implementation including capacity building to E&S focal point (PTI), VCOMS and contractors.

175. ***For SDAs of Sectoral Ministries (MONRE, MPI, MEM, NUOL, and MPWT)***: Subproject coordinators will also be responsible for E&S coordination, monitoring and report of E&S activities of SDAs.

7 CONSULTATION AND STAKEHOLDER ENGAGEMENT

176. The objectives of the Stakeholder Engagement Plan are to:

- Offer opportunities for stakeholders to raise their concerns and submit their opinions, to incorporate this into the project when possible, and to provide this feedback to stakeholders.
- Create avenues for complaints handling and grievance management.
- Create opportunities for information sharing and disclosure.
- Foster strong project community relationships.
- Ensure meaningful consultation and the consideration of stakeholder's expectations and concerns into the implementation arrangements for the programme, including feedback on environmental and social mitigation measures and their implementation.

177. In order to achieve this, the project will:

- Provide meaningful information in a format and language that is readily understandable.
- Provide information in advance of consultation activities when possible.
- Disseminate information in a manner and location easy for stakeholders to access it.
- Establish a two-way dialogue that gives the Project and stakeholders the opportunity to exchange views and information, and have issues heard and addressed.
- Ensure inclusiveness in representation of views, including those of women, the elderly people living with a disability, ethnic peoples, and other vulnerable people, as necessary.
- Ensure any obstacles to participation that are identified are removed so that views of different stakeholders can be obtained.
- Ensure there are clear mechanisms for responding to people's concerns, suggestions, and/or grievances.
- Incorporate feedback of stakeholders into project design, and report back to stakeholders.
- Monitor stakeholder engagement activities and include project stakeholders in monitoring to the extent possible.
- Incorporate stakeholder engagement as part of the Project management responsibilities of the EPFO, MPWT and MONRE, and ensure staff, especially the

Environment and Social focal persons are equipped with specific responsibilities and budget.

178. For C1,2 & 4, EPF PCU will ensure that MONRE SDAs and MPI SDA will implement activities with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities and components;

179. For C3, the project has engaged stakeholders at various stages: during the initial design of landfill, and will continue during detailed design, prior to civil works commencing and during, and post-civil works. Engagement will vary in each stage of the project life. More details on stakeholder engagement please see the Stakeholder Engagement Plan as a stand-alone document. The SEP will be dynamic and flexible to changes throughout the project life. The SEP should be read together with other project documents (i.e., ESMF/ESIA-ESMP, RPF/RAP, EGEF/EGEP and ESCP).

180. There will be several ways to engage with stakeholders and the Project shall choose the most appropriate method depending on the type of stakeholder and the goal of engagement. The project is expected to involve diverse groups of stakeholders from national to village levels, including local communities, government line agencies, mass organizations and the private sector.

7.1 CONSULTATIONS DURING PROJECT PREPARATION

181. Key Informant Interviews (KII) and Focused Group Discussion with key concerned departments and local communities have been carried during 9 to 16 August 2022 with key objectives. The key objectives of the consultation are to:

- Collect relevant information from the key project implementing entities to assess institutional arrangements and capacity;
- Present the main objective of the EWMP and its brief project description;
- Seek their opinions on the project development and implementation;
- Collect their opinions on the potential positive and negative impacts of the EWMP as well as their suggestions and recommendations.

182. Key Informant Interview (KII) was undertaken during 09 to 16 August 2022 with a total of 22 key representatives (9 women) from DOE, DINE, NRERI, PTI, DHUPD, VCOMS, Small B, and Xaythany district hospital. The summary of KII is summarized as follows:

- Positive impacts: Improve environmental and waste management, more employment opportunities and income, promote involvement of private sector in the waste management
- Concerns on sustainability of the project, labour influx leading to social/community conflicts with communities, unfair employment rate, labour discrimination, odour, fly, increased transportation to new landfill facilities, and road safety, resettlement, social conflicts, child, OHS of waste pickers and collectors

- **Recommendations and suggestions: (i) s**et clear roles and responsibility among the relevant agencies (for example: design, construction, operation and monitoring and reporting etc); (ii) the operation agency needs to pay attention on O&M practices to ensure sustainable management of the waste management facilities; (iii) development of operation manual and capacity building; and (iv) regular monitoring and evaluation and ensure that the E&S management plan and the O&M are strictly followed.

183. Focused Group Discussion (FGD) was carried out on 11 August 2022 by the EPF consultants together with technical staffs from EPFO, NRERI and PTI in Ban Naphasouk village, the Km32 landfill and Nahai village (Km16 Transfer Station) with a total of 82 participants including 52 females. Most of them are Lao Tai with only 3 participants (waste pickers) are Khmu. The summary of FGD is summarized as follows:

- About 195HHs with 1800 people including 482 females (all are Lao Tai) and 90% of them depends on waste picking and selling;
- There are 264 registered waste pickers (124 females and 140 males) with ages ranging from 14 to 63 years old. Most of them are Lao Tai with only 3 are Khmu.
- There are OHS Risks including accidents and injuries from excavator excavated the waste without signaling or warning. Surprisingly, they said they did not have health issues (only normal cold and fever) and they did not smell any things from the landfill which was different from information given by the village authorities;
- Village authorities of Naphasouk village: support the project development as there is a need to improve the waste management in the VTE capital but request the project to help on the villagers (waste pickers) on their livelihood.
- Both villagers from Naphasouk village (who are considered themselves as seasonal waste pickers) and registered waste pickers do not support to move the waste to other place. If no waste to pick some of them said they will find work at available factories but it will be hard because only husband can go to work at factory and wife has to care kids and family. Salary at factory is low about LAK1.5m which is not enough to send their kids to schools, or they may not be able to send their kids to school;
- Villagers from Naphasouk village do not recommend building toilet and shelter at the landfill because no one taking care and the shelter can create social issues such as: place drug and alcohol consumption can lead to violence and sexual harassment and abused. The toilet had been built by Pheun Mit Charity (A charity helping homeless and poor people). However, registered waste pickers have requested for toilets and shelter at the landfill;
- Both Villagers from Naphasouk village and registered waste pickers have requested the followings (i) an increase in unit rate paid for their collected recycle wastes as now it is low (LAK300/Kg); (ii) more excavators to move/push the waste so they can easily short the waste, big space for sorting the waste; (iii) request the excavator driver to provide

signal or warning (horn); (iv) a safe space to park motorbike and motorbike with extended trailer and happy to pay fees (2000-5000LAK for security man to watch/protect their motorbike; (v) request for PPE; (vi) rehabilitation of access road: pave the road (or at least gravel) for both access road to Km32 and to Km16.

184. Feedback, recommendations, and concerns raised during the KII and FGD have used to refine the identification of potential risks, and impacts (both positive and adverse), validate key assumptions and improve risk mitigation measures proposed in this ESMF, Pre-ESIA and SIA. These processes were also used to ensure that the ESMF is known to stakeholders. More details of the KII and FGD results with list of Participants are provided in the project's Stakeholder Engagement Plan (SEP).

185. This ESMF, Pre-ESIA will be disclosed on 14 October 2022 (including Lao translations of the Executive Summaries) and stakeholder consultations at national and capital levels will be conducted on 31 October 2022 (morning session for national level participants and afternoon session for capital, district and village level participants).

186. The SEP includes full details of the consultations carried out during project preparation, including concerns/comments and should be read together with this ESMF.

7.2 CONSULTATIONS DURING PROJECT IMPLEMENTATION

187. Stakeholders will be kept informed as the project develops, including reporting on project environmental and social performance and implementation of the stakeholder engagement plan and grievance mechanism. The EWMP shall report quarterly to the public before and during construction when the public may experience more impacts and annually during implementation. Consultations on specific activities shall be undertaken. In addition to written reports submitted to relevant departments/offices, reporting shall be undertaken in the form of meetings/workshops at provincial, district and village levels, involving presentation and discussion. More details are provided in SEP.

7.3 REPORTING BACK TO STAKEHOLDERS

188. The Stakeholder Engagement Plan will be periodically revised and updated as necessary in the course of the EWMP implementations in order to ensure that the information presented herein is consistent and is the most recent, and that the identified methods of engagement remain appropriate and effective in relation to the project context and specific phases of the development. Any major changes to the project related activities and to its schedule will be duly reflected in the SEP.

8 GRIEVANCE REDRESS MECHANISM

189. The overall project Grievance Redress Mechanism (GRM) is also applicable to Gender Based Violence (GBV), Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) and Violence Against Children (VAC) related grievances, although complainants can also choose to submit their complaints directly to GBV Service Providers. The key principles of the grievance mechanism are to ensure that:

- The basic rights and interests of affected people, including ethnic groups, are protected.
- The concerns of affected people, including ethnic groups, arising from the project implementation process are adequately addressed.
- Entitlements or livelihood support for affected people, including ethnic groups, if required, are provided on time and accordance with the government policy and World Bank's ESF, and
- Affected people, including ethnic groups, are aware of their rights to access grievance procedures free of charge for the above purposes.

190. The GRM seeks to resolve concerns promptly, using an understandable process that is culturally appropriate and readily accessible at no cost. Grievances can be submitted if someone believes the Project is having a detrimental impact on the community, the environment, or on their quality of life. Stakeholders may also submit comments and suggestions.

191. The EPF PCU will be responsible for receiving and resolving in a fair, objective, and constructive manner, all concerns or complaints raised in related to the C1,2 &4 while MPWT PMU will be responsible for receiving and resolving in a fair, objective, and constructive manner, all concerns or complaints raised in related to C3. Their broad responsibilities of the grievance management include:

- Developing and publicizing the grievance management procedures.
- Receiving, reviewing, investigating, and keeping track of grievances.
- Adjudicating grievances.
- Monitoring and evaluating fulfillment of agreements achieved through the grievance mechanism.

192. For the interest of all parties concerned, the grievance mechanism is designed with the objective of solving disputes as soon as possible. A recommended timeframe for the resolution of a complaint should be sought within two weeks.

193. In the EWMP it is envisaged there could be five types of grievances:

- Grievances relating to land acquisition, that follow the Resettlement Action Plan's GRM (detailed in the project's RPF/Draft RAPs).
- Grievances related to ethnic groups who may be excluded from project activities, attachment to land, different cultural practices, low literacy levels, lack of Lao language
- Grievances related to Gender-Based Violence (GBV), Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH); and Violence Against Children (VAC
- Grievances related to project implementation (including relating to environmental and social impacts, health, worker's camp, pollution and waste, etc.). Some of these may be specific to ethnic groups.
- Job-related disputes (detailed in the project's LMP).

194. More details on GRM provided in SEP.

9 MONITORING AND REPORTING

195. Monitoring is the method of ensuring mitigation measures are being implemented in accordance with ESMF and ESCP, and are effective. Semi-annual monitoring reports will need to be undertaken in order to:

- Improve environmental and social management practices;
- Ensure the efficiency and quality of the environmental and social assessment processes;
- Establish evidence- and results-based environmental and social impact assessment; and
- Provide an opportunity to report the results of the implementation of mitigation measures in future ESMPs and other project related documents.

196. To ensure effective implementation of the ESMF requirements, EPF PCU (Section 9.1) and the MPWT PMU (Section 9.2) will put in place the following monitoring and reporting system which includes both internal monitoring and reporting and external monitoring and reporting.

9.1 MONITORING AND REPORTING FOR C1,2,4

197. At project level The MPWT PMU with technical support from CTA and E&S consultant will conduct quarterly ESMF compliance monitoring of C1,2 & 4 on the implementation of ESCP, ESCOP, ESMPs, EGEP and SEP to track compliance and adopt measures as necessary throughout implementation of the Component 1,2,4. EPF PCU will prepare and submit six-month monitoring reports to the WB for review and comment. Compliance of ESMP and other applicable documents by the SDAs and MGAs will be monitored. Please see Table 9-1 for the proposed monitoring measures.

198. At sub-component level, the SDAs and owner of MGA will be responsible for monitoring the implementation of mitigation measures as approved in the ESMP, ESCOP and SEP. Quarterly monitoring reports from the SDAs and Owner of MGA will include:

- List of consultations held, including locations and dates, name of participants and occupations.
- Main points arising from consultations including any agreements reached.
- Performance on GRM implementation including record of grievance applications and status of grievance addressed and pending.
- Monitoring data on environmental and social measures detailed in ESMPs and/or other applicable reports.

- Assessment of compliance with E&S measures in accordance with ESCOP and ESMP including CoC, LMP, CHSP and SEP
- Number of trainings of community groups and workers in environmental and social issues (if any).

199. The EPF PCU will prepare a consolidated six-month monitoring reports for C1,2,4 and submit to the WB which in addition to the above data will include:

- Number of national, regional, and/or provincial staff and counterparts trained on ESF compliance.
- Number of ESMPs/other plans prepared and number cleared by WB.
- Number of technical recommendations provided during supervision and monitoring that has been implemented.

200. These reports will be filed to permit easy retrieval and indicators will be incorporated into the Project M&E system.

201. Monitoring will also cover grievance redress, implementation of EGEF/EGEP (if necessary), and implementation of the SEP. Monitoring of environmental and other social impacts should focus on ensuring that all environmental and social mitigation measures are implemented as per the ESCOP and ESMP (including the LMP, CHSP and COC on SEA/SH and VAC).

202. Data should be gender-disaggregated as much as possible. How and when monitoring indicators will be measured should be defined in the ESCOP and ESMP and other relevant plans.

203. Monitoring and evaluation of the social impacts should at least measure the following:

- Impacts and benefit sharing with Ethnic Groups if applicable as per the EGEF/EGEP;
- Number of women working on the subproject;
- Number of trainings provided to women and vulnerable groups, and the impacts of these trainings (i.e. whether knowledge on a topic was enhanced, on HIV/AIDS or Covid-19 for example);
- Number of trainings conducted with translation into relevant ethnic languages.
- Efficacy of the grievance redress mechanism (for the community and for workers);
- Incidence of GBV, SEAH/SH and VAC and whether community members feel grievance redress methods are appropriate;
- Age of workers and that all workers have contracts in place with adequate pay that is at least the minimum wage;
- Training provided to workers, use of PPE and other LMP related aspects

- Other monitoring indicators as may be described in the ESCOP and ESMP or other related project documents.

204. **Accident Reports:** Reports of the circumstances of any significant accident occurring during the implementation of C1,2 &4 will be promptly informed to the EPF PCU within 24 hours. Specific reports related to the incident will be prepared and submitted as required by the WB. EPF PCU will also conduct root cause analysis, make recommendations to avoid future incidence, as well as monitor and audit implementation of agreed recommendations.

Table 9-1 Proposed Monitoring Measures for C1,2,4

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
Completion of subproject activities in accordance with ESMF, SMP and SEP requirements, including the preparation of ESMPs and EGEPs, updating ESCOP and SEP	Vientiane	Review of sub-component documentation	Prior to approval of subproject activities	EPF PCU
Implementation of all mitigation measures specified in the ESCOP, ESMP with EGEP	All subproject sites	This will need to be defined in the ESMP but is expected to be conducted by conducting site visits to check SDAs and Grant Receivers' facilities, environmental management practices, reviewing worker's contracts arrangements, conducting focus groups with women workers, conducting focus groups in the	This will need to be defined in the ESMPs but some measures are expected to be conducted prior to the start of works (such as UXO assessment for C1C establishment of air and water monitoring stations), while others will be throughout the construction period	EPF PCU,SDAs and owner of MGA

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
		community to inquire about contractor-community relations, etc.		
Implementation of the SEP	All subproject sites	As defined in the SEP	As defined in the SEP	EPF PCU,SDAs and owner of MGA

9.2 MONITORING AND REPORTING FOR C3

205. The MPWT PMU with technical support from EDPD/PTI will conduct quarterly internal monitoring while and VCOMS with technical support from CSC will conduct daily internal monitoring on the implementation of C-ESMPs, EGEP and SEP to track compliance and adopt measures as necessary throughout implementation of the Component 3. MPWT PMU will prepare and submit six-month monitoring reports to the WB for review and comment. VCOMS with technical support from CSC will prepare and submit quarterly reports to MPWT PMU. Compliance of ESMP, EGEP and other applicable documents by the civil works contractor and/or responsible agencies will be monitored. Please see Table 9-2 for the proposed monitoring measures.

206. At subproject level, VCOMS staff, together with PONRE and local communities including ethnic groups, if necessary, will be responsible for monitoring the implementation of mitigation measures as approved in the ESMP and C-ESMP Quarterly monitoring reports from VCOMS will include:

- List of consultations held, including locations and dates, name of participants and occupations.
- Main points arising from consultations including any agreements reached.
- Performance on GRM implementation including record of grievance applications and status of grievance addressed and pending.
- Monitoring data on environmental and social measures detailed in ESMPs and/or other applicable reports.
- Number of construction supervision reports that include assessment of contractor's compliance with E&S measures in accordance with and CoC, LMP, and OHS

- Number of trainings of community groups and workers in environmental and social issues (if any).

207. EDPD/PTI in coordination with DPWT/PIU will prepare a consolidated six-month monitoring reports for MPWT PMU which in addition to the above data will include:

- Number of national, regional, and/or provincial staff and counterparts trained on ESF compliance.
- Number of ESMPs/other plans prepared and number cleared by MPWT PMU and WB.
- Number of technical recommendations provided during supervision and monitoring that has been implemented.

208. These reports will be filed to permit easy retrieval and indicators will be incorporated into the Project M&E system.

209. Monitoring will also cover grievance redress, implementation of land acquisition activities in accordance with the RPF/RAP and EGEF/EGEP (if necessary), and implementation of the SEP consultation and disclosure activities. Monitoring of environmental and other social impacts should focus on ensuring that all environmental and social mitigation measures are implemented as per the ESMP (including the LMP).

210. Data should be gender-disaggregated as much as possible. How and when monitoring indicators will be measured should be defined in the ESMP and other relevant plans. Table 9-2 presents proposed ESMF monitoring measures while the details E&S monitoring measures are provided in the Pre-ESIA.

211. **Accident Reports:** Reports of the circumstances of any significant accident occurring during the implementation of C3 will be promptly informed to the MPWT PMU within 24 hours. Specific reports related to the incident will be prepared and submitted as required by the WB. MPWT PMU will also conduct root cause analysis, make recommendations to avoid future incidence, as well as monitor and audit implementation of agreed recommendations.

Table 9-2: Proposed Monitoring Measures for C3

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
Completion of detailed design in accordance with Pre-ESIA, ESMF (including LMP), RPF, EGEF and SEP	Vientiane	Review of detailed design documentation	Prior to approval of detailed design	MPWT PMU; EDPD/PTI and VCOMS

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
requirements, including the preparation of required site-specific ESMPs, updating of the SEP, and RAPs and EGEPs as needed				
Implementation of all mitigation measures specified in the ESMP (based on guidance of those specific in the ESMF and Pre-ESIA)	All three sites	This will need to be defined in the ESMP (in line with Pre-ESIA) but is expected to be conducted by conducting site visits to check contractor's facilities, environmental management practices, reviewing worker's contracts arrangements, conducting focus groups with women workers, conducting focus groups in the community to inquire about contractor-community relations, etc.	This will need to be defined in the ESMPs (in line with Pre-ESIA) but some measures are expected to be conducted prior to the start of works (such as UXO assessment, establishment of GRM), while others will be throughout the construction period	EDPD/PTI, and VCOMS and CSC
Implementation of the SEP	All subproject sites	As defined in the SEP	As defined in the SEP	EDPD/PTI, and VCOMS and CSC

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
Implementation of all mitigation measures specified in other project documents that may be required, such as RAPs and EGEPs	All subproject sites	As defined in RAPs or EGEPs	As defined in RAPs or EGEPs	EDPD/PTI, and VCOMS and CSC

9.3 External Monitoring

212. An external monitoring of the implementation performance of both environmental and social measures will be conducted by Consultant/s to be hired by the project in close coordination with MPWT PMU and EPF PCU. Efforts will be made to invite representatives from local communities and mass organizations to participate in the process. The annual audit will assess subproject compliance with ESMF, specifically whether (i) the ESMF process, including SMP (LMP, CHSP, RPF and EGPF if relevant) and SEP, is being correctly adhered to (ii) relevant mitigation measures have been identified and implemented effectively and (iii) the extent to which all stakeholder groups are involved in subproject implementation. The technical audit will also indicate whether any amendments are required in the ESMF approach to improve its effectiveness and ensure that the project investment ESMPs are developed/cleared and effectively implemented. The external monitoring report will be presented to the WB. The cost for External Monitoring for C1,2 & 4 will be covered under the Project Management budget of EPF PCU and the cost for External Monitoring for C3 will be under MPWT PMU budget.

10 INDICATIVE BUDGET

213. ESMF implementation cost will include the cost for implementation of this ESMF, SMPs, ESCP and SEP, including staff costs, travel, consultation workshops, translation and trainings. The total indicative cost reviewed is estimated at **USD1,202,500** plus the costs of specific mitigation measures in the ESMPs, ARAPs and EGEPs (if applicable). The cost for ESMF implementation for C1,2 & 4 is estimated at USD**606,000** while for C3 is estimated at **USD596,500** including the cost for full ESIA study ((See Table 10-1) Funds will be from the project management of Component 4 (C4) for C1,2,4 while that for C3 is part of C3 budget. This budget is indicative only and should be further refined during the preparation of a full ESIA for Component 3 and site-specific ESMPs. The cost for resettlement and compensation will be the responsibility of the Government of Laos (GOL) if necessary. Also the cost of the implementation of E & S measures by the contractors will be under contractor's contracts. The cost for External Monitoring for C1,2 & 4 will be covered under the Project Management budget of EPFO PMU and the cost for External Monitoring for C3 will be under MPWT PMU budget. The estimated budget for ARAP/RAP including livelihood restoration of waste pickers will be confirmed during full ESIA stage will be responsible by the MPWT if applicable. See Annex 8 Detailed of the Estimated ESMF Implementation Budget.

Table 10-1 Estimated Budget for the ESMF Implementation

No.	Description	Notes	Total (USD)
I	**ESMF Implementation for C1,2, & 4**		**606,000**
1.1	Consultants and Supporting Staffs		453,000
1.2	Implementation, Internal Monitoring and Evaluation of ESMF (ESMP, EGEP and SEP including GRM)		153,000
1.3	Procurement of logistic supports and office facilities	included in PMU operational cost	-
II	**ESMF Implementation for C3**		**596,500**
2.1	Consultants and Supporting Staffs		256,500
2.2	Implementation, Internal Monitoring and Evaluation of ESMF (ESMP, EGEP and SEP including GRM)		40,000
2.3	Preparation of Full ESIA and ESMP		300,000
2.4	Procurement of logistic supports and office facilities	included in PMU operational cost	-
	Total Estimated ESMF Implementation Budget		**1,202,500**

11 LIST OF ESMF ANNEXES AND ATTACHMENTS

214. The following lists of ESMF Annexes and SIA-SMP Attachments are provided in separated **documents.**

ESMF Annexes provided in Volume II:

- Annex 1 Project Description
- Annex 2 Detailed National Legal Frameworks
- Annex 3A Site Selection Criteria separately for Naxaythong and new Construction Materials Sites
- Annex 3B Ineligible/Negative Criteria List for C1,2 & 4
- Annex 4 Guideline for ES Impacts Screening and Scoping for C1,2 & 4
- Annex 5A Guideline for Preparation of Site-Specific ESIA and ESMP for C3
- Annex 5B Guideline for Preparation of Site-Specific ESMP for C1, 2
- Annex 6 Simple Environmental and Social Code of Practices for C1, 2 covering Code of Conduct on SEA/SH and VAC
- Annex 7: Detailed of Estimated Budget
- Annex 8: Draft TOR for International and National Consultants – an apply/modify to all EPF PCU and MPWT PMU

Attachments provided in a standalone SIA-SMP:

- Attachment 1A: Labour Management Procedures (LMP) with Worker Grievance Procedure for C3
- Attachment 1B: Labour Management Procedures (LMP) with Worker Grievance Procedure for C1,2 & 4
- Attachment 2: Community Health and Safety Plan (CHSP) for all Components
- Attachment 3A: Sample Code of Conduct on SEA/SH and VAC for C3
- Attachment 3B: Sample Code of Conduct on SEA/SH and VAC for C1,2,4
- Attachment 4: Resettlement Policy Framework (RPF) (including livelihoods restoration for waste pickers)
- Attachment 5: Ethnic Group Engagement Framework (EGEF)